



SPEAK ENERGY

EEBUS UPDATE: GERMAN DEVELOPMENTS. PLANS FOR FLEXIBILITY AND DEMAND SIDE MANAGEMENT

OpenADR European Flexibility Initiative — ElaadNL

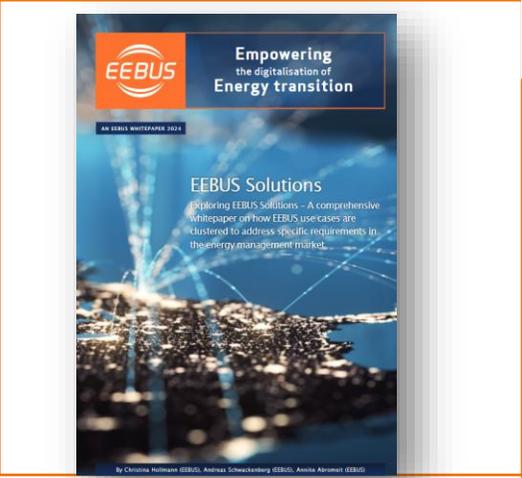
George Hallak OpenADR Conference

05.03.2026

WHAT CHARACTERISES EEBUS?

- EEBus Initiative e.V. is a non-profit organisation and association of leading **companies** in the **energy industry** and **manufacturers** in the fields of **automotive, heating & air conditioning, decentralised energy storage and generation**
- EEBUS has been the address for **energy networking** at the **grid connection** for over **10 years**
- Market-leading manufacturers integrate the EEBUS standard into their devices

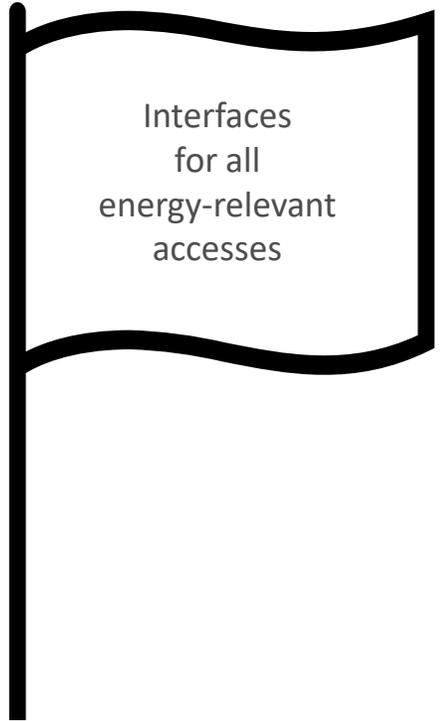
Writing specifications



Testing in Living-Lab und research projects



Standardise



STRONG COMMUNITY: CROSS-INDUSTRY ASSOCIATIONS RELY ON EEBUS AS NON-PROFIT ORGANISATION



AS WELL AS LEADING COMPANIES:



§14a EnWG (Load)

- BNetzA regulation in force since January 1, 2024
- Participation obligation for controllable loads (e.g., Heat pumps) > 4.2 kW
- Annual compensation of €110–€190

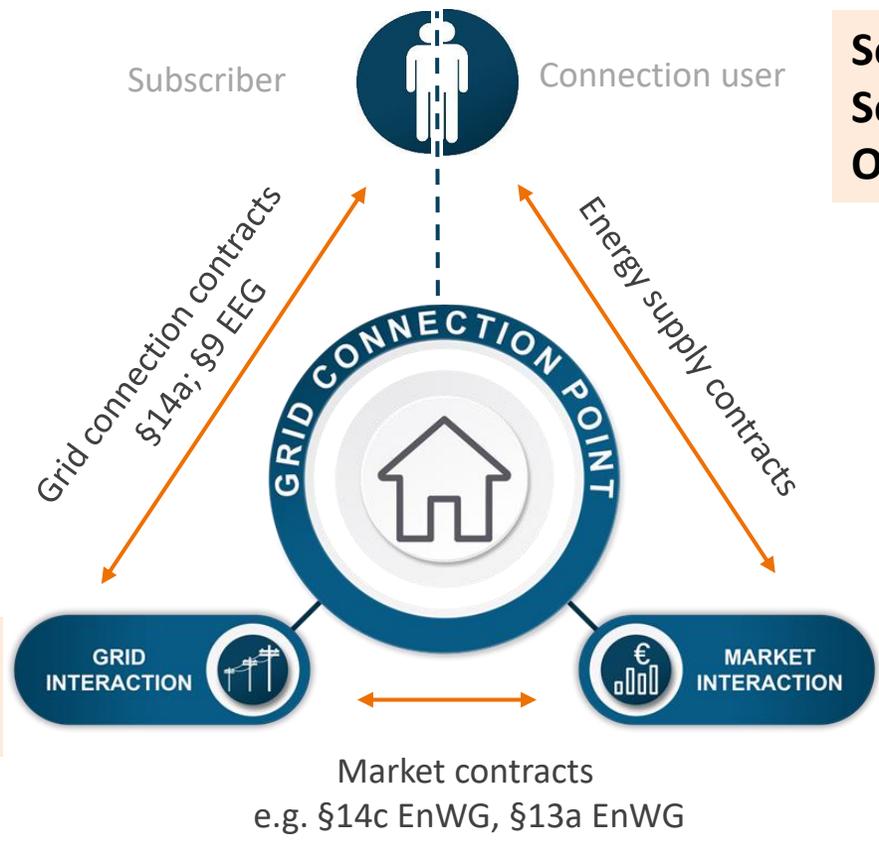
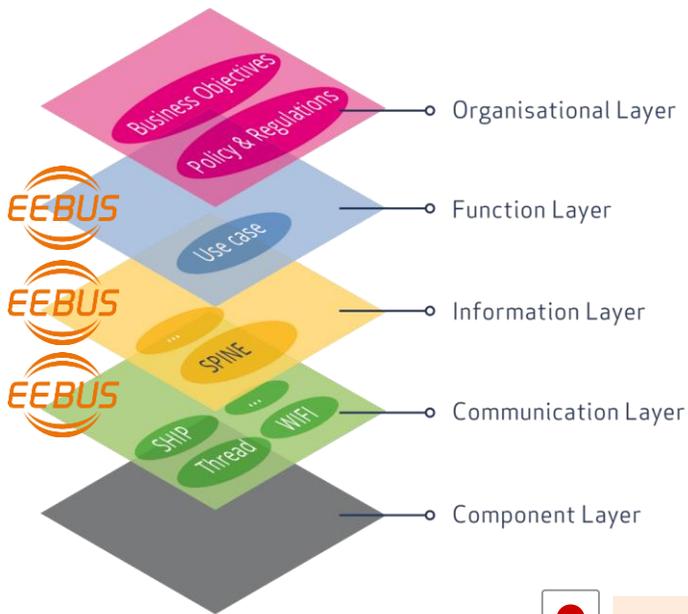
§9 EEG (Production)

