Meeting Notes: Bidirectional EV Working Group - Meeting 3 – Technical Integration of EVs into the Energy Storage Solutions Program

Date: April 16, 2026 | **Time:** 9:00 AM ET

On April 16, 2026, Customized Energy Solutions (CES) facilitated the third meeting of the Bidirectional EV Working Group (Bidirectional EV WG). The meeting was held via Microsoft Teams. This memo summarizes the major topics of discussion, questions, and comments raised by participants.

1 Device Enrollment Approach

CES introduced the first agenda item by framing a foundational question for program design: *what is the unit of enrollment for bidirectional EVs in the Energy Storage Solutions (ESS) Program?* CES described three potential options – enrolling the electric vehicle supply equipment (EVSE) alone, enrolling a paired combination of EVSE and vehicle, or enrolling the vehicle itself – and offered context on the implications of each. CES noted that the current ESS program enrolls a specific combination of inverter and battery at a specific site associated with a specific utility account number.

CES presented a straw proposal: that the program would enroll the EVSE at a specific location and account, given that the EVSE is fixed at a known point of interconnection behind a known meter. Under this proposal, the Program Administrators (PAs) may optionally collect information about the vehicle or vehicles most likely to be connected to the enrolled EVSE for evaluative purposes, but this information would not be binding and would not trigger re-enrollment obligations if vehicles changed.

Participants broadly supported the EVSE-centric enrollment approach. One participant, citing the IEEE concept of a "reference point of applicability," noted that the EVSE represents the stable point of interconnection and that this framework applies cleanly to both direct current (DC) coupled systems – where the inverter is located in the EVSE and which represent the majority of deployed bidirectional systems today – as well as to alternating current (AC) coupled systems. The same participant noted that in both configurations, the EVSE is the appropriate reference point, independent of which vehicle is connected.

Another participant expressed support for EVSE-only enrollment, noting that in the V2G AC configuration, the EVSE acts as the gatekeeper for determining whether a connected vehicle is compliant. This participant suggested that the optional vehicle data collection element of the straw proposal be removed, in order to minimize enrollment friction and reduce administrative burden on customers.

Other participants offered additional perspectives. A participant emphasized that the EVSE is the component responsible for grid code compliance and metering, and supported enrolling at the EVSE level. The same participant noted that changing the vehicle connected to an EVSE should not trigger re-enrollment, though relevant vehicle characteristics – such as battery capacity – may be worth capturing at enrollment for program evaluation.

Another participant raised a practical concern: without knowledge of the vehicle, Program Administrators have limited ability to forecast aggregate output. The participant acknowledged the pay-for-performance structure of the current ESS program, which mitigates financial risk from non-performance, but suggested that some level of visibility into connected vehicle characteristics would support program planning. Another participant noted that even with vehicle-level data, customers retain discretion over what portion of battery capacity they choose to make available, so such data would provide an approximation rather than a firm commitment.

A participant from an aggregator noted an additional consideration related to the ESS program cap: without upfront vehicle information, it may be difficult to assess how much capacity is actually behind each enrolled EVSE as the program approaches its 580 MW ceiling. The participant acknowledged this is not an immediate concern given current enrollment levels.

CES summarized the emerging consensus: the program would enroll at the EVSE level, at a specific location and account. Possibly optional collection of vehicle information at the time of enrollment – without imposing binding obligations or re-enrollment requirements upon vehicle changes – was identified as a reasonable approach to support program evaluation while preserving flexibility. CES noted that the telemetry discussion later in the agenda could offer another mechanism for capturing vehicle-level data – for instance, by reporting stored energy (kWh) from the vehicle – in a way that would inform ongoing evaluation without complicating enrollment. CES indicated that a formal proposal on this item would be circulated for member vote at the opening of Meeting 4.

2 Qualified Product List

CES introduced the concept of a Qualified Product List (QPL) and described how the current ESS program uses a QPL based on inverter and battery combinations, with equipment manufacturers submitting a New Technology Application (NTA) to demonstrate compliance with program-required certifications. CES noted that the current NTA checks for UL 1973, UL 1741 SA, and UL 9540, and that some of these requirements would need to be revisited for bidirectional EVSE. CES referenced the California Energy Commission's V2G equipment list as one of the few existing examples of a bidirectional-EVSE-specific product list.

