



# ISUW 2025

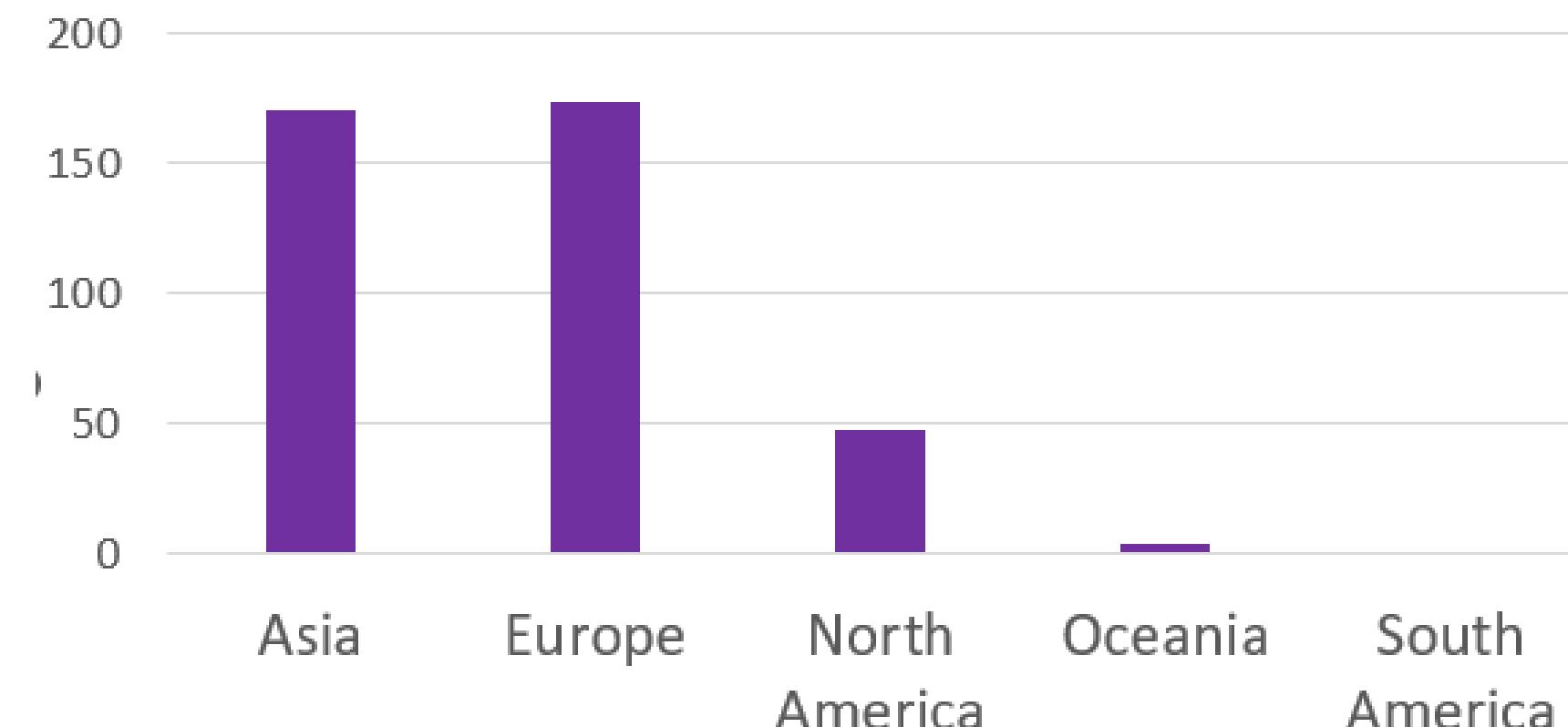
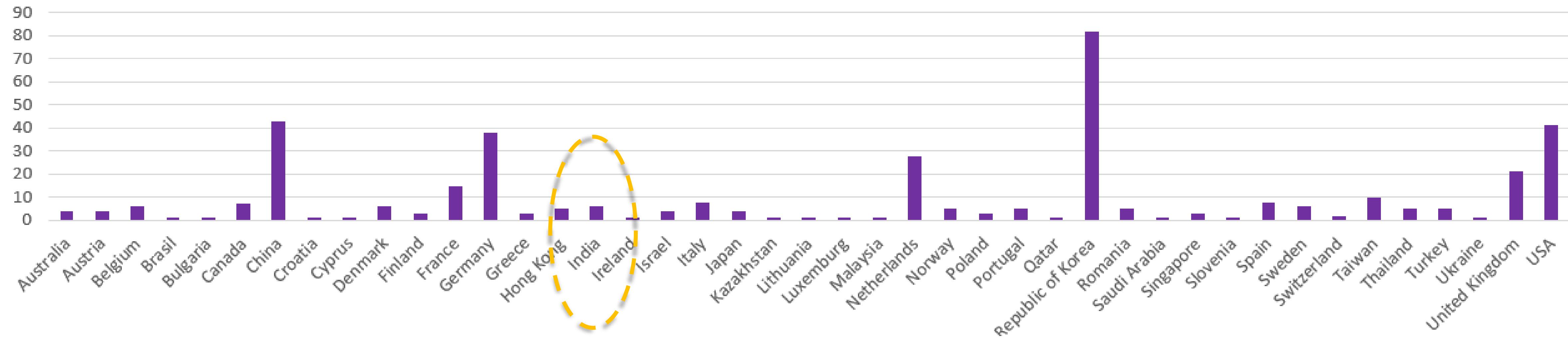
## OCPP Technical session

Delhi, March 18th 2025



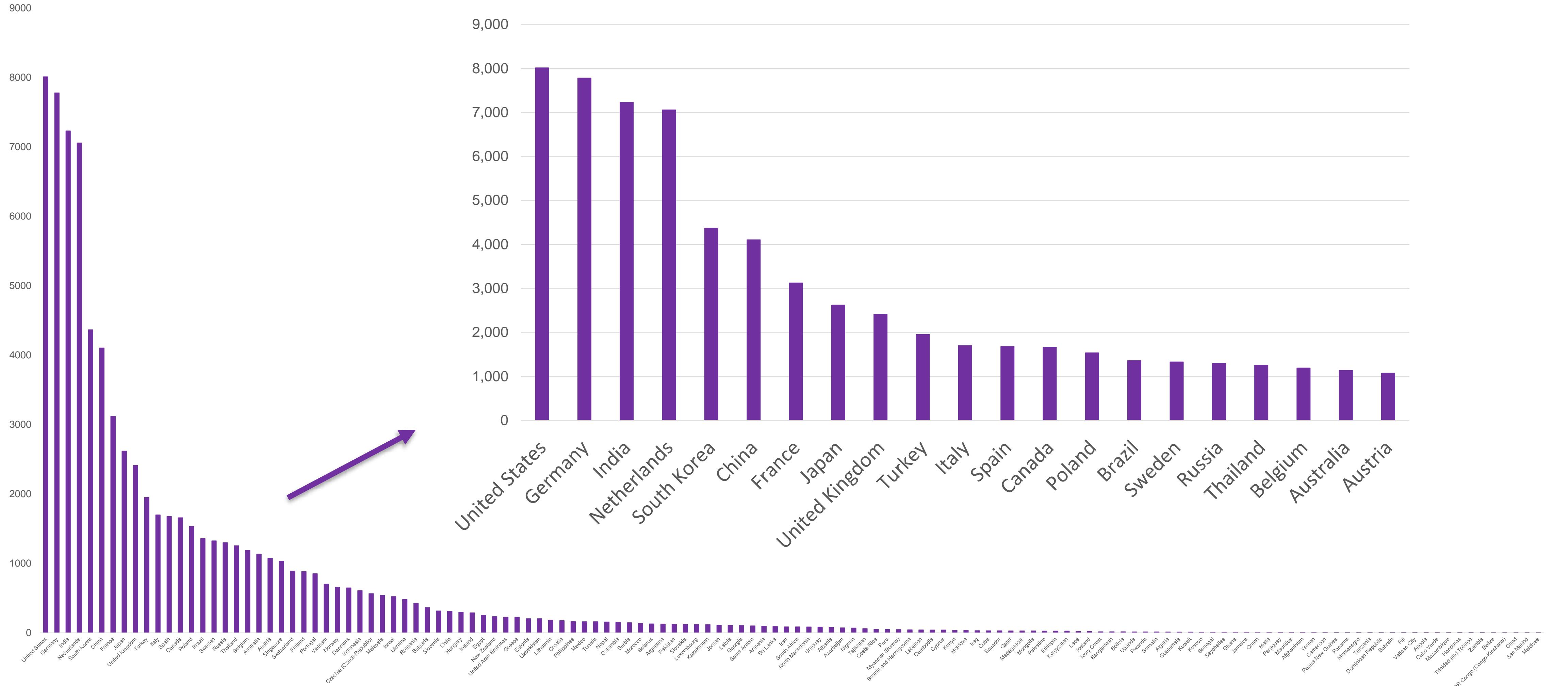
# Update on OCA and OCPP

# OCA currently has 408 participants, 6 from India



# OCPP downloads in India

OCPP



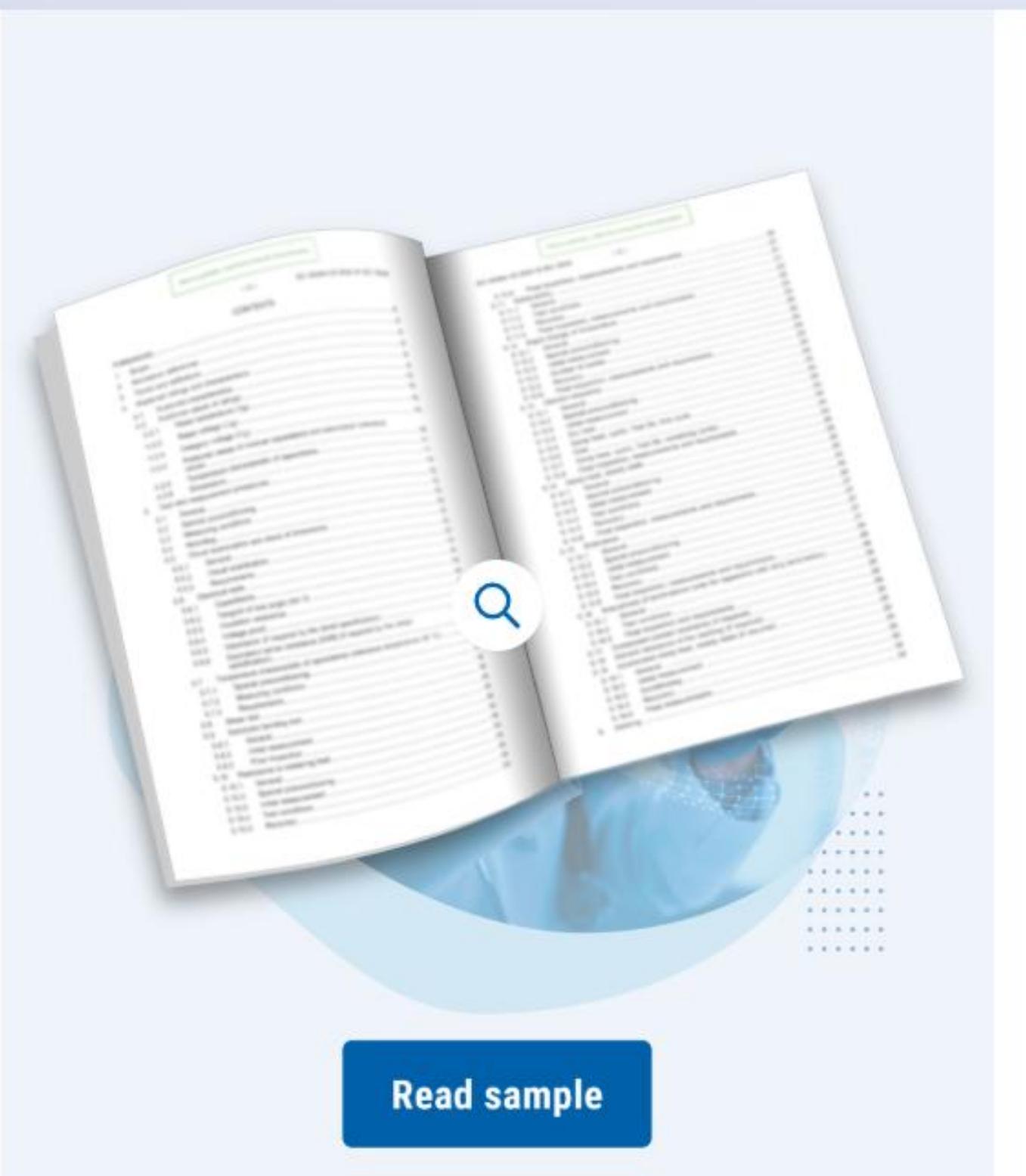


**OCPP**

**IEC 63584**

# OCPP 2.0.1ed3 (May 2024) AKA IEC 63584

→ ⌂ [webstore.iec.ch/en/publication/95734](https://webstore.iec.ch/en/publication/95734) ☆ ⏪ ⌂ ⋮



**IEC 63584**  
IEC 63584:2024

**Open Charge Point Protocol (OCPP)**

IEC 63584:2024 The Open Charge Point Protocol (OCPP) provides the communication between a Charging Station and a Charging Station Management System (CSMS) and is designed to accommodate any type of charging technique. It is based on OCPP 2.0.1 and was submitted as a Fast-Track document.

