

Proposal for inclusion of electromobility and harmonisation of type A requirements and minimum type A/B threshold in NC RfG amendment

ENTSO-E views on ACER's initial proposal for V2G:

- ENTSO-E supports the technical requirements and the approach of having fully harmonised requirements for all installations of a size lower than A-B threshold. This is in line with ACER's proposal for EV1 and ENTSO-E proposal for type A harmonisation and similar to the proposals of the GC ESC's Expert Group Baseline for Type A generators.
- ENTSO-E acknowledges that EV1 (main application being onboard charger) shall not require connection agreement to be modified and therefore shall not fall into the approach of categories (& types) as defined in Article 5.
- ENTSO-E supports the approach of requiring a connection agreement for charging power above a certain threshold.
- The NC RfG approach of Article 5 and categorization build upon the definitions of ESM ("...'ESM' means a power generating module..."), SPGM, PPM ("...unit or ensemble of units ... has a single connection point") and Pmax shall also apply to electric vehicles. ENTSO-E therefore sees a risk in having two different requirement packages in the RfG (one for EV2, EV3 and another for Type A, B, C...) applying to an EV. This implies risk of legal ambiguity.
- The basis of categorization (Article 5) is very important to avoid that connection requests from one grid user at a single connection point is split into smaller installations to elude the requirements of a higher category (e.g., a wind farm split into 2 smaller wind farms to fall under a threshold). This approach should not only apply for PV, Wind, battery systems but also for EV2 and EV3 charging stations (e.g. a set of 25 EV3s charging stations of 1MW connected at the same connection point should be considered as one ESM/PPM of total 25MW related to the category at the national level, type C or D). As a connection agreement is required for EV2 and EV3, these should fulfil requirements according to the applicable category of Article 5. Considering ENTSO-E's proposal on exhaustive and harmonized on synchronous area level requirements for type A, it will not impact the technical requirements as they are proposed/drafted by ACER.

EU DSO Entity views on ACER's initial proposal for V2G:

- EVs need to have the same requirements across all of the EU to enable vehicles to drive across borders and connect anywhere.
- For EVs with on-board inverters, this clearly means that all inverters have to be built to common requirements.
- However, where the inverter is contained within fixed equipment there is no obvious need to standardize across Europe; the fixed equipment can be treated just as any other fixed installation within the scope of the NCs RfG and DC.
- The obligations on EV owners, and the administrative burden for them and DSOs, should be kept to an absolute minimum.
- EV requirements should be standard as far as is reasonable across the EU.
- ACER's suggested requirements for EV1 and EV2 are identical; the proposed compliance process is different, but it is the application process which needs to be different, not the compliance process. Reliance on mandatory Equipment Certificates is sufficient.

- ✚ Fixed equipment which includes the inverter within it can be manufactured just like any other PPM to meet the national requirements. It has no direct effect on the EV itself.
- ✚ Mobile inverters, moving across national boundaries cannot be aggregated; fixed inverters can be.
- ✚ Compliance would be on a vehicle basis for AC connected EVs, and on a charging park basis for DC connected EVs – i.e., an aggregation of the charging points within.
- ✚ However, standardization is still positive so there is a choice as to at what capacity to move from standard across Europe to national. Above this threshold EV charging parks would be treated as electricity storage modules (ESM).

Building on the foregoing views, an alternative proposal shall consider these priorities:

- Non-discriminatory approach.
- Aggregation of charging stations/charging parks.
- Harmonization of requirements to promote fast deployment.

Joint ENTSO-E & EU DSO Entity alternative proposal, in 4 steps:

1. Harmonization of type A requirements.
2. Categorization of charging points which contain a converter with bidirectional capabilities as Electricity Storage Modules (ESM).
3. Creation of a single category in the RfG for onboard converters in electric vehicles with bidirectional capabilities: “V2G” (in substitution of EV1/2/3). V2G requirements will replicate type A ESM requirements with some exemptions (compliance based on equipment certificates, no aggregation applicable, etc.).
4. Definition of a minimum threshold for type A/B PGMs in 100 kW.

Joint ENTSO-E & EU DSO Entity alternative proposal, explanatory notes:

- ✚ Harmonization of type A requirements would allow the manufacturing of mass market products, as electric vehicles, small charging points (*wallbox*), photovoltaic converters and small batteries, with common criteria in the European Union, promoting its deployment and avoiding technological discrimination.
- ✚ 26 out of 27 EU Member States have defined a threshold A/B at 100 kW or above. The A/B threshold in Italy, being the only one under 100 kW, should be adapted to maximize consistency of the proposal. During the harmonization of type A requirements, the system needs in Italy justifying the current lower threshold should be carefully considered in the definition of the harmonised requirements, to ensure that raising it results in a negligible impact on the system. During the implementation of RfG 2.0, in Italy, any impact emerging from the A/B threshold update should be again carefully handled.
- ✚ According to current technological status and forecasted development, onboard converters would fall under a charging power threshold of 100 kW, which also covers all domestic charging points.
- ✚ These onboard converters (AC charging up to 100 kW) should differ from current categorization of ESM: A specific category (V2G) should be included in the RfG NC, which should replicate type A requirements and add necessary adaptations (e.g., no aggregation applicable, mandatory equipment certificate, etc.). Furthermore, as the EV may be capable of functioning with bidirectional (V2G) or unidirectional (V1G) modes, the harmonization between the requirements for both modes, in RfG NC and DC NC is recommended to ease compliance verification processes.

- ✚ The requirements for onboard converters would not distinguish between the type of connector used; all AC charged V2G EVs would be subject to the same RfG requirements.
- ✚ DSOs will continue to subject all EVs to their existing requirements of pre-notification of connexion, which are set on a DSO-by-DSO basis, according to their network capabilities.

Joint ENTSO-E & EU DSO Entity alternative proposal, explanatory graphs:

