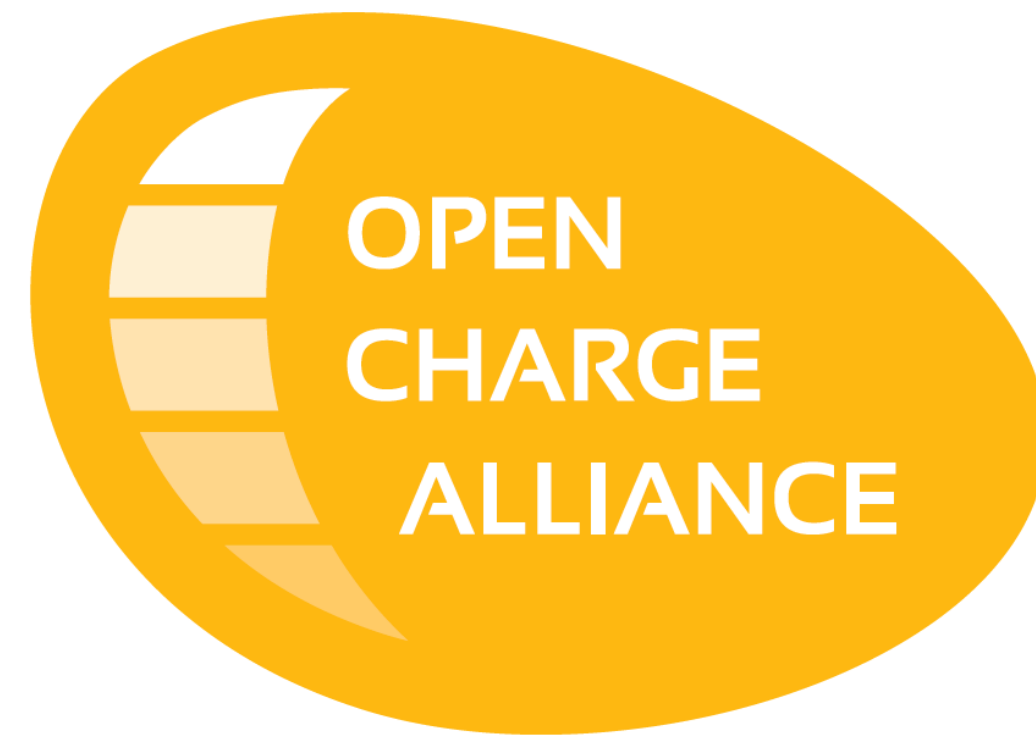




Introduction to OCA and OCPP



The Open Charge Alliance (OCA) is the industry alliance governing OCPP



- Our goal is to help the EV charging industry accelerate
- A nonprofit foundation under Dutch law
- Founded in 2014
- Currently 369 members
- OCPP is continuously developed following the need of the growing industry and incorporating field experience
- Open, patent and royalty free with no cost or licensing barriers
- OCPP is a trademark and is protected by copyright license

Charging Station Operator

Charging Station

EV



OCA activities

Development of the OCPP protocol

J01 - Sending Meter Values not related to a transaction

Table 139: J01 - Sending Meter Values

No.	Type	Description
1	Name	Sending Meter Values not related to a transaction
2	ID	J01
3	Functional block	J: Meter Values
4	Objective(s)	To sample the electrical meter or other sensor/transducer hardware to provide information about the Charging Station's Meter Values.
5	Description	The Charging Station samples the electrical meter or other sensor/transducer hardware to provide information about its Meter Values. Depending on configuration settings, the Charging Station will send Meter Values.
Actors		
Charging Station, CSMS		
Scenario description		
1. The Charging Station sends a MeterValuesRequest message, for offloading Meter Values to the CSMS. 2. Upon receipt of a MeterValuesRequest message, the CSMS responds with a MeterValuesResponse message.		
6	Prerequisite(s)	The Charging Station is configured to send Meter values every XX seconds. No transaction is running.
7	Postcondition(s)	Successful postcondition: n/a Failure postcondition: n/a

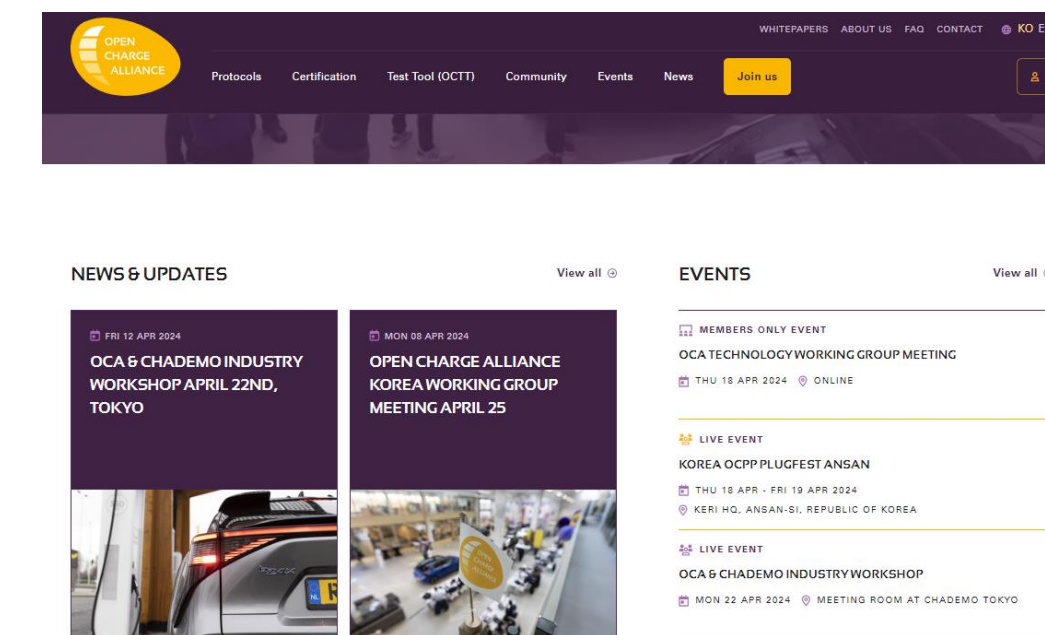
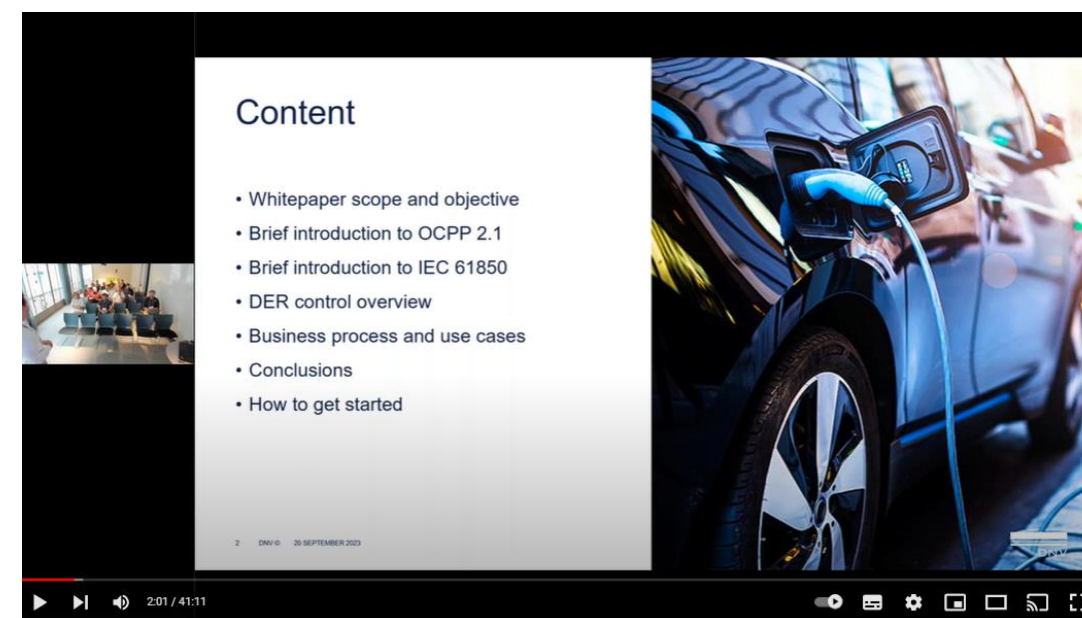
Figure 88. Sequence Diagram: Sending Meter Values

7	Error handling	Any Meter Values that don't belong to a transaction MAY be discarded.
8	Remark(s)	The phase field is not applicable to all Measurands. Each <code>sampledValue</code> element contains a single value datum. The nature of each <code>sampledValue</code> is determined by the optional <code>Measurand</code> , <code>context</code> , <code>location</code> , <code>unit</code> and <code>phase</code> fields. The optional <code>SignedMeterValue</code> field can contain digitally signed binary meter value data.

