

DOCKETED

Docket Number:	19-AB-2127
Project Title:	Implementation of AB 2127 Electric Vehicle Charging Infrastructure Assessments
TN #:	238271
Document Title:	EEBus Initiative eV Comments - EEBUS offering ISO 15118 interface solution for standardized communication between energy management relevant devices and DSOs
Description:	N/A
Filer:	System
Organization:	EEBus Initiative e.V.
Submitter Role:	Public
Submission Date:	6/18/2021 3:19:42 AM
Docketed Date:	6/18/2021

*Comment Received From: EEBus Initiative e.V.
Submitted On: 6/18/2021
Docket Number: 19-AB-2127*

EEBUS offering ISO 15118 interface solution for standardized communication between energy management relevant devices and DSOs

Dear representatives of California Energy Commission,

I am writing to you as the Managing Director of EEBus Initiative e.V., an international association (including internationally active members such as Microsoft, Schneider Electric, ABB et.) dedicated to standardizing the communication interface (= application, transportation, communication) between energy management relevant devices as well as between Distribution System Operators (DSOs) and those devices.

Our technology enables seamless communication from grid to device level for the interconnection of energy management relevant devices as well as corresponding control systems.

In your latest revised staff report from 27th May 2021 we found (on page 72) your assessment that "ISO 15118 has the potential to serve as a common language for interoperable vehicle-grid integration." I am reaching out to you as we fully share and support this view: for us ISO 15118 is the native communication protocol for Electric Vehicles (EVs) connected to the charging infrastructure and I invite you to have a look at the attached presentation showing which use cases we are offering in this context. Prominent automotive EEBUS and VDA members pushing for our ISO 15118 interface solution include VW, Audi, Porsche, Ford, BMW, as well as some Asian OEMs.

In order to give you some more background information: our roots are in the context of ongoing energy transition in Germany and over the years we have been expanding our activities to international IEC standardization. From our observation both California and Germany are front-runners with respect to energy transition implementation on their respective continents and, as technology does not know any national frontiers, we would be happy to demonstrate you our solutions in the field of electric vehicle charging infrastructure. In fact, as you can see from the attached presentation, EEBUS describes a full and strong eco system, networking energy relevant devices on building level with a digital interface to the grid. In Europe there are already a number of commercially available devices having implemented EEBUS and we would like to use this opportunity to propose you an expansion of our eco system into the US market.

I would be more than happy to explain you further details and answer any questions from your side in a conference call.