**BASE PUBLICATION**

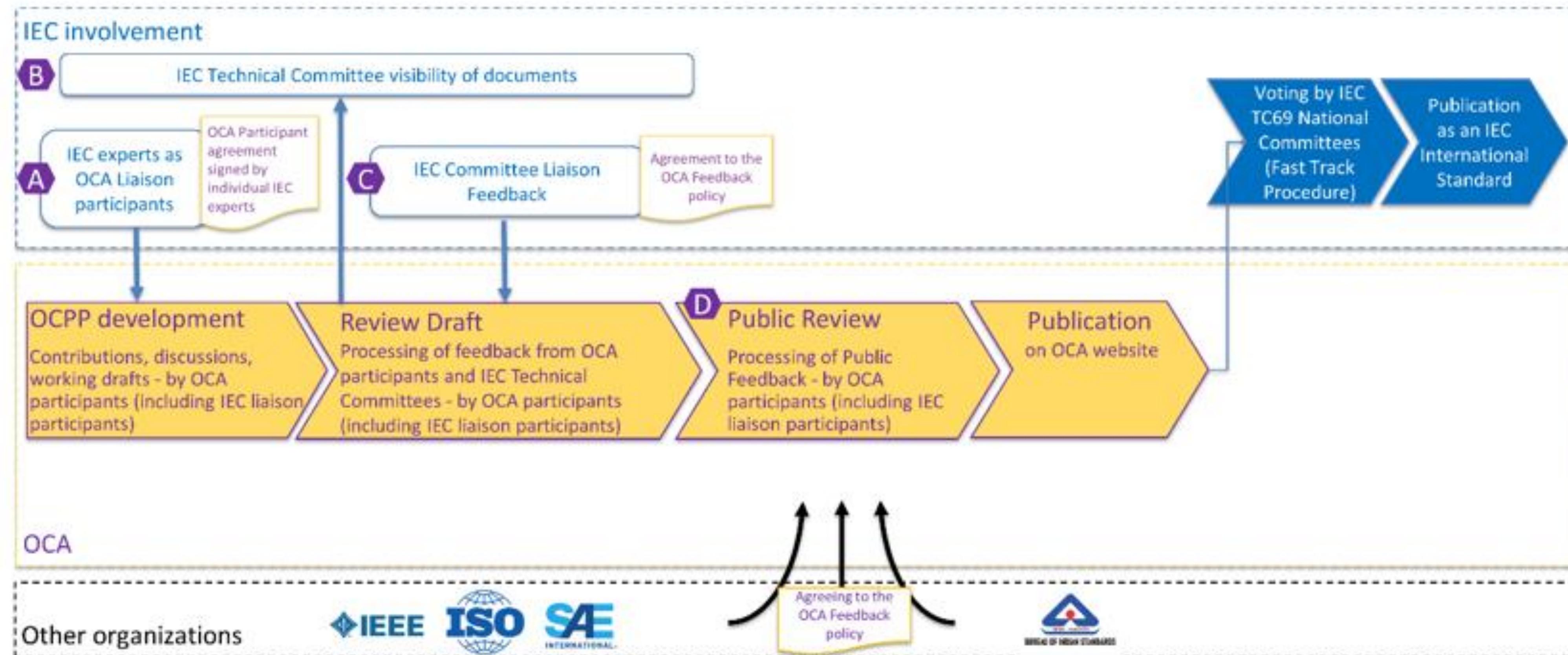
Language English

Format Electronic

User 1 ▾

**CHF 450.-** Add to cart ⏪

# OCA will maintain OCPP and will again submit future versions via the Fast Track Procedure



# How can you participate in the development of OCPP?

1

## Your company can join OCA

- Your company will pay a Participants fee
- You and all your colleagues can join
- You can join all groups
- Your company gets discounts and can vote inside OCA

