Integrating Bidirectional Electric Vehicles into the Energy Storage Solutions Program

Submitted by the Energy Storage Solutions Program Administrators

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1 Executive Summary

This report presents the findings and recommendations of the Bidirectional Electric Vehicle (EV) Working Group on integrating bidirectional EVs into Connecticut's Energy Storage Solutions (ESS) Program, filed by the ESS Program Administrators (PAs) in compliance with Order 20 of Public Utility Regulatory Authority's (PURA) Year 5 ESS Program Review Final Decision in Docket No. 25-08-05. The central recommendation is a phased integration: enroll commercial bidirectional charging equipment that meets specified criteria in ESS, beginning with the summer 2027 program season, while establishing a clear, milestone-driven pathway to participation for additional customer classes rather than committing to a fixed date. This approach captures near-term grid value from the most mature segment of the market while protecting ratepayers as technical, commercial, and regulatory questions around residential vehicle-to-grid (V2G) are resolved. This approach also reduces the risk of overcommitting ratepayer-funded incentives before sufficient performance, cost, interoperability, and participation data are available.

PURA ordered the establishment of the Working Group (WG) to evaluate whether and how bidirectional EVs — which can discharge stored energy back to the grid — should participate in ESS, a ratepayer-funded program working toward a deployment goal of 580 MW of energy storage by 2030. The ESS Program Administrators convened and jointly led the Working Group, which brought together a broad set of stakeholders — including the Office of Consumer Counsel, Department of Energy & Environmental Protection (DEEP), vehicle and charging technology providers, electric school bus fleet operators, and industry groups such as the Vehicle Grid Integration Council (VGIC) — with Customized Energy Solutions (CES) serving as facilitator. Across six meetings, held between March and June 2026, the Working Group examined vehicle classification, eligibility and enrollment, cross-program participation, technical and metering standards, and incentive design — addressing all of the elements of PURA's Order 20 — through facilitated dialogue that surfaced areas of consensus and identified open issues. While this report ultimately reflects the recommendations of the Program Administrators, it describes discussions and positions taken by Working Group participants and highlights recommendations that did not achieve consensus among Working Group participants.

For the initial rollout, the Program Administrators recommend that PURA approve immediate enrollment of bidirectional charging equipment meeting specific criteria at commercial accounts, effective with the summer 2027 season. The Program Administrators recommend that eligible equipment must be installed behind-the-meter on a commercial rate, provide a minimum discharge capacity of 20 kW per port, and not be simultaneously enrolled in the light-duty Managed Charging program at this time. Qualifying equipment could earn the currently approved ESS Small/Medium Commercial & Industrial (C&I) performance incentive — $325/kW in years one through five and $175/kW in years six through ten — with no separate enrollment incentive. The Program Administrators believe that this initial rollout will target V2G applications that are most likely to be able to successfully implement V2G, enroll in ESS, and ultimately deliver benefits to the grid and ratepayers. It will also limit the initial volume of bidirectional EV applicants, allowing the Program Administrators to work through the intricacies of integrating bidirectional EVs into ESS and to actively support customers as they enroll and participate in ESS.

The Program Administrators do not recommend opening ESS to low-power commercial and residential bidirectional EVs at the same time. Instead, this report sets out an expected pathway to opening ESS to other bidirectional EVs that depends on resolving several open items, including successful completion of

the Bidirectional Energy Innovative Energy Solutions (IES) pilot, further learnings from the Massachusetts Clean Energy Center (MassCEC) Vehicle to Everything (V2X) demonstration, a workable solution for dual participation with Managed Charging, finalized interconnection guidelines, and clarity on metering and distributed-generation policy interactions. The Program Administrators intend to signal to the market that, should PURA find that integrating a fuller set of vehicle and customer classes is a priority, additional vehicles and customers will become eligible in the near term — potentially as soon as summer 2028 subject to the successful resolution of the identified technical, regulatory, and market-readiness milestones. However, the Program Administrators do not recommend committing to a specific implementation date until those milestones have been satisfied.

To support this approach, the report recommends a set of program terms tailored to bidirectional EVs. Enrollment should attach to the charging equipment (the EVSE) rather than the vehicle, and compensation should follow the Program's existing performance basis — energy discharged during Active Events, measured at the system level. The report recommends maintaining an ESS-specific Qualified Product List[1] with Distributed Energy Resource Management Systems (DERMS) integration as a condition of listing, and aligning technical requirements with established standards for certification, safety, and communication, including UL 1741[2] and ISO 15118-20[3]. Consistent with Working Group discussion, the report frames eligibility around residential versus non-residential use rather than the light-duty (LD) versus medium- and heavy-duty (MHD) distinction initially considered.

In summary, the Program Administrators recommend a phased pathway for integrating bidirectional EVs into the Energy Storage Solutions Program, beginning with eligible commercial applications and expanding participation as key technical, operational, and regulatory milestones are achieved. This approach seeks to capture the largest near-term opportunity for grid benefits while supporting efficient program administration and protecting Connecticut ratepayers.

2 Introduction and Context

2.1 Regulatory Context

Connecticut's Energy Storage Solutions Program (ESS Program) is a ratepayer-funded incentive program established by PURA in its July 2021 Final Decision in Docket No. 17-12-03RE03 pursuant to Public Act 21-53. The Program is administered jointly by the Connecticut Green Bank, Eversource, and United Illuminating, and is designed to support the deployment of electric storage resources connected to the distribution system. It operates on three-year cycles with interim deployment targets, working toward a total goal of 580 MW by 2030 in support of the statewide statutory targets of 300 MW by 2024, 650 MW

[1] The current ESS QPL is available here: https://energystoragect.com/submitted_ess_system_status_list/

[2] UL 1741 is the Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources; it is the primary standard referenced by utilities for interconnecting inverter-based distributed resources.

[3] ISO 15118-20 is titled Road Vehicles – Vehicle to Grid Communications Interface; it sets standards primarily for communications between EVs and electric vehicle supply equipment (EVSE). The -20 version incorporates updates specific to bidirectional energy flows.

by 2027, and 1,000 MW by 2030. PURA conducts an annual review of the Program each year, with a full program review at the end of each three-year cycle.

In the Year 4 ESS Program Review (Docket No. 24-08-05), several stakeholders recommended that the ESS Program be expanded to allow bidirectional-capable EVs to participate in the ESS Program. In the Year 5 Program Review, PURA, in its June 9, 2025 Notice sought stakeholder feedback on the potential inclusion of EVs into the ESS Program. In its Final Decision,[4] the Authority determined that bidirectional EV participation would offer "significant benefits," citing the potential to expand peak shaving, increase system benefits to ratepayers, and reduce the total cost of EV ownership. At the same time, PURA identified several issues that would need to be resolved before EVs could be effectively integrated into the Program, including how bidirectional EVs should be treated under the interconnection process, whether such systems should be permitted to participate in Connecticut's EV managed charging program, and what enrollment and data requirements would be necessary to ensure proper integration. The Authority also noted that bidirectional EV technology remained nascent at the time of the decision, with only a limited number of EV models capable of providing bidirectional dispatch.

Based on these findings, the Authority's Final Decision included Order 20, which directed the PAs to establish and lead a Bidirectional EV Working Group that would discuss and present findings related to the integration of bidirectional EVs into the ESS Program. The full language of Order 20 is presented here:

> *No later than March 1, 2026, the ESS Program Administrators shall establish and jointly lead a Bidirectional EV Working Group At a minimum, the Program Administrators shall invite OCC, DEEP, Tesla, Fermata, ACT, ConnSSA, ChargeScape, and First Student to participate in the Working Group. On behalf of the Bidirectional EV Working Group, the Program Administrators shall submit a Bidirectional EV Report as compliance in Docket No. 26-08-05 no later than August 1, 2026. This Report shall present the Working Group's findings and recommendations regarding the integration of bidirectional EVs into the ESS Program, and shall at minimum address the following: (1) whether bidirectional EVs participating in the ESS Program should be permitted to participate in other state programs, including but not limited to the state's EV managed charging program, considering potential overlap in ratepayer benefits and existing DERMS functionality; (2) ESS enrollment requirements specific to EVs, including data or telemetry requirements that may differ from those applicable to stationary storage systems; (3) proposed ESS Program terms and conditions tailored to bidirectional EVs; (4) eligibility criteria and enrollment incentive amounts for EVs—if enrollment incentives are recommended; and (5) any differentiated requirements or recommendations for MHD vehicles compared to LD EVs.*

The PAs are filing this Report in compliance with Order 20. The Year 5 Final Decision also included related language in Order 25, which directed the Electric Distribution Companies (EDCs) "on behalf of the Interconnection Working Group" to file a recommended process for interconnecting bidirectional EVs no later than July 1, 2026. While complying with Order 25 represents a distinct workstream addressed

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4 https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/b1de90d5e52b43d185258d630056a8bf/$FILE/250805-121725.pdf

through the Interconnection Working Group, the ESS PAs and the Bidirectional EV Working Group sought to coordinate efforts, as discussed throughout this report.

Following the issuance of a Request for Proposals (RFP) in January 2026, the PAs hired Customized Energy Solutions, Ltd. (CES) to support their work related to Order 20 compliance. CES was responsible for helping the PAs to convene the WG, facilitating WG meetings (including assembling relevant materials and research), and drafting the WG report. CES is also the Evaluation, Measurement, and Verification (EM&V) consultant for the ESS Program.

2.2 Working Group Establishment and Membership

Order 20 specifies that certain stakeholders must be invited to participate in the WG. The PAs, in an effort to ensure representation of various perspectives and expertise on the WG, extended membership invitations to an additional set of entities. Some invited stakeholders, including some of those that PURA directed the PAs to include, declined to participate or did not affirmatively respond to the invitation to be a member.

The Working Group distinguished "Members" from "Participants"; while all WG participants were welcome to attend and participate in WG meetings and share feedback, WG Members were invited to provide more formal feedback in response to straw proposals on specific questions.

The full list of entities included in the distribution list for the Working Group is provided below. Note that the level of engagement across different organizations varied considerably; also, some entities were added to the distribution list and began attending after the Working Group process and meetings had already started.

Organization	Member Type
Connecticut Green Bank	Program Administrator
United Illuminating	Program Administrator
Eversource	Program Administrator
Office of Consumer Counsel	Member
Department of Energy and Environmental Protection (DEEP)	Member
Tesla	Member
Fermata	Member
ChargeScape	Member
First Student	Member
Highland	Member
Zum	Member
Vehicle Grid Integration Council (VGIC)	Member
Customized Energy Solutions (CES)	Facilitator
General Motors	Participant
RIDE	Participant
Bidirectional Energy	Participant
EV.Energy	Participant
GridEdge Networks	Participant
Lionheart	Participant
Uplight	Participant
EnergyHub	Participant
Mobility House	Participant
World Resources Institute	Participant
Great Plains Institute (IXWG Facilitator)	Participant
People's Action for Clean Energy (PACE)	Participant
WeaveGrid	Participant
MatchaEV	Participant

2.3 Meeting Structure

The Working Group held six full-group meetings between March and June 2026. Meeting agendas and supporting materials were distributed to Working Group members in advance of each meeting, with required pre-reading identified. Meetings generally followed a consistent structure: an opening recap of prior discussions and session objectives; information-sharing through presentations or technical briefs; structured facilitated dialogue on key questions; synthesis of emerging consensus positions and open issues; and a review of action items and next steps. CES also gathered information from WG participants, including through numerous informational interviews.

An overview of the meetings and the primary topics covered is provided below. Meeting agendas, slides, notes, and recordings are available on the Working Group's page, here: https://energystoragect.com/bevwg/. Meeting notes have also been filed as a separate attachment.

Meeting	Date	Primary Topics
Meeting 1	March 6, 2026	Kickoff and framing: PURA mandate and Working Group process; ESS Program overview; vehicle-grid integration terminology and technology landscape; IES pilot overview; Working Group vs. Interconnection Working Group scope; proposed meeting topics.
Meeting 2	March 31, 2026	Vehicle class implications and market readiness: LD vs. MHD technical differentiation; relevance for integration into ESS Program; discussion of market maturity/vehicle availability; participation and enrollment pathways.
Meeting 3	April 16, 2026	Technical integration of bidirectional EVs into ESS: preferred approach to enrolling equipment in ESS Program; applicable certifications and standards; metering, telemetry, and DERMS integration; approach to vehicle/EVSE pairing and the Qualified Product List.
Meeting 4	May 7, 2026	Cross-program participation: Interaction with Connecticut Hydrogen and Electric Automobile Purchase Rebate (CHEAPR), CT managed charging programs, make-ready rebates, MHD EV program (Docket 21-09-17), and other related programs; managed charging stacking.
Meeting 5	May 29, 2026	Incentive structure: Upfront vs. performance-based incentives; differentiation by vehicle class; minimum performance requirements; benefit-cost considerations.
Meeting 6	June 12, 2026	Draft recommendations and WG review: Presentation and discussion of PA recommendations for incorporating bidirectional EVs into the program; review and summary of previous open items; process for remainder of report.

2.4 Decision Making Process and Report Contents

Following relevant discussions, Working Group Members were asked to vote on specific proposals designed to ensure that the WG addressed the specific items noted in Order 20 and, more generally, to guide the potential inclusion of bidirectional EVs into the ESS Program. Where WG Members did not support the proposal, they were encouraged to specify why they did not and to provide an alternative proposal. These proposals and their level of support are documented throughout this Report.

This Report, while informed by the WG discussions and votes on recommendations, is authored and submitted by the PAs. Where this Report does not explicitly tie a recommendation or perspective to discussion at the WG, it should be assumed that the recommendation or perspective is representative of the Program Administrators, and not necessarily the full WG. The intent of the Report is to accurately document the viewpoints captured through the WG, present the recommendations of the PAs, and enable PURA to reach its own determinations based on the documented perspective of various involved parties.

3 Technology Context

3.1 Key Definitions and Concepts

While the potential of bidirectional EVs as a grid resource has long been discussed, only recently have EVs begun discharging energy into the grid. This has included EVs interacting with electrical loads and the grid in different ways, as outlined in the table below. Note that the table does not address Vehicle-to-Load (V2L) in which a vehicle is used to power external devices (e.g., tools, appliances) directly without being connected to a building's electrical panel or otherwise interacting with the grid.

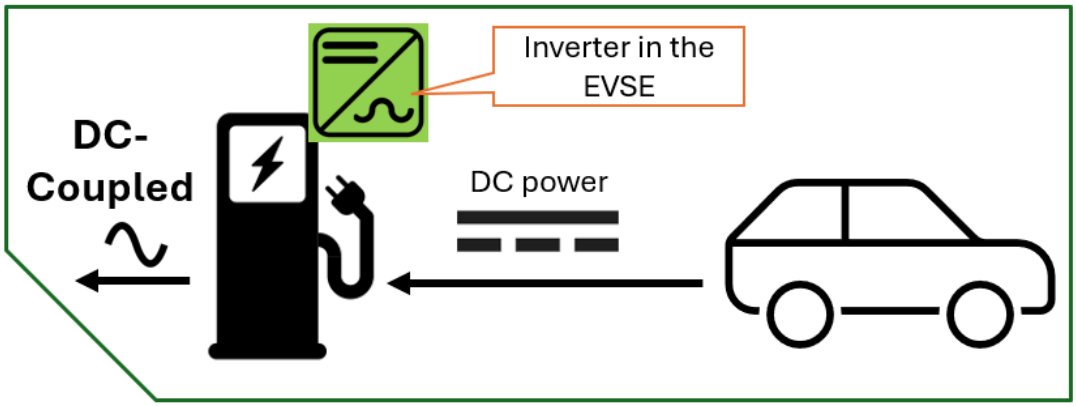
	Export-Capable	Non-Export – Grid Parallel	Backup Only	Managed Charging
Definition	Energy flows from the EV battery back through the meter to the grid or building loads	EV can discharge energy to offset site load in parallel with the grid, but cannot export energy to the grid; this configuration may be a result of interconnection, metering, policy, or other consideration (e.g., preventing export to avoid net metering and RPS eligibility questions)	Energy used to serve building loads during outages, but cannot operate in parallel with the grid	Changing charging timing/behavior to benefit the grid.
Examples/ Terms	"Vehicle-to-grid" (V2G)	Some current installs in CT	"Vehicle-to-home" (V2H) or "Vehicle-to-Building" (V2B)	"V1G"; CT's EV Charging Program
Interconnection	Requires utility interconnection agreement	Requires utility interconnection – may reduce interconnection costs at some sites	In general, no interconnection required if installed to prevent parallel operation – similar to use/requirements for a generator for backup power	No interconnection agreement required
ESS Program Relevance	Primary focus of this Working Group (how to incorporate export-capable EVs into ESS)	Could be subject to compensation through ESS per PURA rule change, as, even if energy is not *exported* to grid, it is *discharged* from EV, which is not covered by Managed Charging	Effectively none, as unable to operate in parallel with the grid	Consideration of overlap of Managed Charging with ESS
EVSE Requirements	Requires bidirectional charger	Requires bidirectional charger as well as controls to prevent export	Requires bidirectional charger and other related equipment, such as a transfer switch	No bidirectional charger required; utility managed charging programs require qualified EVSE or telematics connection

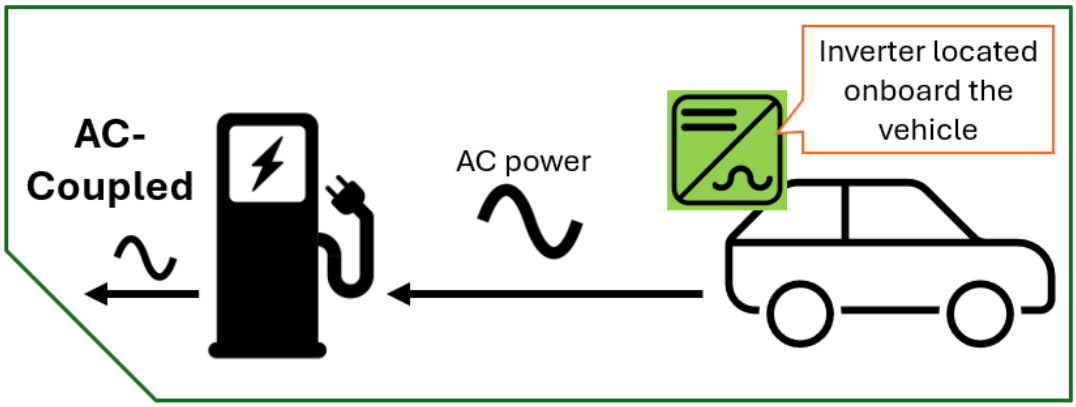
As indicated by the dashed lines, the focus of this Working Group is limited to bidirectional EVs that are capable of discharging energy (even if all of that energy is consumed on-site) while operating in parallel with the grid (i.e., offsetting load at the same time that the customer is still connected to the electric power system). Currently, one of the most common use cases for bidirectional EVs is to provide backup power during outages, without being able to discharge while operating in parallel to the grid – this configuration (represented by the Backup Only column) would not be eligible for compensation through the ESS Program, as the vast majority of the program's benefits are associated with discharging energy during periods of peak demand. Resources that can discharge energy to offset load while operating in parallel with the grid could be eligible to participate, if PURA were to waive the export requirement for bidirectional vehicle participation, though their compensation would be limited to the load available to be offset during peak periods.

Note – throughout this report, we use the term "V2G" to capture any instances of bidirectional EVs and EVSE capable of discharging energy.

Another key concept referenced throughout this report is related to where the inverter needed to convert electricity from Direct Current (DC) to Alternating Current (AC) and adjust it to the appropriate voltage is located. In general, DC-coupled systems have the inverter located in the EVSE, with DC power flows between the vehicle and the EVSE, while AC-coupled systems have an inverter located onboard the vehicle with AC power flowing between the vehicle and the EVSE. Historically, most bidirectional EVs were based on DC-coupling; AC-coupled systems are becoming more common, however, especially in personal vehicles.

This architecture has several implications. Given the different architectures, there are, in some cases, different standards that apply to DC- and AC-connected systems, including variants of UL 1741. The difference in architecture also can trigger differences in how the resources are interconnected; in general, because the inverter, which is primarily responsible for ensuring safe grid-parallel operations, is stationary, interconnecting DC-coupled systems can look very similar, from a utility perspective, to interconnecting stationary storage. AC-coupled systems, where the inverter is mobile, pose unique interconnection questions. As discussed in greater detail in Section 4.5, ongoing work with respect to interconnection processes and relevant standards should ensure that both DC and AC-coupled systems can be efficiently interconnected and operated.





Another key definition used throughout the report is light duty (LD) vs. medium/heavy duty (MHD). The technical definition adopted for the LD vs. MHD distinction is based on Gross Vehicle Weight Rating (GVWR); vehicles up to 8,500 lbs GVWR are defined as LD, while those above 8,500 lbs are defined as MHD. This definition and its relevance are discussed in greater detail in Section 5.