- In force since February 25, 2025
- Producers (E.g., PV) between 25 kWp and 100 kWp must allow remote control of feed-in for grid stability
- PVs over 7 kWp installed after February 25, 2025, must include an iMSys (incl. control unit)

§ 14c EnWG (Market)

- In force since 2022, but it cannot yet be applied in practice
- Allows grid operators to manage local congestion using market-based flexibility products (flexibility providers)
- Market participants voluntarily decide whether they want to offer flexibility

EEBUS PROVIDES SOLUTIONS FOR VARIOUS INTERESTS AT THE GRID CONNECTION POINT



Solution:
Self-Consumption Optimisation

Time-variable tariffs can lead to high simultaneity

Solution: Power Limitation

§ 14a & §9 EEG
Power limitation must take priority "Fire brigade"

Solution: Dynamic pricing

Monetarily remunerated power control to avoid the "fire brigade"

Solution: Flexibility Provision

INSTALLATION CASES: §14A ENWG AND §9 EEG



EEG / KWKG System
(e.g. Photovoltaic Power Plant)

§9 EEG

All renewable energy systems above 7 KWp



E-Mobility Charging Station
(AC-Charging Station)



Storages



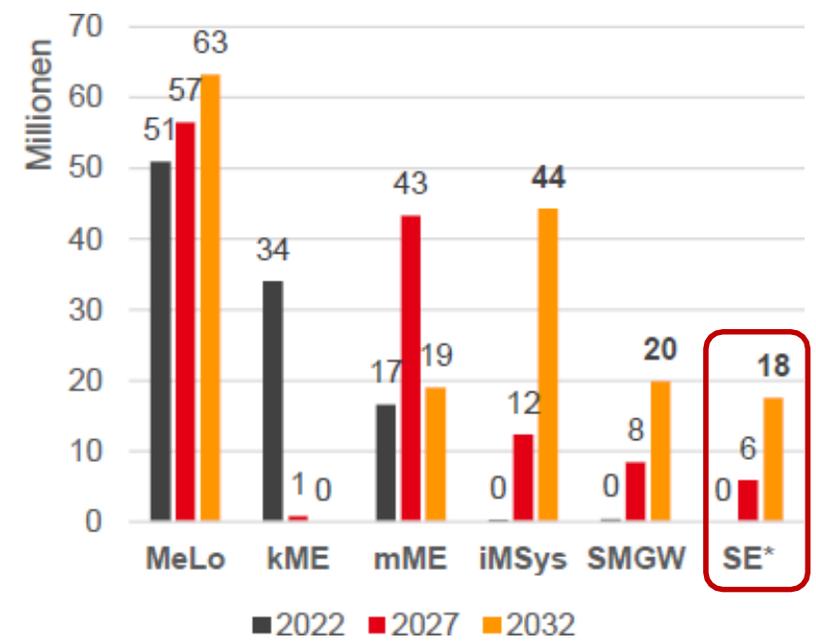
Heatpumps



Air-Conditioning

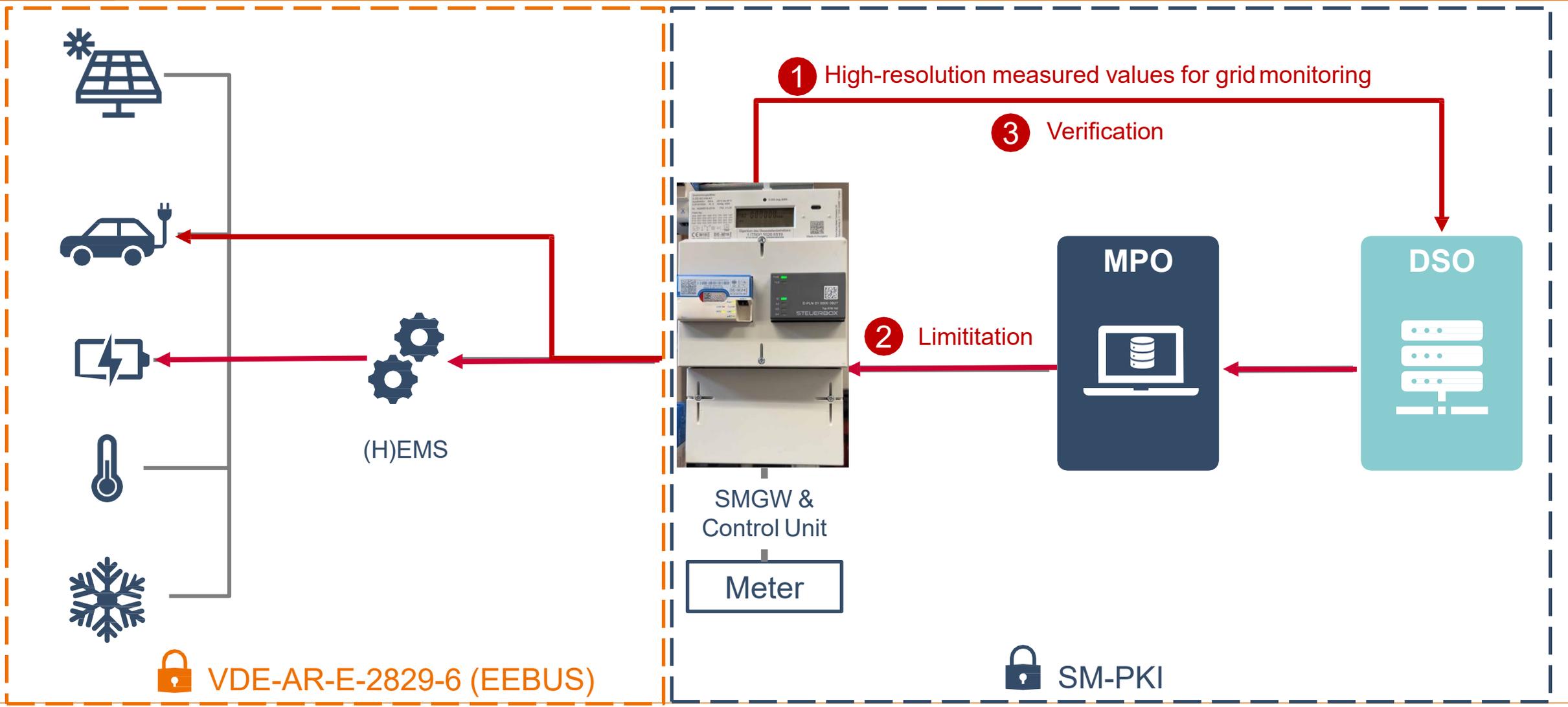
§14a EnWG

All controllable devices above 4.2 KW

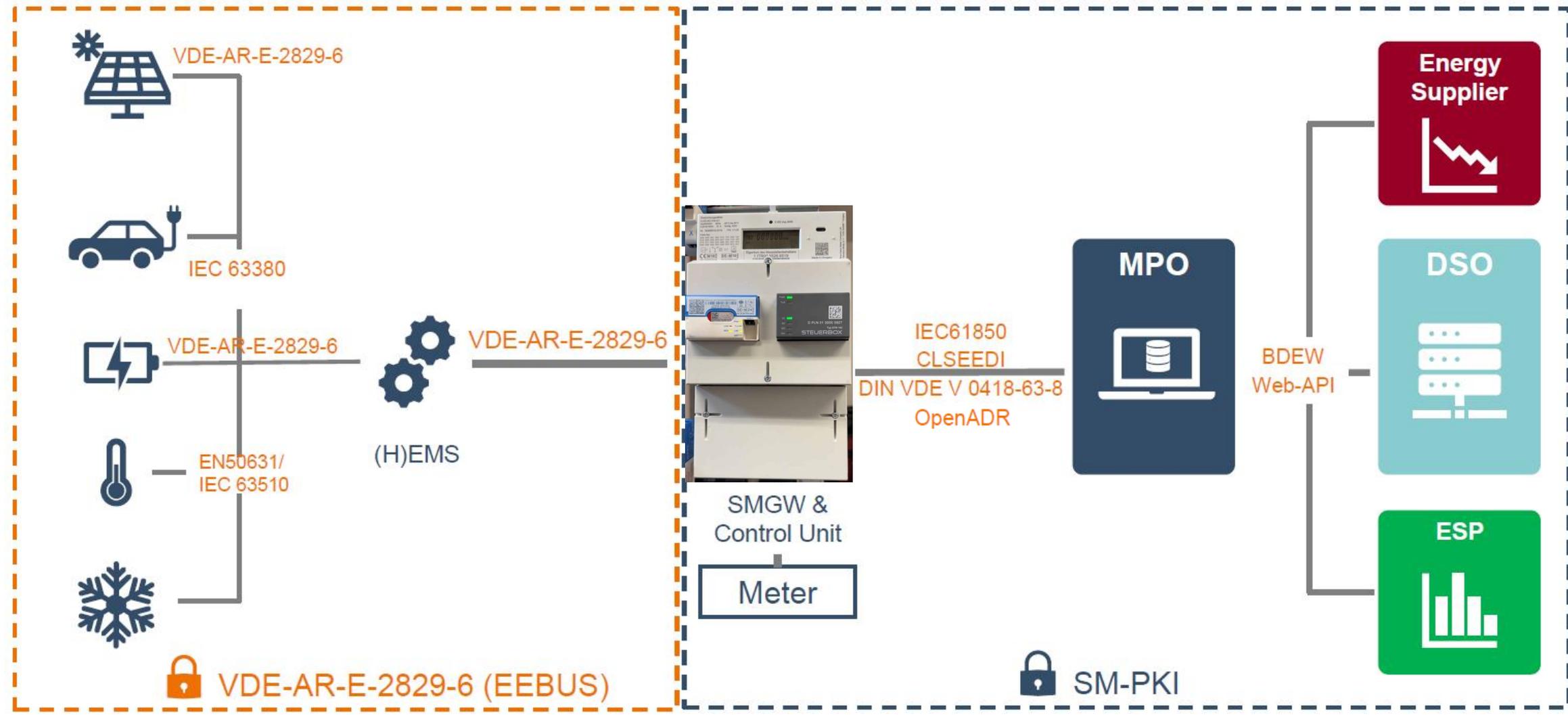


More than 18 Mio.
Installation Cases for Smart
Grid Control Units by 2032

HOW DOES IT WORK? §14A ENWG AND §9 EEG

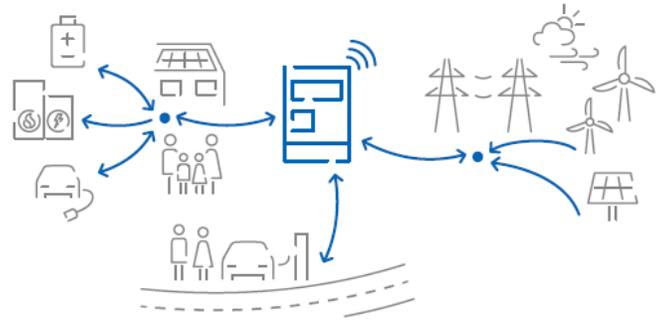