2

## As an IEC expert, you can join as an IEC Liaison member to OCA

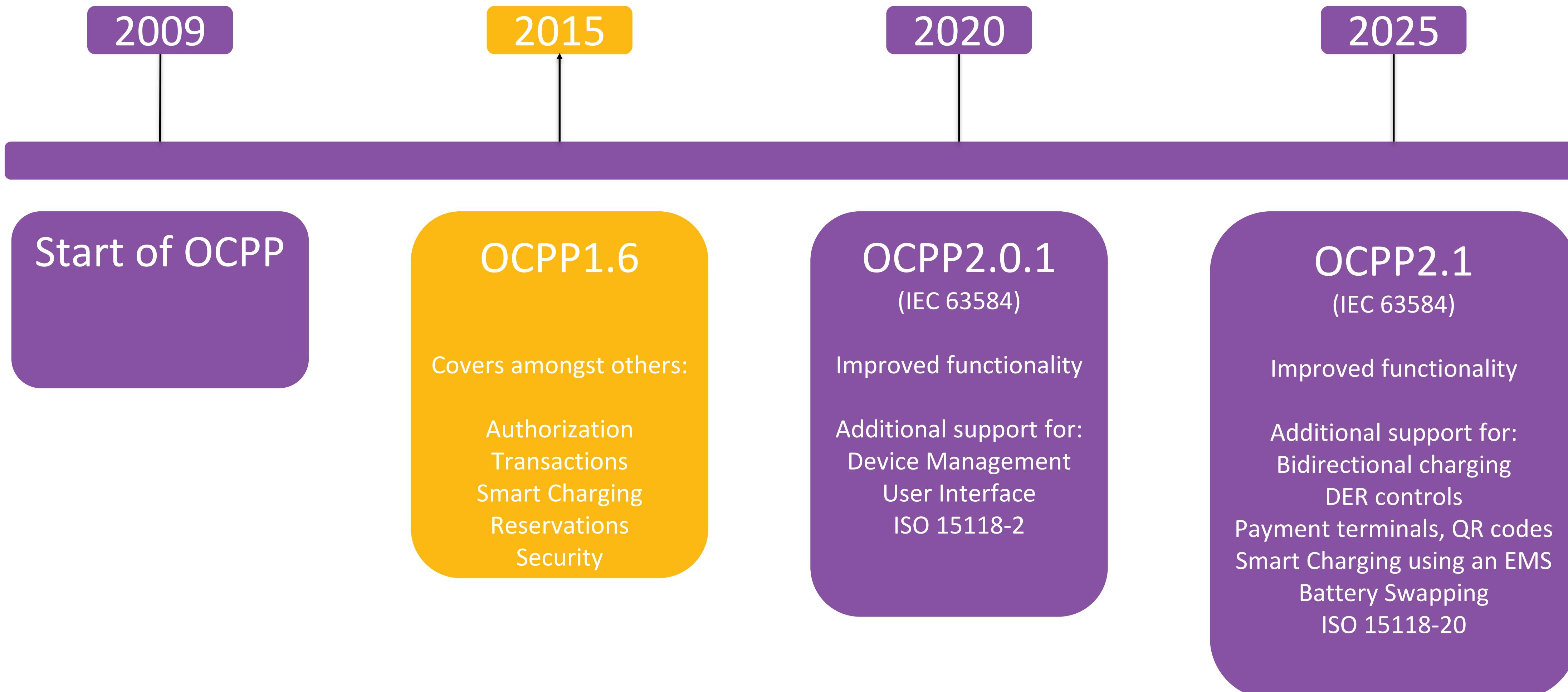
- Only you will join, for free
- You can join all groups
- You will not get discounts and cannot vote inside OCA

3

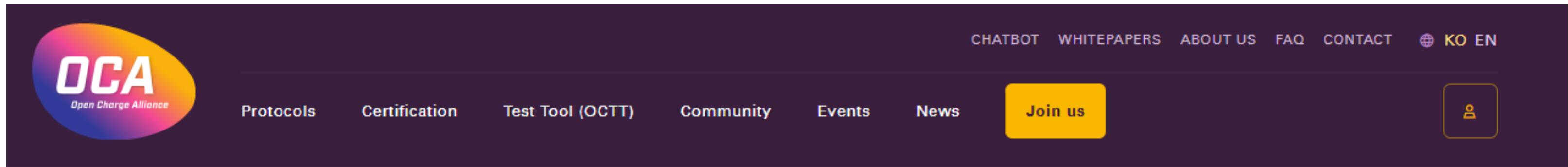
## As an IEC expert, you can work from your IEC TC/SC

- You will have visibility of draft documentation
- You can provide feedback along the way

# OCPP is developed following the need of the growing industry and incorporating field experience



# OCPP2.1 is now available!



## OPEN CHARGE POINT PROTOCOL 2.1

OCPP 2.1 is designed for smarter, more efficient, and user-friendly EV charging solutions. It is part of our mission to stay ahead and to improve constantly. We reached this milestone thanks to the input and feedback we received from OCA participants and OCPP enthusiasts from all over the world! Together, we define the future of EV charging.

OCPP 2.1 extends OCPP 2.0.1 with additional functionality. Care has been taken to make sure that all application logic developed for OCPP 2.0.1 will continue to work in OCPP 2.1.