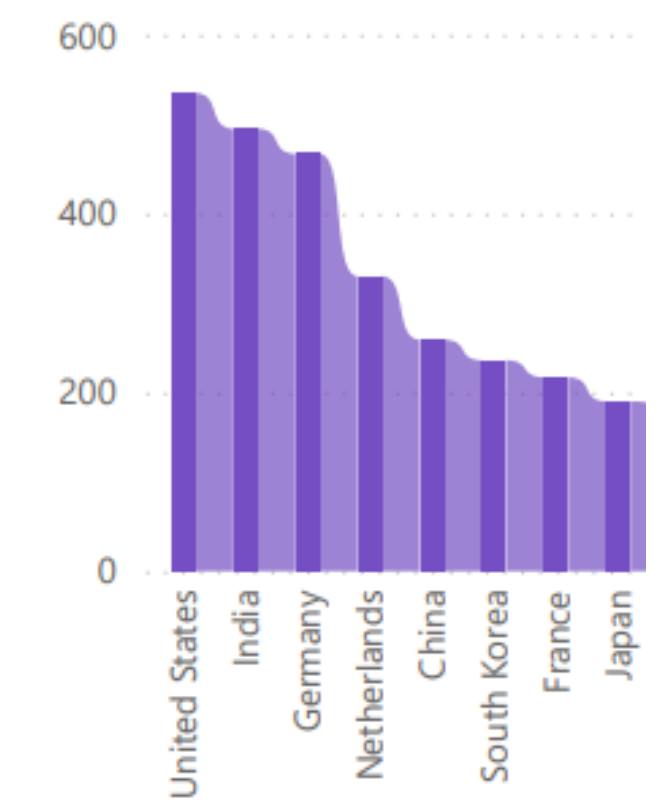
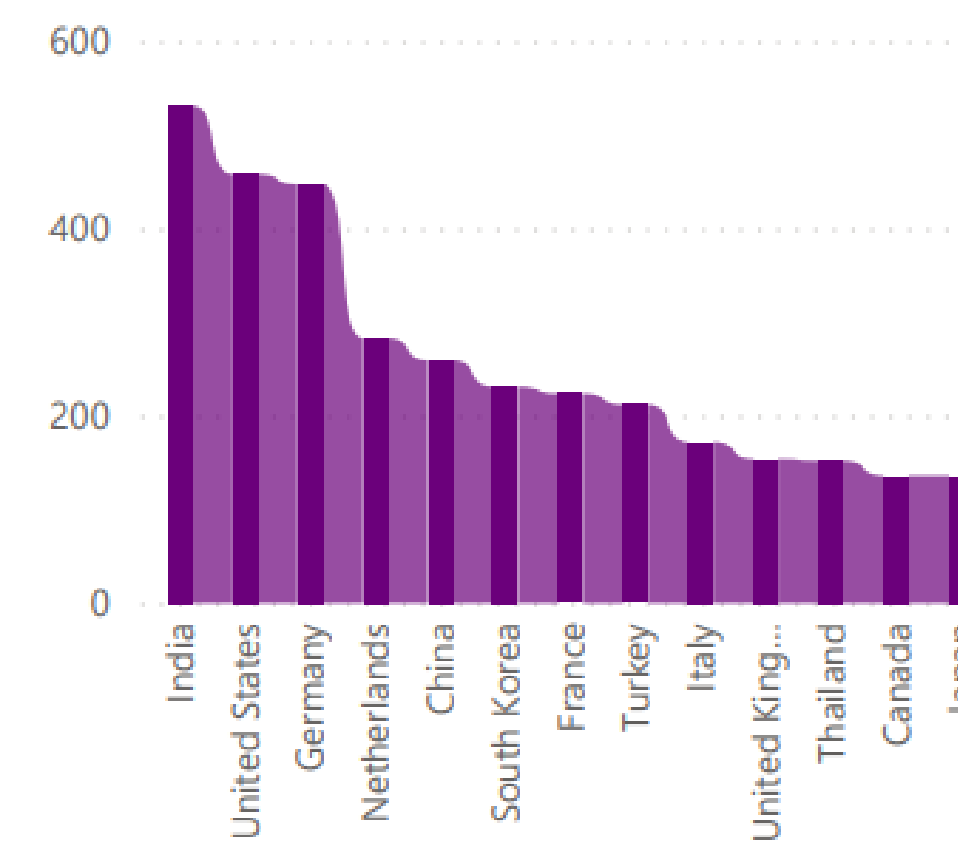
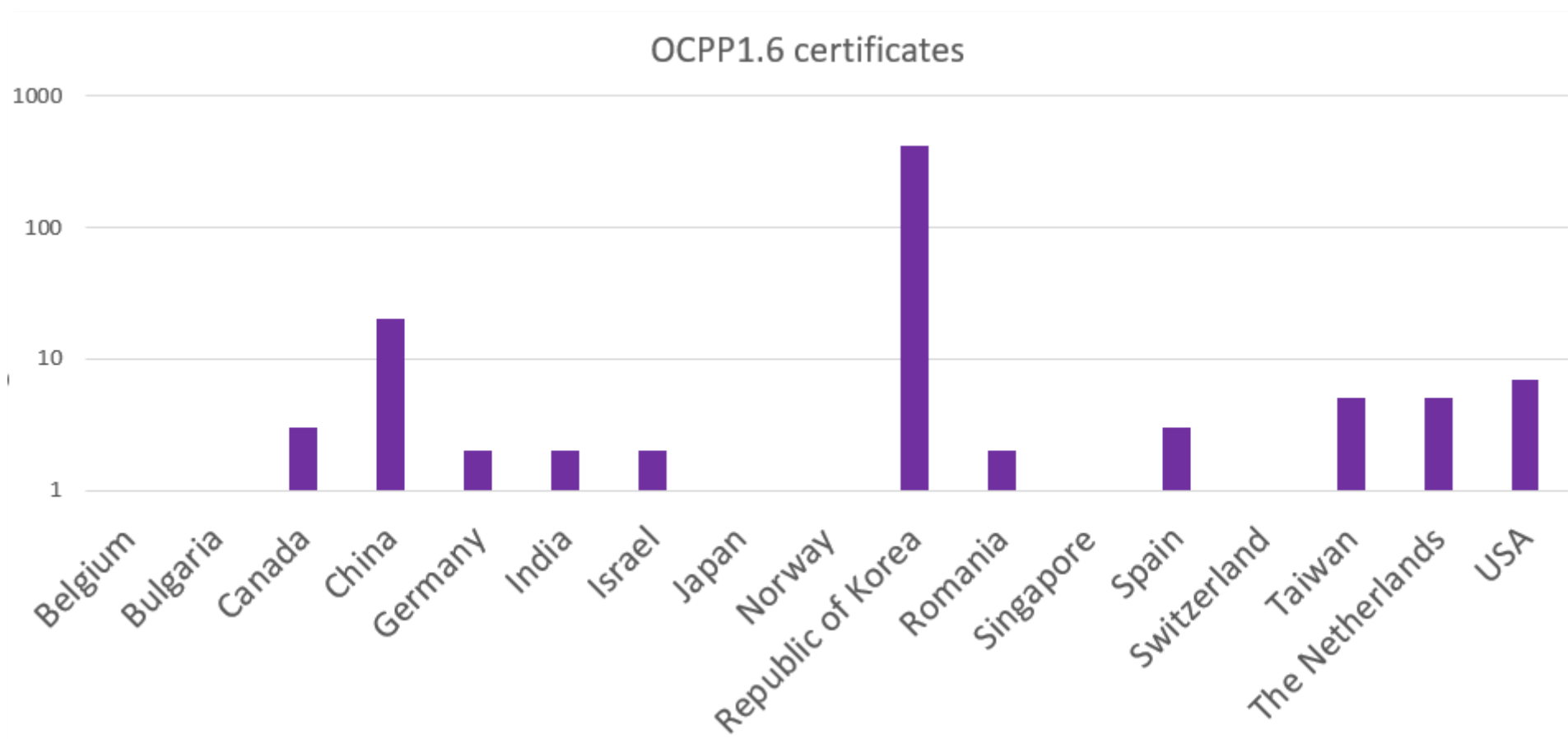
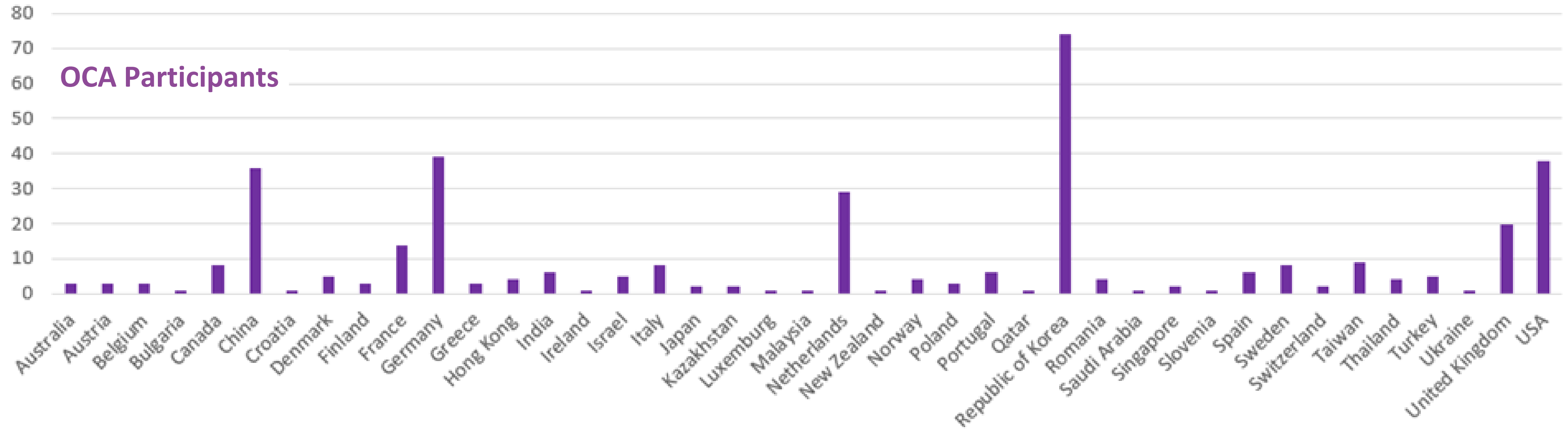
Development of compliancy testing and certification



Promotion of OCPP



OCPP across the world in # of Participants, Certified Products and OCPP specification downloads



OCPP 1.6 Downloads

OCPP 2.0.1 Downloads



NEWS & UPDATES

[View all](#)

FRI 12 APR 2024

OCA & CHADEMO INDUSTRY WORKSHOP APRIL 22ND, TOKYO



MON 08 APR 2024

OPEN CHARGE ALLIANCE KOREA WORKING GROUP MEETING APRIL 25



EVENTS

[View all](#)