HOW DOES IT WORK? §14A ENWG AND §9 EEG



FNN RECOMMEND DIGITAL INTERFACE AND EEBUS AS MINIMUM STANDARD

VDE FNN Hinweis



Anforderungen an die technische Ausgestaltung der physikalischen und logischen Schnittstellen der Steuerungseinrichtung zum Anschluss und zur Übermittlung des Steuerbefehls an eine steuerbare Verbrauchseinrichtung oder ein Energie-Management-System

Bundeseinheitliche Empfehlung von VDE FNN nach dem Stand der Technik zu Tenorziffer 2a gemäß der Festlegung BK6-22-300 der Bundesnetzagentur

Version 1.0
März 2025

As the minimum standard, the majority chose VDE-AR-E 2829-6-1, which mandates the implementation of the EEBUS communication protocol.

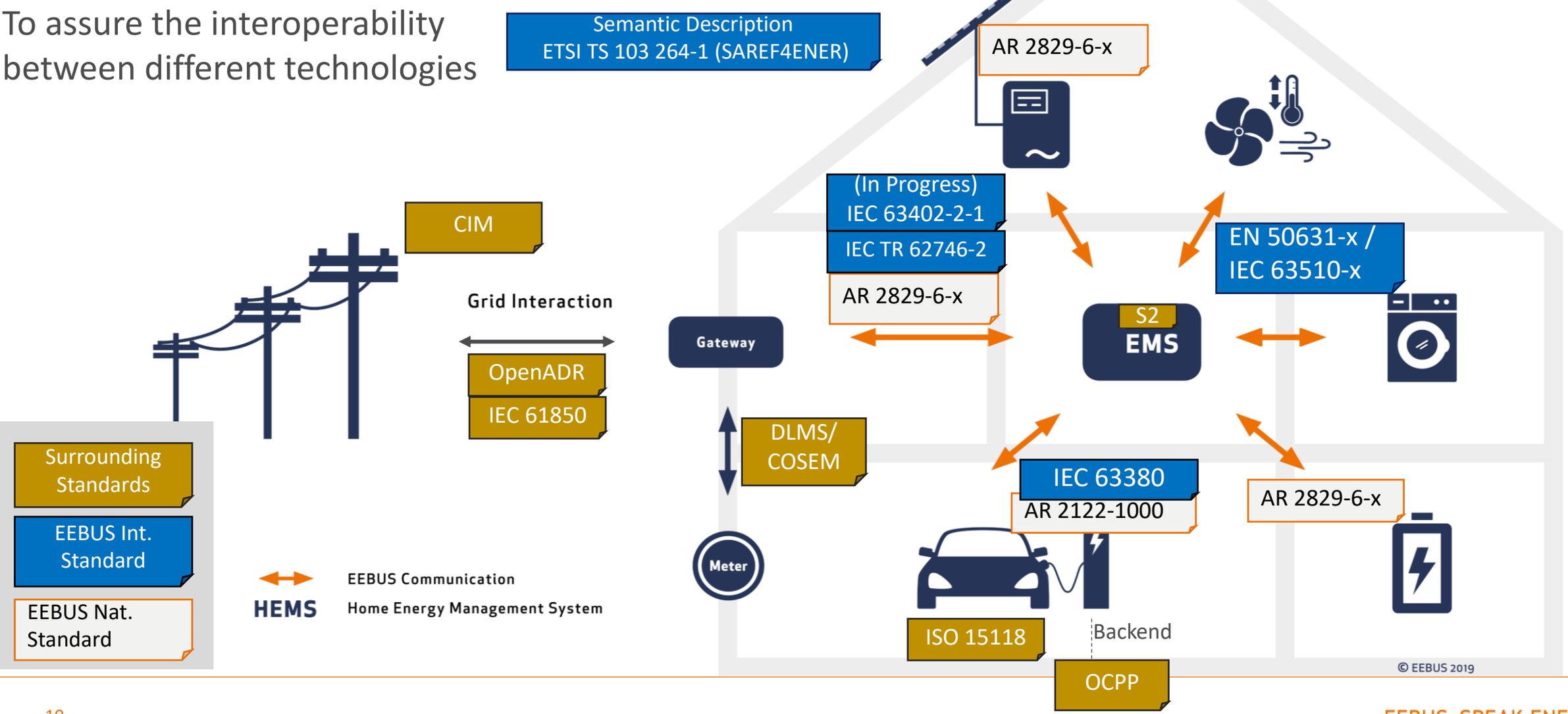
VDE FNN = technical regulator for power grids in Germany