OCPP 2.1 includes improved and added functionalities compared to OCPP 2.0.1:

- 1. Support for ISO 15118-20:** Support for ISO 15118-20 with bidirectional power transfer.
- 2. New Functional Block on Bidirectional Charging:** Enablement of bidirectional energy flows (V2X), allowing EVs to act as energy sources.
- 3. New Functional Block on DER Control:** Enhanced integration with distributed energy resources (DER).
- 4. Improved Smart Charging:** Advanced tools for optimized energy distribution across charging stations.

**5. Extended Transaction Options:** Possibility to perform transactions with fixed costs, energy or time. Possibility to resume transactions after a forced reboot.

**6. Battery Swapping:** Support for battery swap stations for two- and three-wheelers and electric vehicles.

**7. Local Cost Calculation:** Support for local cost calculation on the charging station.

**8. New Authorization Options:**

- **Support for Prepaid Charge Cards:** Transaction cost cannot exceed prepaid card balance.
- **Support for Ad Hoc Payment:** Pay with credit or debit card via a built-in or a stand-alone credit card terminal.
- **Secure Dynamic QR Codes:** Introduction of secure dynamic QR-codes for ad hoc payment.

**9. Many Additional Improvements:** A variety of updates driven by feedback from the EV charging community.

[Download](#)

# OCPP2.1 & Battery Swapping

- New use cases to support battery swap stations
- Swap action recorded by a `BatterySwapRequest(In/Out)`
- Battery charging recorded by existing transaction mechanism
  - Smart charging/discharging possible

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What's happening in 2025?



Let's

TALK

TO

# OCPP is for all Chargers, great and small, from Korea to California



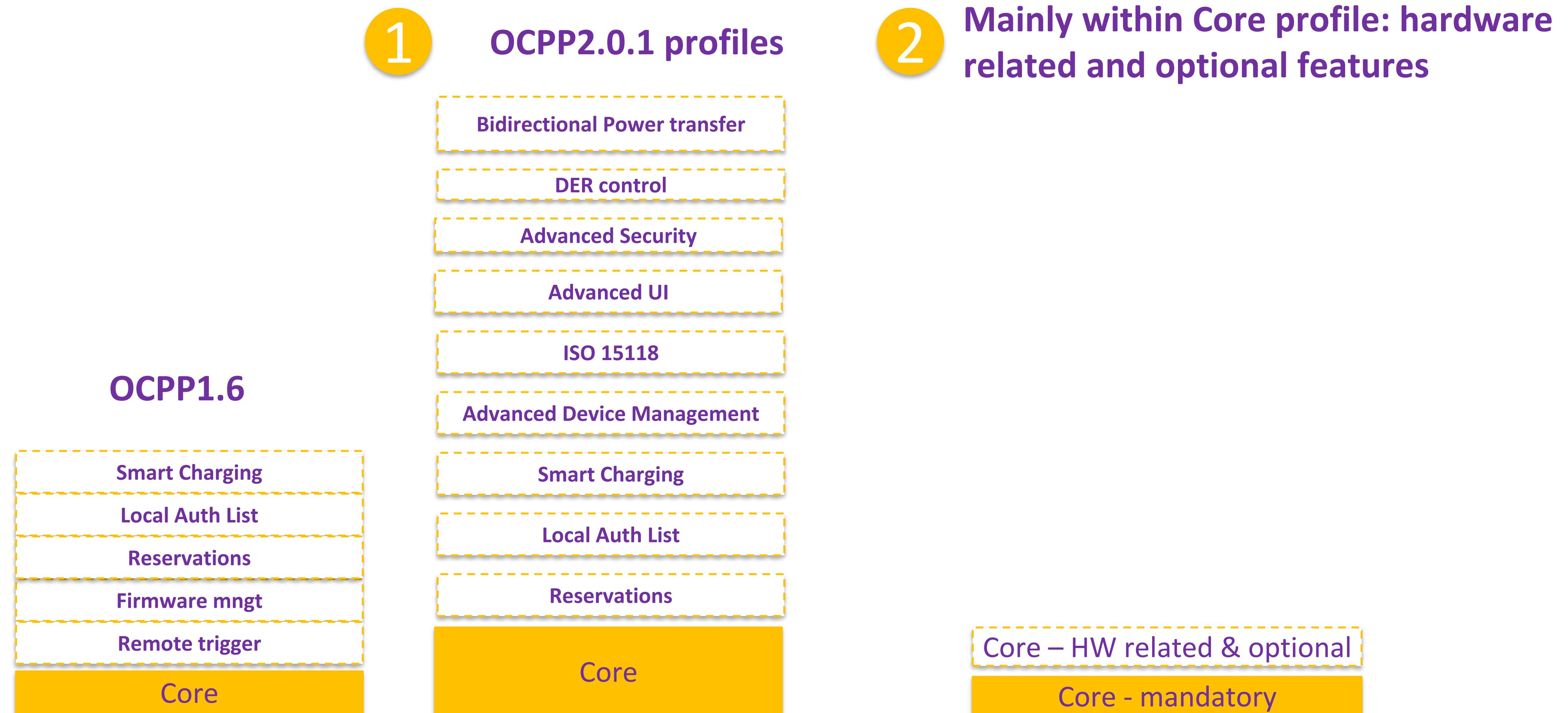
And all these chargers should be able to benefit from the improvements and advancements made in OCPP2.x!