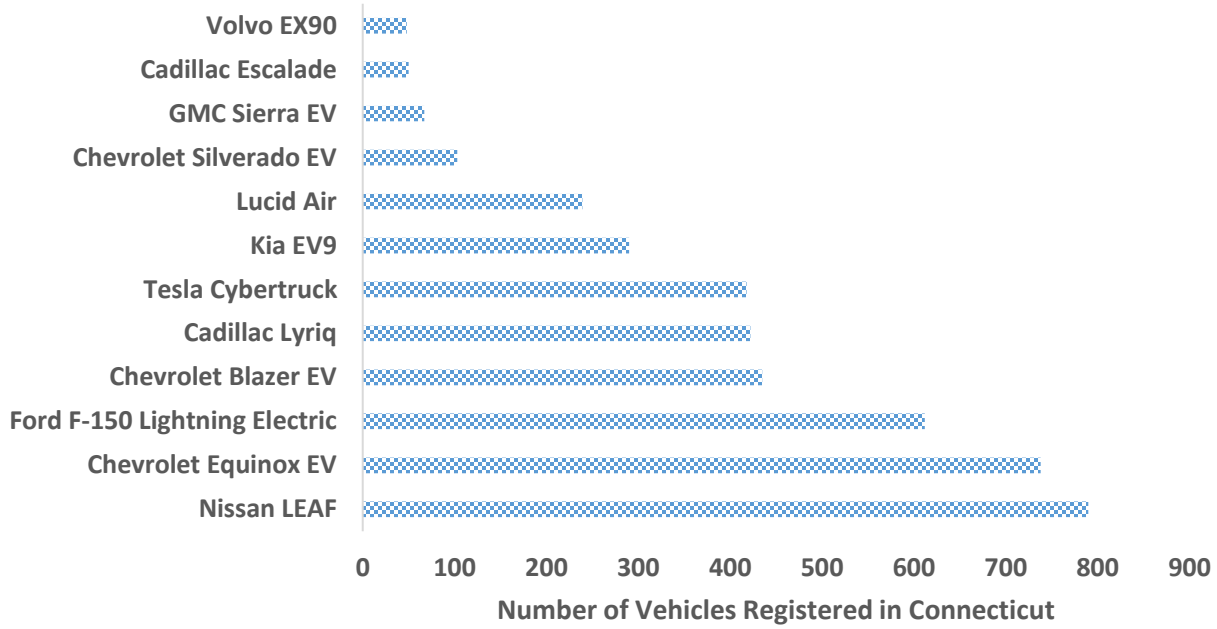
3.2 Technological Maturity

EVs make up an increasing share of the vehicles being driven in Connecticut. As indicated below, as of December 31, 2025, more than 3% of vehicles registered in Connecticut are EVs (including plug-in hybrids), and approximately 12% of vehicles sold from Q1-Q3 of 2025 were EVs.

73,156	3.17%	~12%
Total EVs Registered in CT, including plug-in hybrid EVs	EVs as % of Total Vehicles Registered	EVs as % of Total LD Vehicle Sales Q1-Q3 2025

Sources: https://portal.ct.gov/-/media/deep/air/mobile/cheapr/ev-reg-fact-sheet.pdf and https://www.autosinnovate.org/posts/papers-reports/get-connected-ev-quarterly-2025-q3. Unless otherwise noted, data as of 12/31/2025.

Establishing the share of these vehicles that is V2G capable is challenging, as the specific set of vehicle models that are V2G capable is not always clear and is often evolving. For example, on June 9, 2026, General Motors announced that more than 250,000 vehicles already on the road could become V2G-capable with an over-the-air update and the installation of the appropriate EVSE equipment.[5] Still, it is fair to assume that a relatively small fraction of EVs on the road today are bidirectional capable. The figure below provides an estimate of the number of vehicles registered for models understood to be V2G-capable. Note that this list is intended to be illustrative and may exclude some models that are V2G-capable.



Source - CT Electric Vehicle Registration Data: Link

The overall shift is toward a landscape where the significant majority of new EVs will be natively bidirectional-capable in the near future. Much of the work required for V2G to scale is tied to other hardware developments (primarily, EVSE) and work on supporting mechanisms (e.g., adoption of standards, interconnection policy and processes, design of stable compensation programs, etc.).

On EVSE - the bidirectional-capable EVSE market is nascent and quickly evolving. The availability of bidirectional-capable EVSE is somewhat limited. For example, the California Energy Commission maintains a list of bidirectional EVSE that meet a limited set of criteria (e.g., UL 1741 certified); as of June 17, 2026, it had 22 models from 8 manufacturers. In general, LD vehicles are more likely to require pairing an EV with EVSE from the same manufacturer (e.g., a Ford Lightning must connect to a Ford Charge Station Pro combined with a Ford/Sunrun Home Integration System) while MHD vehicles are less likely to require that the EV and EVSE be from the same manufacturer. This question of interoperability is critical, given that EVs are mobile and, relative to stationary storage, have a fairly short asset life. The role of standards in promoting interoperability is discussed in Section 8.

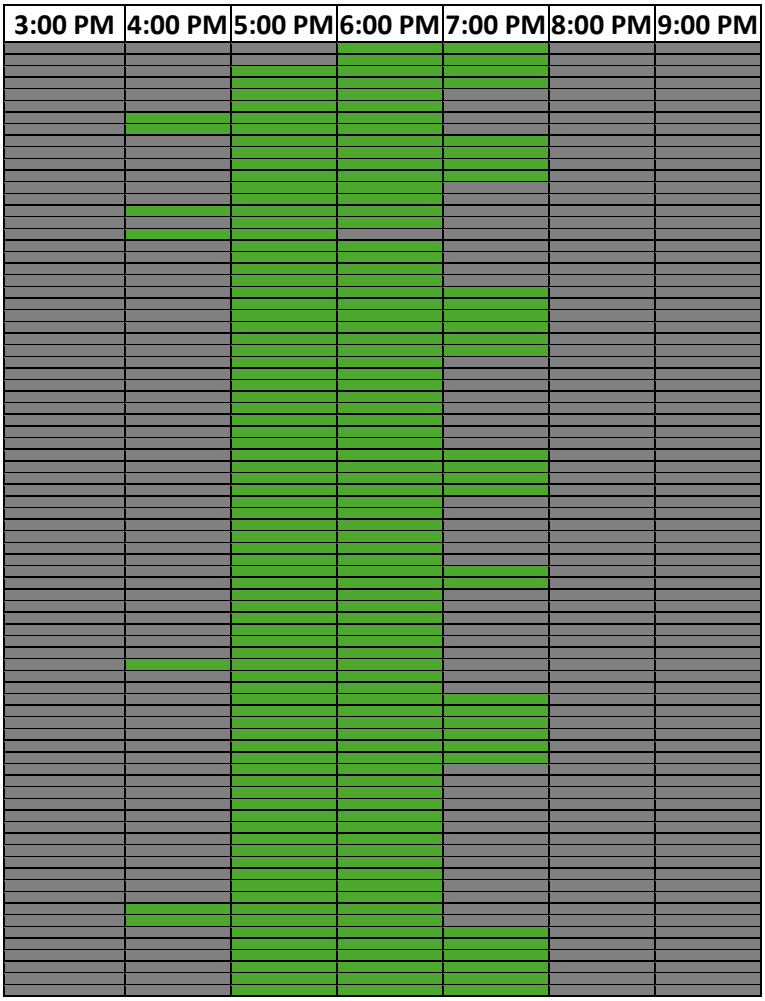
[5] https://news.gm.com/home.detail.html/Pages/news/us/en/2026/jun/0609-electrification-batteries-energy.html

As noted above, many of the challenges to more widespread adoption are less specific to the technology or hardware, and more related to other support mechanisms. For example, standards related to safety, communications, and other key characteristics of bidirectional EVs and EVSE (discussed in Section 8) are, in some instances, still under development. For standards that have been finalized, manufacturers and other stakeholders are still working to meet and be certified to these standards. A lack of clarity around interconnection of bidirectional EVs in most jurisdictions is another critical barrier, discussed in Section 4.5. Perhaps most importantly, while many jurisdictions are beginning to offer financial incentives and compensation to EVSE, most of these are new and many are considered pilots, which may not provide the stable, financial incentive that would be required for some market actors to commit to pursuing V2G at scale. Fortunately, all of these are barriers or necessary support mechanisms that are addressed in this report and that Connecticut is well-positioned to address.

3.3 Charging Patterns

A critical variable in assessing any bidirectional EV's suitability for ESS participation is not simply whether the vehicle is technically capable of discharging energy, but whether it will actually be available — plugged in, with sufficient state of charge — at the times when ESS dispatch events are called. For stationary storage, this question is largely settled at the design stage: the battery is a fixed asset installed for that purpose; while a high state of charge at the beginning of dispatch events is not guaranteed, it is easier to achieve than for an EV. For an EV, the availability question is customer-specific, dynamic, and in many cases uncertain. As illustrated in the figure below, ESS dispatch events in Connecticut are overwhelmingly concentrated in the late afternoon and early evening — the summer 2025 event profile shows that the vast majority of events started at 5 PM, with most running two hours. Thus, vehicles that are not regularly plugged in or are not sufficiently charged at 5 PM will not be good candidates for ESS.

ESS Summer 2025 Active Events



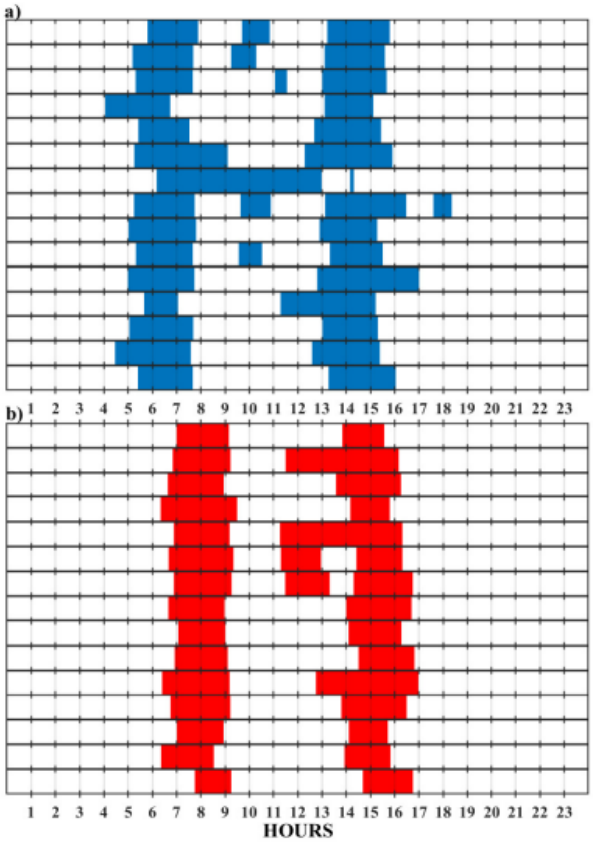
Notes: Summer 2025 ESS active event hours. Times represent the beginning of the hour (i.e., if 6 and 7:00pm columns are filled it, event was 2 hours long, starting at 6:00pm). Each row represents an event for a given EDC (i.e., two lines for a given date if each EDC called an event on that date)

Usage patterns differ substantially across market segments, and these differences map more closely onto the residential versus commercial account distinction than onto the LD/MHD vehicle class distinction. Residential light-duty EV usage is highly heterogeneous and individually variable: daily driving distances, departure and return times, and frequency of mid-day trips all vary significantly across customers, making it genuinely difficult to predict, in the aggregate, what fraction of enrolled residential vehicles will be available and adequately charged for any given dispatch event. This does not disqualify residential vehicles from the program — the ESS Program's pay-for-performance structure means that vehicles that miss events simply do not earn for those events, and the Program does not incur a financial loss — but it does suggest that performance rates for residential bidirectional EVs will likely be lower and more variable than for stationary storage, and that incentive design should account for this.

Commercial fleet vehicles, while also variable across fleet types, can exhibit much more predictable usage patterns within a specific fleet category. Electric school buses are the most pronounced example: their typical operational schedules — morning and afternoon routes, with buses returning to depot by mid-

afternoon and greater overall availability during the summer — produce availability that aligns closely with summer ESS dispatch windows. This is illustrated in the figure below. Data presented at Meeting 2, drawn from three years of actual ESS active events, confirmed that the vast majority of events fall between late June and mid-August, aligning with the summer school break period when school buses are not running routes.

Examples of Use Patterns for School Buses



Source: https://docs.nrel.gov/docs/fy24osti/87322.pdf. Highlighted areas indicate hours of use; each row represents an individual bus. The top table (blue) is for a fleet in Colorado, the bottom a fleet in Washington; neither fleet is of electric school buses.

Still, vehicles that are plugged in may not have enough energy to participate robustly in ESS events. For residential customers, this is primarily a behavioral question: ESS participation requires a degree of active management, ensuring the vehicle is charged to a useful level before the dispatch window opens. Charging and discharging of stationary storage, which usually occurs without any regular input from the customer, does not have the same behavioral questions. For fleet vehicles, state of charge management can be systematized through depot charging protocols and fleet management software, reducing the behavioral dimension substantially; ultimately state of charge is dependent upon a fleet and usage patterns that make being plugged in and with some energy available possible.

Assessing the likely participation of individual customers or fleets is not likely practical, or, in the absence of enforcement mechanisms, valuable. As discussed throughout this Report, the highly variable and uncertain nature of bidirectional EV performance in dispatch events reinforces the value of an incentive design that is tied to performance.

3.4 Status of V2G in Other Jurisdictions

As noted above, many jurisdictions across the country are exploring how to derive electric power system benefits from bidirectional EVs. This includes pilots intended to address specific technological or program design questions, codifying approaches to interconnection, and options for introducing bidirectional EVs into existing incentive and compensation programs. The jurisdictions discussed below provide a sample of the types of activities that states are pursuing.

Maryland

Maryland has moved aggressively on V2G enablement. The Distributed Renewable Integration and Vehicle Electrification (DRIVE) Act, enacted in 2024, established a legislative mandate requiring utilities to allow V2G exports and to develop compensation mechanisms for participating customers. Pursuant to the DRIVE Act, the Maryland Public Service Commission (PSC) unanimously adopted the nation's first comprehensive V2G interconnection rules in June 2025, effective July 7, 2025, codified in the Code of Maryland Regulations (COMAR 20.50).

Interconnection. Maryland's bidirectional EV/EVSE interconnection regulations followed an intense, focused stakeholder process; the resulting regulations should serve as a model for Connecticut. Critically, Maryland's interconnection guidance explicitly addresses both DC-coupled and AC-coupled V2G systems. Also notable: the rules allow V2G-capable EVSE to be installed and operated in load-only mode until the customer is ready to enable export, preserving near-term electrification momentum — particularly relevant for school bus fleets — without triggering the full V2G interconnection process prematurely.

Compensation. Maryland utilities filed V2G pilot and compensation proposals with the PSC in June 2025, as directed under the DRIVE Act. In October 2025, the PSC found the initial proposals insufficient in scale relative to the Act's peak demand reduction goals and directed utilities to resubmit with broader participation targets (PSC Case No. 9761, Order No. 91917). The compensation framework remains under active development; Maryland may also consider opportunities to bring the framework for compensating bidirectional EVs into alignment with other compensation frameworks under development (e.g., the energy storage grid services tariff under consideration in Case No. 9715 or the framework to be implemented for Maryland's forthcoming revisions to its net metering policy, NEM 2.0).

California

California has the longest track record of any state in regulating V2G and vehicle-grid integration (VGI), with active policy threads spanning interconnection, certification, equipment incentives, and vehicle standards. The California Public Utilities Commission (CPUC) and California Energy Commission (CEC) have each advanced complementary workstreams.

Interconnection. California's Rule 21 governs the interconnection of distributed energy resources, including bidirectional EV systems. DC-coupled V2G systems (inverter in the charger) have been eligible under Rule 21 since 2021. A separate V2G AC interconnection pilot, addressing systems with onboard vehicle inverters, was extended by the CPUC in August 2024 via Resolution E-5315 and is now transitioning to a permanent process through Rule 21 modifications. The primary remaining challenge is formalizing the certification pathway for V2G AC systems, pending updated standards (UL 1741 SC).

Compensation and incentives. Multiple California entities are pursuing V2G compensation and pilots in parallel. For example, PG&E operates a Commercial V2X Pilot offering upfront incentives for three-phase bidirectional chargers. Separately, electric school bus fleets in California have earned compensation through the Emergency Load Reduction Program (ELRP), which pays for grid discharge during emergency demand events. Separately, SB 59 (signed September 2024) may ultimately lead to a requirement that some new EVs sold in California be V2G-capable. Interestingly, one of California's primary storage incentives – the Self-Generation Incentive Program or SGIP – is limited to stationary storage with no clear indication that it will be expanded to allow for V2G.

Massachusetts

Massachusetts is the most directly comparable peer jurisdiction to Connecticut: it shares a major primary utility (Eversource), operates a similar state clean energy agency structure, and has active V2G deployments at scale across multiple sectors.

MassCEC V2X Demonstration Program. Funded by $6.3 million in ARPA dollars, the Massachusetts Clean Energy Center's V2X Demonstration Program seeks to deploy 100 bidirectional chargers across residential, school district, and commercial fleet participants statewide over a two-year cycle (2025–2026). The program is free to participants and standardizes technology and implementation across multiple vehicle and charger types. MassCEC plans to publish a comprehensive V2X Guidebook in early 2027 with practical deployment guidance on cost, system design, charge management, and regulatory barriers.

Utility compensation and interconnection. Participants in the MassCEC program can earn revenue through existing utility demand response programs, including ConnectedSolutions. An electric school bus fleet, managed by Highland Electric, is a current participant in the ConnectedSolutions program, and some V2G LD EVs, including those enrolled in the MassCEC demonstration program, are participating on a pilot basis.

New York

New York has taken a tariff-first approach to V2G compensation, embedding V2G eligibility within its existing Value of Distributed Energy Resources (VDER) framework rather than creating a standalone V2G program.

Compensation. The PSC directed all New York investor-owned utilities to update their VDER tariffs to expand eligibility to V2G projects, ensuring that V2G participants can receive compensation for exporting power to the grid. VDER's value stack includes avoided capacity, energy, ancillary services, and locational demand reduction components.

Other V2G Efforts. NYSERDA, through its Vehicle Grid Integration Program, offers financial support to a variety of efforts related to EVs; this includes V2G-specific demonstrations (e.g., a recently announced award of $1.6 million for a demonstration involving bidirectional, fast charging for four refuse trucks) as well as non-V2G efforts (e.g., managed charging efforts).

4 Connecticut Landscape

Given its robust adoption of EVs, the nature of the ESS Program, and other relevant ongoing processes, Connecticut is relatively well-positioned to pursue a scaled program for compensating bidirectional EVs for their value to the electric power system.

4.1 Energy Storage Solutions Program

Connecticut's Energy Storage Solutions (ESS) Program is a statewide incentive program established by PURA to deploy 580 MW of behind-the-meter energy storage across Connecticut by 2030 — 150 MW from residential customers and 430 MW from commercial and industrial (C&I) customers. The program was authorized by PURA in a July 2021 Final Decision in Docket No. 17-12-03RE03, as part of the Authority's Equitable Modern Grid initiative, and launched in January 2022. It is overseen by PURA, funded

by electric ratepayers, and administered jointly by the Connecticut Green Bank, Eversource, and United Illuminating. Following program authorization, PURA established the first-year rules and program documents in Docket No. 21-08-05. It conducts annual reviews through a standing docket series (Docket No. XX-08-05, where XX denotes the calendar year) to assess program performance and make adjustments. In general, PURA issues decisions in December, with any required changes being implemented during the following summer event season.

The ESS Program provides incentives to residential and C&I customers who install battery energy storage systems (BESS) and dispatch their resources during peak demand events. In the iteration of the Program offered to customers enrolling since April 1, 2026, referred to as “Construct 5”, there are two types of incentives: an enrollment incentive paid at installation for eligible systems, calculated on a per-kWh of installed capacity basis, and performance-based incentives paid over the ten-year enrollment period, calculated on a per-kW basis and tied to actual average discharge during utility-dispatched events (“active events”). Active events occur across two seasons — a summer season (June through September, with 30 to 60 anticipated events) and a winter season (November through March, with 1 to 10 events) — during a daily window of 12 PM to 9 PM, with individual events lasting one to three hours. The EDCs are responsible for calling these active events and provide notification of events the evening before the event occurs.