Sincerely,



SPEAK ENERGY

EEBUS SOLUTIONS

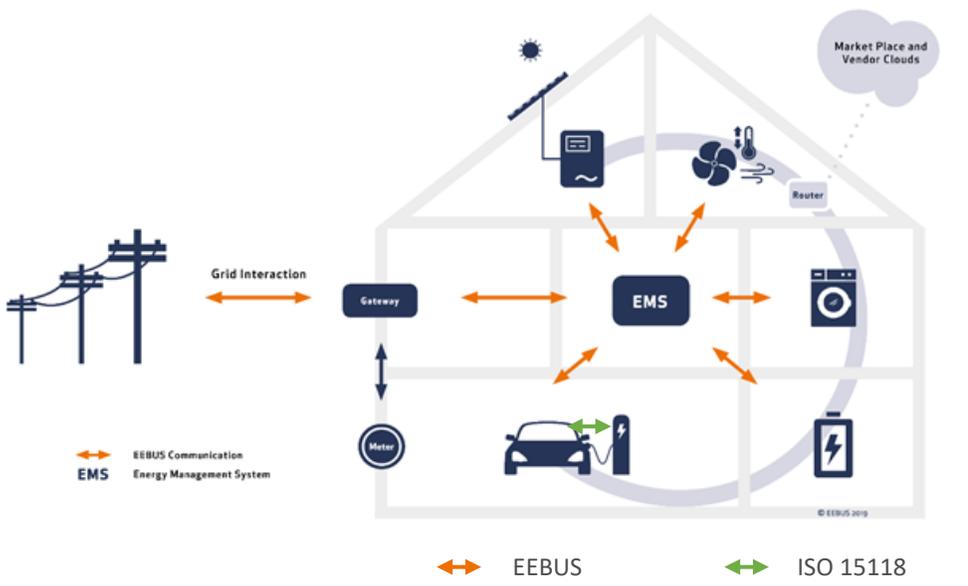
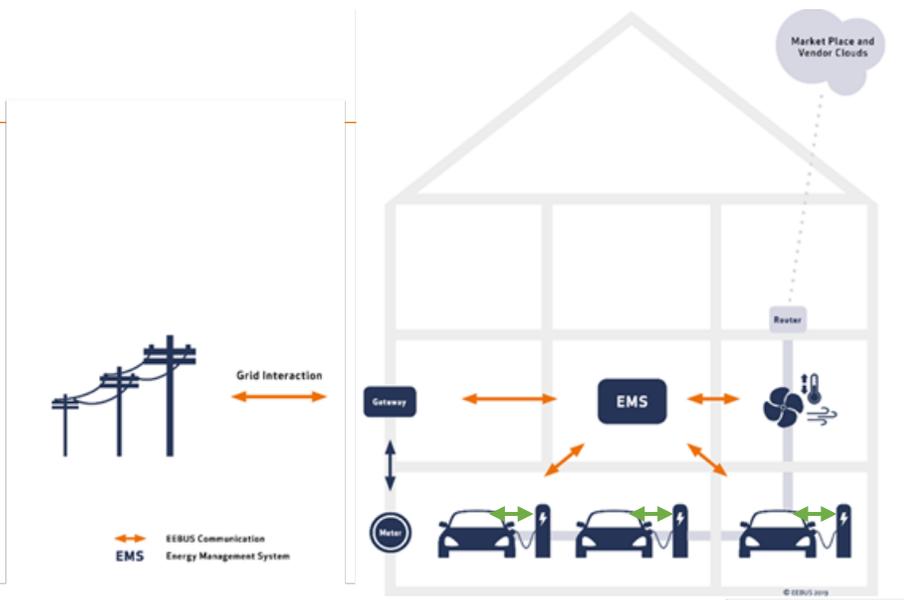
17th June 2021

WHAT DOES EEBUS DO?

- On behalf of the industry EEBUS is developing a
- **plug & play** eco system which provides a
 - **digital interface to the grid** while
 - **networking energy relevant devices on building level**

to realise a holistic energy management system to enable solutions in

- Capacity management on building level
 - Time of use tariffs
 - Increase of self-consumption
- for **residential and commercial applications**





HOW DOES EEBUS INTERACT WITH RELEVANT STANDARDS?

Utility / Grid

- IEC 61850
- OpenADR
- Keo JSON
- DNP3 or other standard possible

EV

- ISO 15118-2
- ISO 15118-20
- IEC 61851 (PWM)



WHICH SOLUTIONS IS EEBUS OFFERING?

Capacity management: Enables Distribution System Operators (DSO) to monitor power consumption on building or device level (e.g. EV) and to limit power consumption by setpoint

Time of use tariffs: Enables DSO to manage over and underload scenarios through price of energy information and enables customers to operate devices cost optimized

Increase of self consumption: Enables customers to benefit from local PV production over the day and after sun set using stationary battery system or bi-directional EV charging

Monitoring and comfort: Enables the system to enable optimal information flow and comfort functions to the customer