CES presented a straw proposal for a bidirectional EVSE QPL: the list would cover eligible EVSE only – not individual vehicles or EVSE-vehicle pairings – qualification would be based on applicable standards (to be defined in the following agenda item), and the QPL would explicitly not attempt to address interoperability between specific EVSE and vehicle models.

Participants expressed broad support for this proposal. A participant strongly endorsed excluding interoperability from the QPL, noting that interoperability standards and equipment compatibility evolve rapidly, that vehicle Original Equipment Manufacturers (OEMs) bear primary responsibility for ensuring

their vehicles work with certified chargers, and that attempting to maintain a matched-pair list would create administrative burden without commensurate benefit. The same participant noted that EVSE manufacturers and other partners are better positioned to communicate compatible vehicle pairings directly through dealer and sales channels.

Another participant also supported the proposal while raising a question about what specific information would be listed for more complex systems, where multiple components – such as a gateway device in addition to the charging unit – together comprise the bidirectional system. CES acknowledged this level of detail would need to be addressed in the NTA process and invited the participant to share specific examples for consideration.

A participant noted that the Electric Power Research Institute (EPRI) maintains a more current and broader national V2G equipment list than the California CEC list, and suggested it could serve as a useful reference. The participant also raised the question of QPL maintenance: *who would be responsible for keeping the list current, and how quickly could new equipment be added?* CES noted that this distinction is meaningful – a Program-Administrator-maintained QPL captures DERMS integration status, which an external list such as EPRI's would not reflect. CES invited participants to share views on whether a program-specific or externally referenced QPL would be preferable.

A participant from the Program Administrators offered additional context on the NTA timeline, noting that demonstrating UL certifications is typically quick – on the order of days to a week – whereas DERMS integration testing is the more time-consuming step, often taking four to six months due to the back-and-forth between the integrating party and DERMS providers. A participant from a DERMS provider added that the timeline varies depending on whether an equipment manufacturer is an existing DERMS integration partner: expanding an existing partner's qualified product offerings can take hours or days, while onboarding an entirely new integration partner is a longer process. A participant from a fleet operator flagged that timely QPL additions are operationally critical for fleets procuring equipment on a regular cycle, and suggested that Program Administrators consider establishing a defined review timeline – for example, a 45-day turnaround commitment – for new NTA submissions.

A participant from an equipment manufacturer raised the concern that maintaining separate QPLs with varying requirements across different state programs creates market entry friction. The participant expressed interest in mutual recognition or cross-referencing between program QPLs to reduce duplicative certification efforts. Another participant affirmed that this was part of the intent behind the EPRI list – to enable states to reference a common resource rather than each maintaining a distinct list.

CES summarized the discussion as reflecting support for the straw proposal: an EVSE-only QPL, grounded in applicable certifications and standards, and not attempting to address interoperability. Questions around maintenance responsibility, EPRI cross-referencing, and review timelines were noted as areas for further development.

3 Applicable Standards and Certifications

CES introduced this agenda item by contextualizing the ESS program's role: Program requirements represent one layer of a broader regulatory and permitting landscape, alongside interconnection requirements, local codes, and other applicable standards. CES noted that the current ESS program

manual references a broad list of standards and certifications using "as applicable" language, but that the NTA currently performs hard checks for three specific certifications: UL 9540, UL 1973, and UL 1741 SA. CES also noted that UL 1741 SB is now required by the utilities through the interconnection process for inverter-based distributed resources, while the program manual currently requires UL 1741 SA.

In advance of the meeting, CES had solicited feedback from participants on whether current ESS certifications and standards would apply to EVSE versus the EV itself, and whether additional certifications should be considered. CES summarized the feedback: many current standards have some applicability to EVSE; applicability to the EV itself is more limited. In most instances, this would not require any changes, given the "as applicable" language in the program manual. CES noted that UL 1973 and UL 9540 are unlikely to apply to bidirectional EVSE in the same way they apply to stationary storage, and that the NTA process would likely need to be updated accordingly.

3.1 UL 1741 and AC vs. DC Coupled Systems

CES described UL 1741 as the primary certification that utilities reference when interconnecting inverter-based distributed energy resources, and outlined its application to both DC-coupled and AC-coupled bidirectional EV systems.