The Year 5 Decision in Docket No. 25-08-05 made significant changes to the program's incentive structure, moving from the original design (“Legacy”) to Construct 5. This change shifted most of the participant compensation to performance-based incentives with a smaller enrollment incentive available upon program entry — a change designed to better align payments with delivered value and minimize ratepayer risk. Under the Legacy framework, upfront incentives constituted a significant portion of total program compensation for many participants. Systems that did not perform during designated periods in the summer performance season (passive events, which were superseded by any called active events) were subject to clawbacks of their upfront incentive. PURA found that the large upfront incentive and passive event structure created implementation issues related to the challenge of implementing clawbacks for underperforming systems and a risk for ratepayers that may not recover, through benefits to the grid, the costs of upfront incentives paid to underperforming systems. This led to the changes outlined in the Decision, significantly reducing or eliminating the upfront incentive (now referred to as the “enrollment incentive” in Construct 5) and increasing compensation rates for performance during active events. PURA strove to keep the total benefit to customers (in net present value terms) constant, while shifting more value to performance-based incentives. Note that projects that qualified under the Legacy structure are still obligated to perform during passive events and may be subject to clawbacks.

The Program offers enrollment and performance incentives that are differentiated by residential vs. commercial, customer demographic information, size of existing load (for commercial customers), and other characteristics. The tables below show the incentive rates currently available to customers under Construct 5.

Customer Class	Years 1 – 5	Years 6 – 10
Small or Medium C&I	$325/kW	$175/kW
Large C&I	$275/kW	$175/kW
Standard Residential	$300/kW	
Underserved Residential*	$450/kW	
Low-Income Residential*	$550/kW	

*Applies based on Customer Class at the time of application. Performance incentives are based on average kW-AC contribution during the season, determined by actual system performance during events as indicated by inverter data, not nameplate capacity.

Customer Category	Enrollment Incentive Rate*
Residential (Non-Grid Edge)	**$30/kWh**
Residential (Grid Edge)	**$130/kWh**
Commercial (Non-Priority)	**N/A**
Commercial (Priority)	**$10/kWh**

*Enrollment incentives are defined based on rated energy capacity (kWh);

"Grid Edge" designation is based on reliability statistics applicable to the distribution circuit the customer is served by.

"Priority" commercial customers include critical facilities, customers on the grid edge, small businesses, and customers replacing onsite fossil-fuel generation.

Additional details are available in the current ESS Program Manual, accessible here: https://energystoragect.com/contractor-resources/

4.2 Connecticut Innovative Energy Solutions Program

The Innovative Energy Solutions (IES) Program is a Public Utilities Regulatory Authority (PURA) initiative — often described by the Authority as a "regulatory sandbox" — created to identify, pilot, and scale emerging technologies that support a reliable, affordable, decarbonized, and equitable electric grid. PURA established the program by Final Decision dated March 20, 2022, in Docket No. 17-12-03RE05 (PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Innovative Technology Applications and Programs), a proceeding the Authority opened in October 2019 as part of its Equitable Modern Grid initiative.

The first program cycle launched on January 20, 2023. The program operates on a recurring cycle basis, with the fourth cycle now open. Applications were due in early 2026. Each cycle proceeds through four phases: a Phase 1 concept proposal; a more detailed, scored Phase 2 application; a PURA-approved Phase 3 deployment, during which selected innovators have roughly 12 to 18 months to run their pilot and

collect performance data; and a Phase 4 ex post assessment of energy, environmental, and cost-effectiveness outcomes to inform PURA's decision on whether a pilot should be scaled statewide.

PURA retains the ultimate decision-making authority over which projects advance and receive funding. A neutral third-party Program Administrator is responsible for day-to-day administration, and an Innovation Advisory Council (IAC) — an advisory body including representatives from PURA, the Connecticut Green Bank, Connecticut Innovations, the Office of Consumer Counsel, the Department of Energy and Environmental Protection, the Department of Economic and Community Development, the investor-owned electric utilities, and a non-profit representative (currently, the Acadia Center) — scores and ranks Phase 2 proposals and recommends a portfolio to the Authority. The IAC has no formal decision-making role; PURA issues the interim decision approving each cycle's Phase 3 projects.

Program funding is recovered through electric ratepayer charges collected by Eversource and UI, and is capped at $5 million per project (a lifetime cap) and up to $25 million per cycle, across a planned five cycles.

IES has supported pilots that are relevant to EVs generally and V2G specifically. The table below highlights three pilots directly applicable to V2G efforts. Two of the entities included in the table, GridEdge Networks and Bidirectional Energy, were active participants in the Bidirectional EV WG.

Participant & Project Type	Partners	Cycle / Status	Description
GridEdge Networks *EV School Bus V2G Electric*	UI / ACES (School bus operator)	Cycle 1 / Complete	Integration of EV school bus fleet with the grid to enable Vehicle-to-Grid (V2G) capabilities
Bidirectional Energy *V2X Residential Pilot*	Eversource / UI	Cycle 2 / In-Progress	Residential V2X pilot targeting up to 63 homes using the Wallbox Quasar 2 bidirectional charger with Kia EV9 owners
RoundTrip EV Solutions *MHD Fleet Charging – Electric Refuse Trucks*	Eversource / City of Stamford / CT DEEP	Cycle 2 / In-Progress	Public-private-partnership (PPP) model to electrify medium-to-heavy refuse trucks

Some of the key findings from these pilots are summarized below. Note that the Bidirectional Energy and RoundTrip EV Solutions pilots are ongoing. Where relevant, additional detailed findings from these pilots are discussed in other sections of this report.

Readiness Dimension	GridEdge Networks	Bidirectional Energy
Technical Readiness	Difficulty with V2G charger interface. The existing ACES school bus used an obsolete standard, rendering it V2G-incapable. Multiple loaner buses were tested before a compatible vehicle (BYD/RIDE) was found. Each charger-bus pair required specialized software integration (Challenge #2 in Final Report).	Kia EV9 requires a specific over the air software update to enable bidirectional export which experienced a significant delay.
Solar Co-location and Interconnection	Co-located solar PV at the ACES site created a tariff conflict as V2G export would have affected the site's Class I renewable energy classification. Resolution required limiting V2G to on-site load only (V2L). A dedicated meter was installed to enforce this limit (Challenge #1 in Final Report).	There was some uncertainty around interconnection requirements. Initially, customers were told that they would need a net generation output meter (NGOM); after further consideration, it was concluded that production meters were sufficient and NGOMs would not be required. Separately, and not specific to customers with solar, it was determined that interconnection rules require a manual AC Isolation Device, to be located outside and accessible to the EDC for Generating Facilities larger than 1 kW, which was not anticipated in initial customer quotes. Due to the higher interconnection costs, quotes needed to be revised upwards and customers needed to approve the higher costs.
Market & Deployment Readiness	Did not recommend scaling this pilot statewide; future of pilot under active discussion in IES docket. Recommended other pilots, e.g., pilot focused on Branford School District, given V2G capability of BYD/RIDE vehicles operated by ZUM.	Only ~200 Kia EV9s registered statewide, so the addressable market is extremely limited today.

In addition to the relevance of these findings to the integration of bidirectional EVs into ESS, the existence of the IES program is a relevant consideration. IES is explicitly designed to test and demonstrate technologies and processes that may not be ready to scale. ESS, on the other hand, is intended to provide a clear market signal and to be a stable program operated at scale. This distinction should be considered when determining how bidirectional EVs should be incorporated into ESS. Success of the Bidirectional Energy IES pilot should include considerations such as whether V2G resources can successfully:

- Receive interconnection approval
- Integrate with a DERMS
- Perform battery charging and pre-positioning (i.e. charging before an event) during off-peak times, i.e., outside of the managed charging program's 3-9pm peak period
- Dispatch measurable kilowatts when called upon

- Provide measurable grid benefits while continuing to meet customer vehicle expectations (e.g., EV is ready and charged, when expected)

4.3 Managed Charging, EVSE Rebates, and Make-Ready Programs

Connecticut's EDCs administer Managed Charging programs for light-duty residential and commercial EV customers that are designed to shift EV charging load to off-peak periods and reduce strain on the grid during high-demand hours. The residential program is available to customers in single-family and multi-family buildings of four units or fewer. Participants enroll a compatible vehicle or smart charger using an EDC-maintained Qualified Product List (QPL). Customers enroll for a minimum 12-month period. Customers who receive an EVSE equipment or wiring rebate are required to enroll for a minimum of 24-months. The program operates on a tiered incentive structure: a Baseline Tier pays $10 per month for charging during off-peak hours (outside 3–9 PM on non-holiday weekdays) at least 80% of the time, and an Advanced Tier pays $25 per month for participants who follow a utility-optimized smart charging schedule with no more than two opt-outs resulting in on-peak charging. A $100 enrollment incentive is available to customers who have not received a charger or wiring rebate.

Performance data from the EDCs' August 2025 annual EV report indicates that managed charging has reduced residential EV charging load during peak hours by approximately 7.2 percentage points. As of 2026, Eversource is in its final year of issuing demand response events under the residential program; UI no longer calls demand response events for residential customers. New residential EV charger rebate enrollees as of January 2026 must meet income eligibility requirements or reside in a High Poverty, Low Opportunity area. A separate light-duty fleet managed charging program is available to commercial EV fleet charging sites, with participation required for sites receiving funding for non-public charging ports. Fleet participants can earn up to $25 per port per month during the summer season (June through September) for not overriding demand response events, capped at 15 events per summer between 3–9 PM. A multi-unit dwelling (MUD) managed charging pilot is also available for larger residential multifamily properties.

Eversource and United Illuminating offer rebates for the installation of Level 2 smart chargers and associated wiring for residential customers, and for Level 2 and DC fast charging EVSE at commercial and fleet sites, including make-ready infrastructure on both the customer and utility sides of the meter. For residential customers, receipt of a charger or wiring rebate is conditioned on enrollment in managed charging for 24 months, creating a direct link between EVSE incentives and managed charging participation. A parallel requirement applies to commercial and fleet customers receiving rebates for non-public charging ports.

The specific relevance of these programs to the integration of bidirectional EVs is discussed in greater detail in Section 6.

4.4 Other Relevant Programs

There are a variety of other programs related to EVs in Connecticut that may influence the adoption and use of EVs, regardless of whether they are bidirectional or not.

CHEAPR

The Connecticut Hydrogen and Electric Automobile Purchase Rebate (CHEAPR) program, administered by DEEP pursuant to CGS § 22a-202, provides point-of-sale rebates to Connecticut residents who purchase or lease eligible new or used battery electric (BEV) or plug-in hybrid electric (PHEV) vehicles from licensed Connecticut dealerships. Since late 2025, the program has been restructured to concentrate the bulk of its incentive value on income-qualified residents and those residing in environmental justice communities or distressed municipalities, with a modest Standard rebate available to all residents and significantly larger Rebate+ incentives reserved for qualifying households. CHEAPR does not address charging infrastructure or grid services participation, and bidirectional capability is not a program criterion.

PURA MHD EV Program

PURA's Medium and Heavy-Duty Electric Vehicle (MHD EV) Program was established by Final Decision in Docket No. 21-09-17, issued August 13, 2025, and is administered by CALSTART as the Program Administrator, with fleet advisory services provided by the Connecticut Green Bank.[6] The program includes two key components. The first is the C&I EV-specific charging tariffs described below, which apply to MHD as well as light-duty commercial charging sites. The second is an Electric School Bus (ESB) Charging Infrastructure Demonstration Program, which supports up to four demonstration projects — two per EDC service territory — intended to generate actionable insights to inform future statewide rate design and infrastructure investment. Incentives under the ESB program cover customer- and utility-side make-ready infrastructure and EVSE, with total incentives from all sources capped at 100% of make-ready and 50% of EVSE costs. Eligibility requires a fleet of at least two electric school buses, a fleet electrification plan, and at least 50% of annual mileage operated within a disadvantaged community, with awards limited to one per eligible municipality. The MHD EV Program does not explicitly address bidirectional operation, though it is possible that plans for V2G capabilities could be a factor in evaluating applications.

C&I EV Charging Tariffs

Eversource and United Illuminating offer EV-specific rate structures for commercial and industrial customers with EV charging loads.[7] Rather than applying standard demand charges — which can be disproportionately high for EVSE with low load factors — the tariffs scale volumetric and demand charges based on the ratio of EV charging load to total site load, reducing the volatility of charging costs for qualifying charging sites. The tariffs are available only to C&I customers with separately metered EV charging load and distinguish between light-duty and medium/heavy-duty applications using a GVWR threshold of 8,500 pounds. There is no equivalent residential EV-specific tariff. The tariffs do not directly incentivize bidirectional operation.

Residential Renewable Energy Solutions and Non-Residential Renewable Energy Solutions

The Residential Renewable Energy Solutions (RRES) and Non-Residential Renewable Energy Solutions (NRES) programs are Connecticut's primary tariff-based compensation mechanisms for distributed solar and other Class I renewable generation, both established pursuant to Public Act 19-35 and authorized by

[6] https://portal.ct.gov/pura/electric/grid-modernization/grid-mod-programs/mhd-program

[7] https://www.eversource.com/business/account-billing/manage-bill/about-your-bill/rates-tariffs/connecticut-ev-rates
https://www.uinet.com/account/understandyourbill/pricing

PURA in Docket No. 20-07-01.[8] Launched in January 2022, the programs replaced the legacy net metering framework and the prior residential and commercial solar incentive programs. RRES compensates residential solar owners for power produced and delivered to the local electric grid. NRES provides equivalent tariff-based compensation to non-residential distributed generation owners through a competitive annual solicitation, with the program statutorily authorized to select up to 100 MW of clean energy per year for six years. Both programs offer participants a choice between a Buy-All structure, in which all generation is exported to the grid and compensated at a PURA-approved tariff rate, and a Netting structure, in which generation first offsets on-site load and only excess production is compensated.

RRES and NRES are set to be replaced by new distributed generation policies. PURA completed a successor study in Docket No. 25-02-14 pursuant to Public Act 25-173 and issued a final legislative report on February 27, 2026, recommending that the current programs not be continued in their current forms and proposing a unified eight-year successor program running from 2028 to 2035. Key proposed changes include: for residential solar, reducing export compensation below the full retail rate to encourage onsite consumption and load shifting, transitioning to instantaneous netting, and incentivizing co-located energy storage; for non-residential solar, replacing the competitive solicitation process with a "walk-up" first-ready approach at administratively-set standard-offer rates, and transitioning from a MW cap to an annual budget cap to better control ratepayer costs; and consolidating the SCEF program into a new Community Renewable Energy Program limited to low-income subscribers. Public Act 26-127 subsequently directed PURA to develop and implement these successor programs, with EDCs directed to begin implementation by January 1, 2028.

Elements of the structure recommended in PURA's study, namely instantaneous netting and differentiating compensation for energy used on site vs. exported could add to the value proposition of energy storage, including bidirectional EVs. The specific design of implementation of RRES, NRES, and the successor programs may also influence the costs and installation specifics of storage (including bidirectional EVs), given the potential need to distinguish gross load, DG production, energy exports, and the impact of storage.

ConnectedSolutions

ConnectedSolutions is a regional demand response program administered by utilities across Connecticut, Massachusetts, New Hampshire, New York, and Rhode Island that compensates distributed energy resources for discharging or curtailing load during utility-called peak demand events. The program operates on a pay-for-performance basis, with compensation tied to average kilowatts delivered during peak events called by the utilities. In most states, ConnectedSolutions remains active for battery storage enrollment and, as noted in Section 3.4, has been used in limited cases as a near-term compensation pathway for V2G-capable resources including electric school buses. In Connecticut, however, ConnectedSolutions closed to new battery storage enrollments as of December 1, 2023, with the ESS Program designated as the sole offering for new storage participants. Connecticut's

[8] RRES: https://portal.ct.gov/pura/electric/office-of-technical-and-regulatory-analysis/clean-energy-programs/residential-renewable-energy-solutions-program; NRES: https://portal.ct.gov/pura/electric/office-of-technical-and-regulatory-analysis/clean-energy-programs/non-residential-renewable-energy-solutions-program

ConnectedSolutions program continues to accept enrollment of non-storage demand response resources but discharging compensation for battery-based resources is addressed exclusively through the ESS Program. Still, given the similarities between the programs and the role Eversource and Avangrid play in administering ConnectedSolutions or similar programs in other states, changes in one program can influence future changes in the other.

4.5 Interconnection

While certain aspects of interconnecting bidirectional EVs are comparable to interconnecting stationary storage, the inclusion of explicit guidance for interconnecting bidirectional EVs will be critical for scaling V2G. Recognizing this, in the same Year 5 proceeding that produced this Working Group (PURA Docket No. 25-08-05), PURA, in Order 25, charged the Distributed Generation Interconnection Working Group (IX WG) with resolving the technical interconnection questions raised by bidirectional EVs. Under Order 25, the electric distribution companies (Eversource and The United Illuminating Company), acting on behalf of the IX WG, were directed to file with PURA — no later than July 1, 2026 — a recommended process for interconnecting bidirectional EVs. The specific language from the Order is included below.

> *No later than July 1, 2026, the EDCs, on behalf of the Interconnection Working Group, shall file a recommended process for interconnecting bidirectional EVs. This filing shall include proposed redlined and clean revisions to the EDCs' Interconnection Guidelines, along with a description of any necessary modifications to the PowerClerk system. – PURA Order 25*

While the specific directives of Orders 20 and 25 are distinct, there are areas of potential overlap, including EV metering and communication requirements, equipment certification, and ESS eligibility requirements as they coordinate with the interconnection process. Because the two workstreams overlap, they were coordinated deliberately. A representative from the IX WG Facilitator attended all Bidirectional EV WG meetings, and a representative from Customized Energy Solutions has attended all IX WG meetings in which Order 25 has been discussed. Furthermore, several Bidirectional EV WG members, including the Vehicle Grid Integration Council (VGIC) and Tesla, have actively engaged with the IX WG.

The IX WG initiated the discussion related to bidirectional EVs and Order 25 at its March 10, 2026 meeting.[9] At the April 7, 2026 meeting, the EDCs presented an initial straw proposal for interconnecting bidirectional EVs pursuant to Order 25. Following discussion of the straw proposal, group members agreed to have a meeting dedicated to discussing bidirectional EVs; this meeting was held on May 1. At that meeting, the subgroup agreed that parties representing EV interests would submit redlined revisions to the EDCs by May 8, with the EDCs targeting a revised proposal for presentation at a subsequent IX WG meeting. The EDCs shared redlined versions with the subgroup on June 23, which were discussed during a meeting of the subgroup on June 24.

[9] IX WG meeting summaries are available here: https://portal.ct.gov/pura/electric/interconnection-policy-working-group

The EDCs filed the Order 25 compliance documents on July 1, including clean and redlined versions of the Interconnection Technical Requirements, Interconnection Guidelines for 50 kW or Less, and Interconnection Guidelines Fast Track and Study Processes. At a high level, revisions stress that most interconnection standards are intended to be technology-agnostic, and therefore the same requirements that apply to other inverter-based resources also apply to EVSE. The revisions reference three pathways for bidirectional EVs and/or associated EVSE to demonstrate UL 1741 certification, as discussed in Section 8.1. The filing letter also indicated that required modifications to PowerClerk were minor and have been implemented already, to enable interconnection applications from resources participating in the Bidirectional Energy IES pilot. In general, the level of engagement with industry through the IX WG and alignment between the proposed language and discussions at the Bidirectional EV WG suggest that the language proposed in Order 25 and recommendations in this report are largely compatible.

5 Approach to Vehicle Classification

PURA's Year 5 Decision explicitly directed the Working Group to address "differentiated requirements or recommendations for medium and heavy-duty (MHD) vehicles compared to light-duty (LD) EVs." The rationale for distinguishing among vehicle and participant types is straightforward: different categories of bidirectional EVs differ materially in their technical characteristics, usage patterns, ownership structures, and readiness for ESS integration. Importantly, differentiation may not be based just on the technical characteristics of the vehicles themselves, but may also consider vehicle ownership and use. These differences may warrant distinct program parameters, including incentive levels, enrollment pathways, and program terms and conditions. Understanding them is also important for calibrating the potential scale and timing of participation by different vehicle types. A classification framework that captures the most relevant distinctions is therefore a prerequisite for sound program design.

5.1 Classification Frameworks

There are many different ways to try to classify bidirectional EVs; the WG discussed two primary ones.

The first is the light-duty vs. medium- and heavy-duty distinction. For the purposes of the ESS Program, the Program Administrators did not create a new definition but instead adopted the light-duty vs. medium- and heavy-duty distinction already in use across related Connecticut programs and federal frameworks. Under that adopted definition, light-duty EVs are those with a Gross Vehicle Weight Rating (GVWR) of 8,500 lbs or less, and medium- and heavy-duty EVs are those with a GVWR of 8,501 lbs or above. The same threshold is applied in the Connecticut Managed Charging programs and in the EV-specific C&I charging tariffs offered by Eversource and UI, and it is consistent with the definitions used by the EPA and the California Air Resources Board.

The second is residential vs. non-residential, based on the rate class of the electric meter at the interconnection point. This distinction is the primary segmentation framework used in the existing ESS Program.

In many cases, the two frameworks overlap: most LD vehicles are owned by individuals and charged at residential accounts, while most MHD vehicles are fleet-operated and served by commercial accounts. However, they do not always align, and the divergences are materially relevant for program design.