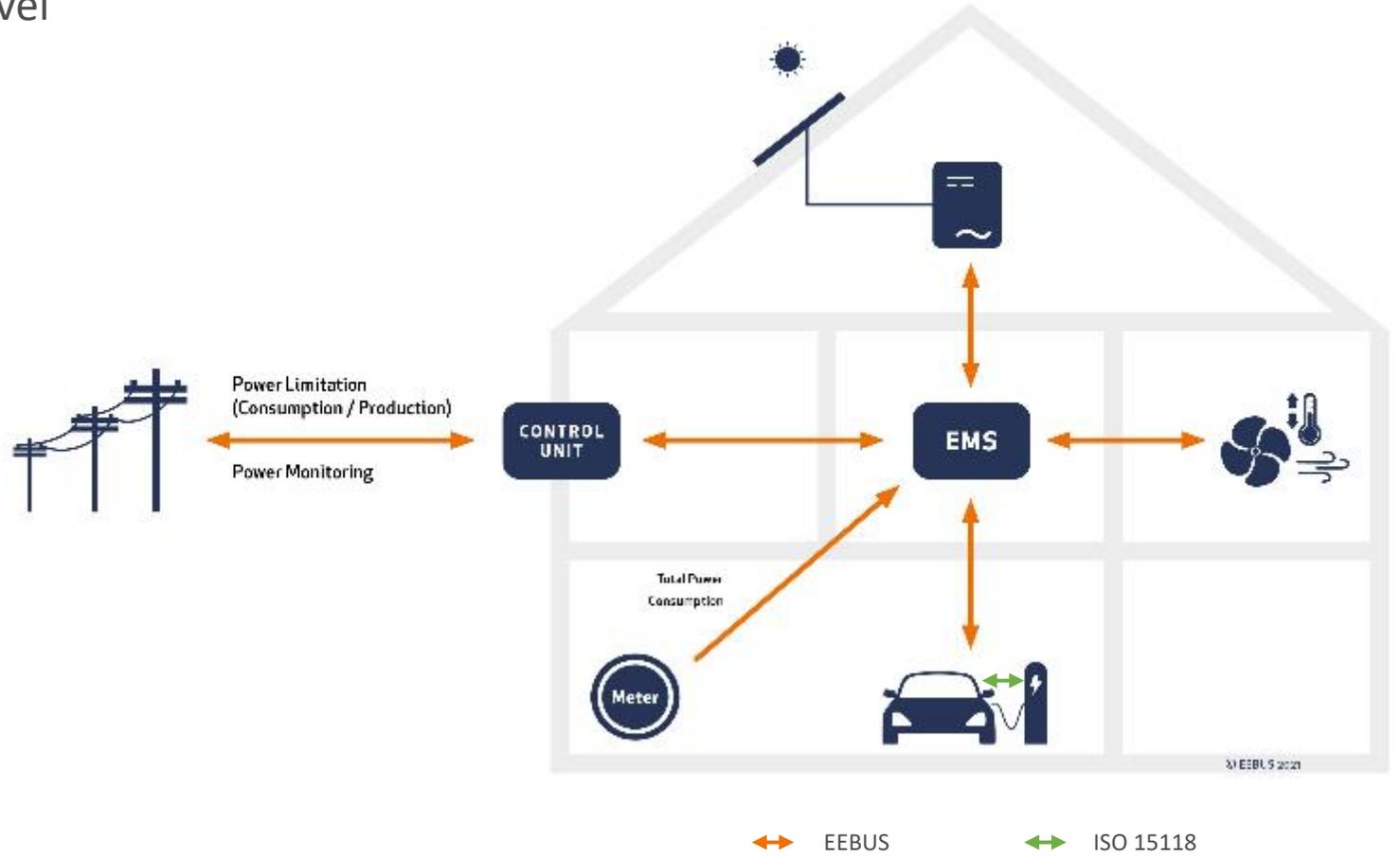
Peak shaving and islanding (emergency power supply): Local or public grid support by bi-directional EVs planned

Distribution System Operators (DSO) solution

- Power monitoring on building or device level
- Power limitation by setpoint

Key Facts

- Through **control unit** the energy management system (EMS) or the device directly will be connected to the DSO
- By measuring energy consumption, the DSO may **identify hotspots** and **take in-time corrective action** by limiting power consumption through setpoints
- In addition to controlling the **power consumption** the **feed-in power** may also be controlled