MEMBERS ONLY EVENT

OCA TECHNOLOGY WORKING GROUP MEETING

THU 18 APR 2024 ONLINE

LIVE EVENT

KOREA OCPP PLUGFEST ANSAN

THU 18 APR - FRI 19 APR 2024

KERI HQ, ANSAN-SI, REPUBLIC OF KOREA

LIVE EVENT

OCA & CHADEMO INDUSTRY WORKSHOP

MON 22 APR 2024 MEETING ROOM AT CHADEMO TOKYO

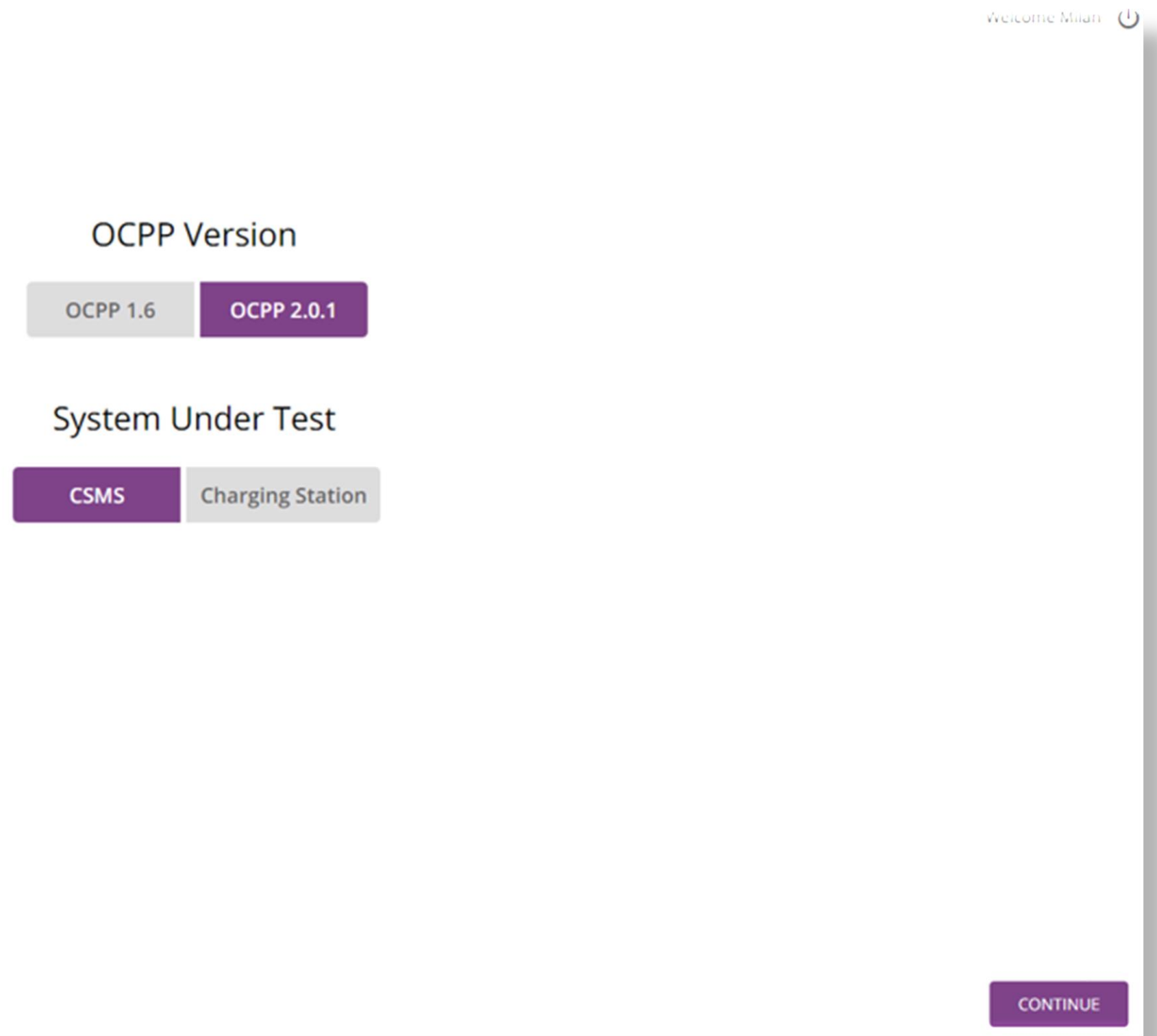
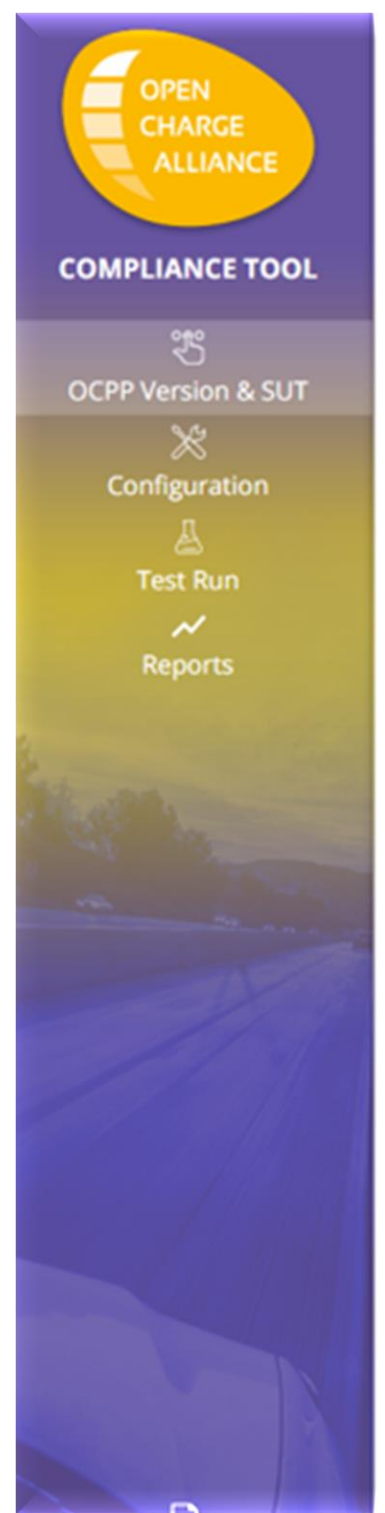
New! OCPP Chatbot - OCAI

The screenshot shows the Open Charge Alliance website header with navigation links: Protocols, Certification, Test Tool (OCTT), Community, Events, News, and a yellow 'Join us' button. The chatbot interface includes a disclaimer: 'Please note that the OCAI chatbot is a tool to help members with understanding the OCPP specifications, but does not constitute professional advice, please find the full disclaimer below.' The chatbot, named 'OCAI chatbot', has sent a message: 'Hi there OCPP enthusiast! My name is OCAI and I'm here to help you with technical questions on OCPP 2.0.1, OCPP 1.6 and the whitepapers written by the OCA team.' A user has asked in Japanese: 'OCPP 2.0.1におけるすまーとじゅうでんのせつめいをしていただけますか?' The chatbot's response in Japanese explains that OCPP 2.0.1 is a communication protocol between smart charging and charging management systems (CSMS), allowing for control and monitoring of charging sessions, including status reports, start/stop instructions, and speed control. It also mentions the use of WebSocket for real-time data exchange. A footer note says: 'ただし、詳細な仕様やプロトコルの詳細については、OCPP 2.0.1の仕様書を参照してください。' The interface also features a text input field with the placeholder 'Type here your question on OCPP' and a 'Powered By Chatbase.co' logo.

- Chatbot trained **only** on OCA and OCPP data (Specification, whitepapers etc.)
- The chatbot is there to help with technical OCA questions.
- Available **every** moment of the day in **your own** language



OCTT now supports both 1.6 and 2.0.1!



Certification for OCPP1.6 and OCPP2.0.1

OCPP 1.6 Certification
opened in November 2019



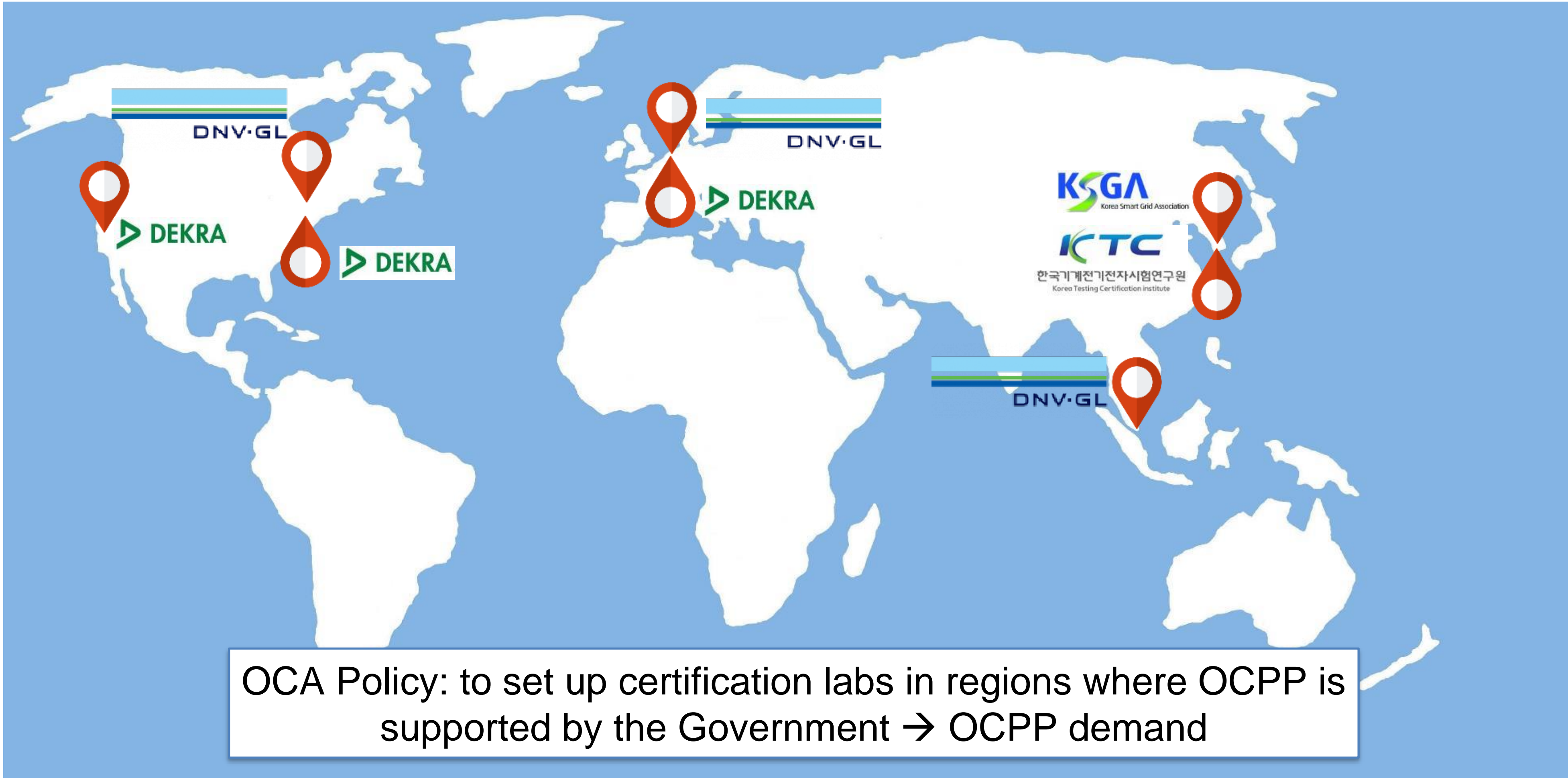
For Charging Stations and CSMSs

OCPP 2.0.1 certification opened in June '23 for
'Core' & 'Advanced Security' and in June '24 for
the additional profiles



For Charging Stations, CSMSs and Software Stacks

4 OCA Certification Test Labs in 8 locations



OCA is continuously improving the Certification Program

- Efforts to reduce the Certification costs for the industry
 - Discounted Certification fee when vendors certify multiple products per year
 - New OCTT for faster Certification testing of OCPP
 - OCTT support for a Vendor Declaration of Conformance
 - OCTT support for an API so that vendors can integrate OCTT into their software development (CI/CD)
 - We are exploring adding a 'Product Family list' to the certificate for derivative products



All certified products are on the website

CERTIFIED PRODUCTS

Below you will find the products which completed the OCA certification successfully.