On the LD side, several large personal-use vehicles — including the Tesla Cybertruck, some Ford F-150 Lightning configurations, and most Rivians — exceed the 8,500 lb GVWR threshold and would therefore be classified as MHD, even though they are primarily used for personal transportation and would typically be served by a residential account. On the MHD side, certain fleet vehicles are relatively small and fall below the GVWR threshold. More broadly, the GVWR threshold does not capture some of the characteristics most relevant to ESS integration: usage patterns, dispatch flexibility, ownership sophistication, and the technical and administrative capacity to participate in a grid services program.

Reviewing how some technical and operational characteristics vary by LD vs. MHD helps illustrate some of the limitations of using this distinction as a primary means of classifying participants:

- **Battery size.** MHD vehicles have substantially larger batteries and higher potential discharge rates — illustrative battery sizes range from roughly 150 to 450 kWh for electric school buses and other MHDs, compared to 50 to 130 kWh for most LD vehicles — but there is significant variation within each class, and discharge rates are also constrained by the inverter and site electrical service capacity.
- **Usage patterns.** Personal-use/residential vehicles exhibit heterogeneous and individually variable patterns that make ESS event availability less predictable in aggregate, while fleet vehicles of certain types — electric school buses in particular — have predictable depot-return schedules that align well with summer ESS dispatch windows.
- **Technical sophistication**. Fleet operators and commercial customers in general are better positioned than individual owners to manage interconnection, enrollment, aggregation, and dispatch coordination, and are more likely to be technically sophisticated counterparties for program administration. These distinctions track the residential vs. non-residential axis more reliably than the GVWR threshold.
- **AC vs. DC coupling.** Almost all currently available bidirectional EVs in both classes use DC-coupled architecture. MHD vehicles are expected to remain predominantly DC-coupled. For LD vehicles, AC-coupled systems may become more common with the recent finalization of UL 1741 SC and as interconnection processes adapt. This is a characteristic where an LD vs. MHD distinction may show higher correlation than a residential vs. commercial categorization. Still, any integration of bidirectional EVs into the ESS Program should ideally address both AC- and DC-coupled systems; the same is true of interconnection.

5.2 Working Group Discussion and Position

The Working Group concluded that while the LD/MHD distinction is directionally useful and may be a categorization referenced in the ESS Program, the residential vs. non-residential categorization provides a more operationally meaningful basis for differentiating program participants. Multiple participants observed that it better captures the characteristics most relevant to ESS design — usage patterns, customer type, interconnection context, and ownership model — and it aligns with the existing ESS Program structure. The Working Group reached consensus that this report addresses LD/MHD distinctions as directed but organizes recommendations primarily around the residential vs. non-

residential framework. Where relevant, LD/MHD and residential/non-residential distinctions are addressed in the sections that follow.

6 Key Program Terms: Eligibility, Enrollment, and Basis for Compensation

To inform other discussions, such as the appropriateness of bidirectional EVs participating in both the ESS Program and other programs, including Managed Charging, it was critical for the WG to form a clear consensus on key issues that would govern how bidirectional EVs might participate in the ESS Program.

6.1 Key Eligibility Criteria

Over the course of various meetings, the WG discussed several eligibility criteria that are either specific to bidirectional EVs or have significant implications. The criteria below are not intended to be exhaustive; most of the program's existing eligibility criteria would still apply.

As discussed in Section 3, there are a number of different ways in which bidirectional EVs can provide energy, ranging from supplying electricity to individual loads directly (not through a building's electrical panel) to full integration with the electric power system, including exporting energy back to the grid. It is recommended that the key eligibility criterion for bidirectional EVs would be the ability to discharge energy while connected to the grid (i.e., not only during outages, as in V2H or V2B configurations). This framing was introduced at the first WG meeting, and did not receive any objections. This approach would be in line with the current ESS eligibility criteria.

Several relevant functional eligibility criteria merit additional discussion in the context of bidirectional EVs:

- **Behind-the-meter.** The ESS Program is currently limited to BTM storage, i.e., storage which serves onsite load and is able to export to the grid. As discussed during WG Meeting #1, certain make-ready incentives and the existing C&I charging rates require that EV charging load be isolated from any other loads. Even in the absence of such requirements, there are likely to be instances at fleet depots where the primary or only source of load at the meter behind which bidirectional EVs are plugged in would be charging load. In the context of stationary storage, this would be considered a front of the meter (FTM) resource, as energy used to charge the battery would not be considered existing onsite load. Given that the vast majority of energy used to charge EVs would be used to move the vehicles (as opposed to being discharged again), energy used to charge EVs should be considered onsite load, making any bidirectional EV, by definition, BTM.
- **Islanding.** The ESS Program currently requires that all resources be capable of islanding and providing back-up power from the grid during outage events. One of the seven objectives of the program, established by PURA, is to deliver increased resilience to certain classes of customers. Having storage as a source of backup power is a key driver of adoption for many customers and is one of the benefits explicitly modeled in the program BCA. While this may be a driver for some V2G adopters, it is less likely to be as central as it is for stationary storage. While EVs have large capacity batteries, they are also, by definition, mobile, yielding the possibility that they may not be present and plugged in during outages. Furthermore, in applications where the only load at a given meter may be charging load, the ability to island would not provide significant value (as this would not apply where only a single EV is present and there would likely be few instances in which

it would be valuable to use one EV to charge another EV). Given this, the Program Administrators recommend that this requirement not apply to bidirectional EVs. If and when bidirectional EV eligibility is expanded beyond the initial recommendation included in this report (e.g., expanded to residential sites), the Program Administrators recommend revisiting the question of the islanding requirement for these bidirectional vehicles, as it may be appropriate to retain the islanding requirement for some customer and vehicle classes.

- **Export.** The ESS program requires that batteries receive export approval as part of their permission to operate (PTO). This requirement ensures that the grid receives maximum benefit from discharged energy as it is not capped by the load in the home. Given that many of the bidirectional vehicle sites that are expected to be early ESS participants have limited on-site, load, maintaining this export requirement will be important. If and when bidirectional EV eligibility is expanded beyond the initial recommendation included in this report (e.g., expanded to residential sites), it may be appropriate to consider eliminating the export requirement. This may be influenced by considerations such as the relative value of exported energy vs. energy consumed on-site, customer perspectives on the export requirement, and the impact of the export requirement on interconnection costs and feasibility.
- **C&I sizing limitation**. The program currently limits C&I storage power (kW) to the greater of 150% of the customer's annual peak demand (before storage is installed) or 2 MW. As noted above, given that there are likely to be instances in which the only on-site load for some V2G applications will be charging vehicles, this requirement merits reconsideration. In most applications, charge and discharge ratings are largely symmetrical (e.g., if an EVSE is capable of charging at 40 kW, it is also capable of discharging approximately 40 kW). If vehicles at a given site are charged at the maximum possible rate, the 150% limit noted above would not be binding. Still, there may be instances in which a customer can and is incentivized to charge at below the rated capacity of the EVSE. The 150% limitation could create a perverse incentive for operators to always charge EVs at the full rated capacity. Another practical challenge exists in applying this criterion, namely that there will likely be instances in which there is no or minimal load at an existing facility, such as if a fleet depot is installing EVSE for the first time. Given these considerations, the Program Administrators recommend that the maximum charging rating of the bidirectional EVSE serve as a proxy for historical maximum peak demand when applying the 150% limitation. Concerns related to the impact of these resources to the electric distribution system would be addressed through the interconnection process.

6.2 Basis for Performance-Based Compensation

The ESS Program currently compensates resources based on their average discharge during Active Events, as measured at the system (as opposed to at the retail delivery point). This approach does not distinguish between the value of energy used to offset onsite load vs. energy exported to the grid. The Program Administrators recommend that this same approach to compensation be applied to bidirectional EVs. At WG Meeting #3, there was some discussion of this point; most of the discussion related to metering requirements that might be driven by interconnection agreements or participation in other programs (e.g., NRES). There was no specific objection, however, to maintaining the same approach to compensating resources for their performance.

While not raised during any WG meetings, the Program Administrators note that the current practice of compensating based on average discharge across all event hours may need to be revisited for bidirectional EVs in the future. Should initial results show that bidirectional EVs exhibit a specific pattern that reduces the benefits to ratepayers (e.g., not participating in events on the highest-load days, only participating in portions of the events, etc.), it may be necessary to consider whether the current approach provides price signals for bidirectional EVs to discharge in a way that benefits ratepayers.

As briefly discussed in Section 4.4, Connecticut will soon replace the RRES and NRES programs with a new BTM distributed generation policy. As also discussed, based on PURA's recommendations to the legislature, this policy is likely to differentiate between the value of generation consumed on-site vs. exported to the grid. The Program Administrators maintain, however, that such a distinction should not be applied to ESS. In addition to some practical reasons (such as the challenges and potential incremental costs associated with isolating energy from the ESS resource that is used to reduce on-site load), there is a strong conceptual rationale, namely that Active Events are called explicitly during periods of high demand. Generation from solar, the primary RRES/NRES technology, is not similarly explicitly tied to the period of peak demand; this provides the rationale for treating exported energy from solar vs. storage participating in the ESS Program differently. Note that this consideration would apply to all ESS resources, not just bidirectional EVs.

Program Administrators' Recommendation. The PAs recommend using the existing approach to calculating performance-based compensation.

6.3 Category of Enrolled Equipment

A threshold question addressed by the WG was what piece of equipment should be enrolled in the ESS Program. This question affects a number of other key program design questions, such as what types of equipment a Qualified Product List (QPL) would need to address, whether it is necessary to address that EVs may plug in at different locations at different times, and what the options are for incentive design. The ESS Program currently enrolls a specific combination of inverter and battery, installed at a fixed site and tied to a specific utility account. Bidirectional EVs complicate this model: the storage asset is the vehicle, which is mobile and may be swapped or replaced, while the EVSE and associated hardware remains fixed at the premises.

The Program Administrators recommend that enrollment attach to the electric vehicle supply equipment (EVSE) at a specific location and account, capturing equipment details such as make and model, the number of chargers and ports, and the kW capacity per port. Because the EVSE is the fixed, grid-connected asset sitting behind a known meter and point of interconnection, anchoring enrollment to it preserves program oversight while avoiding a number of potentially significant implementation challenges. For example:

- Can more than one vehicle use a single EVSE?
- Can a vehicle use different EVSEs at different times?
- What happens if a customer purchases a new EV? Would the customer be required to re-enroll? If so, would they be grandfathered into the compensation rates available when they originally enrolled or subject to rates available at the time they enroll?
- Could a customer purchase a new EV in order to "reset the clock" and earn the higher, years 1-5 compensation rate?

While limiting the enrolled piece of equipment to the EVSE helps avoid some of these challenging implementation questions, there are tradeoffs. Most notably, while the EVSE is likely to be the limiting factor for discharge power (in kW), by not enrolling the EV, the PAs will not have information on nameplate energy capacity (in kWh). In the context of the Legacy program, where assessing Passive performance requires information on available kWh, this may have proven to be an insurmountable issue. Given that Construct 5 does not include Passive events, however, the Program Administrators do not need information on the kWh capacity of the system to calculate performance incentives.

Choosing to enroll the EVSE also presents a potential challenge with respect to enrollment incentives. Enrollment incentives are denominated in $/kWh of installed capacity; if no EV is enrolled, there is no kWh value that could be used to calculate the appropriate enrollment incentive. As discussed in Section 9, the PAs are not recommending that enrollment incentives be offered to bidirectional EVs; should PURA decide that enrollment incentives be made available, these would likely need to be denominated in a unit other than $/kWh of installed capacity, such as $/port, or the PAs would need to amend the approach to equipment enrollment. The Program Administrators may optionally collect information on the vehicle or vehicles most likely to be paired with the enrolled EVSE for informational and evaluation purposes, but this information would not be binding and a change of vehicle would not trigger re-enrollment.

At WG Meeting #3, participants supported this EVSE-centric approach. One participant, invoking the IEEE concept of a "reference point of applicability," noted that the EVSE represents the stable point of interconnection. Others observed that the EVSE is the component responsible for grid-code compliance and metering and serves as the gatekeeper for determining whether a connected vehicle is compliant. Views differed on the optional collection of vehicle data: some participants favored dropping it altogether to minimize enrollment friction and administrative burden, while others argued that some visibility into vehicle characteristics such as battery capacity would aid capacity forecasting and program planning, particularly in relation to the ESS Program cap. Participants acknowledged, however, that because customers retain discretion over how much battery capacity they make available, the vehicle nameplate kWh may not provide a reliable picture of how many kWhs will be discharged.

Program Administrators' Recommendation. Given this discussion, the PAs recommend that the unit of enrollment be the EVSE and that the PAs may, during the enrollment process, collect information on the vehicles that a customer anticipates will connect to the enrolled EVSE. This data would be informational and would not be binding.

6.4 Qualified Product List

The ESS Program currently maintains an ESS Program-specific qualified product list (QPL) of inverter-and-battery combinations that are eligible to participate in the program. To get on the list, an entity (usually the OEM) submits a New Technology Application (NTA) to the PAs to demonstrate compliance with the program's required certifications (currently UL 1973, UL 1741 SA, and UL 9540) and to initiate integration with the PAs' distributed energy resource management systems. Importantly, DERMS integration is a requirement for being included on the QPL in order to minimize customer confusion and ensure a more seamless customer journey. This is distinct from other product lists, such as the list of bidirectional EVSE maintained by the California Energy Commission,[10] which require certain certifications to be listed on the

[10] https://v2gel.energy.ca.gov/

QPL, but do not require that the unit already be integrated into a relevant DERMS. The DERMS integration requirement makes the ESS QPL more implementation-focused and customer-facing, as it indicates to contractors and customers which equipment can be enrolled into the ESS Program immediately, without the potential additional need to wait for DERMS integration.

The WG discussed what equipment the QPL should include, again focusing on whether the QPL would only list eligible EVSE or whether it would also address EVSE – EV pairings. Given the WG's support for making EVSE the piece of equipment to be enrolled, discussion during Meeting #3 indicated that the WG supported a QPL that focused just on EVSE. One participant noted that there will be nuance related to exactly what equipment is required for V2G capabilities (for example, a gateway device in addition to the EVSE) – such nuance would be addressed through the NTA review process. One WG participant strongly advised against attempting to indicate, through the QPL, which EVSE and EVs are compatible, as assessing compatibility can be complex and as compatibility can evolve over time.

The WG also discussed the role of existing QPLs. Two primary existing QPLs were discussed: the QPL maintained by the California Energy Commission, noted above, and an EVSE QPL maintained by EPRI. The EPRI QPL is not specific to bidirectional EVSE, but it does include a field that indicates bidirectional capability. Both QPLs require and/or collect information regarding whether the equipment is certified to various standards. The WG generally recommended relying upon these existing QPLs instead of trying to recreate them. As noted above, however, using an existing QPL in lieu of an ESS-specific QPL would not address DERMS integration, which increases the utility of the QPL for potential ESS participants. Some WG participants expressed concern over how long it may take for new equipment to be added to the ESS QPL – the Program Administrators noted that the review process itself proceeds rapidly; the task that can yield delays is DERMS integration.

Program Administrators' Recommendation. Given this discussion, the PAs recommend continuing to maintain an ESS-specific QPL, in line with the current QPL and NTA process, which would have integrations with the current ESS DERMS (potentially multiple DERMS) as a requirement. For bidirectional EVs, the QPL would be focused only on EVSE and would not indicate EV/EVSE interoperability. To reduce administrative burden, the Program Administrators may refer to existing QPLs to assess whether equipment has been certified to standards required by the ESS Program. Additional details on required certifications that should be included in the QPL are discussed in Section 8.

6.5 Enrollment Pathways

The ESS Program provides significant flexibility in how customers may engage with the program. At a high level, most customers work with an approved contractor to submit an incentive application and to ultimately install the system. In most cases, equipment manufacturers play a prominent role, including dispatching individual systems and transmitting telemetry data to the EDC DERMS. The design of the program allows for some alternative arrangements, however, including allowing aggregators, which may not be equipment manufacturers, to enroll customers, dispatch systems, and provide telemetry data. This flexibility encourages market competition and enables different ownership models. The ability to support different ownership models (including customer-owned and third party owned) is particularly important given the termination of the Federal Residential Clean Energy Credit (Section 25D); in the absence of Section 25D, residential customers can only access a federal tax credit through a third party ownership structure, in which the third party claims the Section 48E credit.

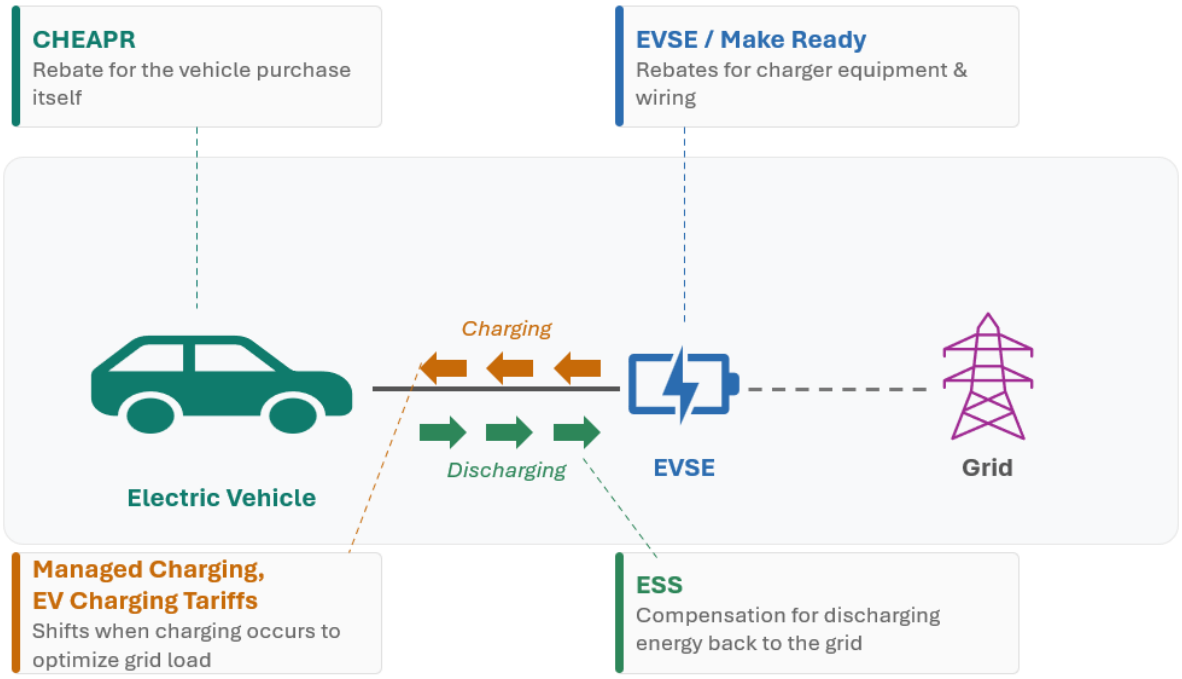
During Meeting #2, as well as through a number of one-on-one interviews, WG members stressed the importance of maintaining flexibility for the specific entities customers may engage with and for which entity is responsible for ensuring accurate telemetry data is transmitted to the DERMS. Some WG members suggested that aggregators may play a more prominent role in the bidirectional EV space than has been the case in stationary storage, in part, because the value proposition and customer experience are fundamentally different.

Program Administrators' Recommendation: The Program Administrators find that the current design of the ESS Program provides sufficient flexibility for different enrollment pathways and for aggregators to play a role, and therefore no specific changes are required to the program structure to accommodate bidirectional EVs. At the same time, the Program Administrators acknowledge that expanding the program to bidirectional EVs may create the possibility for aggregators and other entities to play some new or different roles in the program, and that future adjustments to the program may be required to ensure that these changes do not have adverse impacts on participating customers, other ratepayers, and the PAs.

7 Cross-Program Participation

PURA's Year 5 Decision explicitly directed the Working Group to address "whether bidirectional EVs participating in the ESS Program should be permitted to participate in other state programs, including but not limited to the state's EV managed charging program, considering potential overlap in ratepayer benefits and existing DERMS functionality." The Working Group's fourth meeting was devoted to this topic.

The central analytical task is to assess, for each relevant program, whether co-participation with ESS would result in double-counting of ratepayer benefits — that is, whether two programs would be compensating the same benefit twice. A secondary concern is whether co-participation creates conflicts in dispatch signals, eligibility criteria, or customer experience that would undermine the functioning of either program. The Working Group's general finding was that co-participation in ESS alongside most other Connecticut EV-related programs is feasible and appropriate, subject to specific conditions and design considerations discussed below. The figure below illustrates, at a high level, how some of the most relevant programs are involved in bidirectional EVs.



Understanding, at a high level, what benefits are claimed by ESS (as well as other programs) informed the assessment of whether the same benefits are being counted twice. For ESS, the primary ratepayer benefits are associated with *the operation of the battery*, principally associated with energy discharged during peak periods. Other programs, such as Managed Charging and Make-Ready rebates, consider the impacts realized through the electric power system (e.g., charging during periods of low demand) as well as broader benefits, including environmental benefits associated with driving EVs instead of internal combustion engine vehicles. Some programs, such as CHEAPR, while they clearly generate a societal benefit, do not appear to engage in formal BCA; as a result, there is little record to show which, if any, specific benefits the program "claims".

