

Webinar Q&A

V2G: WHAT YOU NEED TO KNOW IN 2026

On February 11, 2026, QualityLogic held a webinar to discuss the why and what of V2G, including business and policy drivers and the new standards and technologies required to scale V2G in both the US and EU. These are answers to the questions that came up during the presentation.

How widespread is the actual use by utilities of the smart inverter capabilities that modern inverters have today?

It depends heavily on the region. In Australia, it is a national mandate to roll out, using the “solar emergency Backstop Signal” via IEEE 2030.5. In the US, California and other states are using CSIP/2030.5 signals for scheduling and managing charging networks. While Rule 21 and other grid codes have default settings programmed in, fully utilizing dynamic changes requires policies and business cases to be in place alongside the technical implementation.

What are examples of where V2G DC is in place in the industry and ready to scale?

DC V2G is easier to do, but most implementations in the US and Europe have been pilot projects with customized integrations (e.g., between buses and chargers). These are scalable within that specific certified combination, but general scalability remains a challenge and won't occur until the standards are more widely implemented and required.

Regarding charger and vehicle pairs for certification, would there be room to certify multiple vehicle groups together? For instance, EVSE X with vehicles X, Y, or Z in one certification.

In theory, this could be possible, but it is unclear if labs are currently offering this or how it is being handled in Europe. It is an interesting question, but we don't have a definitive answer regarding current practice.

Question about critical factors, I missed the risk of clear partition of functions e.g. Island mode in EV or EVSE. How is this handled by standards in order to ensure interoperability in the future of V2G?

Standards like UL 1741 SC are primarily for safety functions, such as overvoltage trip anti-islanding detection, ensuring systems respond adequately. The goal of the standards is to have everyone implement functions in the same way to achieve interoperability. The specific division of functions is an engineering/electrical issue, but once defined in standards and implemented properly, the system should work regardless of the split. The V2G-AC SAE and UL standards require the EVSE to respond to grid voltage and frequency disturbances and to enter service properly, but the anti-islanding function is the responsibility of the EV. In the EU, the current proposed standards have the EVSE performing active islanding protection. However, we don't understand how that can work and it may be changed.

What will be the key change in New UL1741 CRD compared to existing standard?

The primary change is the inclusion of a mechanism to ensure that only the specific vehicle-EVSE pair that was certified together can export power, preventing uncertified vehicles from plugging in and exporting. Other aspects remain similar to the current UL 1741 SB standard.

What can we do as an industry to “encourage” OEMs to move away from ISO-2 2017 draft and move towards 15118-20? We are slowing down progress when we have OEMs holding on to the draft.

The European Commission is already mandating ISO 15118-20 for new EVSEs starting in 2027. In the US, it may require regulatory mandates, such as requiring 15118-20 for DC chargers and -20 Amendment 1 for V2G AC systems. The UL 1741 SC standard requiring 15118-20 Amendment 1 is one specific way to help move the industry forward.

Is there any aspect with respect to which the upstream (from the EVSE) “data interface” (i.e. digital communication) and “electrical interface” (i.e. controlling the power flow) would differ between use cases with an AC EVSE versus use cases with a DC EVSE?

Interesting question and the answer may be different in the EU versus the US. From a grid operator perspective, there should not be any difference in the communications interface and the electrical behaviors of V2G-DC vs AC. In both cases, the combination of EV battery and EVSE should act as a normal DER certified to the relevant country grid codes. The big differences are between the EV and EVSE which is not visible to a grid operator.

Do you see any chance for harmonizing the ecosystem of V2G standards between the US and the EU, or is it too late?

We think that the best opportunity to harmonize US and EU V2G is in the communications protocols. OCPP 2.1 promises to standardize EVSE-CMS communications and can accommodate both EU and US grid code messaging requirements. The CCS ISO 15118-20 is looking like the common protocol between the EVSE and EV and can handle both charging and export of power (with Amendments). The grid codes themselves are based on the different grid designs in the EU and US, and we don't see that changing. The good news is that most of the grid support functions are similar but do vary in parameters used. We don't see how this can be changed.

Is there any interoperability circle for V2G in the US?

We do not know what an “interoperability circle” is. In Europe there is a clear function split. E.g. the island detection is within the EVSE.

How will it be in the US – is the island detecting also in the EVSE?

In the US standards, Islanding detection is done by the inverter in the EVSE (V2G-DC) or in the EV (V2G-AC). The US standards are focused on anti-island or unintentional islands and not on intentional islanding behaviors. The primary response to detection of an unintentional islanding condition is to exit service until the condition is corrected. We think this can only be done at the inverter system on the EVSE or EV and that is the way current draft standards are written.

Based on other companies' projects, how long did it typically take to develop the IEEE 2030.5 software required to achieve UL 1741 SB certification? We are planning to implement IEEE 2030.5 directly in the charger. We plan to use this as a reference to estimate our own development schedule.

Based on the OEM's in-depth knowledge of IEEE 2030.5, it can take many months of development. QualityLogic provides a multi-day technical workshop to help with technical knowledge, official certification test tools and provides a 2030.5 protocol stack implemented for embedded platforms including EV chargers.

How does the EV owner benefit from V2G?

Numerous pilot projects have demonstrated that when EV owners are compensated for use of their EVs for grid support, they benefit financially and are willing to participate. The industry is still learning what the value of V2G is and how to develop programs to scale its use.

You mentioned that you are active in TASK53. Which parts (i.e. standards, interfaces, functions, etc.) of what you showed in your slides is actually being tested by TASK53?

The work within Task 53 is confidential, but it aims to tackle end-to-end interoperability based on standards. Actual testing has not started yet; the group is currently debating exactly what testing should be done, with the goal of performing as much standards and interoperability testing as is reasonable on the entire end-to-end V2G system.

You mentioned that the V2G-AC communication protocol is under development in the US (version of ISO 15118-20). Is this an SAE standard or AMD1 of ISO 15118-20?

YES. This will be an SAE/SunSpec version of ISO 15118-20 and Amendment 1 for the US requirements. It's expected to have more technical details to support the US grid code requirements and should be released this year.

Could you talk about AC standards Tesla is using (per their announcement last week)

We believe they support V2G by supporting the UL 1741 CRD certification program which means that the EVSE and EV are treated as a combined DER system and the protocols used between EVSE/EV are out of scope.

Any data about what additional OEMs, e.g. beyond Tesla Cybertruck, are making AC export a standard feature?

QualityLogic is working with a number of EV OEMs currently but unfortunately, we're under NDA so we cannot disclose them.

Where can we find more information on the new UL 1741 CRD DER?

Based on our discussions with UL, they are planning to publish this standard next month. It can then be purchased from UL.

Discover why OEM manufacturers, companies, and labs rely on QualityLogic's DER protocol expertise. Contact us today.

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