4.4 Festlegung eines Mindeststandards für die digitale Schnittstelle
Aus den Rückmeldungen der Kommentierungs- und Konsultationsrunden zum aktuellen Stand der Technik, die während der Erstellung dieser VDE FNN Empfehlung durchgeführt wurden, wurde der Wunsch nach der Festlegung eines verbindlichen Mindeststandards bei der Umsetzung der digitalen Schnittstelle identifiziert. Dieser Mindeststandard soll eine effiziente Nutzung der digitalen Schnittstelle sicherstellen.
Als Mindeststandard wurde sich dabei mehrheitlich für die VDE-AR-E 2829-6-1 mit der verpflichtenden Umsetzung des EEBUS-Kommunikationsprotokolls ausgesprochen. Mindeststandard bedeutet in diesem Zusammenhang, dass eine steuerbare Einrichtung bzw. eine Steuerungseinrichtung, die eine digitale Schnittstelle für die Erfüllung der Steuerbarkeit nach § 14a EnWG oder im Sinne des EEG bereitstellt, diese entsprechend Umfang und Ausprägung gemäß Kapitel 5 im Format EEBUS entspricht.

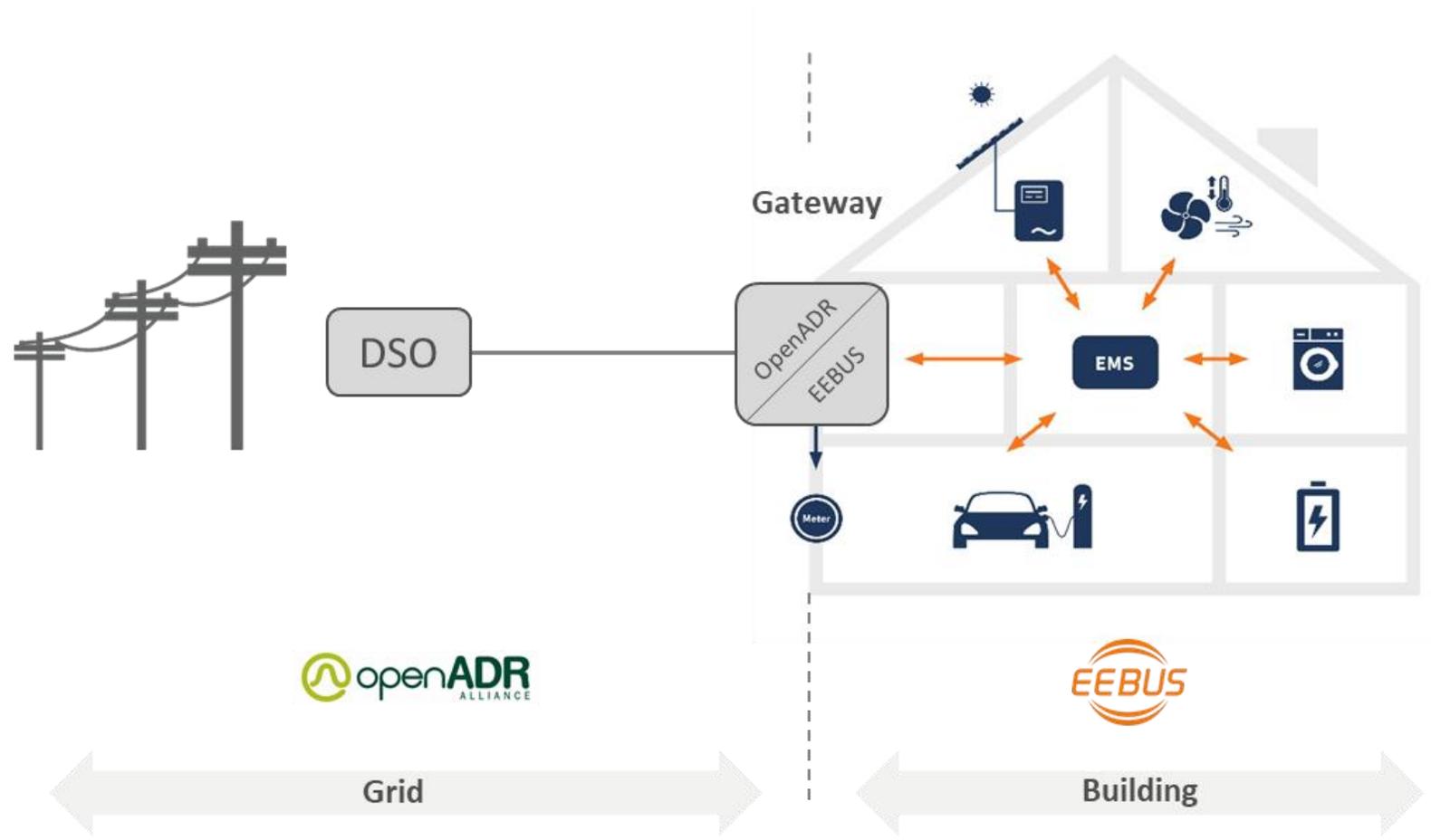
*VDE-AR-2829-6 = EEBUS Use Cases, Data Model, Protocol