To verify the PDF signature (2.0.1 only) visit our [verification page](#)

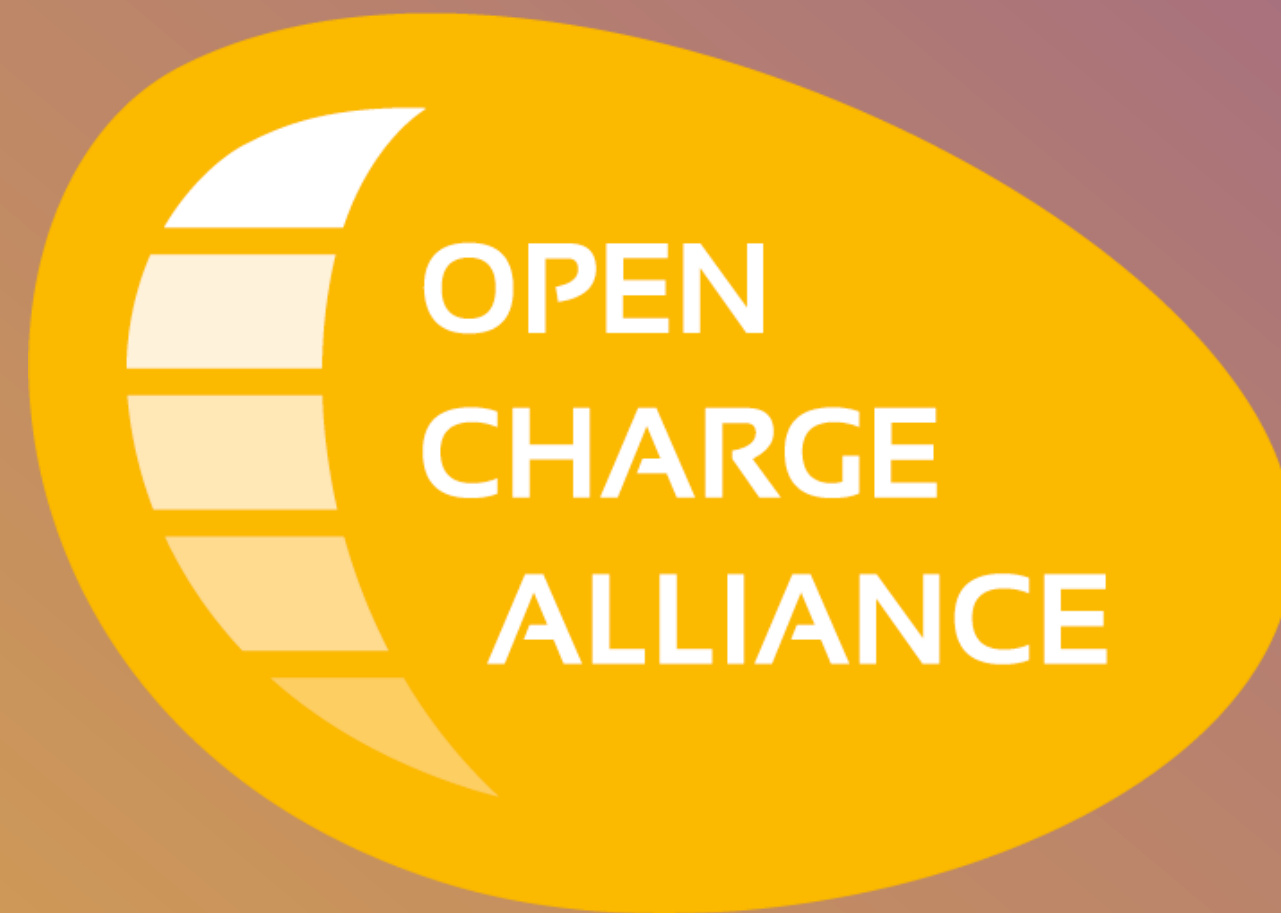
CERTIFIED COMPANIES

Organisation	Cert. number	OCPP 2.0.1	Country	Product type	Product designation	Certificate type	Software version	Date of registration
I-Charge Solutions International Co. Ltd.	OCA.0201.0015.CSMS	OCPP 2.0.1	Hong Kong	Charging Station Management System	ICS CSMS20	Core & Advanced Security	1.0	January 18th 2024
Driivz ltd	OCA.0201.0001.CSMS	OCPP 2.0.1	Israel	Charging Station Management System	Driivz CSMS Operator Portal	Core & Advanced Security	7.15.0	October 8th 2023
Instituto Tecnológico de la Energía (ITE)	OCA.0201.0004.CSMS	OCPP 2.0.1	Spain	Charging Station Management System	HysGrid+ OCPPJ 2.0.1 Server	Core & Advanced Security	1.0.0.0	November 13th 2023
IoCharger	OCA.0201.0005.CS	OCPP 2.0.1	China	Charging Station	IOCAH10	Core & Advanced Security	23052802	October 18th 2023
KEVIT	OCA.0201.0007.CSMS	OCPP 2.0.1	Republic of Korea	Charging Station Management System	KEVIT CSMS 2.0	Core & Advanced Security	2.0.10	October 16th 2023
KEVIT	OCA.0201.0010.CS	OCPP 2.0.1	Republic of Korea	Charging Station	DP240A	Core & Advanced Security	2.0.10	October 16th 2023
KOSTAL Industrie Elektrik GmbH	OCA.0201.0002.CS	OCPP 2.0.1	Germany	Charging Station	WB DC-bidi 11kW	Core & Advanced Security	2023.21.22860.NB	November 25th 2023
Trialog	OCA.0201.0003.CS	OCPP 2.0.1	France	Charging Station Software Stack	OCPPvs - EVSE ComboCS SW	Core & Advanced Security	v2.0.0	February 7th 2024
Switch EV Ltd	OCA.0201.0012.CS	OCPP 2.0.1	United Kingdom	Charging Station Software Stack	Josev	Core & Advanced Security	1.0.0	March 22nd 2024
Tesla	OCA.0201.0018.CS	OCPP 2.0.1	USA	Charging Station	V4 Supercharger NA+EU	Core	1.0.0 [Tesla SW Stack: 24.12]	February 29th 2024
PUMPKIN Co., Ltd.	OCA.0201.0008.CSMS	OCPP 2.0.1	Republic of Korea	Charging Station Management System	eBAB Charge Platform	Core & Advanced Security	1.0.0	October 29th 2023

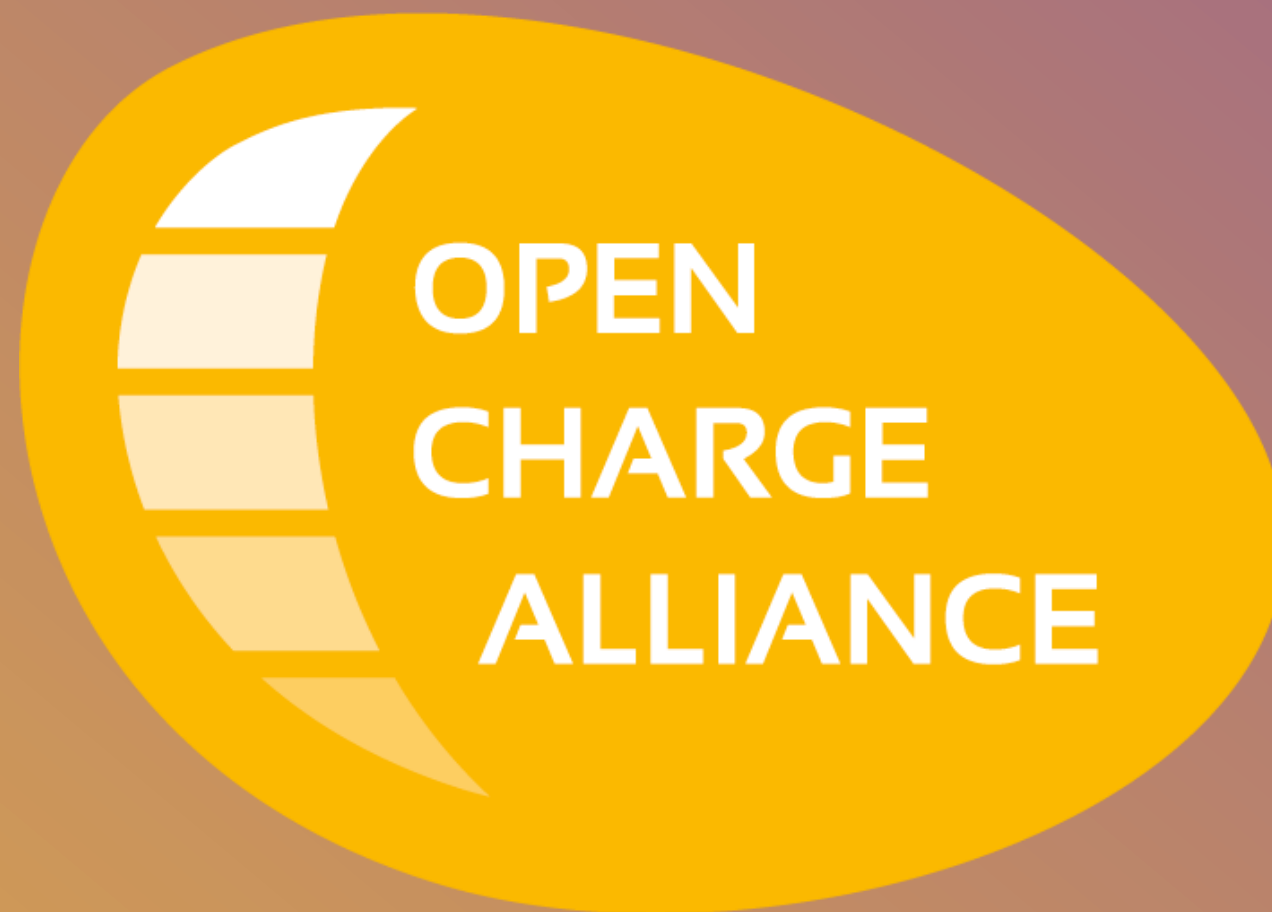
Update OCPP as an IEC standard



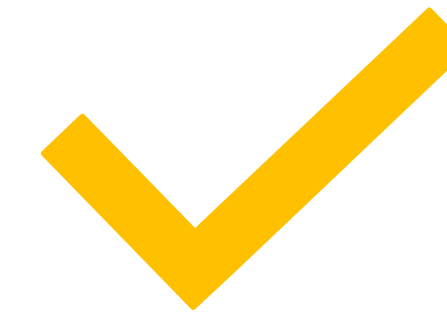
- OCA & IEC intend to submit OCPP for approval as an International Standard using the IEC Fast Track Procedure.
- If the IEC TC69 P member committees approve of the proposal, OCPP will be published 'as-is' as an International Standard.
- OCA will remain the maintainer of OCPP and intends to submit all future versions (e.g. OCPP2.0.1 ed4 (including future errata), OCPP2.1 and OCPP3.0) to IEC (TC69) for 'as-is' approval as an IEC International Standard following the Fast Track procedure.