For DC-coupled systems – in which the inverter is located in the EVSE – UL 1741 SA or SB applies in a manner closely analogous to stationary storage. This is a well-established certification pathway. For AC-coupled systems – in which the inverter is located in the vehicle – certification is more complex. CES described two available pathways:

- The first pathway involves certification of the EVSE to UL 1741 SC (currently in final development stages, expected to be published within 2026) with an accompanying requirement that the vehicle be certified to SAE J 3072. This is generally considered the more scalable long-term path for AC-coupled resources.
- The second pathway uses the UL 1741 CRD (Composite Reference Document) SB route, under which a specific EVSE and vehicle pairing is certified together as a composite distributed energy resource (DER). This pathway is currently available and has been used by at least one manufacturer, but is considered less scalable due to the matched-pair structure.

CES noted that the interconnection working group (IXWG) is actively considering how these pathways apply to interconnection, and encouraged participants with views on interconnection-specific implications to engage in that process.

3.2 Communication Standards: ISO 15118 and OCPP

CES described ISO 15118 as a communication standard governing the exchange between EVSE and vehicle. CES noted that the -20 version is the first iteration to explicitly address bidirectional power flows and therefore would likely be the appropriate version to reference for V2G applications. CES framed the program-level question as whether to require 15118-20 as a condition of QPL eligibility, not as an interconnection requirement per se, but as a program design choice reflecting goals such as future interoperability, protection against stranded assets if an OEM exits the market, and ease of use for customers who may want to use different vehicles with their charger over time.

A participant suggested that the applicable requirements may differ between residential and commercial/fleet applications, and noted that ISO 15118 compliance is not universal among currently deployed residential bidirectional EVSE, where it adds cost. A participant with expertise in IEEE standards noted that from a utility and interconnection perspective, ISO 15118 may not be relevant – utilities focus on the EVSE-to-utility communication, not the EVSE-to-vehicle communication – but acknowledged that the Program Administrators could still choose to require it for program eligibility on broader interoperability grounds.

A participant from a fleet operator using school buses noted that their systems use ISO 15118-20 but without Transport Layer Security (TLS) 1.3 security provisions, given the secure, closed nature of bus depot environments. The participant requested that any program requirement accommodate this exception, and agreed to follow up with written details.

CES conducted an informal polling exercise within Teams on whether participants would support 15118-20 as a program requirement. Poll responses and other indicators from participants suggested strong support for 15118-20 as a program requirement.

On OCPP (Open Charge Point Protocol) – a communication standard for the management of charging equipment via a central management system, which is referenced in a number of public charging rebate programs – participant responses were more divided. A small number of participants indicated opposition to an OCPP requirement. One participant observed that OCPP is an evolving protocol and that any requirement would need to reference a minimum version (e.g., OCPP 1.6 or later, or 2.0.1 or later) rather than a fixed version. A participant with IEEE standards expertise noted that OCPP 2.1 is under discussion for inclusion by reference in the forthcoming revision of IEEE 1547. CES noted that a distinction between residential and non-residential applications might be worth exploring – i.e., whether OCPP might be appropriate as a commercial requirement but not a residential one – though one participant cautioned that IEEE standards do not currently draw this distinction. CES indicated that the facilitators would discuss OCPP treatment with the Program Administrators and reflect the split in views in any proposal circulated for Meeting #4.

3.3 Safety Standards: UL 9741 and UL 2594

CES asked whether participants had objections to UL 9741 (specific to bidirectional EVSE) and UL 2594 (a general EVSE safety standard) as Program requirements. No participants objected. No participants advocated for additional safety standards beyond those already referenced in the current program. Participants were also asked whether they would support including safety certifications specific to the EV itself (as opposed to the EVSE) as program requirements; no participant made the case for doing so.

3.4 Other Standards

CES noted that SAE J 3072 is closely linked to the UL 1741 SC pathway: an EVSE certified to 1741 SC would require the connected vehicle to be certified to J 3072. CES asked whether participants saw a reason to include J 3072 as a standalone program requirement, independent of the 1741 pathway framework. Given that at least one manufacturer uses a proprietary communication approach that is IEEE-compliant but not J 3072-based, and given that the 1741 SC pathway has not yet been finalized, no specific support emerged for J 3072 as a standalone requirement. CES noted that relying on the 1741 framework by reference – which will incorporate J 3072 as applicable – may be sufficient.

4 Metering and DERMS Integration

CES described the current ESS program approach to metering and data integration. The Program currently allows the use of inverter-provided data for metering purposes; it does not require a separate production meter and does not measure performance at the retail delivery point. Required telemetry fields include static device information (customer name, address, utility account, equipment make and model, nameplate kW and kWh) as well as real-time performance data: kW discharged and stored kilowatt hours (i.e., state of charge), reported at 15-minute intervals with no more than one month latency per PURA's directive. CES noted that the Program does not currently prescribe a specific communication protocol for DERMS integration; equipment must demonstrate the ability to integrate with the relevant DERMS provider, but the specific technical approach is resolved between the equipment manufacturer or aggregator and the DERMS provider.