EEBUS STANDARDISATION OVERVIEW

To assure the interoperability between different technologies



COMBINING OPENADR AND EEBUS

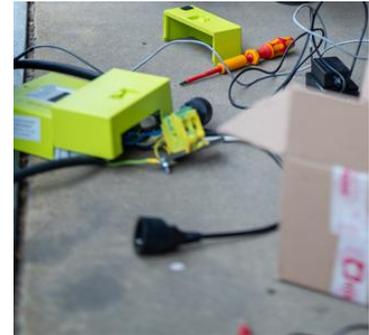


Conceptual demonstration with EEBUS Use Cases for Power Limitation

1. So far the mapping for the transmission of power limits (**consumption and feed in**) as well as for **metering values** has been completed.
2. The OpenADR commands "Load Dispatch" and "Telemetry Usage" are mapped to the EEBUS use cases "Limitation of Power Consumption" (**LPC**) and "Monitoring of Power Consumption" (**MPC**).

-> The complete message definitions can be found in the corresponding whitepaper.

The different connection scenarios with the Linky Meter



Grid Connection Point

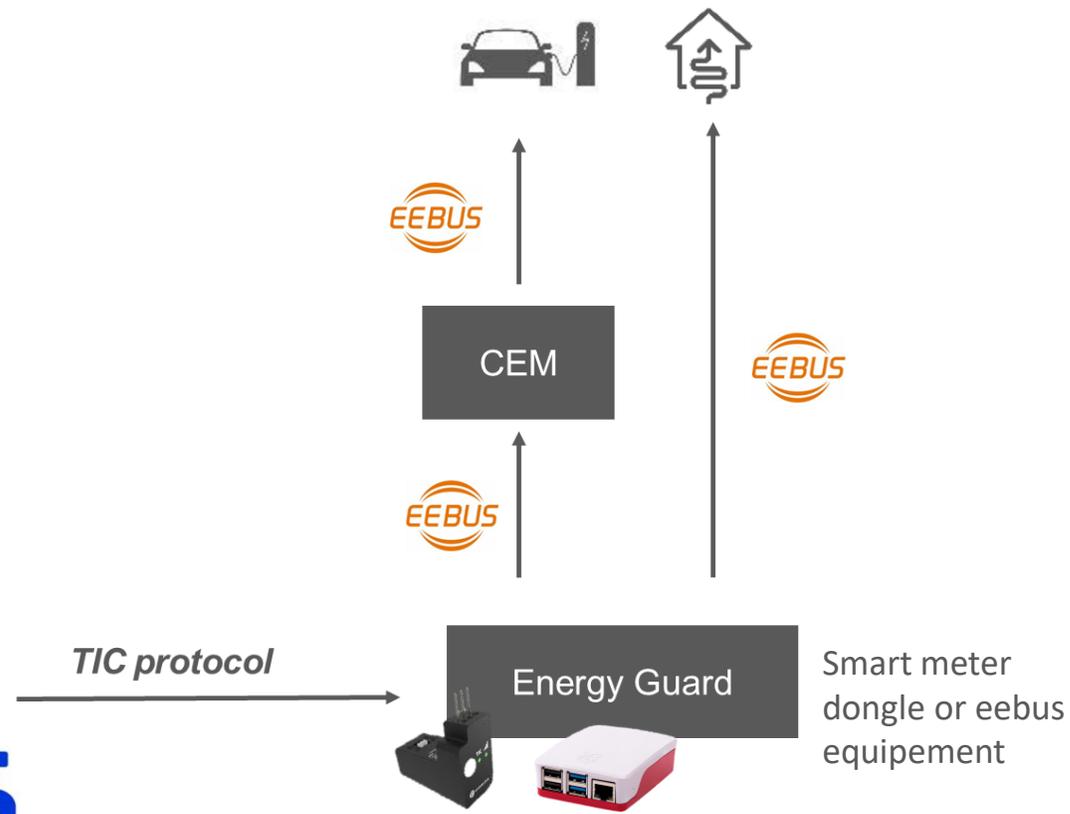
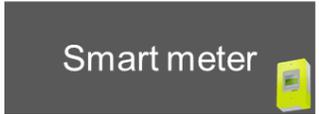