Two steps



Step 1
OCA is accepted
as Liaison A
partner of IEC



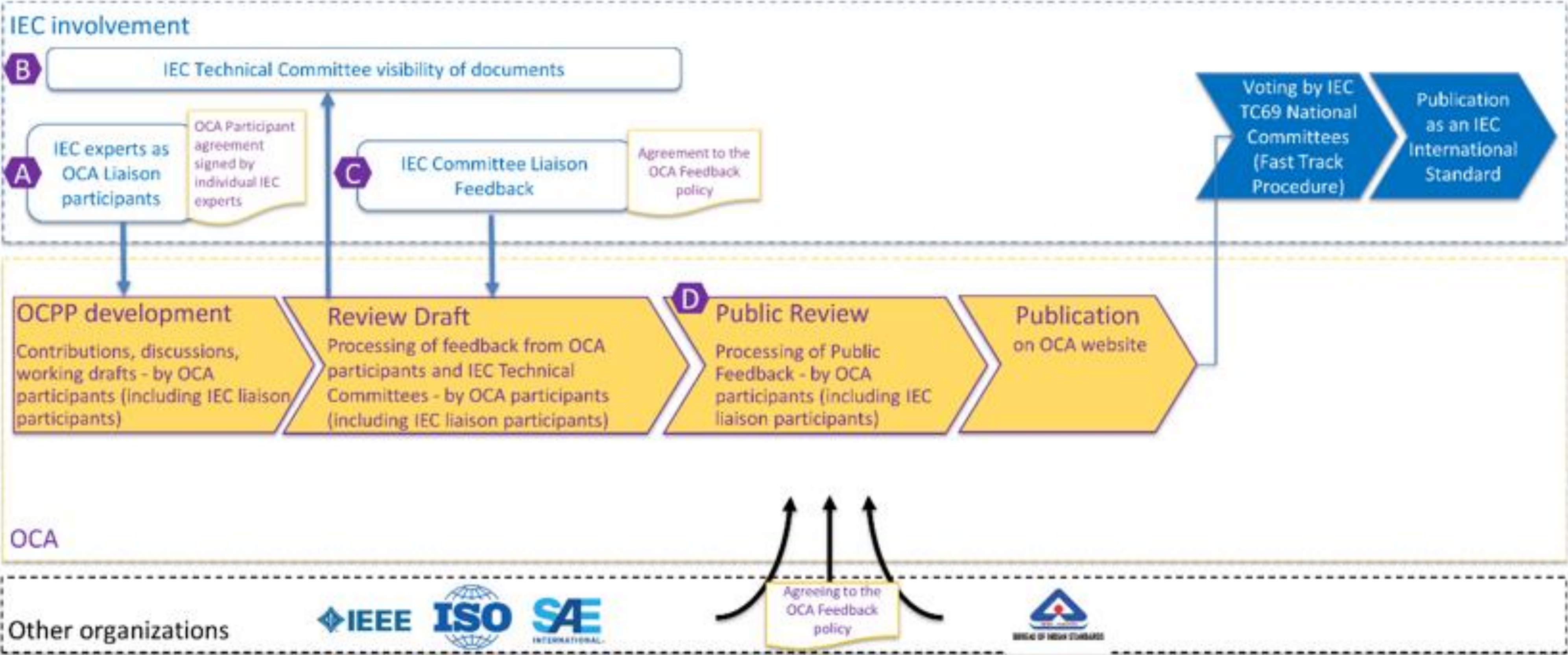
- Voting by IEC TC69 Participating National Committees
- September – November 2023
- 75% yes!

Step 2
OCPP is accepted
as-is as an IEC
International
Standard under
the conditions of
OCA



- OCA has proposed to include IEC in the future development of OCPP under OCA
- We are finalizing the discussing with IEC management regarding the proper procedure
- If the procedure is approved, TC69 National Committees can vote again

Proposal for inclusion of non-OCA participants in OCPP development



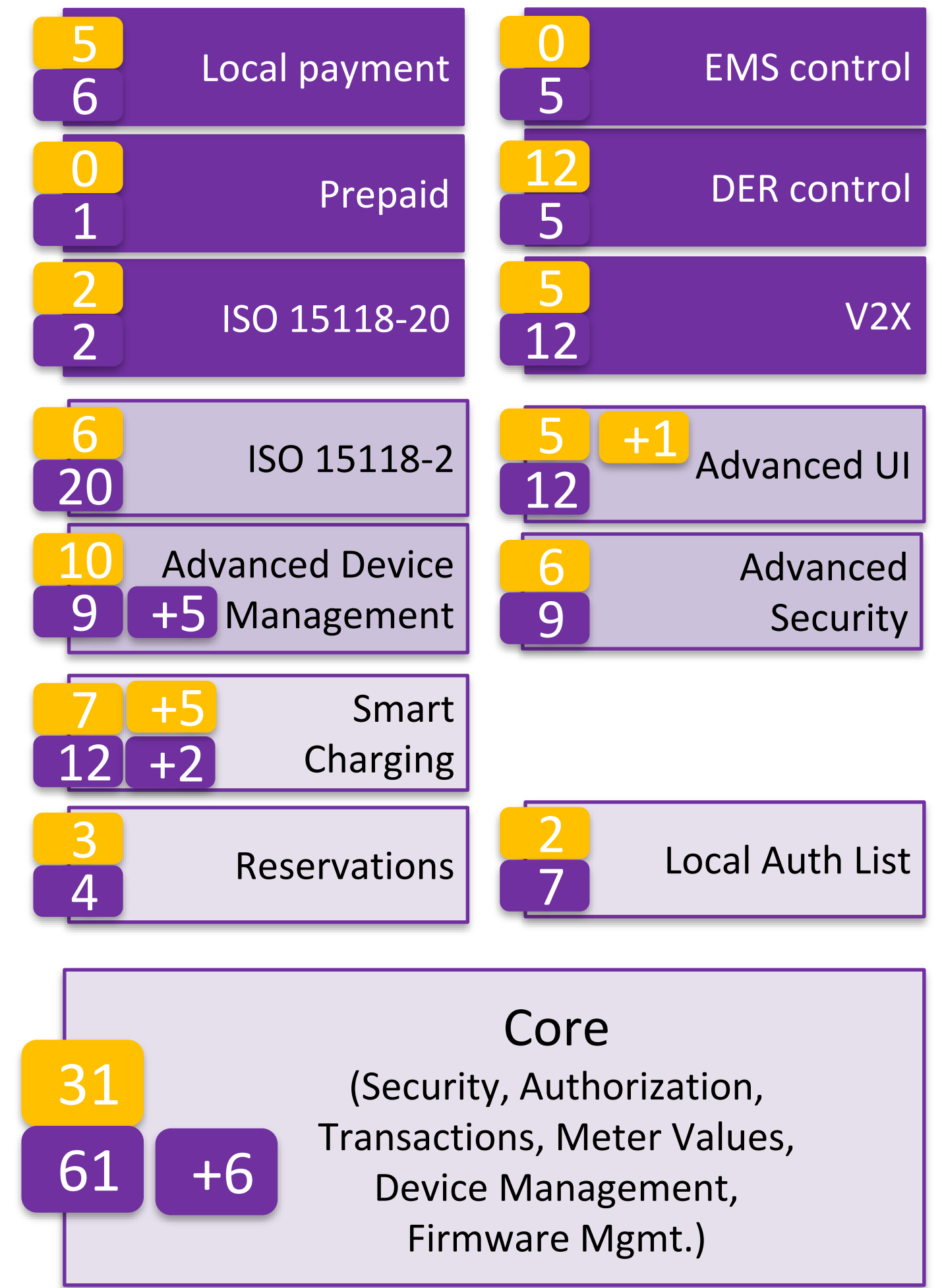


Latest developments of the protocol

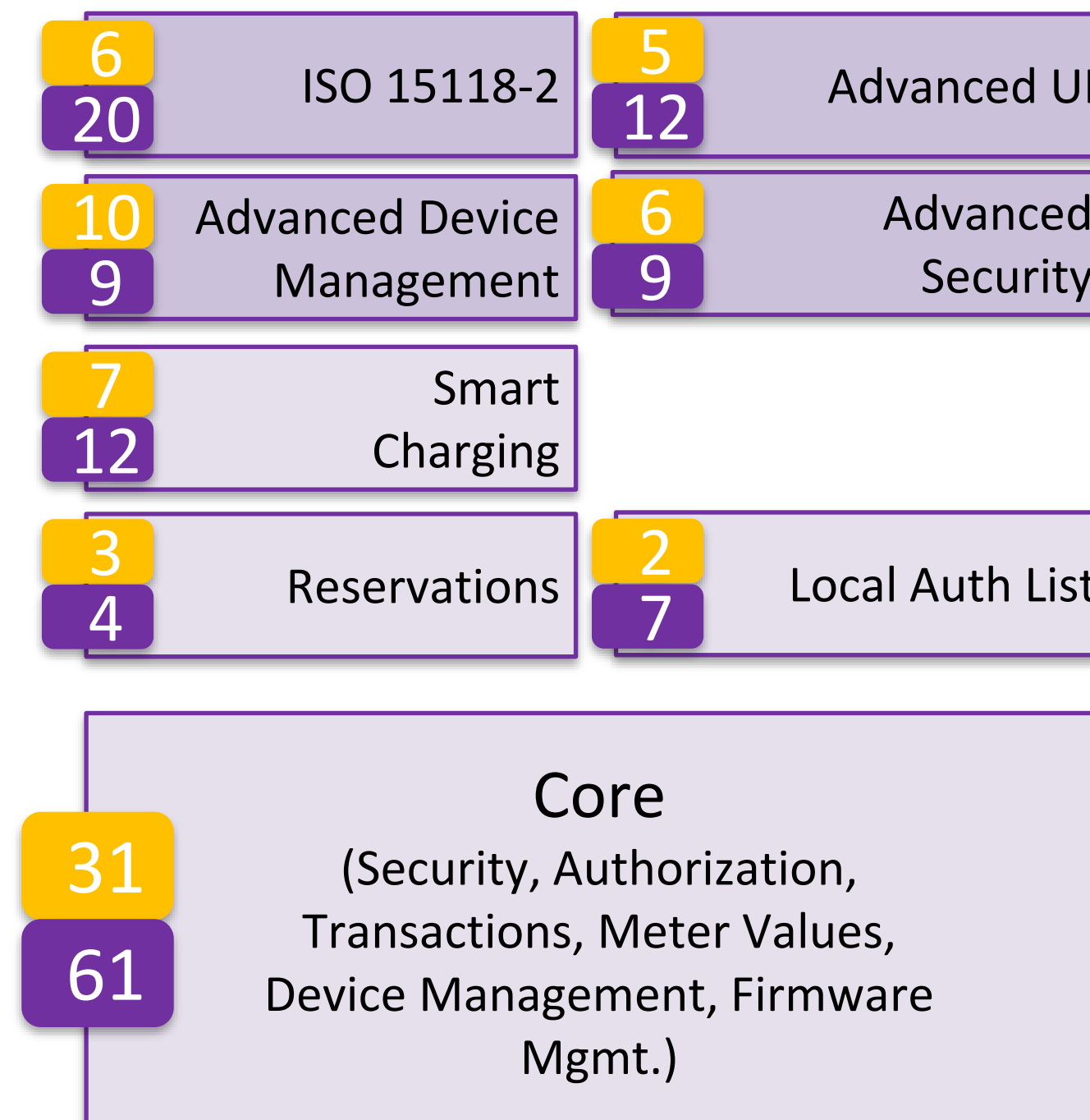
- OCPP2.1
- OCPP 2.Lite
- OCPP and Error codes
- OCPP for Battery swapping stations
- OCPP for V2X and Grid Code support