# OCPP is for all Chargers, great and small, from Korea to California



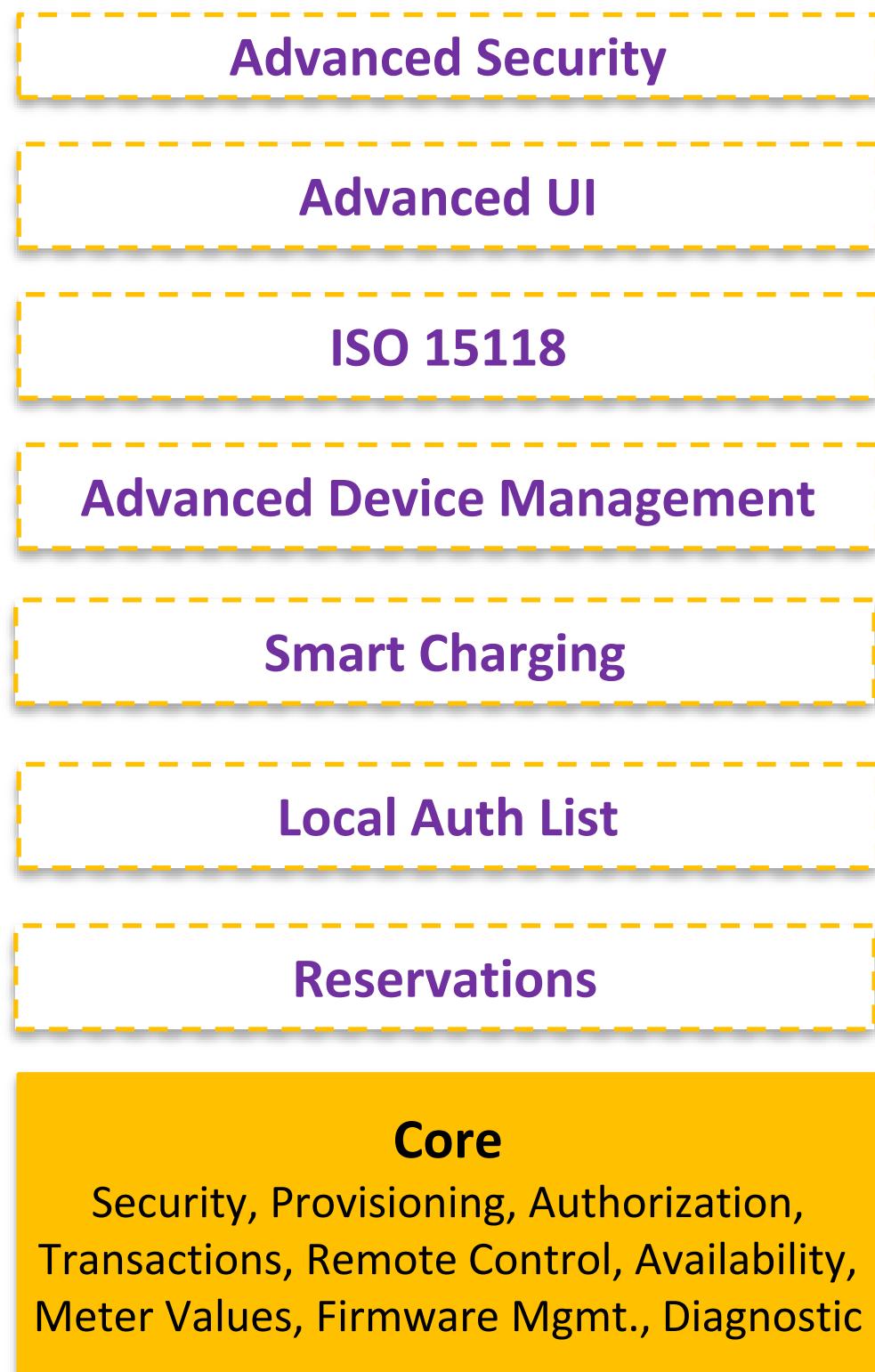
And all these chargers should be able to benefit from the improvements and advancements made in OCPP2.x!