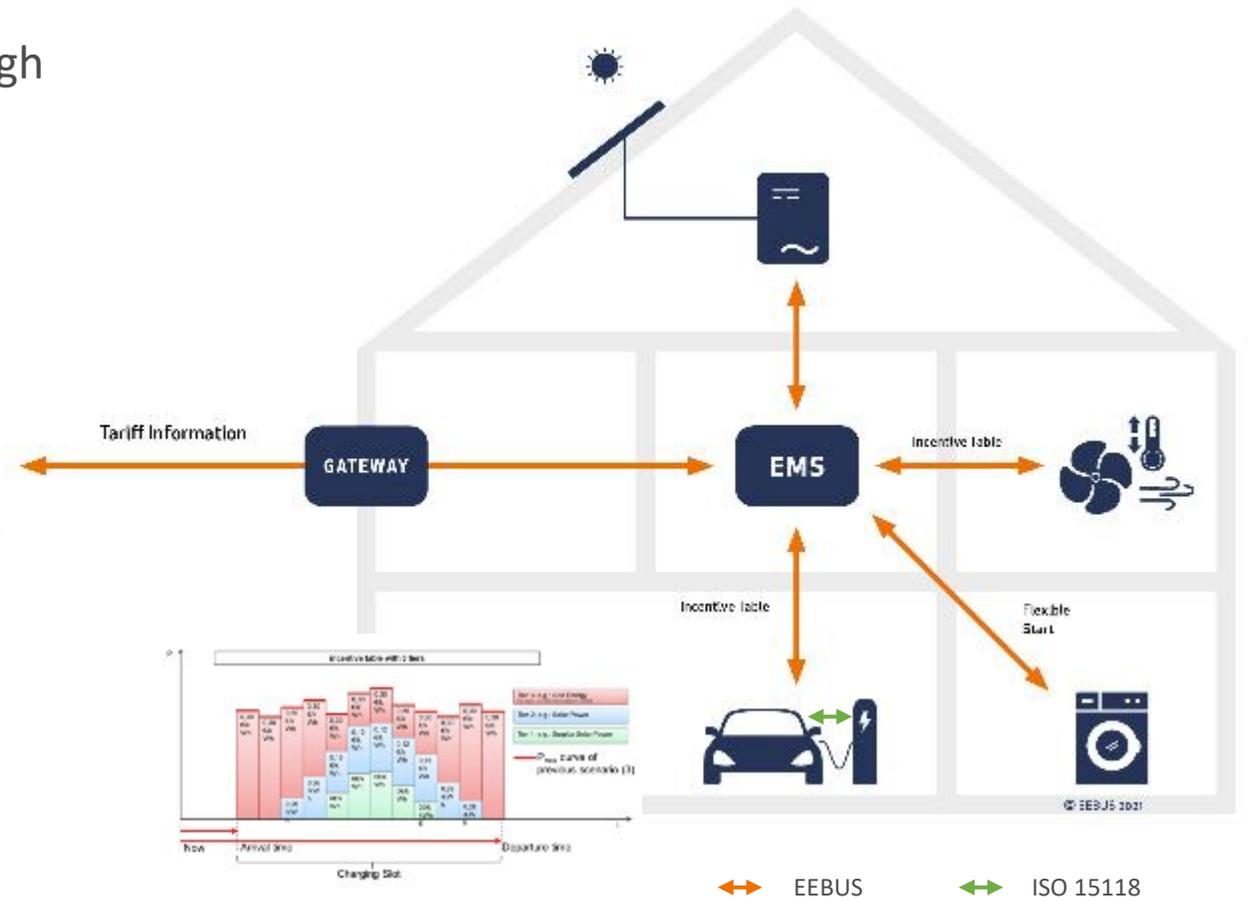


Distribution System Operators (DSO) / External Market Participants (EMP) and end customers solution

- Management of over and underload scenarios through transmission fee or price of energy table
- Cost optimized operation of devices

Key Facts

- DSO or EMP may submit **transmission fee or price of energy over time information** through gateway or cloud service
- EMS or device directly will interpret the time of use tariffs and **optimize the consumption plan** to lower the costs of energy for the end customer
- DSO may **react on hot spot scenarios** or the EMP may manage if **too much or too less energy** is available