Over the past 10 years, OCPP has been growing with the industry

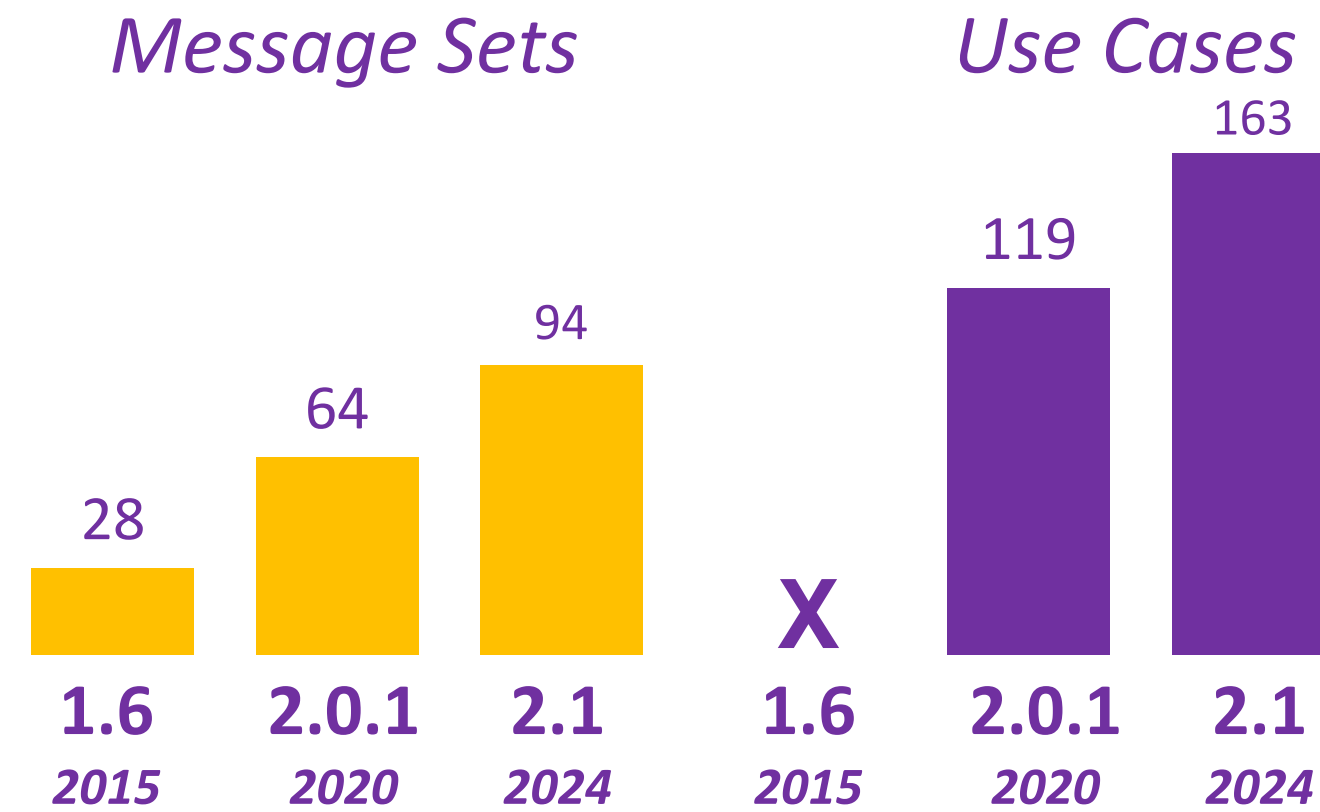
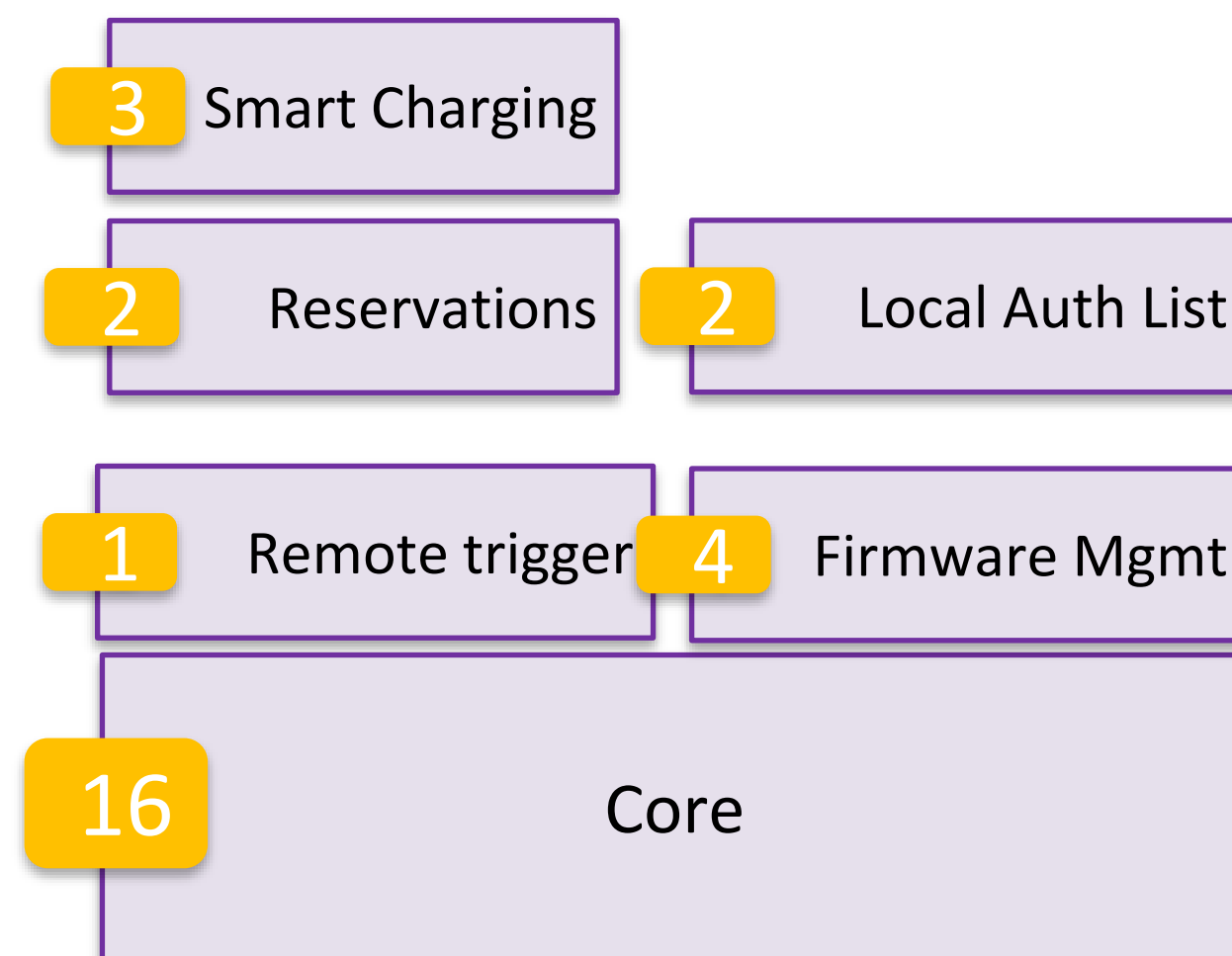
OCPP 2.1



OCPP 2.0.1



OCPP 1.6



OCPP2 lite



www.OpenChargeAlliance.org



Why OCPP2.lite?

We are adding a lot of features to OCPP for important market segments

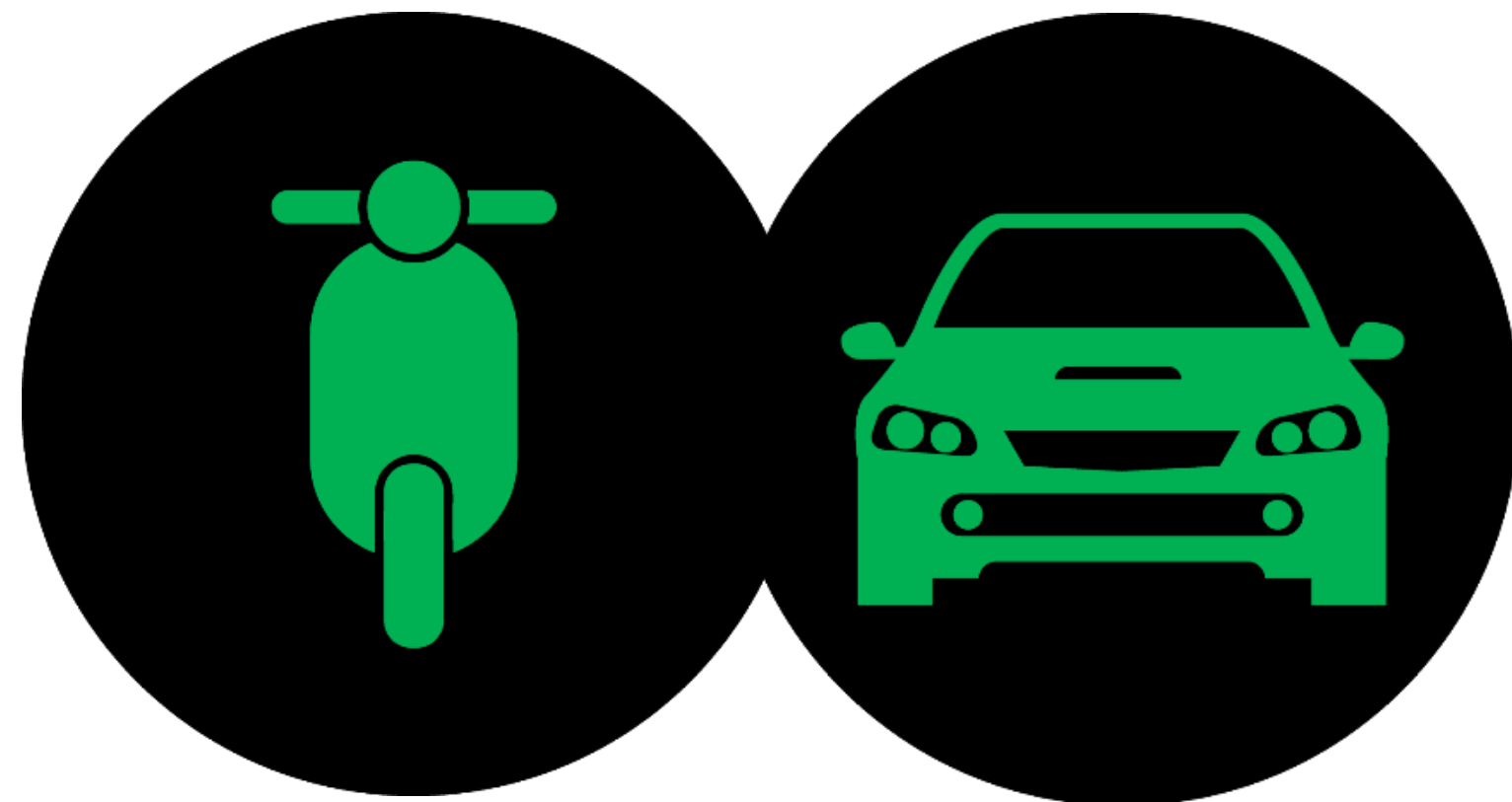
But....