CES asked whether participants anticipated challenges with applying a requirement for 15-minute, port-level telemetry – including kW and stored kWh – to bidirectional EVs. A participant from an EVSE manufacturer affirmed that this data is generally available and should not present a material barrier.

A participant raised a question about metering accuracy requirements, noting that in some programs, revenue-grade metering requirements necessitate the installation of additional sub-meters at the site, which can be a significant cost driver for residential deployments. CES clarified that the current ESS program measures performance using data from the inverter itself, not from a separate production meter or the retail delivery point, and that accuracy requirements are therefore tied to inverter-level data standards rather than to utility-grade metering. CES noted that relevant standards among those already discussed address data accuracy at the inverter level. A participant from the Program Administrators confirmed this characterization, noting that the current program manual language references utility grade metering without strictly requiring revenue-grade certification, and that this requirement has not been uniformly enforced. A participant from a utility echoed that hybrid inverters associated with solar-plus-storage installations often do include revenue-grade metering due to solar-related requirements, whereas battery-only inverters do not always meet that bar.

A participant clarified a nuance around export measurement: for sites with other on-site load – most residential and many commercial installations – the retail meter measures net export and cannot isolate the contribution of the bidirectional EVSE. This is precisely why the current program relies on inverter-level data rather than meter-level data. It was discussed that at some sites, such as a bus depot, where charging equipment often constitutes the majority of on-site load, export measured at the retail meter and export measured at the inverter would be closely aligned.

A participant from a fleet operator noted a separate consideration relevant to school bus deployments funded through EPA grants: such grants often include Build America, Buy America (BABA) compliance requirements, which can create complications when meters or other equipment must be procured to meet program requirements. The participant suggested that use of a SCADA-based monitoring system could provide equivalent data quality while satisfying BABA procurement requirements. CES acknowledged the point and noted that the ESS program does not currently impose net meters

requirements – that is an interconnection consideration – but that these implementation nuances are worth tracking.

5 Action Items and Next Steps

CES indicated that a formal written proposal on device enrollment will be circulated in advance of Meeting #4 for member vote at the start of that session. Similarly, proposals reflecting the discussion on QPL structure and standards and certifications requirements will be prepared and circulated.

CES noted that Meeting 4 will focus on cross-program participation – examining the landscape of other Connecticut programs applicable to EVs and EVSE, including managed charging and make-ready programs, and how these programs can complement the ESS program, how benefits can be claimed across programs, and how conflicts can be avoided.

6 Attendee List

An attendee list is provided below. Organizational information was not collected; information collected below is based on CES' best attempt at associating individuals' names with the appropriate organization.

Attendee	Organization
Aileen Cole	Great Plains Institute (IXWG Rep)
Alex Wang	OCC
Amanda Stevens	Eversource
Amy Findlay	ChargeScape
Benjamin Loebick	UI
Benjamin North	DEEP
Brendan Gallagher	UI
Brendan Smith	CGB
Brian Morris	UI
Chris Kluesener	Matcha
Devin Sorgi	Uplight
Dominic Gatti	Tesla
Frances Bell	Bidirectional Energy
Jennifer Runyon	Eversource
John King	UI
Joseph Marinaccio	Eversource
Katerina Miller	UI
Katie Peterson	Mobility House
Kevin Boughan	Eversource
Kevin Matthews	First Student
Kevin Moss	Connecticut Green Bank
Kipling Haviland-Hack	Energy Hub

Lean Brams	Highland
Logan Taricani	UI
Madeline Frierson	CES
Mark Scully	People's Action for Clean Energy
Max Clarke	EV Energy
Nachum Sadan	GridEdge Networks
Nagashree Manwatkar	Uplight
Pallav Prakash	Zum
Pierre Margaff	UI
Prabisha Bhandari	OCC
Sara Harari	Connecticut Green Bank
Sara Pyne	Connecticut Green Bank
Sergio Carrillo	Connecticut Green Bank
Stephan Wollenburg	CES
Steve Letendre	VGIC (Vehicle Grid Integration Council)
Tiffany Hammond	First Student
Toni Berlandy	Eversource
Walter Barozi	DEEP