The Working Group also noted a broader framing consideration raised during Meeting 4: the programs described below were designed primarily for stationary storage or for unidirectional EV charging, and fitting bidirectional EVs into them requires treating an EV as either a battery or a managed charging resource — a choice that does not fully account for the EV's dual identity as both a transportation asset and a distributed energy resource. The Program Administrators share this view, and note that some of the interaction issues identified below may be best addressed through future program redesign rather than through restrictions on co-participation. Note that descriptions of the programs discussed below are available in Section 4.

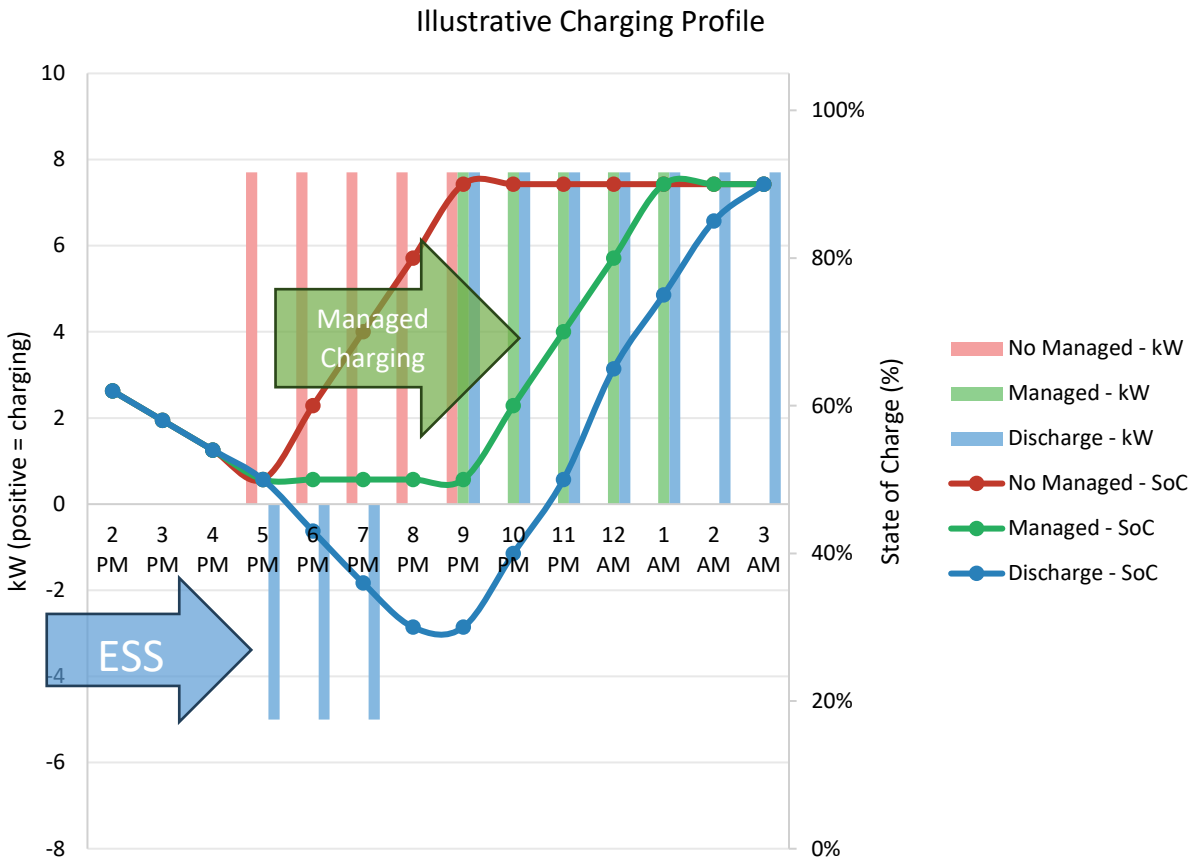
7.1 Managed Charging

Managed Charging is the program with the greatest potential for interaction with ESS, and received the most detailed Working Group attention.[11] The core distinction between the two programs is straightforward in principle: managed charging compensates participants for shifting or curtailing *when*

[11] Note – this discussion is limited to Residential and LD Fleet Managed Charging.

charging occurs, while ESS compensates for *discharging*. These are directionally complementary behaviors (i.e., ESS seeks discharge during periods of high demand while Managed Charging promotes charging during periods of low demand), and the Working Group found no argument that the two programs would be compensating for the same benefits. While Managed Charging and EVSE/Make-Ready Rebates claim a wider set of benefits related to the adoption of EVs (e.g., reduced emissions from driving EVs), ESS does not claim these broader benefits.

That said, the interaction between the two programs introduces meaningful complexity. As discussed at Meeting 4, ESS participation implicitly affects charging behavior even beyond explicit dispatch signals: a vehicle owner who expects their vehicle to be called to discharge during an afternoon ESS event has a strong incentive to ensure the vehicle is charged before that window — and to resume charging immediately after the event concludes. Without active coordination between the two programs, these behavioral responses could produce a timer-peak effect in which all ESS-enrolled vehicles begin charging simultaneously at the end of a dispatch event, undermining the load-shifting objectives of managed charging. More fundamentally, because ESS-enrolled vehicles will discharge energy they must subsequently re-import, their aggregate electricity consumption increases. These changes in consumption attributable to ESS participation – changes in when charging occurs and an increase in total energy consumed – change the baseline against which managed charging benefits are evaluated. See the figure below for an illustrative graph visualizing these changes. This is a question that would need to be resolved by evaluators of the Managed Charging Program, because performance in that program is measured against a baseline (unlike ESS). Participants also raised a concern about double penalization: if charging during an ESS event counts negatively against ESS performance (as it does under the current program design), and that same charging is penalized under Managed Charging, a customer could face overlapping negative consequences for the same action. As currently structured, ESS performance compensation does not go negative, but charging during Active event hours could reduce total compensation to zero.



Implementation of co-participation also raises practical challenges. A PA representative noted that coordinating two programs running in parallel on the same asset requires real-time communication between their respective technology platforms, visibility into vehicle state of charge at any given moment, and a coherent customer-facing interface. For customers, concerns were raised around enrollment (namely, customers should not have to enroll in two different programs) and around ensuring customers maintained ultimate control over how their EV was dispatched, ensuring a state of charge that met the customer's needs.

A specific implementation problem was raised: where an EVSE-side aggregator manages a vehicle for ESS dispatch and an OEM-integrated platform (such as ChargeScape or ev.Energy) manages the same vehicle for Managed Charging, there is currently no clear mechanism for those two systems to coordinate signals. One approach suggested — limiting ESS co-participation to the Managed Charging Baseline Tier, where charging behavior is governed by a schedule rather than active management — would reduce the number of aggregators involved, but was acknowledged to have its own tradeoffs. An alternative perspective was that the Advanced Tier may actually be more compatible with ESS co-participation than the Baseline Tier, because active state-of-charge management in the Advanced Tier can be co-optimized with a discharge schedule in a way a passive timer-based approach cannot. A working group participant suggested a sequential enrollment model in which customers first enroll as EV users in managed charging, then access ESS as an add-on layer, to reduce enrollment friction. The discussion highlighted that trying to coordinate enrollment and resource dispatch across two different sets of vendors poses substantial implementation challenges. Given the nascent stage of V2G offerings in the U.S., the co-optimization of both charging and

dispatch requires more attention, testing and solutioning. Addressing these challenges would likely require the PAs to revisit their strategy for DERMS providers across the two programs and, potentially, requiring that the entity dispatching a given resource (e.g., the DERMS provider, the OEM, or an aggregator) must be the same across both programs.

A separate practical issue concerns the link between make-ready rebates and managed charging enrollment. Under current program rules, receipt of a make-ready or EVSE rebate for residential customers is conditioned on 24 months of Managed Charging enrollment. If a customer installs a bidirectional charger and receives a make-ready rebate, they would simultaneously be enrolled in Managed Charging under current rules. Therefore, if simultaneous participation in Managed Charging and ESS is not allowed, customers seeking to participate in ESS would have to wait two years after receiving a make-ready or EVSE rebate before enrolling in the ESS program.

Program Administrators' Recommendation. The Program Administrators find that there is no conflict in the benefits claimed by ESS and Managed Charging. At the same time, the implementation challenges noted above require careful consideration and resolution before offering a full-scale program that permits participation in both ESS and Managed Charging. This could require substantial changes, including reevaluating DERMS vendors and the role of entities integrating into DERMS. The PAs view ensuring that this coordination challenge is addressed as absolutely critical; a clunky enrollment process, or, worse, stories of customers not having a sufficient level of charge in their EV when they need to travel could have a sustained, adverse impact on future V2G adoption. Thus, the Program Administrators recommend that co-participation between ESS and Residential or LD Fleet Managed Charging not be allowed until these implementation challenges can be resolved.

7.2 EV Make-Ready Rebates

As described in Section 4.3, Eversource and UI offer rebates for EVSE installation at residential and commercial sites. The primary cross-program interaction — the link between Make-Ready rebates and Managed Charging enrollment — is addressed above. Outside of this conflict through Managed Charging, the WG did not identify any benefits being claimed twice. The WG did recommend that the requirements for EVSE rebates and for ESS be reviewed to yield alignment where possible.

Program Administrators' Recommendation. While the Program Administrators find no significant conflict between EVSE and Make-Ready rebates and ESS, the link through Managed Charging creates implementation challenges. For this reason, the Program Administrators recommend that in the near term, V2G ESS customers should not be eligible for make-ready/EVSE Rebates that are contingent upon Managed Charging participation until the ESS/Managed Charging implementation coordination challenges are resolved.

7.3 CHEAPR

CHEAPR provides a point-of-sale incentive for the purchase or lease of an eligible vehicle. It does not compensate any grid service, is not tied to any charging behavior, and claims no capacity or demand-reduction benefits. Furthermore, CES and other WG members were not aware of any explicit BCA conducted on CHEAPR which would indicate that specific benefits are being claimed. No conflicts or double-counting issues were identified by any Working Group participant, and the program's incentives are fully complementary to ESS participation. Furthermore, because CHEAPR provides an incentive for an

EV, while ESS is focused on EVSE, the likelihood of implementation challenges or conflicting eligibility criteria is minimal.

Program Administrators' Recommendation. No restrictions on co-participation with CHEAPR are recommended. No program design changes are required to address this interaction.

7.4 PURA MHD EV Program

The MHD EV Program was briefly discussed at Meeting 4. The program's Electric School Bus demonstration component and its C&I charging tariffs were noted as complementary to, rather than conflicting with, ESS participation. No material conflicts were identified by any Working Group participant. The ESB demonstration program covers make-ready and EVSE costs for school bus depot charging sites. The details of the program are still being developed, but an initial draft of the Program Manual[12] suggests that a managed charging strategy (though not necessarily participating in a utility-sponsored managed charging program) will be a program requirement, but that there may be multiple options for participants to satisfy that requirement (e.g., schedule-based off-peak charging or responding to a utility signal). The final requirements included in the MHD program as well as the strategy selected by the participant will determine the extent to which there may be coordination challenges between the two programs. Furthermore, any projects selected for the ESB demonstration that do not include V2G-capable infrastructure would not have any potential conflicts. Given that the program may have multiple options for satisfying managed charging requirements, it appears likely that potential conflicts between the MHD program and ESS participation are manageable. Furthermore, the types of fleet operators most likely to participate in the MHD EV Program will likely have greater levels of technical sophistication, putting them in a better position to work with the PAs to address coordination challenges.

Program Administrators' Recommendation. No restrictions on co-participation with the MHD EV Program are recommended.

7.5 C&I EV Charging Tariffs

The EDC EV-specific C&I charging tariffs were noted at Meeting 4 as relevant context rather than as a source of direct conflict. One potential ESS interaction was flagged: because the tariffs are designed to reduce demand charges for low-load-factor EVSE installations by scaling charges to the ratio of EV charging load to total site load, the economics of cycling a battery — importing energy to charge, then exporting it during ESS events — are somewhat affected for installations where EV charging constitutes a large share of total site load. This may affect the economics of customers on the EV Charging Tariffs and seeking to participate in ESS, but does not create a program conflict. No participants identified eligibility conflicts between the tariffs and ESS participation.

Program Administrators' Recommendation. No restrictions on co-participation with the C&I EV charging tariffs are recommended.

[12] See the March 2026 draft here: https://www.dpuc.state.ct.us/dockhistpost2000.nsf/4b3c728dd1c0d642852586db0069aa70/0f92a9ec11253f1185258e2d00520031/$FILE/MHD%20EV%20Program%20Draft%20Manual.pdf

7.6 Distributed Generation Incentive Programs

Participation in RRES or NRES — or in legacy net metering arrangements — by customers who also enroll a co-located bidirectional EV in ESS raises net metering and Class I renewable energy eligibility questions, discussed below. Under current program structures, the Program Administrators do not identify a double-counting concern: ESS compensates for discharge during active dispatch events, while RRES and NRES compensate for renewable generation, and these are distinct physical actions claimed under separate program frameworks. However, as PURA finalizes the successor programs to RRES and NRES, careful attention should be given to how benefits are accounted for across programs. The proposed successor framework appears likely to differentiate compensation based on when it is generated and/or whether it is consumed on site or exported — a structure under which storage, including bidirectional EVs, could meaningfully increase the value of co-located solar by shifting exported energy into higher-value periods. This interaction is not specific to bidirectional EVs; it applies to any behind-the-meter storage co-located with distributed solar generation. The Program Administrators recommend that benefit accounting across the ESS Program and the RRES/NRES successor programs be addressed explicitly in the successor program design proceeding to ensure that the combined value of co-located solar and storage is accurately measured and that no benefits are double-counted across ratepayer-funded programs.

As noted above, while there are limited concerns related to double-counting benefits, there are other challenges associated with co-participation in ESS and one of the state's distributed generation incentive policies. Specifically, co-location of a bidirectional EV with an on-site solar generation system enrolled in RRES, NRES, or a legacy net metering arrangement raises two distinct but related issues, neither of which is specific to bidirectional EVs or to RRES/NRES — both would apply equally to any behind-the-meter battery storage system co-located with solar generation.

The first concerns Class I renewable energy eligibility. Under Connecticut General Statutes § 16-1(20), only energy generated by a qualifying Class I resource is eligible for REC certification. UI raised a concern in its comments on the PURA successor study (Docket No. 25-02-14) that some interpretations of existing law treat the mere presence of a storage system on a site hosting a Class I resource as potentially disqualifying the renewable generator from Class I status — on the theory that energy discharged from storage that was charged partly from the grid cannot be deemed Class I, and that this commingling risk cannot always be resolved through metering alone. In its February 27, 2026 Legislative Report, PURA questioned the broader interpretation, finding that the presence of a storage system should not, standing alone, disqualify the underlying renewable generator, and that Class I eligibility should be determined based on the renewable facility's actual generation output as measured at a production meter. However, PURA acknowledged a residual practical problem: for DC-coupled solar-plus-storage systems — where a single inverter serves both the solar panels and the battery — it may not be feasible to isolate renewable generation from storage discharge using a production meter, because the EDCs currently measure AC output rather than DC production. For AC-coupled systems, the production meter approach resolves the issue more cleanly. PURA committed to addressing the remaining metering and eligibility questions collaboratively with the EDCs and developer community in a future RRES or ESS annual review proceeding.

The second issue concerns metering requirements for net metering or, more generally, metering the output of distributed generation. A net generation output meter (NGOM) is a dedicated meter installed at the output of the solar generation system, designed to measure gross renewable production independently of any storage discharge at the same site. Without an NGOM, a utility cannot reliably

distinguish energy exported from the solar system from energy exported by a co-located storage resource — a distinction that matters for both REC accounting and RRES/net metering compensation. Bidirectional Energy's residential IES pilot encountered this issue indirectly: A California utility initially processed Bidirectional Energy's interconnection applications without requiring an NGOM, but subsequent utility review indicated one would be needed for customers with existing solar. The requirement was not anticipated in Connecticut and introduced additional research time to determine if an NGOM would be required in Connecticut. Ultimately, it was decided that a dedicated solar production meter would suffice for now, but there may be uncertainty if that approach is truly viable, as discussed above, with regard to DC-coupled systems. The GridEdge school bus IES pilot addressed the analogous issue at its ACES site by preventing the school buses from exporting energy to the grid at all — limiting them to non-export, on-site load offset — and installing a dedicated meter to enforce the restriction. This approach resolved the attribution problem but at the cost of sacrificing the export capability that is central to ESS participation.

As a practical matter, these issues are not unique to bidirectional EVs and are not created by the ESS Program. They reflect a policy gap in the treatment of co-located solar and storage that PURA has acknowledged and committed to resolving through future proceedings. The Program Administrators do not believe this interaction can be fully resolved within the scope of ESS Program design, as it involves the governing statutes and regulations for net metering, Class I RECs, and the NRES/RRES successor programs, which are or will be governed under separate PURA proceedings. However, the Program Administrators recommend that PURA explicitly address this interaction in the RRES/NRES successor proceeding, and that in the interim, the interconnection guidelines provide clear guidance to participants with co-located solar on the metering requirements and any export restrictions that may apply to their specific site configuration.

Program Administrators' Recommendation. No restrictions on co-participation with NRES or RRES are recommended.

8 Technical Requirements – Standards, Metering, and DERMS Integration

The Working Group devoted Meeting 3 to the technical requirements that would govern bidirectional EV participation in the ESS Program, including applicable certifications and standards, telemetry requirements, and DERMS integration. In advance of Meeting 3, CES compiled a list of certifications and standards currently referenced in the ESS Program, as well as a list of certifications and standards that might be relevant to bidirectional EVs and EVSE. CES sought feedback from participants on the relevance of these standards and whether there were others that should be considered for inclusion in the ESS Program. Following Meeting 3, CES circulated five straw proposals to Working Group members in written form, soliciting structured feedback. Five of the twelve members submitted formal responses: Eversource, OCC, Tesla, VGIC, and Zum Services. CES consolidated and analyzed the responses and presented a synthesis to the full Working Group at Meeting 6.

With respect to potential new certifications and standards and whether they should be incorporated as requirements in the ESS Program, the WG weighed considerations including:

- Do the requirements align with the level of detail and types of requirements already included in the program?
- Would the certification or standard already be covered elsewhere? For example, with respect to EVs, is it necessary or appropriate for the ESS Program to mandate any certifications, given the role of other entities such as the National Highway Traffic Safety Administration?
- Is there enough equipment available that meets the requirement? Would resources already deployed be able to meet the requirement?
- Can a certification meaningfully improve customer experience and safety, increase the potential future utility to the distribution system, and promote interoperability?

This section describes the Working Group discussions, the range of perspectives received, and the Program Administrators' recommendations. An overview of all certifications and standards considered is included in the table below. Note that the columns indicating applicability to EVSE and EV are CES's interpretation; in some instances, WG members provided divergent feedback as the understanding of the applicability of these certifications is evolving or subject to interpretation. "Potentially" indicates areas where applicability is most uncertain. Additional detail on those certifications and standards that are not already required in ESS and that were most seriously considered for inclusion is included in subsequent sections.