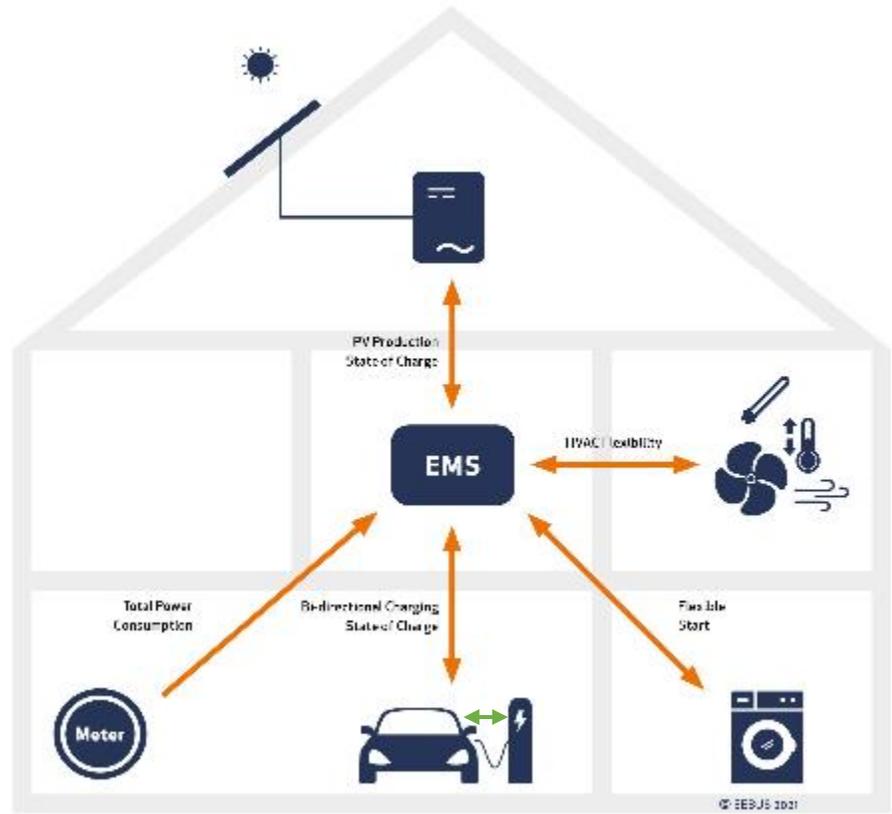
>> EEBUS incentive table is based on ISO 15118 mechanism

End customers solution

- **Implementation of holistic energy management system** considering PV, battery system, EV, HVAC and white good devices to **increase self-consumption** of the building

Key Facts

- Increase self-consumption by **taking advantage of local PV production**
- Both the EV's battery or a stationary battery system may store PV energy during PV over production and **provide energy to the building during the day and after sun set**
- All devices including the base load are considered in the energy management to optimize the **energy consumption at the grid connection**
- While **lowering the energy bill** at the same time the **CO₂ footprint is decreased**



