



**Electromobility -
EU DSO Entity
Proposal ESC & DATE**

Background

- At the June GC ESC ENTSO-e and the EU DSO Entity presented a joint proposition on EVs:
 1. Harmonization of Type A requirements
 2. Categorization of charging points which contain a bidirectional converter as electricity storage modules (ESM)
 3. Creation of a single category of requirements in the RfG for EVs with on board bidirectional converters.
 4. Definition of a minimum threshold for Type A/B PGMs at 100kW

Developments

- ENTSO-e now realises they need to maintain the ability to set some parameters at the TSO level.
- This makes point 1 (harmonization of type A requirements) of the original proposition impossible, and makes point 4 (minimum threshold for Type B) not really relevant.
- However, the Entity does not see a problem in effecting points 2 and 3 and establishing common requirements across Europe for all AC connected V2G EVs and all DC Connected V2G EVs:
 2. Categorization of charging points which contain a bidirectional converter as electricity storage modules (ESM)
 3. Creation of a single category of requirements in the RfG for EVs with on board bidirectional converters.

Current Proposal from ACER

- AC V2G have common requirements across the whole of the EU.
- The common requirements are those proposed by ACER for EV1 & EV2.
- The Entity suggests splitting EVs into AC V2G and DC V2G
 - No aggregation of AC V2G in a single facility.
 - An AC V2G of < 1MW would be treated in accordance with the requirements in Article 13 a, proposed by ACER.
 - An AC V2G of >1MW would be treated as ESM.
 - All DC V2G to be treated as ESM and subject to PPM rules of aggregation.

Electromobility – applicability of NC RfG

0.8 kW < AC Connected <1MW

Type AC V2G



New Article in NC RfG
– exhaustive requirements – largely the same as
Type A – but not identical

> 0.8 kW and DC connected

Type DC V2G



Technical requirements identical to
electricity storage modules, all types,
based on Article 5

Electromobility –NC RfG compliance

0.8 kW < AC Connected <1MW

Type AC V2G



Certificates only.

DSOs may have pre-connexion requirements
(based on national legislation)

> 0.8 kW and DC connected

Type DC V2G



Operational notification procedure and requirements to demonstrate compliance identical to all other ESMs

New definitions (non-exhaustive list)

- **'V2G electric vehicle'** means the vehicle that is powered, fully or in part, with electricity and is equipped with technology enabling the vehicle to provide electricity to the grid.
- **'AC V2G electric vehicle'** means a V2G electric vehicle where the bidirectional power converter is on-board the electric vehicle and hence the AC V2G electricity vehicle has an alternating current connexion to its charging point.
- **'DC V2G electric vehicle'** means a V2G electric vehicle which can be connected to a bidirectional power converter that is incorporated in the fixed V2G electric vehicle supply equipment and hence there is a direct current connexion between the V2G electric vehicle and its V2G electric vehicle supply equipment. DC V2G electric vehicles are defined as electricity storage modules.
- **'V2G electric vehicle supply equipment'** means the infrastructure necessary to conduct electrical energy safely from the electricity supply grid to the electric vehicle and from the electric vehicle to the electricity supply grid with both generation and demand behaviour. **V2G electric vehicle supply equipment is fixed equipment, either within a facility with a single connexion point, or standalone and directly connected to the network.**

Electrical Charging Parks

- There is no need for the definition of Electrical Charging Park.
- The technical requirements of any AC connected EV will be specific only to that EV. RSOs may apply restraints on combined behaviour at the connection point in accordance with national legislation.
- DC connected EVs will be aggregated just like any other ESM.

Detailed changes to ACER's drafting:

Reference Art:	Modification
Recital S2	EVs differentiated between AC and DC connected
2.10a	Deleted as this was only used by Art 30b which is also deleted
2.67	V2G <u>defined</u> as ESM and DC V2G added.
2.69	ACER 69 (V1G) deleted.
2.70	New definition of AC V2G
2.71	New definition of DC V2G
2.72	V2G supply equipment defined as being fixed behind a connexion point.
2.74	Deleted
2.75	Deleted
5.2	Amended to distinguish AC V2G from any other ESM.
5.5 (new)	Addition to force the A/B boundary to be no lower than 100kW
5.7	Modified to define AC V2G and DC V2G only (EV3 deleted)
13a	Throughout – modified to only apply to AC V2G (as DC V2G treated as ESM)
14a	Deleted in its entirety as it applied to EV3 only.
30a	Modified to only apply for AC V2G.
30a.1	New requirement for DSOs to be able to impose connexion requirements on EVs
30b	Deleted as applied to EV3.