Standards and Certifications Considered for Bidirectional EV Participation in ESS

Standard / Certification	Current ESS Requirement?	Description	Applicable to EVSE?	Applicable to EV?	PA Recommendation
Currently in the ESS Program					
IEEE 1547	Yes	Interconnection requirements for DERs, covering voltage, frequency, and protection. Incorporated by reference into UL 1741 SB.	Yes	Indirect	Retain; independent citation not required where UL 1741 certification applies
UL 1741 SA	Yes	Base inverter/grid interconnection standard. Currently cited in ESS Program Manual; SB now required by EDCs for interconnection.	Yes	No	Superseded by SB; Program Manual to be updated in Aug. 2026 filing
UL 9540	Yes	System-level safety standard for energy storage systems. Required in New Technology Application.	Potentially	No	Retain for stationary storage; not applicable to EVSE
UL 9540A	Yes	Fire testing standard for energy storage systems.	Potentially	No	Retain for stationary storage; not applicable to EVSE

Standard / Certification	Current ESS Requirement?	Description	Applicable to EVSE?	Applicable to EV?	PA Recommendation
UL 1973	Yes	Battery system safety standard. Required in New Technology Application.	No	Potentially	Retain for stationary storage; not applicable to EVSE
UL 1642	Yes	Battery cell safety standard.	No	Potentially	Retain for stationary storage; not applicable to EVSE
UL 62109	Yes	Inverter safety standard. Applicability to EVSE split among WG participants.	Potentially	No	No change; addressed through UL 1741 and UL 9741 for EVSE
NFPA 855	Yes	Fire code for energy storage system installations.	Unlikely	No	Retain for stationary storage; existing fire/building code compliance likely sufficient for EVSE
ANSI C62.41	Yes	Power quality standard for electrical equipment.	Yes	Indirectly	No change
ANSI C12.1	Yes	Metering accuracy standard for watthour meters.	Yes	No	No change
IEEE 519	Yes	Harmonic distortion limits. Applicability to EVSE split among WG participants.	Likely	No	No change
NEC (NFPA 70)	Yes	National Electrical Code for electrical installations.	Yes	No	No change
CT Building Code	Yes	Connecticut state building code.	Yes	No	No change
Local Codes	Yes	Local municipal codes.	Yes	No	No change
FCC Part 15	Yes	Limits on electromagnetic interference from electronic devices.	Yes	No	No change
NIST 800-171	Yes	Cybersecurity framework for controlled unclassified information. Limited applicability.	Yes	No	No change

Standard / Certification	Current ESS Requirement?	Description	Applicable to EVSE?	Applicable to EV?	PA Recommendation
ISO 27001	Yes	International information security management standard. Applies to end-to-end processes as opposed to individual pieces of equipment.	—	—	No change
New: Grid Integration & Interconnection					
UL 1741 SB	Proposed in Aug. 2026 filing	Enhanced inverter/grid standard with advanced functions. Already required by EDCs for interconnection. Applicable pathway for DC-coupled EVSE.	Yes	No	**Yes – Required for DC-coupled EVSE as well as for stationary storage.**
UL 1741 SC	No	Extension of UL 1741 designed for mobile, onboard vehicle inverters (AC-coupled systems). Requires paired EV to be SAE J3072 certified. Finalized in May 2026.	Yes (AC-coupled)	No	**Yes – Required for AC-coupled EVSE upon finalization**
UL 1741 SB CRD	No	Pathway for jointly certifying a specific EV-EVSE pair as a composite DER under the SB framework. Available now; used by some manufacturers (e.g., Tesla).	Yes	Yes (paired)	**Yes – Permitted as alternative pathway for composite DER pairings (AC-coupled)**
SAE J3072	No	Defines bidirectional energy transfer requirements for plug-in EVs paired with UL 1741 SC EVSE.	Yes (AC-coupled)	Yes (AC-coupled)	**Yes – Required for EVs paired with UL 1741 SC EVSE; not a standalone requirement**
New: Safety					
UL 9741	No	Safety standard for bidirectional EVSE capable of exporting power to the grid or premises.	Yes	No	**Yes – Required**
UL 2594	No	Safety standard for Level 1 and Level 2 AC EVSE.	Yes (AC)	No	**Yes – Required for Level 1/2 AC chargers**
UL 2202	No	Safety standard for DC fast charging EVSE.	Yes (DC)	No	**Yes – Required for DC fast chargers**

Standard / Certification	Current ESS Requirement?	Description	Applicable to EVSE?	Applicable to EV?	PA Recommendation
UL 2580	No	Safety standard for EV propulsion battery packs.	No	Yes	No – Vehicle-level; outside ESS Program scope
ISO 26262	No	Functional safety standard for electrical/electronic systems in road vehicles.	No	Yes	No – Vehicle-level; outside ESS Program scope
New: Communications & Interoperability					
ISO 15118-20	No	Governs EV-to-EVSE communication for bidirectional power transfer.	Yes	Yes (partial)	**Yes – Required, with PA discretion to grant exceptions where certification ecosystem not yet mature**
OCPP 2.1	No	Protocol governing EVSE-to-management-system communication. Version 2.1 adds bidirectional functionality but not yet widely adopted. Divergent WG views.	Yes	Partial	No – Not recommended at this time; may revisit as adoption matures
IEEE 2030.5	No	Smart Energy Profile protocol for utility-to-DER communication and demand response.	Yes	Yes	No – Not recommended; EDCs may address independently.
ISO/SAE 21434	No	Cybersecurity engineering standard for road vehicles.	Yes	Yes	No – Vehicle cybersecurity; outside ESS Program scope

8.1 UL 1741 Certification Pathways

UL 1741 is the safety and performance standard for inverters, converters, controllers, and interconnection equipment used with distributed energy resources (DERs). Maintained by Underwriters Laboratories, it is the primary certification that electrical inspectors and utilities look for before permitting such equipment to connect to the grid: it defines the testing framework — covering protection against electrical, fire, and shock hazards, as well as correct behavior during grid faults and abnormal conditions — that verifies a product can safely perform the grid-support functions specified in IEEE 1547. Rather than a single fixed requirement, the standard is organized as a base listing plus a series of supplements (such as SA, SB, and the emerging SC) that correspond to different interconnection rules and equipment architectures.

UL 1741 is currently required in the ESS Program and is the primary inverter certification standard for interconnection of distributed energy resources.[13] Because bidirectional EVs may use either DC-coupled or AC-coupled architecture — with meaningfully different implications for which UL 1741 pathway applies — the Working Group gave this topic significant attention. Central to the discussions was ensuring that UL 1741 requirements are in line with interconnection requirements and that the UL 1741 requirements allow for DC- and AC-coupled V2G systems. As discussed in Section 3.4, other jurisdictions, Maryland in particular, have spent significant efforts laying out how UL 1741 maps to different V2G implementations – the WG leaned heavily on this work.

For DC-coupled EVSE, where the inverter is located in the charger rather than the vehicle, the applicable pathway is UL 1741 SB. This pathway is already well-established and is currently required for interconnection by Connecticut's EDCs. In many ways, interconnecting DC-coupled systems is comparable to the study and interconnection of stationary storage, as evidenced by the fact that the same 1741 supplement applies. DC-coupled systems represent the dominant architecture in the market today, particularly for MHD fleet applications.

For AC-coupled EVSE, where the inverter is onboard the vehicle, two pathways are available and both were proposed for inclusion. The first is UL 1741 SC, which is the more scalable long-term pathway for AC-coupled systems. Unlike UL 1741 SB, which was designed primarily for stationary inverters, SC is specifically designed to address the unique characteristics of mobile, vehicle-based inverters — including the fact that the inverter moves with the vehicle rather than remaining at a fixed interconnection point. UL 1741 SC, which was finalized with the publishing of a new version of UL 1741 on May 21, 2026, requires that the attached EV be certified to SAE J3072, which defines the communication and control interface between the vehicle and the EVSE for grid-parallel operation. The standard relies on this combination of UL 1741 SC and SAE J3072 to be able to certify an EVSE without having to evaluate individual pairings of EVSE and EVs. UL 1741 SC is broadly viewed as the pathway that will enable residential LD V2G at scale, as it does not require a specific EV-EVSE pairing to be certified together.

The second pathway is UL 1741 SB CRD, under which a specific EV-EVSE pairing is certified together as a composite distributed energy resource. Rather than certifying the EVSE independently, CRD certification treats the vehicle and charger as a single integrated system, with the certification specific to that combination. This pathway is already viable and is being pursued by some manufacturers — Tesla cited it directly as their current approach — but because it requires a new certification for each distinct EV-EVSE pairing, it is better suited to controlled ecosystems where a manufacturer can certify its own vehicle-charger combinations than to an open-market program supporting diverse equipment pairings. Still, because it is a certification pathway to which equipment has already been certified, and because it may continue to be the preferred certification pathway for some OEMs, it is important to ensure that it is an option for 1741 certification.

The PA straw proposal recommended that EVSE in ESS need to be certified to one of the three UL 1741 certification options. WG members supported this approach, both during WG meetings and through

[13] While current program documents require UL 1741 SA, they are proposing to update requirements such that new stationary storage applications must be certified to UL 1741 SB. This would align the ESS requirements with interconnection requirements.

written responses to the straw proposal. One participant, in written comments, offered some amendments, both of which the PAs agreed with:

- For UL 1741 SB CRD — where an EV and EVSE together constitute a certified composite DER — there should not be a separate requirement for 1741 certification of the EVSE outside of the certification of the EVSE/EV composite system.
- The IEEE 1547 references should be dropped for SB-certified products because UL 1741 SB already incorporates IEEE 1547 by reference, making an independent citation redundant.

Program Administrators' Recommendation. Require UL 1741 certification for all EVSE enrolled in ESS, allowing for any of the three pathways: UL 1741 SB for DC-coupled systems; UL 1741 SC for AC-coupled systems; or UL 1741 SB CRD for specific EV-EVSE composite DER pairings. System-level certification under any of these pathways satisfies the requirement; independent EVSE-only certification is not required where composite system-level certification is in place.

8.2 Communication Protocols

When considering the full implementation of V2G, there are many points at which individual pieces of equipment or entities must communicate with each other. Some of these communications are purely proprietary, whereas some may be covered by communication protocols or standards. Promoting or requiring the use of communication protocols (and other certifications and standards) has several potential benefits:

- **Building a more open V2G ecosystem.** Standardized, non-proprietary communication protocols allow EVSE to interoperate with a broader range of vehicles, aggregators, and management systems rather than being tied to a single manufacturer's technology stack. This lowers barriers to entry for new equipment providers, supports competition and customer choice, and reduces the risk that the program becomes dependent on any one OEM's proprietary ecosystem. An open architecture also makes it easier to onboard new vehicles, chargers, and platforms over the life of the program as the market matures.
- **Improving customer experience.** When vehicles and chargers communicate over common standards, customers are more likely to experience reliable, near plug-and-charge operation without bespoke software integration for each vehicle-charger pairing. This reduces installation friction, troubleshooting burden, and the likelihood that a customer's equipment fails to work together as intended. A more seamless experience is particularly important in a long-duration program, where participants are expected to remain enrolled and providing grid services for years.
- **Reducing the possibility of stranded or "bricked" assets.** Proprietary or unsupported communication links leave customers exposed if a manufacturer exits the market or becomes insolvent — a risk the ESS Program has already encountered with orphaned devices that enrolled customers could no longer communicate with or earn incentives from. Open, standardized protocols make it more likely that equipment can continue to operate, be serviced, or be migrated to another platform if the original vendor disappears. This protects both the customer's investment and the program's ability to rely on enrolled capacity over the full ten-year enrollment horizon.

At the same time, being overly prescriptive carries its own risks. Mandating a specific standard — particularly one that is still maturing — can exclude otherwise capable equipment, add cost, and lock the program into a technology choice before the certification ecosystem is fully developed, which argues for calibrating requirements to functional needs rather than defaulting to the most stringent option. The WG and the PAs actively seek to balance these competing considerations.

Following initial screening, the WG focused on two communication standards for potential inclusion as program requirements: ISO 15118-20, which governs communication between the EV and the EVSE and specifically addresses bidirectional power transfer; and the Open Charge Point Protocol (OCPP), which governs communication between EVSE and a central management system. The WG also considered IEEE 2030.5, a standard governing communications between grid operators and consumer devices (e.g., DERs, thermostats, EVSE, etc.). The Program Administrators did not ultimately recommend adopting this certification, in part, because it is one of the communication protocols that can be used to meet the IEEE 1547 requirement for a standard communication interface and, in part, because specific protocols governing how distribution companies may communicate with end-use devices would be best addressed through interconnection requirements.

ISO 15118-20 generated divergent feedback from WG members, and remained the subject of active discussion at Meeting 6. The primary rationale for requiring it is interoperability: EVSE certified to the 15118-20 standard are more likely to function with a broader range of vehicles, reducing the risk that a customer is stranded by an OEM exit or a proprietary technology ecosystem. This concern is not abstract — the GridEdge IES pilot documented compatibility failures directly attributable to non-standardized communication between vehicles and EVSE, where each charger-bus pair required specialized software integration and the originally intended bus was ultimately found to be V2G-incapable due to an obsolete communications standard. As noted above, requiring 15118-20 could also reduce the likelihood of enrolled customers being unable to communicate with orphaned devices. Requiring open, standardized communication protocols is intended to protect customers enrolled in a ten-year program from that outcome.

The central concern raised against requiring ISO 15118-20 was timing and market readiness. VGIC, which submitted written feedback and reiterated its position at Meeting 6, acknowledged broad support for the interoperability goal but argued that conformance with ISO 15118-20 does not itself guarantee interoperability in practice, and that the standard — particularly for bidirectional power transfer — is still immature from a third-party testing and certification standpoint. VGIC argued that requiring the standard at inception may preclude certain otherwise-capable equipment from the program before the certification ecosystem is sufficiently developed. VGIC recommended that the requirement be conditioned on the availability of adequate third-party testing infrastructure rather than taking effect immediately upon program launch. A separate concern, raised in written feedback, was that standards requirements should focus on functional requirements — what the equipment must be capable of doing — rather than specifying a particular standard, given the pace at which the communications landscape is evolving. One participant noted that ISO 15118-20 certification adds cost and is less common in residential-facing equipment today, though it is more established in the fleet and MHD charging market where Zum, for example, confirmed that its equipment adheres to the standard (though without Transport Layer Security 1.3, since its chargers operate within fenced depot areas).

The potential inclusion of OCPP as a requirement also generated a range of feedback from WG members. OCPP governs the communication link between EVSE and a central management or charging network system — a different layer of the technology stack than ISO 15118-20, which governs the vehicle-to-EVSE interface. The latest version of OCPP (2.1) incorporates bidirectional functionality, but is not yet widely adopted in that form. Written feedback on OCPP was split: VGIC and Tesla opposed it as a requirement; Zum noted that the standard is evolving rapidly and that new releases would need to be tracked; one participant suggested that OCPP might be better suited to non-residential applications than residential ones; and another advocated for OCPP 2.1 as a requirement at Meeting 6, arguing that the program should address the full communications stack — from vehicle to EVSE to management system — not just the vehicle-to-charger interface. Another participant noted that OCPP may become a requirement in a future revision of IEEE 1547, which is already an ESS Program requirement, providing a potential pathway for the standard to be incorporated without a standalone program action.

Program Administrators' Recommendation. The PAs recommend that ISO 15118-20 certification (or a later version) be included as a program requirement for applicable equipment, with PA discretion to grant exemptions for equipment installed before program launch or in other circumstances where a reasonable case exists. The requirement should be documented through the New Technology Application process, with exceptions evaluated on a case-by-case basis during review. The Program Administrators acknowledge the concern about certification ecosystem maturity and will monitor the availability of third-party testing infrastructure as the program launches, with the expectation of more consistent enforcement as that ecosystem develops. While it would generally not be best practice to introduce a requirement with the intent to grant exceptions, the Program Administrators believe that this approach will provide a clear signal to the market of where the program is headed, without unnecessarily slowing down participation as the industry certifies more equipment to ISO 15118-20.

OCPP is not recommended as a program requirement at this time, given divergent member views, version uncertainty, and the likelihood that bidirectional OCPP functionality will be addressed through a future IEEE 1547 revision. The Program Administrators also understand that OCPP is most important in the context of public charging stations, which are not strong candidates for V2G, at least in the near term. The Program Administrators may revisit this position as OCPP 2.1 adoption becomes more widespread.

8.3 Safety Standards

CES compiled the relevant safety standards applicable to bidirectional EVSE and EV, made recommendations for which should be program requirements, and presented them at Meeting 3, inviting any opposition; none was raised. The straw proposal feedback confirmed broad support, with minor clarifications on the wording of the straw proposal. The standards distinguish by charger type: UL 2594 covers Level 1 and Level 2 AC chargers; UL 2202 covers DC fast chargers; and UL 9741 specifically addresses bidirectional EVSE safety. These requirements mirror the standards currently applied to stationary storage in the New Technology Application process — UL 1973 and UL 9540 — updated to reflect the characteristics of EVSE rather than stationary battery systems.

One comment from the WG reinforced that the NTA process must clarify which standards and certifications are applicable to stationary storage, EVSE/bidirectional EVs, or both. This will be reflected in updates to the NTA documentation.

Program Administrators' Recommendation. Require UL 9741 and either UL 2202 or UL 2594 (as applicable by charger type) for all EVSE enrolled in ESS. Documentation of compliance with these standards should be required as part of the New Technology Application process.

8.4 Qualified Product List Requirements

The role of the QPL and related recommendations are discussed in Section 6.4. The program currently introduces required certifications and standards in two places: through the Program Manual[14] and through required documentation in the NTA process. Based on where these requirements are currently listed (that is, Program Manual vs. NTA process), the Program Administrators proposed that certain requirements discussed in previous sections should be included in the NTA process; others would be added to the Program Manual.

Program Administrators' Recommendation. QPL listing for bidirectional EVSE requires V2G capability, UL 1741 SB or SC certification, UL 9741, UL 2594 or UL 2202 as applicable, and completed DERMS integration. The Program Administrators also recommend that the NTA process not require evidence of IEEE 1547 compliance, given that it is incorporated by reference into UL 1741 – this would apply to both stationary storage and EVSE.

8.5 DERMS Integration

DERMS integration — the process by which an EVSE or aggregator establishes a direct communication link with the EDC's distributed energy resource management system, enabling the utility to dispatch the enrolled resource during active events — is a requirement for ESS participation. The primary question was related to whether a specific communication protocol should be required for DERMS integration.

CES conducted interviews with the four DERMS providers currently working with the EDCs — Uplight, EnergyHub, ChargeScape, and EV.energy — ahead of Meeting 3. Their perspectives on whether to require a specific integration communication protocol (such as OpenADR) diverged substantially. Some DERMS providers strongly advocated for requiring OpenADR simple signal, arguing that a protocol requirement would help manage integration costs and screen out less mature market participants. Another recommended against specifying any protocol, citing the rapidly evolving market and concern that prematurely standardizing on a single protocol could become a constraint as the industry develops.

Given the absence of consensus among DERMS providers and the view that the Program Administrators have discretion to address this operationally without seeking PURA input, the question regarding DERMS integration protocol was not raised during the WG meetings. On the question of managing integration costs – the Program Administrators' overall bidirectional EVSE integration recommendations, discussed in Section 10, contemplate a phased approach that would alleviate these concerns. As the PAs move toward full integration of bidirectional EVs into ESS, they may revisit the question of whether entities integrating with DERMS providers should be required to use a specific communications protocol.

Program Administrators' Recommendation. Require DERMS integration as a condition of QPL listing, consistent with current ESS Program practice. The Program Administrators do not recommend that there

[14] See Section 4.1 of the current Program Manual: https://energystoragect.com/wp-content/uploads/2026/02/ESS-Program-Manual-Revised-for-02112026-CLEAN.pdf

be a required communication protocol for DERMS integration in this filing; the Program Administrators will address protocol requirements through implementation discussions with DERMS providers as the program develops.

8.6 Telemetry Requirements

The ESS Program currently measures performance at the resource level rather than at the retail delivery point. This approach allows the program to isolate the contribution of the storage resource itself, rather than measuring the net effect of all loads and resources behind the retail meter — a critical distinction at sites where solar, EV charging load, and storage may all be present simultaneously. The Program Administrators recommended at Meeting 3 that this same approach be applied to bidirectional EVs, and no substantive objection was raised.

The current program requires the following telemetry fields to be reported to the DERMS provider: static fields including customer name, site address, utility account number, device OEM, device universal unique identifier, and nameplate kW and kWh capacities; and interval telemetry data including kW discharged and stored kWh (state of charge), reported at 15-minute intervals with a latency of no more than one month. The Program Administrators recommended maintaining these same field and reporting requirements for bidirectional EVs, reported at the charging port level. The stored kWh field in the telemetry data and the static kWh capacity values would be particularly valuable, given the recommended approach of allowing any technically compatible EV to discharge through a program-enrolled EVSE, as discussed in Section 6.3. One WG participant, through an interview, noted that there may be some challenges in consistently providing the stored kWh field at 15-minute intervals, as EVs may not respond to EVSE queries for this data at consistent intervals.

Program Administrators' Recommendation. Participating resources should provide the same static and telemetry fields already required by the program. This data should be at the port level. The PAs may, as necessary, waive the requirement that stored kWh data be provided at 15-minute intervals.

9 Incentive Structure

PURA tasked the WG to address “eligibility criteria and enrollment incentive amounts for EVs—if enrollment incentives are recommended”. While the Order language emphasized enrollment incentives, the WG engaged in a more holistic discussion related to incentives for bidirectional EVs, primarily in Meetings #5 and #6. The Working Group's consideration of incentive structure addressed three primary topics: the existing ESS incentive framework and benefit-cost methodology, the appropriate frame for considering participant costs for bidirectional EVs, and potential incentive structures for bidirectional EV participation in ESS. The WG also considered whether differential incentive structures for different customer and/or vehicle classes are merited. Illustrative project economics were developed for both residential and commercial scenarios, though this exercise was challenged by a lack of reliable cost data. The Program Administrators' preliminary recommendations generated substantive participant feedback on phasing, incentive form, and the treatment of residential versus commercial participants.

9.1 Current ESS Incentive Structure: Context for Bidirectional EVs

The existing ESS incentive structure provides necessary context for the incentive design discussion. For most of the program’s history, incentives combined two components: a performance-based incentive paid

based on average kilowatts discharged during Active events, and an upfront incentive denominated in dollars per kilowatt-hour of installed capacity, accompanied by a passive dispatch obligation and subject to clawback if the obligation was not met. Total compensation was relatively evenly split between the two components over the ten-year participation period. The rationale for this approach was to provide a significant upfront incentive to help defray the cost of the initial investment in storage, while still providing a strong, ongoing price signal for customers to dispatch their resources during active events.