Illustration with the EEBUS Use Case for Overload Protection by EV Charging Current Curtailment

In France, the **smart meter ensures the client does not overpass its contracted power**. When a client buys an EVSE, it is sometimes not necessary to increase its contracted power if he monitors the consumed energy with Linky meter and manages accordingly its EV Charging:

1. **The Energy Guard retrieves in real time data from the TIC of the Linky meter and computes the available current per phase from the following TIC data:**

$$I_{disp1} = ([PCOUP] * 1000 / 3 - [SINSTS1]) / [URMS1]$$

$$I_{disp2} = ([PCOUP] * 1000 / 3 - [SINSTS2]) / [URMS2]$$

$$I_{disp3} = ([PCOUP] * 1000 / 3 - [SINSTS3]) / [URMS3]$$
2. **The Energy Guard then curtails the charging current of the EV to ensure that no overload occurs.**

Code of Conduct V1 based EN 50631 (EEBUS)

Appliances

- White Goods
- HVAC (heating, ventilation and air conditioning)

Use Cases

- Flexible start for White Goods
- Monitoring of Power Consumption
- Incentive Table based Power Consumption Management
- Limitation of Power Consumption
- Manual operation

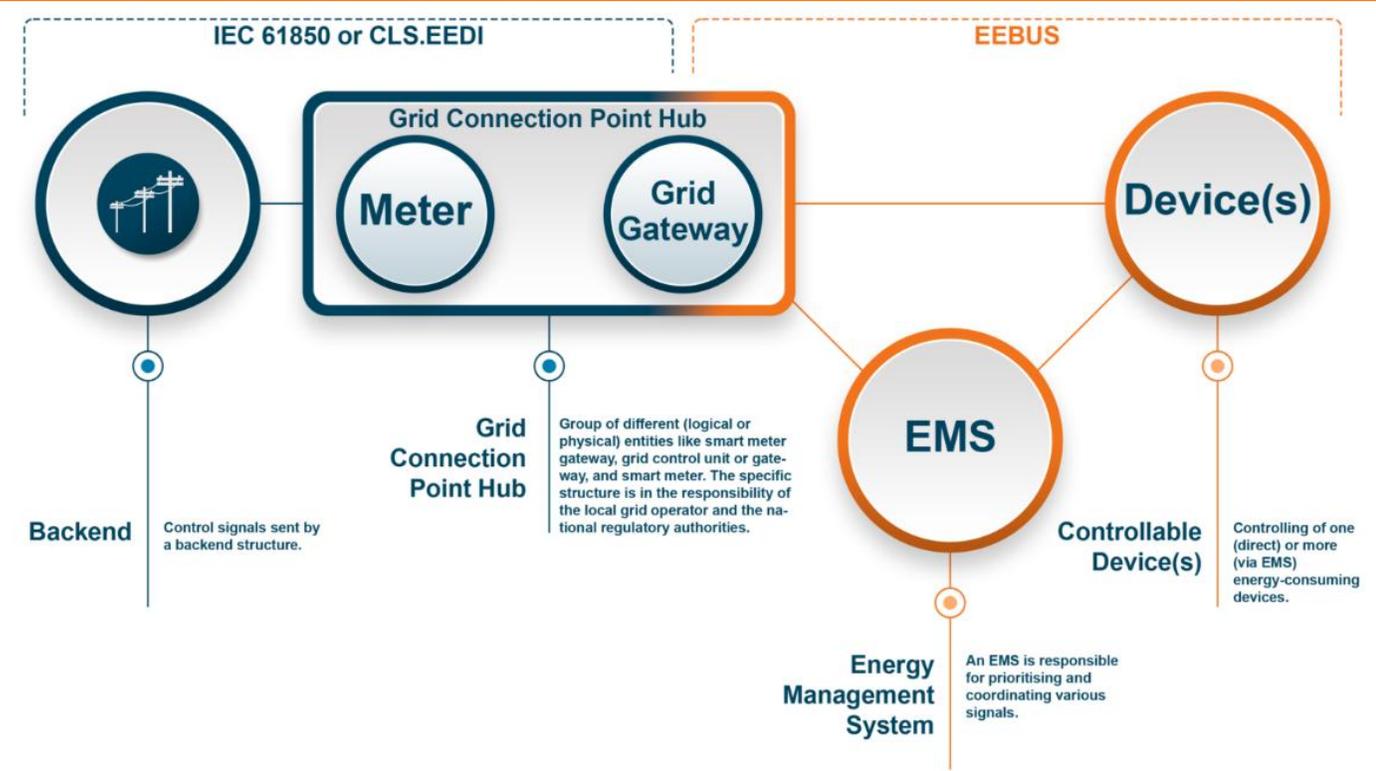


Code of Conduct V2

Subgroups:	Scopes:
Cluster 1	White Goods and HVAC and EMS
Cluster 2	PV inverters, batteries and EMS
Cluster 3	EV chargers and EMS
Supporting group EMS	EMS - EMS
Supporting group D4E	Coherence with the D4E