At the same time, there are many booming markets for lightweight – and low cost - OCPP implementations

That is why we are turning our attention to OCPP2.Lite!

2 of many examples of markets for OCPP2.lite

A booming market: 2 wheelers in India



75 Million e2w in 2030

10.5 Million e4w in 2030

EV adoption will be led by 2 wheelers in India with a 7:1 ratio

Mobile networks are an important cost factor in Kenya



Kenya on the world map¹

Typical mobile internet costs:

Flatrate, 50 MB: USD 0.7

Flatrate: 200 MB: USD 1.0

The case of CHAJI², a peer-to-peer charger sharing network in Kenya

Private persons operate chargers and provide access to everyone via OCPP. Mobile connectivity is a must in rural areas. USD 0.7 is considered a reasonable monthly operational cost.

Target mark for OCPP

To be competitive as a standard, it should be possible to operate a charger via OCPP with **at most 25 MB per month** (50% headroom).

1) CC BY-SA 3.0 Deed [https://de.wikipedia.org/wiki/Datei:Kenya_on_the_globe_\(Africa_centered\).svg](https://de.wikipedia.org/wiki/Datei:Kenya_on_the_globe_(Africa_centered).svg)

2) <https://www.chajigo.com/>

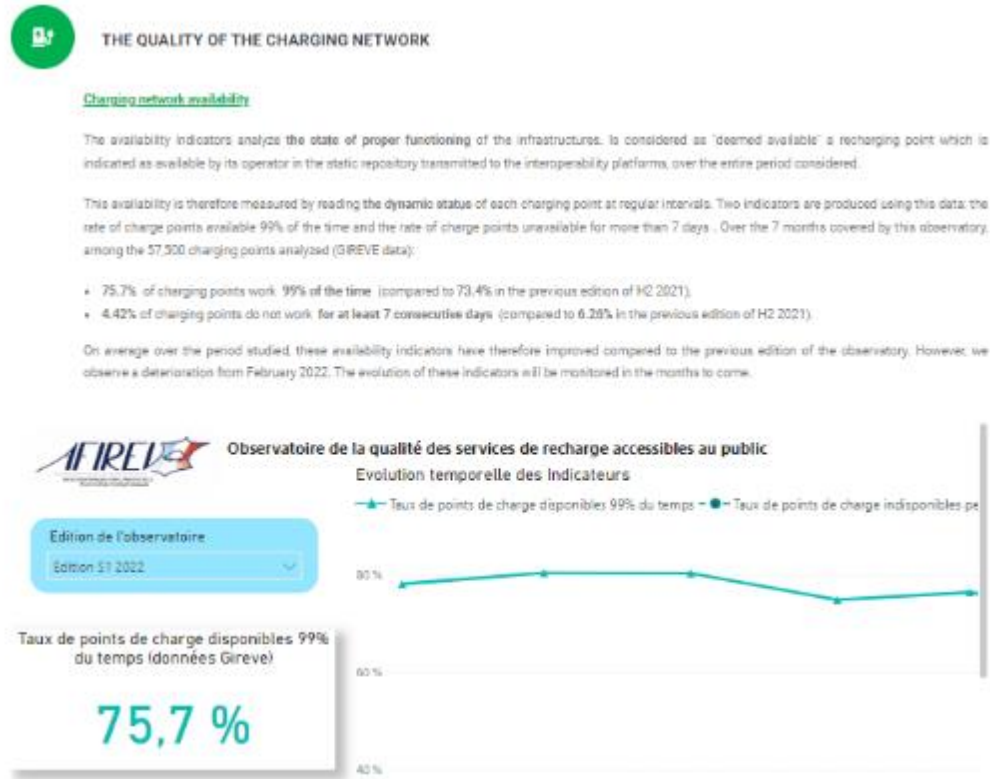
Ocpp and error codes

- In April OCA updated the whitepaper “Improving Uptime Monitoring with OCPP”
- This white paper describes how OCPP can be used to detect and (in some cases) avoid downtime of a charging station.
- In the updated appendix, you can find the ChargeX Minimum Required Error Codes (USA)
- We will add more regionally required error codes to the appendix in future



Study finds more than a quarter of charging stations were nonfunctional

Fred Lambert | Jun 16 2022 - 10:43 am PT | 0 Comments



OCPP for battery swapping stations

- Together with front runner companies from Korea and India we are exploring how OCPP can be used to manage battery swapping stations for 2- and 3-wheelers
- More to come soon!

TARDIS
TECHNOLOGY

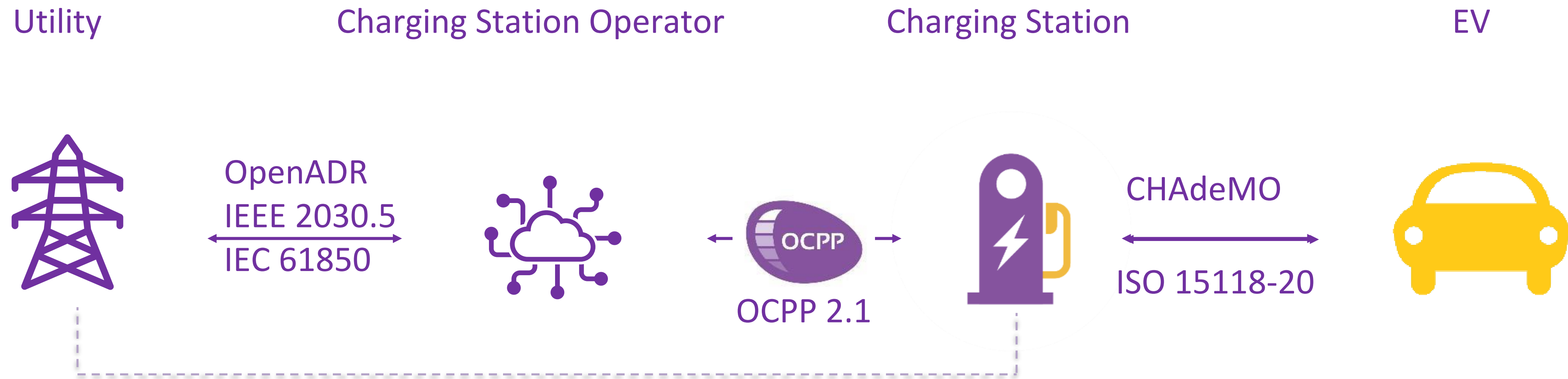
TEKMINDZTM



Latest developments

- ✓ OCPP2.1
- ✓ OCPP 2.Lite
- ✓ OCPP and Error codes
- ✓ OCPP for Battery swapping stations
- OCPP for V2X and Grid Code support

OCPP and bidirectional power flow: When EVs become distributed energy resources



IEEE 1547 - Standard for Interconnection and Interoperability of Distributed Energy Resources with associated Electric Power Systems Interfaces
EN 50549 - Requirements for generating plants to be connected in parallel with distribution networks

Grid codes France
Grid code Netherlands
Grid code Germany

What all Grid Codes have in common

Grid codes across the world cover the same 4 aspects: a 'Distributed energy resource' (i.e., a bidirectional vehicle) must:

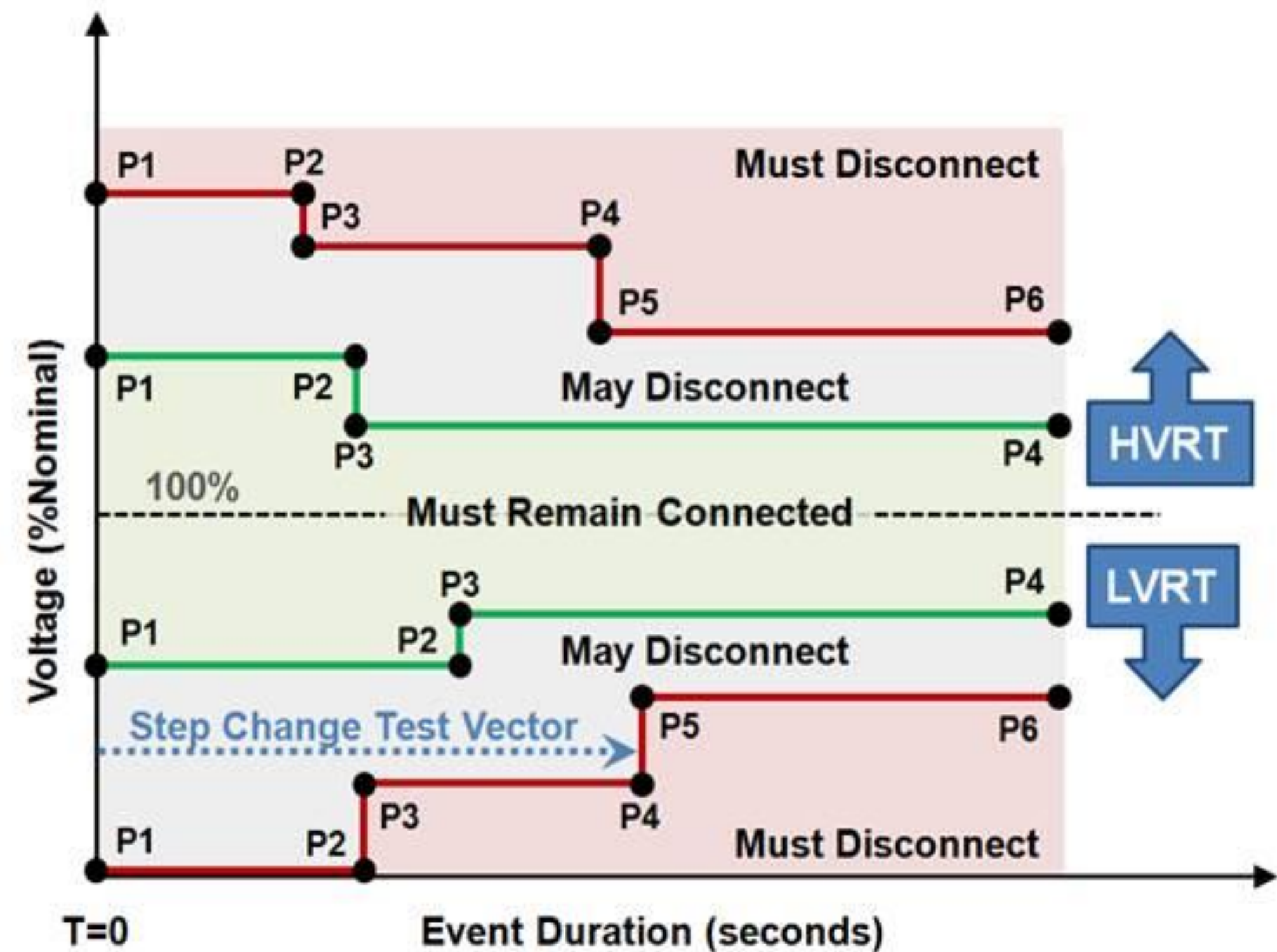
- A. Adjust behavior according to the grid frequency and voltage
- B. Continue operation despite grid 'hick-ups'
- C. Listen to a direct 'STOP!' signal
- D. Detect if the grid is down: do not feed into the grid when it is down and when the grid comes back up, reconnect with care

Example of a DER Curve that tells the Charging Station how to react to grid conditions

The Charging Station (in case of DC charging) or the EV (in case of AC charging) must continuously monitor the grid voltage.

