

Technical: EV Issues List for Uni-Directional Chargers

Technical Subgroup Topic 1

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Refer to accompanying memo

Objectives for Today

Item	Purpose
Overview of Bi-Directional Issues from Tranche 3	For information
Uni-Directional Charger Connection Issues from Tranche 4	For review and approval
Potential Areas of Exploration	To provide direction to the Technical Subgroup on its next areas of investigation

The accompanying memo will form part of the report back to the OEB, if endorsed by the Working Group.

The memo provides details on the above uni-directional issues and potential areas of exploration, as well as issues identified as out-of-scope for the DER Connections Review consultation.

Bi-Directional EV Charger Connection Issues

Technical Challenge

- Bi-directional chargers can increase the total nameplate of installed DER at a connection point beyond the **micro limit** of 10 kW.
- LDC may not have **visibility** on all EV deployments (uni- or bi-directional).
- Certification **standards** for stationary and mobile inverters fall under different jurisdictions.

Application Challenge

- Application **forms** do not explicitly list bi-directional EVs.
- CIA **application cost** can be prohibitive for 10-30 kW installations.
- **Requirement** for CIA may not be clearly understood for cases with incremental deployments (e.g. several <10kW facilities deployed over time).

Connection Cost Challenge

- **Baseline connection costs*** can be prohibitive for projects <30kW.
- **System upgrade** costs may impact viability, particularly when costly upgrades are triggered by incrementally small facilities.

* For the present discussion, baseline connection costs refers to standard process and infrastructure costs that are incurred for all projects, even when system upgrades are not required.

Uni-Directional EV Charger Connection Issues

Data

- Utilities do not have visibility on all EV deployments in a given area.

Connection Costs

- Utility-side costs required to enable panel upgrades (e.g. to 200 amps) needed for EV chargers may raise fairness and cost allocation issues, result in unnecessary transaction costs, and may be applied differently between utilities
- Opportunities to have EV energy management e.g., load control to avoid service upgrades.

Out-of-Scope Issues

- Several planning and operations issues were identified that are out of scope for the DER Connections Review, but the Technical Subgroup captured them for information.

Potential Areas of Exploration

- **Uni-Directional**

- **EV Connection Costs:** Should panel upgrades to, say, 200 amps be considered part of the basic residential service paid for in rates (including the cost of any transformer upgrades that might be triggered)?
- **EV Data:** What steps can be taken to provide additional data on electric vehicle penetration to utilities, such as:
 - OEB working with ESA to facilitate Distributor access to ESA data on EV deployments.
 - OEB working with ministries to consider whether information sharing related to vehicle registrations can inform assessments of EV charger loads.
 - Distributors continuing to use smart meter data and artificial intelligence to determine EV deployments.

- **Bi-Directional**

- **Micro Threshold:** The merits of adjusting the micro size threshold for DERs, above the existing 10 kW.
- **Export Control:** The merits of establishing a simplified CIA for projects up to 50 kW, to streamline their assessment for connection.
- **Simplified CIA for Systems up to ~50 kW:** The ways in which export controls may reduce the evaluated size for a connection application, to either eliminate or simplify CIA study requirements and costs.