The Year 5 Final Decision substantially restructured this approach through what is referred to as "Construct 5." The primary change was a significant shift away from upfront enrollment incentives and toward performance-based incentives, with the enrollment incentive retained at much more modest levels for residential and certain priority commercial customers, and eliminated entirely for non-priority commercial customers. PURA cited poor performance under the passive dispatch obligation, and the challenges associated with triggered clawbacks, as the primary drivers of the shift. The updated incentive rates were designed to maintain the overall value to participants.

9.2 Benefit-Cost Framework

The benefit-cost analysis (BCA) methodology used to evaluate the ESS Program and calibrate incentive levels provides essential context for any discussion of bidirectional EV incentives. While PURA considers a range of different test perspectives, two test perspectives are most relevant. The Ratepayer Impact Measure (RIM) evaluates the net effect of a program on non-participant ratepayers. In the ESS docket, PURA has established a RIM ratio of 1.4 as a minimum threshold. The Participant Cost Test (PCT) evaluates economics from the project owner's perspective, with a PCT of 1.0 representing the approximate threshold of financial viability: below 1.0 suggests the incentive may be insufficient to make projects viable, while substantially above 1.0 suggests the incentive may be more generous than necessary. The two tests are in fundamental tension: reducing incentive levels improves the RIM but reduces the PCT, and vice versa. The Working Group observed that this trade-off is not fully symmetrical, since incentive levels also affect participation volume and therefore the magnitude of grid benefits actually delivered. The table below illustrates the full range of test perspectives, and the costs and benefits considered in each.

Category	Benefit/Cost Stream	PACT	CTET	PCT	SCT	TRC	RIM	RIM-CT
Utility Benefits - Peak Savings	Avoided Generation Capacity	Benefit	Benefit	-	Benefit	Benefit	Benefit	Benefit
	Avoided T&D Capacity	Benefit	Benefit	-	Benefit	Benefit	Benefit	Benefit
	Reliability	Benefit	Benefit	-	Benefit	Benefit	Benefit	Benefit
	DRIPE Capacity Impacts	Benefit	Benefit	-	Benefit	Benefit	Benefit	Benefit*
Utility Benefits - Energy Savings	Avoided Energy	Benefit	Benefit	-	Benefit	Benefit	Benefit	Benefit
	DRIPE Energy Impacts	Benefit	Benefit	-	Benefit	Benefit	Benefit	Benefit*
	Cross-DRIPE Impacts	Benefit	Benefit	-	Benefit	Benefit	Benefit	Benefit*
Societal Benefits - GHG Savings	Non-Embedded Emissions	-	Benefit	-	Benefit	-	-	-
Program Administrative Costs	Program Administration	Cost	Cost	-	Cost	Cost	Cost	Cost
Participant Bill Savings	Participant Bill Savings	-	-	Benefit	-	-	Cost	Cost
Incentives	Program Incentives	Cost	Cost	Benefit	-	-	Cost	Cost
	Performance Incentive Aggregator Fee[1]	-	-	Cost	-	-	-	-
ESS Technology Costs	Participant Incremental DER Costs	-	-	Cost	Cost	Cost	-	-
Avoided Backup Generator	Net Avoided Backup Generator	-	-	Benefit	-	-	-	-

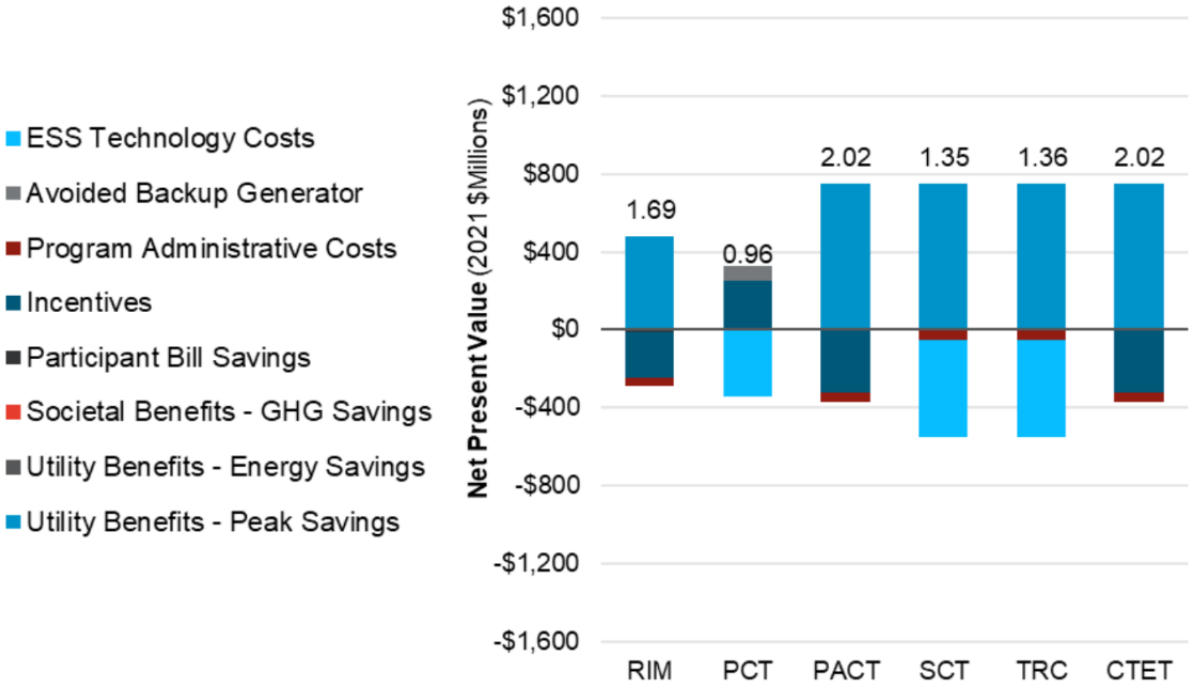
Notes: PACT = Program Administrator Cost Test, CTET = Connecticut Efficiency Test, PCT = Participant Cost Test, SCT = Societal Cost Test, TRC = Total Resource Cost Test, RIM = Ratepayer Impact Measure, RIM-CT = Connecticut Ratepayer Impact Measure

The vast majority of RIM benefits are associated with discharge during Active events. (Some incremental additional benefits may be derived from cycling during hours outside of active events, but these are very limited). The most valuable benefits included in the RIM are avoided generation capacity (reducing ISO New England capacity costs by reducing the total volume of capacity procured), demand reduction induced price effects (DRIPE, which lower capacity clearing prices for all ratepayers), and transmission and distribution (T&D) value from consistent demand reductions that defer or avoid infrastructure investment. This reinforces that ratepayer benefits can only be realized when resources discharge during Active events – the installation of enabling hardware or discharging outside of Active events does not yield benefits. With a program structure that heavily emphasizes performance-based compensation, customers are only able to cover their costs if they discharge during Active events. This effectively aligns the interests of program participants and ratepayers.

The Year 5 program-level benefit-cost results show the overall program achieving a RIM above the 1.4 target, with the PCT near 1.0 — stronger for C&I participants than residential, though residential participation remains robust despite a PCT below 1.0. In addition to the residential vs. C&I divergence in benefit cost ratios (BCR), there is also significant variation based on customer segment (e.g., Standard vs. Low-Income, Small C&I vs. Large C&I), priority customer status (e.g., Grid Edge vs. non-Grid Edge), and commercial operation date (as some benefits, especially capacity, vary by year). Historically, PURA has

evaluated BCRs at the program level, as opposed to setting incentive levels for individual customer segments to achieve cost effectiveness targets for that individual segment.

Figure 5-1. Overall Program BCA



Additionally, the PCT for an individual project varies significantly, primarily driven by project costs and performance during Active events. Certain intangibles (e.g., interest in a new technology, desire for self-sufficiency beyond what is captured in the Avoided Backup Generator benefit, and environmental commitment – whether personal or a corporate or statutory goal) also influence customer actions, leading to projects that may have a PCT below 1.0 to proceed.

The WG discussion highlighted that these same considerations – a need to achieve a cost-effective program and the requirement to ensure that incentives yield discharge during active events – apply to bidirectional EVs in the same way that they apply to stationary storage.

9.3 Incremental Cost Framework for Bidirectional EVs

Framing: Incremental Rather Than Full System Cost

It was proposed that the appropriate cost basis for evaluating bidirectional EV economics in ESS is the incremental cost of moving from a unidirectional EV to a fully V2G-capable system — not the full cost of the EV and EVSE. The rationale is that an EV is primarily a transportation asset; grid services participation is a secondary use. Under this framing, the PCT for a bidirectional EV project considers only the costs that would not be incurred absent the desire to participate in ESS. Incremental costs do not directly affect the RIM and other ratepayer-facing tests, as the primary costs are the incentive payments themselves. These incremental costs drive the PCT, and, to the extent that the assessment of participant economics suggests that an adjustment to incentive levels should be made, this then affects the RIM.

The Working Group generally endorsed this incremental cost framing, subject to several important nuances. One WG member argued that ESS incentives should seek not just to drive V2G adoption, but adoption of EVs more broadly. With this perspective, the incremental cost framing is more of a BCA methodology choice rather than a policy statement about V2G's importance. Several WG participants called out a more intangible but no less important cost: a stationary battery owner can leave the system enrolled and never think about it, while an EV owner must actively ensure the vehicle is plugged in and sufficiently charged during dispatch windows, imposing behavioral friction not fully captured in financial terms. This dimension could be cause for limited adoption even if revenue and incremental cost figures suggested the project was financially attractive. Finally, for a customer specifically purchasing a bidirectional EVSE to access ESS, the EVSE cost is in fact the primary cost rather than a secondary one — an important nuance for customers who may already own non-V2G-capable EVSE.

Cost Categories and Available Data

CES identified five primary incremental cost categories:

- **Incremental EVSE costs** — the difference in cost between a standard charger and a bidirectional-capable EVSE — are the most significant driver, with illustrative LD figures based on comparing the Wallbox Quasar 2 to a non-bidirectional equivalent (approximately $5,000–$6,000 incremental per port) and MHD figures in the range of $10,000–$15,000 or more for a Level 3, 30–40 kW commercial charger.
- **Interconnection costs** are highly location-specific and subject to the greatest uncertainty, with a wide range for commercial projects.
- **Labor and project management costs** reflect the incremental complexity of bidirectional installations.
- **Charging costs** — associated with the round-trip energy losses of cycling the vehicle battery — are modest relative to overall charging costs.
- **Battery degradation costs** attributable to ESS participation are assessed as likely minimal, estimated at approximately five equivalent full cycles per season from ESS events for an electric school bus, compared to over 100 equivalent full cycles annually from normal operation.

Feedback provided by WG members suggested that incremental costs for a V2G capable EV are likely zero, as most MHD vehicles are V2G capable. While fewer LD models are V2G capable, this capability will become more standard over time. In both cases, V2G capabilities do not appear to be offered as a premium option on a given model.

Little robust data on incremental cost for achieving a bidirectional system are available: most available cost data addresses the move from ICE to EV, not the move from unidirectional to V2G-capable. CES sought available data from participants – while some data was provided, most was anecdotal, included wide ranges, and/or was dated. The most relevant data identified was from a September 2023 report published by the Smart Electric Power Alliance; this, in turn, referenced a study performed by Guidehouse

on behalf of Xcel Energy in Q1 2023.[15] These sources estimate the incremental cost of V2H at $8,500-$9,000 and of V2B at $16,500-$34,000. There are several challenges with these values:

- They consider V2H and V2B, as opposed to V2G; in other words, they do not assume the ability to export to the grid.
- The V2B estimates are for Level 2 EVSE.
- The V2H estimates are based on a specific piece of hardware (i.e., Ford/Sunrun V2H).
- The values are more than three years old.

Furthermore, as discussed at the WG, there are structural reasons why reliable cost information is hard to come by:

- As discussed throughout, the technology is nascent. Incremental costs observed today are likely considerably higher than what should be expected in the relatively near term (i.e., 3-5 years).
- As noted above, interconnection costs are highly location-specific, and vary widely. As evidenced by the GridEdge Networks and Bidirectional Energy pilots, this is compounded by uncertainties around metering requirements. Explicit interconnection guidance for bidirectional EVs as well as clear direction on questions related to BTM energy storage and how it relates to net metering and REC production (discussed in Section 7.6) should help address some of this uncertainty.
- In addition to the higher-level question of technological maturity, there are significant economies of scale to be realized at an individual site. Labor costs, interconnection, as well as some hardware costs may be considerably lower on a per port or per kW basis at a site serving a larger number of bidirectional EVs.

Some in-flight pilots and demonstrations, including the Bidirectional Energy IES Pilot and the MassCEC V2X demonstration, were identified as potential data sources, but any report out on installations is unlikely to be complete before approximately Q1 2027 — after this report's filing deadline — limiting their utility for this analysis.

Given the challenges in establishing reliable cost values, the Program Administrators find that anchoring incentives primarily in grid value, as opposed to participant cost, is a prudent, "no regrets" approach to establishing initial incentive value for bidirectional EVs.

Illustrative Project Economics

Acknowledging the challenges in establishing reliable incremental costs and participation rates, CES developed a high-level, illustrative financial calculator that applies the PCT framework to bidirectional EV projects, subject to significant uncertainty in all inputs. The calculator assumes approximately one-quarter of nameplate vehicle battery capacity (in kWh) would be discharged during events, driven by factors including vehicle state of charge and the system potentially being power-limited (i.e., EVSE export capability doesn't allow the EV to discharge the desired number of kWh over a fixed period of time because of the kW limitation of the EVSE). Event participation rates are assumed at 30% for residential

[15]See p. 35: https://sepapower.org/resource/the-state-of-bidirectional-charging-in-2023/
See p. 11 and 15: https://www.xcelenergy.com/staticfiles/xe-responsive/Company/Rates%20&%20Regulations/Hearing%20Exhibit%20106,%20Attachment%20CAG-2_The%20Potential%20of%20V2X.pdf

and 75% for commercial MHD; commercial fleet operators may have more predictable usage patterns, and those with lower availability rates are unlikely to find the economics compelling, implying that program participants will self-select toward higher availability.

At the current Construct 5 incentive levels, without enrollment incentives, Residential Standard projects have a negative NPV, while Underserved and Low Income projects have a positive NPV.[16] For commercial projects, under default assumptions, economics appear marginal under the Large C&I performance rates, but yield IRRs above 15% under the Small/Medium performance-based incentive rates. For both, small adjustments to assumed costs and performance (i.e., kW discharged) significantly change results. The calculator is intended to identify key drivers and sensitivities, not to directly yield recommendations for specific incentive levels.

9.4 Incentive Structure Design and Recommendations

A central question for the Working Group was how a bidirectional EV incentive structure should be designed, and specifically whether the Construct 5 approach — a modest enrollment incentive paired with a substantially higher performance incentive — is an appropriate model.

The discussion surfaced a range of perspectives reflecting differences in stakeholder priorities and vehicle class characteristics.

Performance-Based vs. Enrollment Incentives

A critical consideration for incentives for bidirectional EVs will be the relative weighting of upfront and performance-based compensation. Several participants expressed support for a combined enrollment-plus-performance structure, arguing that an upfront component helps customers overcome the incremental hardware cost at the point of purchase while the performance component addresses ongoing friction. The higher upfront incentive may be particularly important in the face of uncertainty around performance, especially given that there is effectively no incentive for customers to pursue V2G outside of ESS compensation. Other WG members (all representing industry perspectives) suggested that it would be preferable to allocate all or the majority of program compensation to performance-based incentives. Proponents of this view reiterated that performance-based incentives minimize ratepayer exposure, and, as a result, may be less subject to the risk of future adjustments by regulators or legislators; upfront incentives, on the other hand, may be more subject to change. The discussion highlighted that this argument was supported by PURA's directing the change from the Legacy construct to Construct 5.

During WG discussions, WG participants opposed attaching any performance obligation to an enrollment incentive, on the basis that even the prospect of clawback would deter EV owners who need to be able to prioritize transportation over grid participation. This is in line with the current design of Construct 5. The Program Administrators considered recommending some minimum level of performance for bidirectional EVs, given concerns about likely participation. However, given opposition to a clawback and the recommendation for a performance-based compensation only approach, the Program Administrators concluded that no such minimum performance requirement is necessary at this time. The need to recoup

[16] Note – results discussed here differ from those presented during Meeting #5. Additional WG feedback provided after the meeting led to an increased in the assumed incremental costs, to $8,500 for residential and $23,500 for commercial.

upfront costs for V2G capabilities should be sufficient incentive for customers to participate in Active events.

Denomination of the Upfront Incentive

If an enrollment incentive is to be offered, a further question concerns how such an incentive should be denominated, as the current per-kWh approach may not translate cleanly to bidirectional EVs. The current ESS enrollment incentive is based on kilowatt-hours of installed battery capacity — appropriate for stationary storage, where battery size is directly tied to the energy that can be delivered. For bidirectional EVs, there are several challenges to using this approach:

- As proposed, the program will enroll the EVSE, not specific EVs, so it's unclear which vehicle would be evaluated in establishing energy storage capacity.
- As briefly discussed above, most applications will likely be power-limited – that is, the export kW capability of the EVSE/vehicle will likely be the binding discharge constraint during events, as opposed to kWh available.
- Because they are transportation first, EVs are less likely to start events fully charged and are more likely to require a higher ending state of charge relative to stationary storage. They may also not be plugged in and available for all events. Combined, this reduces the relevance of kWh.

Two primary perspectives emerged. The first favored kilowatts (kW) as the denomination: because ESS is fundamentally a capacity program and power output during events is inverter-constrained, a kW-denominated upfront incentive more accurately reflects what the program is purchasing. By way of illustration, a vehicle with a 100 kWh battery running through an 11.5 kW inverter cannot meaningfully discharge more than 30–40 kWh in a two-to-four-hour event window regardless of battery size. The second perspective favored kilowatt-hours (kWh), on the basis that battery capacity is a relevant proxy for vehicle cost and that a kWh-denominated incentive would reflect the actual investment required to acquire a higher-capacity vehicle with V2G capability. Other approaches, e.g., fixed incentive per port or per site, are also possible, although they carry their own limitations.

Additional Incentive Discussion

WG participants noted that, more important than the weighting between enrollment and performance-based incentives was overall project economics. One member raised that the predictability of the program and compensation rates is critical. This includes both ensuring that rates that are "locked-in" are honored for the full lock-in period as well as providing some insight into how rates for new applicants may change over time. The current program's approach of specifying performance-based compensation rates for a 10-year term provide predictability once projects are qualified for the program. While it is likely that there will be turnover in the EV associated with the enrolled EVSE within the 10-year period (due to moves, purchasing a different vehicle, etc.), the Program Administrators recommend offering the same 10-year lock-in period, as compensation is still tied to performance.

On the question of providing insight into how compensation rates for new applicants may evolve over time – one participant raised the California SGIP model, which included higher incentives for early adopters before equipment and implementation costs declined. This participant argued that V2G is a relatively immature technology and should receive the same level of support that stationary storage did at the time of the ESS Program's inception. Another participant pointed out that while it was true that ESS

started with declining block incentives for upfront incentives, the rationale provided by PURA for shifting more toward performance-based compensation emphasized ratepayer protection and ensuring project performance, rather than market maturity.

There was also brief discussion of an alternative incentive concept, namely a "plug-in incentive" rewarding customers for having their vehicle plugged in and available, rather than for specific discharge actions. The concept is under consideration in the MassCEC demonstration, but presents a fundamental tension: ESS must ultimately deliver kilowatts to the grid, so any structure that does not tie compensation to discharge requires an aggregator intermediary to ensure program benefits are realized. While it may be possible for aggregators or other industry players to propose providing this type of compensation to end-use customers, the Program Administrators recommend that, at least initially, the program compensation model should be aligned with ratepayer value, which is dictated by kW discharge during Active events, not simply having a vehicle plugged in.

Program Administrators' Recommendations

Subject to recommendations related to when different types of participants should be included in the program, discussed in Section 10, the Program Administrators make the following recommendations for incentive levels.