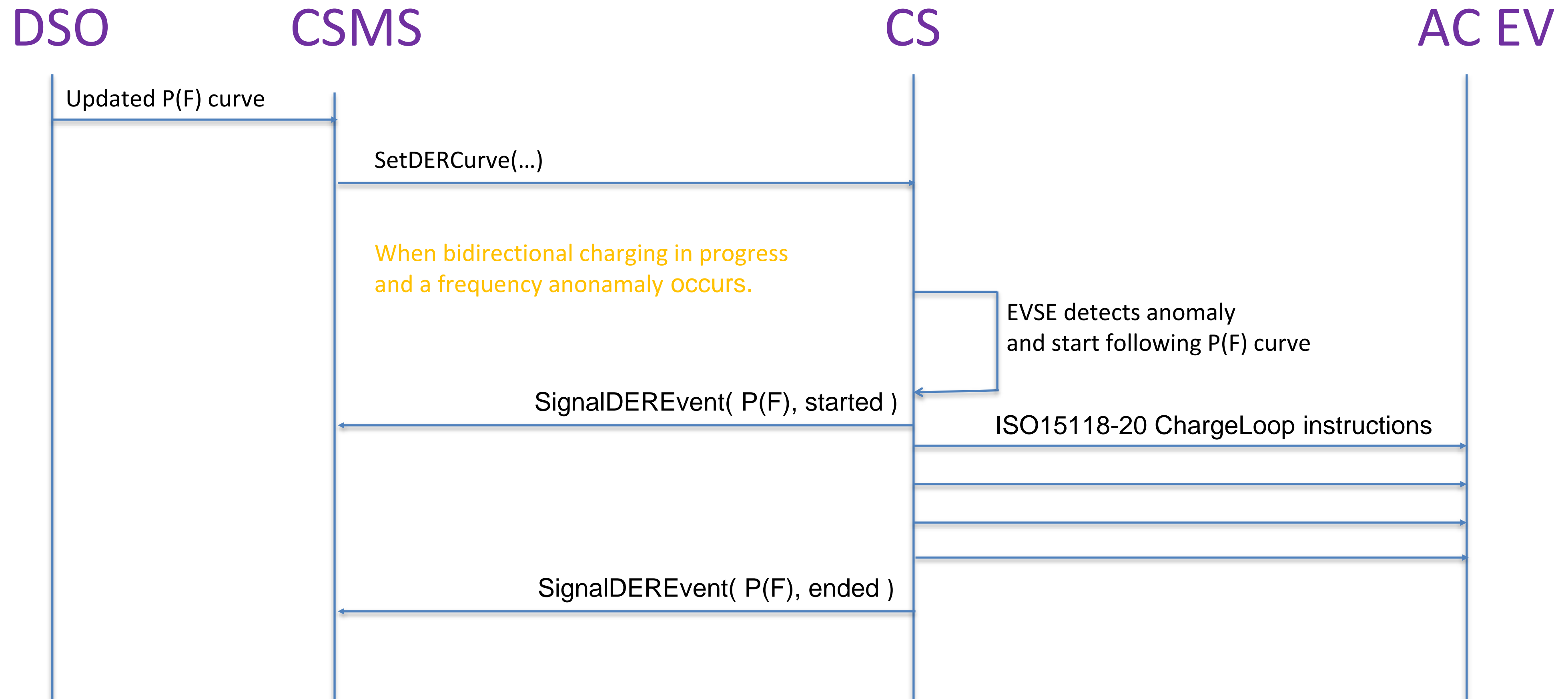
When the Charging Station/EV detects that the Grid Voltage is too low or too high, it must change its charging behavior according to the 'Curve'.

Globally, there are more than 7000 Grid Operators, with possibly hundreds of different requirements at the moment – but the principle is the same.



Voltage Ride-Through

Charging station executing a DER curve



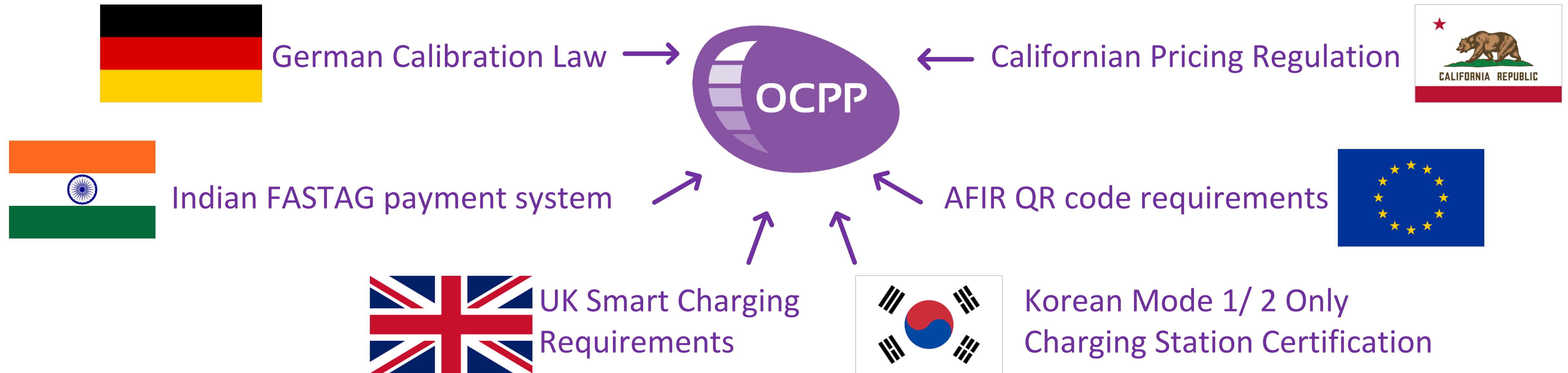


Join OCA!

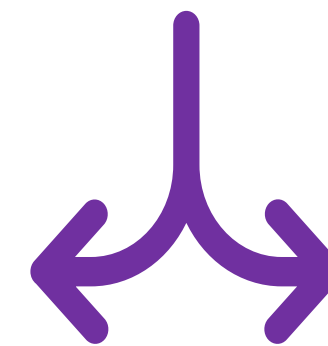
**Innovate, collaborate, and drive
change!**



OCA needs input about the specific requirements in a country



This can result in a Whitepaper, explaining to the industry how they can use OCPP to fulfill these requirements.....



.....Or this can result in an update of OCPP

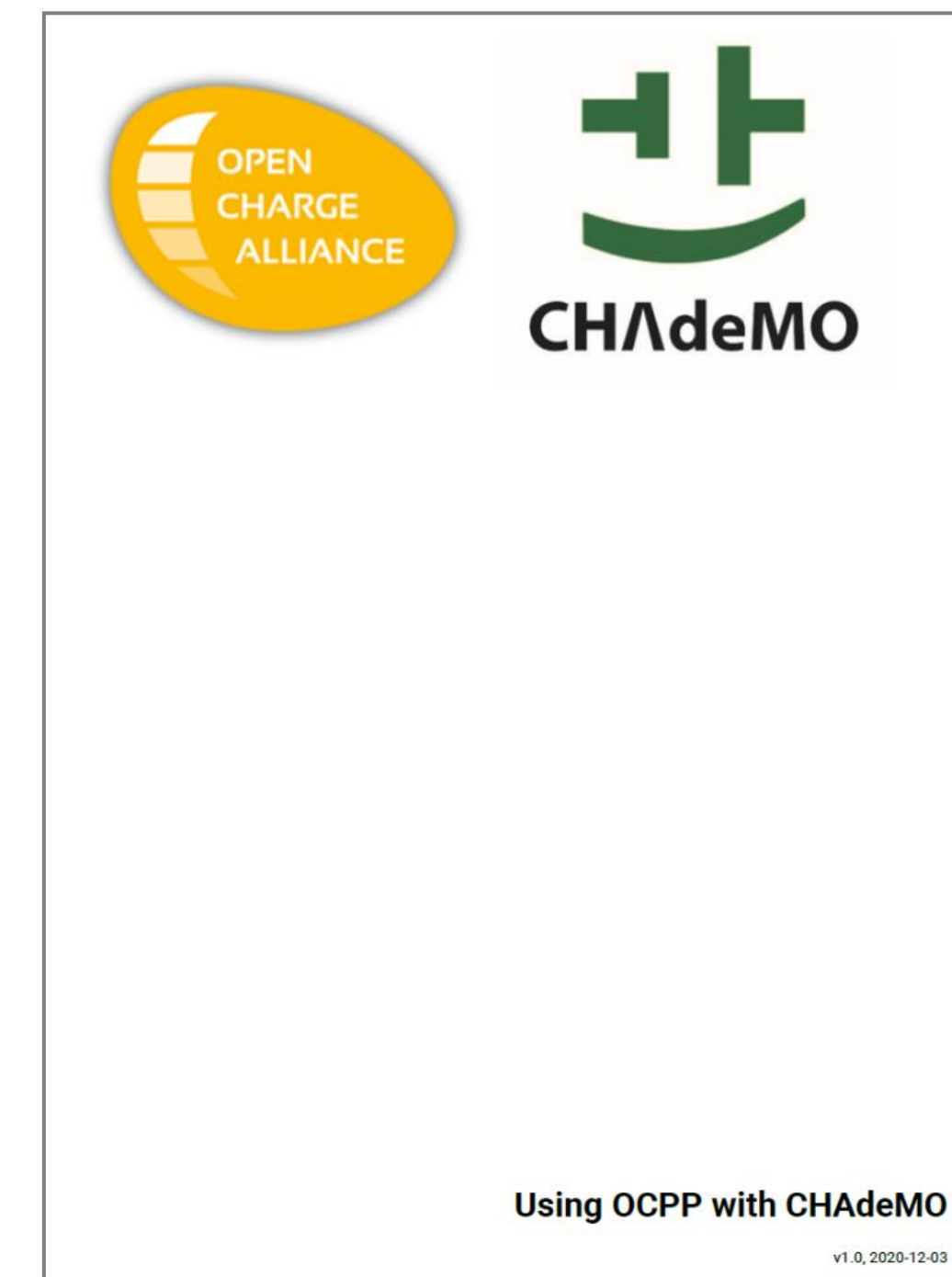
In 2020 CHAdeMO and OCA worked together to help the industry

Scope:

- OCPP 1.6 & OCPP 2.0.1
- CHAdeMO 1.1 & CHAdeMO 2.0.1

Work items:

1. Align terminology - translation table
2. Align events - sequence diagrams
3. Align charge session data - device model recommendations



How can OCPP better support Japan?

- Use OCPP!
- Join OCA as a member and contribute!
- Set up a Japan OCA WG with Japan based OCA members and contribute!
- Join OCA via IEC as an IEC liaison member (if IEC votes YES on OCPP2.0.1) and contribute!

- Other options?