EV CERTIFICATION
PROCESS TO SUPPORT
INTEROPERABILITY

Grid Connection European Stakeholder Committee

Brussels

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WHO WE REPRESENT

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ABOUT THE EU AUTO INDUSTRY

- 13.2 million Europeans work in the automotive sector
- 10.3% of all manufacturing jobs in the EU
- €383.7 billion in tax revenue for European governments
- €106.7 billion trade surplus for the European Union
- Over 7.5% of EU GDP generated by the auto industry
- €72.8 billion in R&D spending annually, 33% of EU total

3

IMPLEMENTING ACT NEEDED TO DEFINE EV CERTIFICATION PROCESS

Interoperability between EV and EVSE is crucial for Mobile Distributed Energy Resources (DER)

EV charging can be implemented through:

- DC Power Exchange: The EVSE must meet the requirements outlined in the DCC & RfG
- AC Power Exchange: The EV and EVSE, when combined, must meet the requirements outlined in the DCC & RfG

Both scenarios require a stable communication between EV and EVSE (e.g.: ISO15118-20).

For **AC Power Exchange**, a consistent implementation within the EV and EVSE is needed. An implementing Act as part of the RfG and DCC could guide the following key aspects:

- Function Allocation between the EV and EVSE in line with international product standardization
- Certification Scheme for V2G AC EV based on harmonized & exhaustive requirements including a reference implementation.

All aspects must be:

- verifiable through testing,
- certifiable by an accredited body,
- and meet the necessary homologation requirements for market approval. (A cross-reference in Annex 2 of (EU) 2018/858 towards 2016/631 is needed)

National guidance documents on Requirements for Generators (RfG) allows Distribution System Operators (DSOs) to define regional requirements fostering proprietary non interoperable solutions.

ACTUAL IMPLEMENTATION OF THE RFG & DCC CAUSES EV TO FOLLOW REGIONAL RULES

EU Regulation

National Transposition Rules to meet EU Regulation

DSO Connection rules

Actual setup for RfG

Regulation EU 2016/631
Requirements for Generators



Comply with

National Standards

GER VDE-AR-N-4105 UK G99/G98 ES NTS-Generators IT CEI-0-16 & 0-21 BE C10/11



Comply with

Regional Implementation to the National Standards

The actual draft allows

- 1. DSO's to define national implementation & additional requirements for the EV & EVSE
- 2. EV and EVSE manufacture are urged to develop proprietary solution's.

The <u>VDE FNN</u> (Germany) offers an example based on VDE-AR-N-4105 of a guidance document illustrating how to implement functional allocation for bidirectional charging, to allow independent certification of AC V2G EV and AC V2G EVSE.

GRIDCODE FULL PICTURE FROM REGULATION TO PERMITTING

EU Regulation

Requirement For Generator EU 2016/631

List of harmonized GridCode requirements with parameters configurable range for national implementation

§13.a Technical requirements

- U & Hz operating Range (nominal & deviation) incl power stability
- Resistance to grid event (ROCOF, FRT)
- Grid active support function (LFSM U/O)
- Data exchange interface

Gridcode Harmonize regulation

Comply with

National Transposition Rules to meet EU Regulation

Requirement for Certification (FR, NL,...: EN 50 549 -1 / -10)

Implementation guide for RFG requirements

Gridcode certification : test method & acceptance criteria

Additional Technical requirements

- U; Hz measurement accuracy
- Active & reactive power capacity & accuracy
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Additional optional function:

- OVRT
- Voltage Support function (Q(Setp) Q(U), Q(P), cosPhi(P), cosPhi(setp))
- voltage & frequency protection (NS protection)
- Zero current mode
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Third party certification of Gridcode compliance

Comply with

DSO Connection rules

Requirement for Permitting DSO connection rules

National implementation : Value for Gridcode parameters Selected optional function

Administrative process for permitting incl. Gridcode compliance

installation Technical requirements

- Connection to Smartmeters
- Use of "data exchange interface" (§14a)
- Compliance with existing Solar installtatio or stationary storage

In use Technical requirements

- Max allowed Injection power
- Max allowed Charge power
- Max allowed unbalance between phase

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COMPARISON TO THE ACTUAL VEHICLE REGULATION

Vehicle Emission Regulation

Unified EU Process for Vehicles



Implementing Act 2017/1151



e.g. UNECE GTR 15 - WLTC

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Regional Implementation to National Standards

EV homologation addresses mobile device requirements, while RfG establishes a framework for regional compliance.

DSO Connection rules

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Connection

DSO

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Regional Implementation to National Standards

Proposed Setup for EVs

Regulation EU 2016/631 Requirements for Generators



Implementing Act XXXX/xxxx



Unified EU Process for Vehicles

Global Technical Guidelines or Certification Standard

The actual proposal follows the Vehicle Emission regulation scheme.

The scheme is a proposal to support customers to buy an interoperable system in an open market.



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