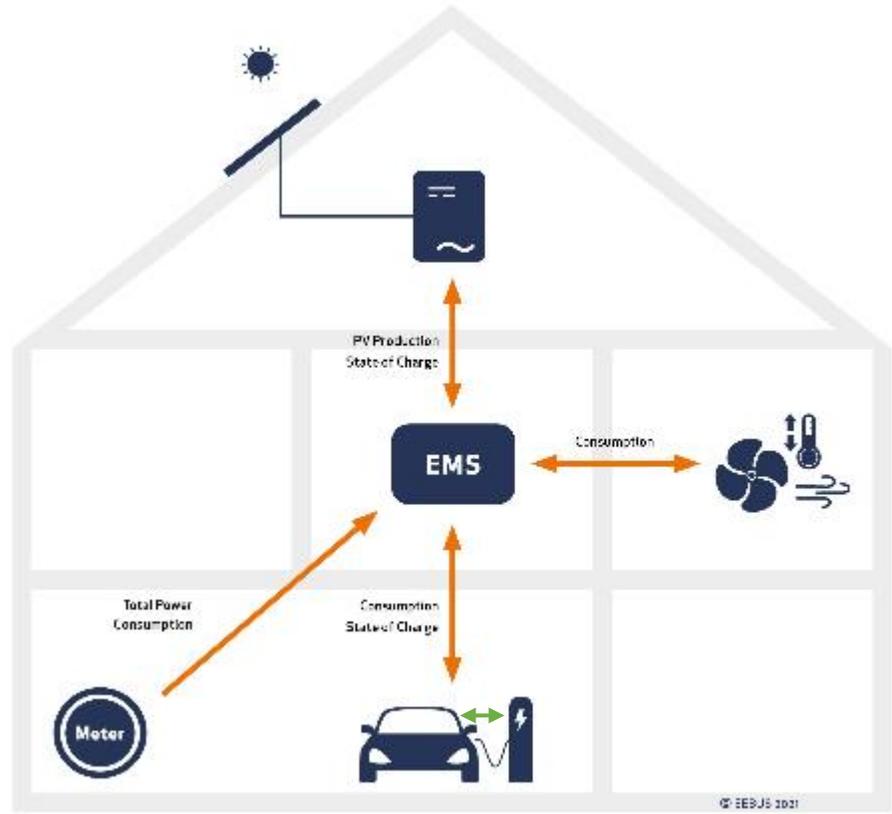
↔ EEBUS ↔ ISO 15118

End customers solution

- Enables **optimal information flow and interaction** with the energy management system
- Management of **comfort functions or devices integration**

Key Facts

- The monitoring function provides simple device data such as power consumption or production for visualization up to **full option device data such as operation mode of fault code (inverter)** for system monitoring or trouble shooting
- The comfort function enable the end-customer to **adjust user settings of the HVAC system** such as room temperature and device modes through EMS or smartphone
- **Interface** to integrate EEBUS devices in smart home or building automization systems





WHAT USE CASES DOES EEBUS PROVIDE?

	Power Monitoring and Control	Flexibility Grid/Market/Self Consumption	Comfort and Information	Setup
Grid	<ul style="list-style-type: none"> • Limitation of Power Consumption (G) • Limitation of Power Production (G) • Monitoring of Power Consumption (G) • Monitoring of Grid Connection Point 	<ul style="list-style-type: none"> • Time of use Tariff 		
EV	<ul style="list-style-type: none"> • EV Charging Power / Current • EV State of Charge • EV Overload Protection (Charging Power Curtailment) 	<ul style="list-style-type: none"> • Coordinated EV Charging (Tariff based) • Optimization of Self Consumption • Increase of Self-Consumption by bi-directional EV Charging • Islanding by bidirectional EV 	<ul style="list-style-type: none"> • EV Charging Summary 	<ul style="list-style-type: none"> • EV Commissioning and Configuration • EVSE Commissioning and Configuration
Inverter	<ul style="list-style-type: none"> • Monitoring of Inverter, PV String, Battery • Control of Inverter, Stationary Storage • Visualization of aggregated Photovoltaic Data / Battery Data 			
HVAC	<ul style="list-style-type: none"> • Monitoring and Control of SmartGrid-Ready Conditions 	<ul style="list-style-type: none"> • Optimization of Self Consumption • Incentive Table based Power Consumption Management • Flexible Loads (Smart Heater) 	<ul style="list-style-type: none"> • Monitoring/Configuration of DHW System Function and Temperature • Monitoring/Configuration of Room Cooling /Heating System Function or Temperature 	<ul style="list-style-type: none"> • Visualization of Heating Area Name
White Good		<ul style="list-style-type: none"> • Flexible Start of White Good 		



WHERE TO EXPERIENCE AND REFERENCES

- Demonstrator at Cologne or Petten EU office
- Show room and test center Cologne office
- Holistic standard based energy management system is available as of today – growing day by day
- EV manufacturers consider EEBUS as intelligent connection of electric cars and buildings: EEBUS is the future “language of energy” ©VW



Kostal PV/battery inverter



Demonstrator @ e-World



Wirelane Charger



Audi e-Tron



VW ID Charger



Porsche Taycan



Viessmann VX3



Vaillant Controller



TO EMS



SUNNY PORTAL powered by ennexOS



Hager EMS



Theben Messsystem



Porsche Home Energy Manager

9Y0.915.686/A/B/C/D/E





CROSS-INDUSTRY ASSOCIATIONS RELY ON EEBUS



AS WELL AS LEADING COMPANIES



Many thanks!

EEBus Initiative e.V.

Butzweilerhof-Allee 4, 50829 Cologne / GERMANY

Rue d'Arlon 25, 1050 Brussels / BELGIUM

www.eebus.org