The Program Administrators recommend that no enrollment incentive be provided for bidirectional EVs; this is currently the case for non-Priority commercial stationary storage. This recommendation is based on several factors:

- *Challenges in assessing expected performance.* Any level of upfront or enrollment incentive risks expending ratepayer funds on projects that may not deliver expected value to the grid. Given factors discussed throughout this document, there is substantially greater uncertainty related to the performance of enrolled bidirectional EVs relative to stationary storage. Allocating more compensation to performance-based incentives enhances the price signal for bidirectional EVs to perform, which, given that additional user actions are required (i.e., ensuring sufficient state of charge and plugging the vehicle in), is desirable.
- *Uncertain project economics.* As noted above, there is currently insufficient data to reliably assess likely project economics. This makes adjusting any enrollment incentive to help achieve a target PCT impractical.
- *Denomination of incentive.* As discussed above, there are challenges in using the current approach to establishing enrollment incentives (i.e., $/kWh of installed storage capacity) to bidirectional EVs. While alternative incentive denominations are possible, they carry their own challenges.
- *Incremental cost basis.* As discussed above, the primary cost attributable to bidirectional EVs participating in ESS would be the incremental cost of moving from a non-V2G capable system to a V2G capable system, whereas, for stationary storage, given that ESS participation is a primary project driver, the full cost of the system is relevant. Given that the incremental costs of bidirectional EVs may be lower than stationary storage, this would reduce the need for an upfront or enrollment incentive to defray upfront costs.

Given the uncertainties around deployment cost detailed above, rather than establishing a new incentive structure to achieve a PCT of 1, the Program Administrators recommend using existing performance-based incentive rates already included in the program, subject to exception for commercial rates noted

below. Adopting current performance-based incentive rates helps to ensure that incorporating bidirectional EVs will not adversely affect the program RIM. For commercial customers, the Program Administrators recommend that bidirectional EVs receive the currently-approved Small/Medium C&I performance incentive rate (**$325/kW** for years 1–5 and **$175/kW** for years 6–10), even if site load would qualify them for the lower rate applicable to Large C&I customers. This is an acknowledgement of the nascent status of the technology and the higher costs that that implies. For residential customers, the Program Administrators recommend using the same performance rates and criteria already established for Standard, Underserved, and Low Income customers.

10 Implementation Recommendations

This section presents the Program Administrators' recommendations to PURA for incorporating bidirectional electric vehicles into the Energy Storage Solutions Program. These recommendations are the culmination of the six-meeting Working Group process and reflect the Program Administrators' synthesis of participant input, IES pilot findings, jurisdictional precedent, and the cost-effectiveness requirements embedded in the ESS Program's benefit-cost framework.

The Program Administrators' overarching objective is a sustained, deliberate rollout that prioritizes long-term deployment and benefits over actions that may be premature. This involves beginning with vehicle classes and configurations where the market is most ready, while establishing a clear roadmap that gives industry, customers, and installers the certainty they need to plan. Critically, the Program Administrators intend for these recommendations to send a durable market signal that Connecticut will, subject to key considerations discussed throughout this report, incorporate a wide range of bidirectional EVs into the ESS Program over time — even if not all customer and vehicle types are eligible at launch. The pace of expansion will depend on the maturity of the market, the outcomes of active pilots, and the resolution of technical and programmatic questions identified through the Working Group process.

The Program Administrators also recognize a concern raised consistently by Working Group participants: an ESS Program that lacks clarity about future eligibility creates a barrier to investment. Companies bringing bidirectional products to market, fleet operators planning capital expenditures, and aggregators building platforms cannot make business cases on the basis of a single program season. The Program Administrators acknowledge the risk of contributing to a “chicken and egg” paradox: electing to not support a market because it is insufficiently developed while not providing an incentive for that market to develop. Still, the Program Administrators assert that the proposed approach achieves the goal of sustained market development while avoiding the market maturity trap.

10.1 Key Considerations Informing the Recommendations

The Program Administrators' recommendations are organized around several overlapping considerations that informed the overall approach.

Cost effectiveness. The ESS Program's benefit-cost framework — anchored in the Ratepayer Impact Measure (RIM) and the Participant Cost Test (PCT) — applies equally to bidirectional EVs. Incentive levels must be designed to deliver measurable grid benefits that justify the ratepayer cost. The Program Administrators used existing approved incentive rates as a starting point rather than proposing new vehicle-specific rates, in part because the data needed to calibrate a new rate with confidence does not

yet exist, and in part because the existing performance-based incentives have been demonstrated to support a cost-effective program. Pre-emptively adopting higher and/or new incentives without clear line of sight to what is required may yield a future, disruptive adjustment to compensation for bidirectional EVs, which is contrary to the critical objective of providing more stable policy and market signals.

Technology and market maturity. The Working Group's process — and the IES pilot findings in particular — highlighted that the technical, operational, and commercial ecosystem for bidirectional EVs is at different stages of development for different vehicle classes and use cases. Commercial MHD vehicles, and electric school buses specifically, are farthest along: they use a DC-coupled architecture, follow established certification pathways, have demonstrated V2G operation in multiple states, and are run by fleet operators capable of serving as sophisticated program counterparties. Residential light-duty V2G, while rapidly advancing, has more open questions on compelling use cases, is quickly changing, tends to rely on more proprietary ecosystems, and is still a relatively nascent technology in terms of DERMS integration and involves added new complexity in terms of the grid-benefits associated with both managing charging and discharging. Additionally, in the absence of fleet managers and other professionals, residential customers will likely need greater OEM and programmatic support to navigate a less established technology and program.

Scale and administrative efficiency. ESS is not a pilot program. The importance of distinguishing between pilots and programs designed to operate at scale is underscored by PURA's creation of the IES program. Integrating bidirectional EVs requires the same administrative infrastructure as any other ESS resource: DERMS integration, QPL management, enrollment processing, and performance verification. That infrastructure carries real cost, and the Program Administrators assert that line of sight to a tangible volume of standardized enrollments is required to ensure cost effectiveness and overall success.

Customer experience. EVs are transportation first and grid resources second. A program rollout that creates friction for customers — unclear enrollment processes, conflicting signals between Managed Charging and ESS, vehicles that cannot charge by departure time — risks not just individual customer dissatisfaction but a broader chilling effect on V2G adoption that would undermine the program's long-term goals. The Program Administrators have therefore built a series of operational prerequisites into the residential recommendation that must be resolved before enrollment opens, not after.

10.2 Program Administrator Recommendations for Initial Rollout

Recommendation 1: Vehicles to Incorporate into ESS Now

The Program Administrators recommend that PURA approve the enrollment of bidirectional EVSE at commercial accounts in the ESS Program, in advance of the summer 2027 program season, subject to the following eligibility criteria:

- The EVSE must be installed behind the meter on a commercial utility rate.
- It must have a minimum discharge capacity of at least 20 kW per port.
- It cannot be simultaneously enrolled in the light-duty Managed Charging program.

As discussed, the Program Administrators propose that eligible EVSE will earn performance incentives at the currently approved Small/Medium C&I rate — $325/kW for years one through five and $175/kW for years six through ten — with no enrollment incentive.

Commercial bidirectional EVs — and electric school buses in particular — are the most mature use case for V2G in Connecticut today. DC-coupled architecture is well-established, the GridEdge IES pilot has demonstrated deployment in Connecticut, and the Beverly, Massachusetts Connected Solutions pilot has demonstrated multi-year V2G revenue generation at scale. Fleet operators are sophisticated program counterparties capable of managing enrollment, dispatch availability, and aggregation. Commercial customers are also more likely to deploy multiple ports per site, improving customer economics and helping to manage administrative burden, both on the participant and the Program Administrators. Deploying at currently approved Small/Medium C&I rates provides a more compelling financial incentive for early movers while providing assurance to PURA and ratepayer advocates that the program expansion is likely to deliver ratepayer benefits. One WG participant explicitly stated that they believe these incentive rates will be supportive of adoption, at least for ESB fleets.

The 20-kW minimum discharge threshold is designed to target higher-throughput/value DC-coupled commercial systems. The Program Administrators expect that early bidirectional-EV participants in ESS will require more involved support from the PAs, as customers, the PAs, and the PA's program vendors work through the intricacies of incorporating EVs into the ESS Program. Focusing on installations with the potential to discharge substantial power will limit participation to a manageable volume as the PAs work through implementation challenges and will help to justify the administrative costs associated with incorporating bidirectional EVs into the program.

Based on the PA recommendation, commercial EVSE that would otherwise qualify for the light-duty Managed Charging program would be required, for now, to choose between the two programs. This restriction is driven by the implementation concerns discussed in Section 7.1. In practice, the proposed requirement for initial deployment that chargers must meet a minimum of 20 kW per port will exclude most light-duty fleet vehicles, as it would be uncommon to install DC chargers for that application. Because the limitation is driven by implementation challenges that are fundamentally resolvable as opposed to policy conflicts (i.e., claiming the same benefits twice), the PAs anticipate eliminating this restriction in the future.

Recommendation 2: Establish an Expected Pathway for Residential Enrollment

The Program Administrators do not recommend immediately incorporating residential bidirectional EV enrollment (or enrollment that does not meet the criteria described above). The PAs assert that ESS will be better suited to serve these potential participants following milestones including:

- The completion of the Bidirectional Energy IES pilot. The PAs anticipate that the completion of this pilot will identify barriers to deployment (such as uncertainty around metering requirements). With additional findings from this pilot, the PAs will be in a better position to consider, and, when possible, address challenges likely to affect residential V2G participants.
- Further learnings from the MassCEC V2X Demonstration Program. While the PAs do not recommend making the expansion of ESS contingent upon the completion of this demonstration, they do anticipate that this program may provide additional relevant data that could inform the full ESS bidirectional EV rollout. This may include additional data on incremental costs.
- The establishment of a clear path to resolving dual-participation with Managed Charging. The PAs believe that, for eligible vehicles and customers, participation in both Managed Charging and ESS is important. As an example, ensuring that customers enrolled in ESS are also enrolled in the

Managed Charging Advanced Tier would allow the EDCs to reduce the adverse timer peak impacts of customers seeking to charge following an ESS event. As noted above, the PAs believe that customer participation in both programs is complex, but likely feasible.

- Successful implementation and application of updated interconnection guidelines. The Order 25 compliance filing represents an important step towards facilitating the interconnection of bidirectional EVs. Still, experience suggests that additional implementation questions will arise and be addressed through experience. Participants in the IES pilot present a good opportunity to work through and refine the process of interconnecting bidirectional EVs.
- Clarification on metering and other implications of participating in ESS and the applicable distributed generation policy. As discussed in Section 7.6, both the Bidirectional Energy and GridEdge Networks pilots have identified challenges related to metering and overall eligibility for these programs, driven by the presence of BTM distributed generation at the customer sites. While these concerns appear to be applicable to all distributed storage, whether it is stationary or V2G, the PAs believe that resolving these issues prior to a full bidirectional EV rollout for ESS would significantly improve the long-term success of bidirectional EVs in ESS.

The Program Administrators acknowledge participant concerns about not recommending including some vehicles in ESS in time for summer of 2027, discussed during Meeting #6. One WG member urged a soft launch for residential participants in 2027, citing significant near-term market activity — including General Motors' announcement of software-enabled bidirectional capability across an estimated 250,000 existing vehicles. Tesla pointed to the participation of Cybertrucks in a residential utility program in Texas as evidence that the market is sufficiently mature. Another participant argued that it was inconsistent to have Order 25 establish interconnection guidance for all bidirectional EVs without ESS offering incentives for all bidirectional EVs at the same time. The Program Administrators take these views seriously and commit, following direction from PURA, to working expeditiously to expand the program further. At the same time, the Program Administrators maintain their view that the proposed, staggered approach will protect ratepayers and, ultimately, yield a more sustained and successful rollout for V2G in Connecticut.

Program Administrators' Recommendation.

The PAs are seeking direction from PURA on whether and when to pursue expanding eligibility for bidirectional EVs in the ESS program beyond those vehicles included in the recommendation above. Should PURA decide that the PAs should pursue expanding access to residential and lower-power commercial bidirectional EVs, the PAs suggest that the following specific tasks would lead to a more refined proposal to be reviewed in Docket No. 27-08-05:

- Summarize available IES and MassCEC V2X Demonstration Program results, with a specific focus on findings that would inform whether and how to incorporate additional customer and vehicle types into ESS. To the extent that cost data is available, the PAs would also evaluate what cost findings imply about the viability of projects under the current ESS performance incentives.
- Work with DERMS providers to identify solutions to enrollment, and dispatch coordination challenges for resources participating in both Managed Charging and ESS, develop budget estimates for such a deployment, and create roadmap for holistically addressing managed charging and V2G.
- Pursue conversations with utilities that may have implemented comparable programs, to assess implementation challenges, customer adoption, performance, etc.

- Evaluate the market scale for low-power commercial and residential bidirectional EVs. While some initial analysis was conducted for this report, as noted above, the space is evolving rapidly. The PAs expect that OEM announcements in the coming year will help inform this analysis.
- Conduct a survey regarding residential V2G. The PAs would propose conducting a survey, likely reaching out to current Managed Charging participants. The survey would collect information related to driving/charging patterns, attitude towards a potential bidirectional program, and feedback on potential incentive levels.

The Program Administrators also recommend that PURA consider establishing a V2G-specific docket. As noted throughout the report, V2G considerations intersect with a range of topics, including ESS, Managed Charging, charging rates, the MHD program, and interconnection. Establishing a docket dedicated to V2G would provide a forum for identifying and coherently resolving V2G challenges. For example – this report has identified coordination challenges between ESS and Managed Charging; a V2G-specific docket would enable a more holistic review of these issues and potential solutions.

10.3 Bidirectional EVs and the 580 MW Goal

PURA established a target of 580 MW for the ESS Program in the Decision in which PURA authorized the Program in Docket No. 17-12-03RE03.[17] PURA identified that this would be a substantial contribution to meeting the target established by PA 21-53 of 1,000 MW of energy storage deployed in Connecticut by the end of 2030.[18] The 580 MW target for ESS was based on a recommendation from the New England Clean Energy Council (NECEC) and the U.S. Energy Storage Association (ESA); NECEC and ESA found that reducing Connecticut's peak demand by 580 MW would have reduced the state's peak demand from 6,591 MW to 6,004 MW, accounting for the top two percent of peak load hours, based on 2018 data.

PURA will need to determine whether and how enrolled bidirectional EV capacity will count toward the 580 MW goal. PA 21-53 does not explicitly define "energy storage", though Connecticut General Statutes Chapter 277 §16-1(a)(48) defines "energy storage system" in a way that would appear to include bidirectional EVs. This suggests that it would be appropriate to count bidirectional EVs toward the 580 MW goal. The Program Administrators recommend that, in the same way that the Program will focus on the EVSE as the enrolled equipment, it would be appropriate to use the export rating (in kW) of the enrolled EVSE to calculate contributions from bidirectional EVs toward the 580 MW goal.

PURA's reference to a specific reduction in peak demand in its establishment of the 580 MW goal implies that the performance as well as the nameplate capacity of storage resources could be considered to be relevant. As discussed throughout, there remains substantial uncertainty with respect to how different classes of bidirectional EVs may perform during Active Events. Should EVs, on aggregate, perform noticeably worse than stationary storage, it may be appropriate for PURA to revisit the inclusion of bidirectional EVs in the 580 MW goal; PURA could consider not counting them toward the goal or discounting their contribution. This evaluation of performance would center on average discharge in kW during Active events vs. EVSE export capacity. Of course, stationary storage also does not perform

[17] http://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/6991ef77ba07bae185258752007994f7/$FILE/171203RE03-072821.pdf

[18] https://www.cga.ct.gov/2021/ACT/PA/PDF/2021PA-00053-R00SB-00952-PA.PDF

perfectly by this standard; evaluations may find that bidirectional EVs perform similarly or better than stationary storage on this basis.

Program Administrators' Recommendation. Bidirectional EVs should be counted toward the 580 MW goal for the ESS Program, based on the export rating of enrolled EVSE. Once performance data becomes available, evaluations should compare the performance of stationary storage and bidirectional EVs; this comparison may be used to adjust if and how bidirectional EVs are counted toward the 580 MW goal.

10.4 Summary of Other Recommendations

Beyond the recommendations summarized elsewhere in this Section 10, the Program Administrators make a number of additional recommendations spanning eligibility, cross-program participation, technical requirements, and incentive design. These are summarized below; each is discussed in full in the referenced section.

Eligibility and Program Terms

- **Eligibility criterion (Section 6.1).** The defining eligibility criterion for a bidirectional EV should be the ability to discharge energy to the grid while grid-connected, consistent with current eligibility criteria.
- **Islanding (Section 6.1).** The existing requirement that resources be capable of islanding and providing backup power should not apply to the bidirectional EVs included in the recommended initial rollout; it may be appropriate to retain this requirement for classes of bidirectional EVs that may be added to ESS in the future (e.g., residential).
- **Export requirement (Section 6.1).** The export requirement should apply to bidirectional EVs included in the recommended initial rollout; it may be appropriate to waive this requirement for classes of bidirectional EVs that may be added to ESS in the future (e.g., residential).
- **Behind-the-meter treatment (Section 6.1).** Because the energy used to charge an EV is consumed onsite to move the vehicle, EV charging load should be treated as onsite load, making any bidirectional EV behind-the-meter by definition.
- **C&I sizing limitation (Section 6.1).** When applying the program's 150%-of-peak-demand sizing limit, the maximum charging rating of the bidirectional EVSE should serve as a proxy for historical peak demand, with distribution-system impacts addressed through the interconnection process.
- **Unit of enrollment (Section 6.3).** Enrollment should relate to the EVSE at a specific location and account rather than to the vehicle; the Program Administrators may optionally collect non-binding information on the vehicles expected to pair with the enrolled EVSE.
- **Qualified Product List (Section 6.4).** The program should continue to maintain an ESS-specific QPL — with DERMS integration as a listing condition — focused on listing qualified EVSE (as opposed to EVs or EVSE/EV pairings).

Cross-Program Participation

- **Managed Charging (Section 7.1).** Concurrent participation in ESS and residential or light-duty fleet Managed Charging should be deferred until dispatch-coordination challenges are resolved

(reflected in the Section 10.2 eligibility criteria). Note: while WG members acknowledged some of the implementation challenges leading to this recommendation, the WG had differing opinions on this recommendation.

- **CHEAPR, PURA MHD EV Program, and C&I EV charging tariffs (Section 7).** No restrictions on co-participation are recommended, and no program-design changes are required to address these interactions.
- **Distributed generation programs (Section 7.6).** No co-participation restrictions are recommended, but issues related to benefit accounting, metering (including net generation output metering), and Class I REC eligibility must be addressed in this or another relevant docket.

Technical Requirements

- **UL 1741 certification (Section 8.1).** All enrolled EVSE should be certified under UL 1741 via any of three pathways — SB for DC-coupled systems, SC for AC-coupled systems once finalized, or SB CRD for specific EV-EVSE composite pairings — with system-level certification satisfying the requirement.
- **Communication protocols (Section 8.2).** ISO 15118-20 (or a later version) should be required for applicable equipment, with Program Administrator discretion to grant case-by-case exemptions; OCPP should not be required at this time. Note: WG member positions on this recommendation varied. Some felt that no certifications should be required at this point, while others felt that there should be stricter requirements for communication protocols.
- **Safety standards (Section 8.3).** UL 9741, plus UL 2202 or UL 2594 as applicable by charger type, should be required and documented through the New Technology Application process.
- **QPL listing requirements (Section 8.4).** Listing for bidirectional EVSE should require V2G capability, UL 1741 SB or SC, UL 9741, UL 2594 or UL 2202 as applicable, and completed DERMS integration; the NTA process should not separately require evidence of IEEE 1547 compliance, which is incorporated by reference into UL 1741.
- **DERMS integration (Section 8.5).** DERMS integration should remain a condition of QPL listing, but no specific communication protocol should be required in this filing.
- **Telemetry (Section 8.6).** Bidirectional EVs should provide the same static and interval telemetry fields already required, reported at the port level, with discretion to waive the 15-minute reporting interval for stored-kWh (state-of-charge) data.

11 Conclusion

The integration of bidirectional EVs into the Energy Storage Solutions Program represents a meaningful opportunity to expand Connecticut's energy storage resources while advancing the State's transportation electrification and decarbonization goals. Through the Working Group process, the Program Administrators and stakeholders examined the full range of questions raised by PURA in Order 20 — vehicle classification, eligibility and enrollment, cross-program participation, technical and metering standards, and incentive design — and concluded that the ESS Program can accommodate bidirectional EVs without disrupting the framework that has made it successful for stationary storage.

The Program Administrators' recommended approach is deliberately staggered. Beginning with commercial bidirectional charging in the summer 2027 season targets the most mature and readily dispatchable segment of the market, allowing the Program Administrators, customers, and vendors to work through the practical challenges of integrating a new resource type at a manageable scale. Establishing a clear, milestone-based pathway to expanded participation — rather than a fixed deadline — signals the Program Administrators' intent to broaden eligibility as soon as the in-flight pilots and parallel proceedings resolve the questions that remain, while protecting ratepayers in the interim.

The Program Administrators recognize that some stakeholders favor a faster opening to full participation, and they are committed to working expeditiously toward that goal. The recommendations in this report are intended to launch bidirectional EV participation on a sound and cost-effective footing and to give the market a clear signal that a fuller set of vehicles and customers will become eligible in the near term. The Program Administrators look forward to continuing to work with PURA, the Working Group, and other stakeholders to refine and implement these recommendations through the next ESS Program review and beyond.