LIVING LAB: TESTING CONSISTENT INTEROPERABILITY OF THE ECO SYSTEM: (PILOT-)QUALIFICATION



The **Living Lab Cologne** offers comprehensive **end-to-end** testing in real-world deployment scenarios to verify system functionality and reliability, while also providing a **testing framework** for efficient integration tests to enabling **interoperability** among various devices.

Gefördert durch:



aufgrund eines Beschlusses des Deutschen Bundestages

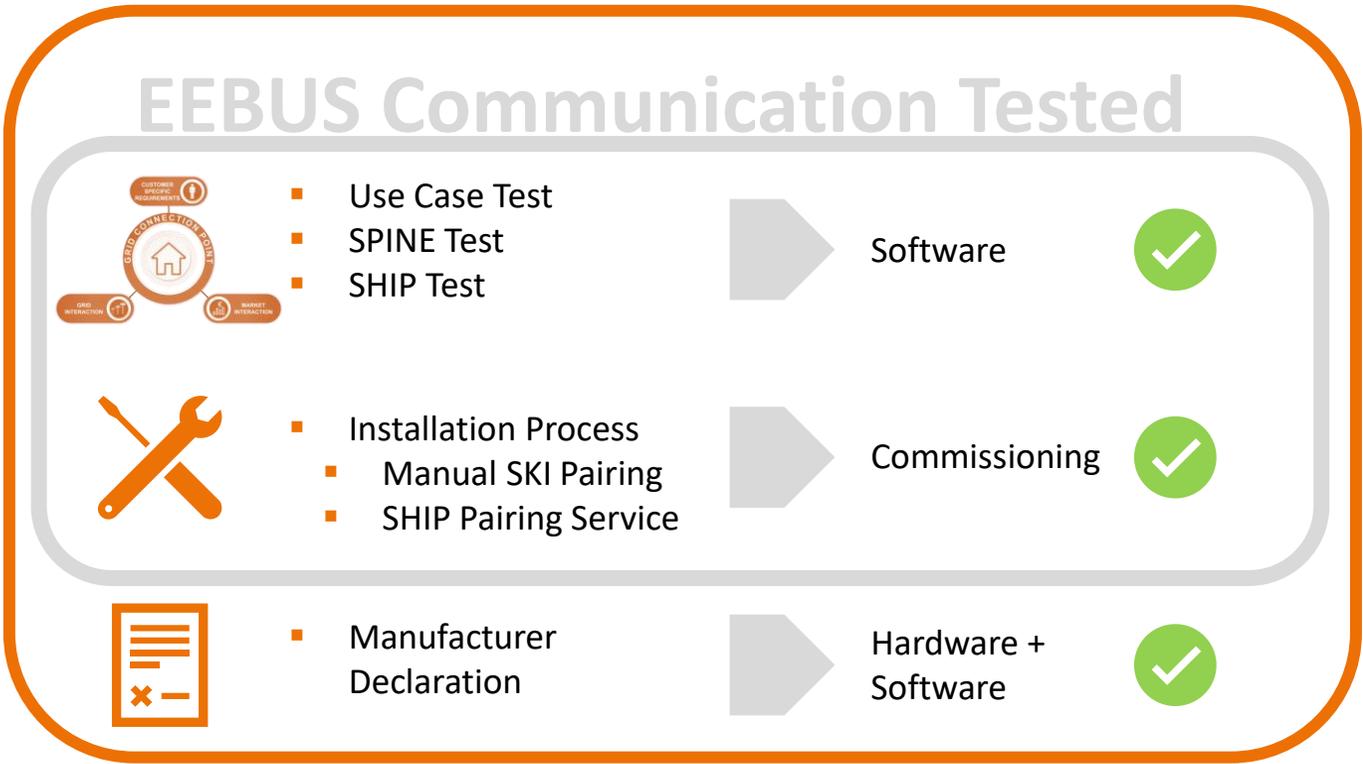
WHAT'S NEXT?

Start Certification 2026:

- Released EEBUS test suite: SHIP, SPINE, Pairing, LPC, LPP, MPC, MGCP(*)
- Standardised manufacturer declaration template
- Published certification criteria
- One front end. All certified EEBUS devices. Full transparency.



(*):
 LPC: Limitation of Power Consumption
 LPP: Limitation of Power Production
 MPC: Monitoring of Power Consumption
 MGCP: Monitoring of Grid Connection Point



EEBus owned test and qualification tooling

A photograph of a power line tower and a long building at sunset. The sky is a mix of blue and orange, with the sun low on the horizon. Several power line towers are visible in the background, and a long, low building with a corrugated metal roof is in the foreground. The overall scene is a mix of industrial and natural elements.

We look forward to welcoming you soon!

EEBus Initiative e.V.

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www.eebus.org

www.livinglab.cologne