# OCPP2.0.1 appears to be much more impactful as OCPP1.6 Two mechanisms in OCPP2.x are in place to accommodate the variety of needs

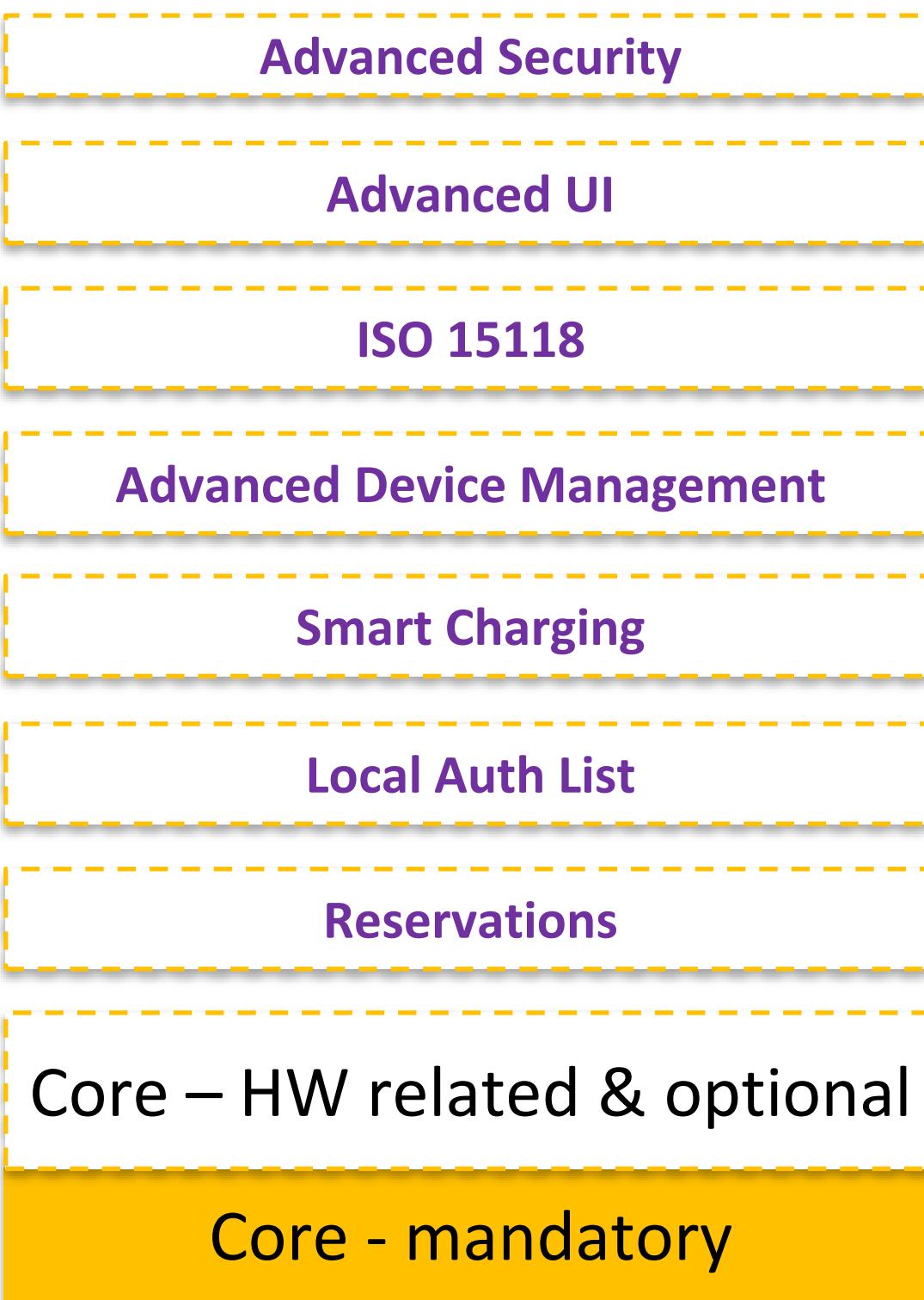


# Special Task Group: Identify and quantify a Lite implementation of OCPP2.0.1 and compare this to OCPP1.6

## OCPP2.0.1



## OCPP2.Lite: Minimal implementation of 2.0.1



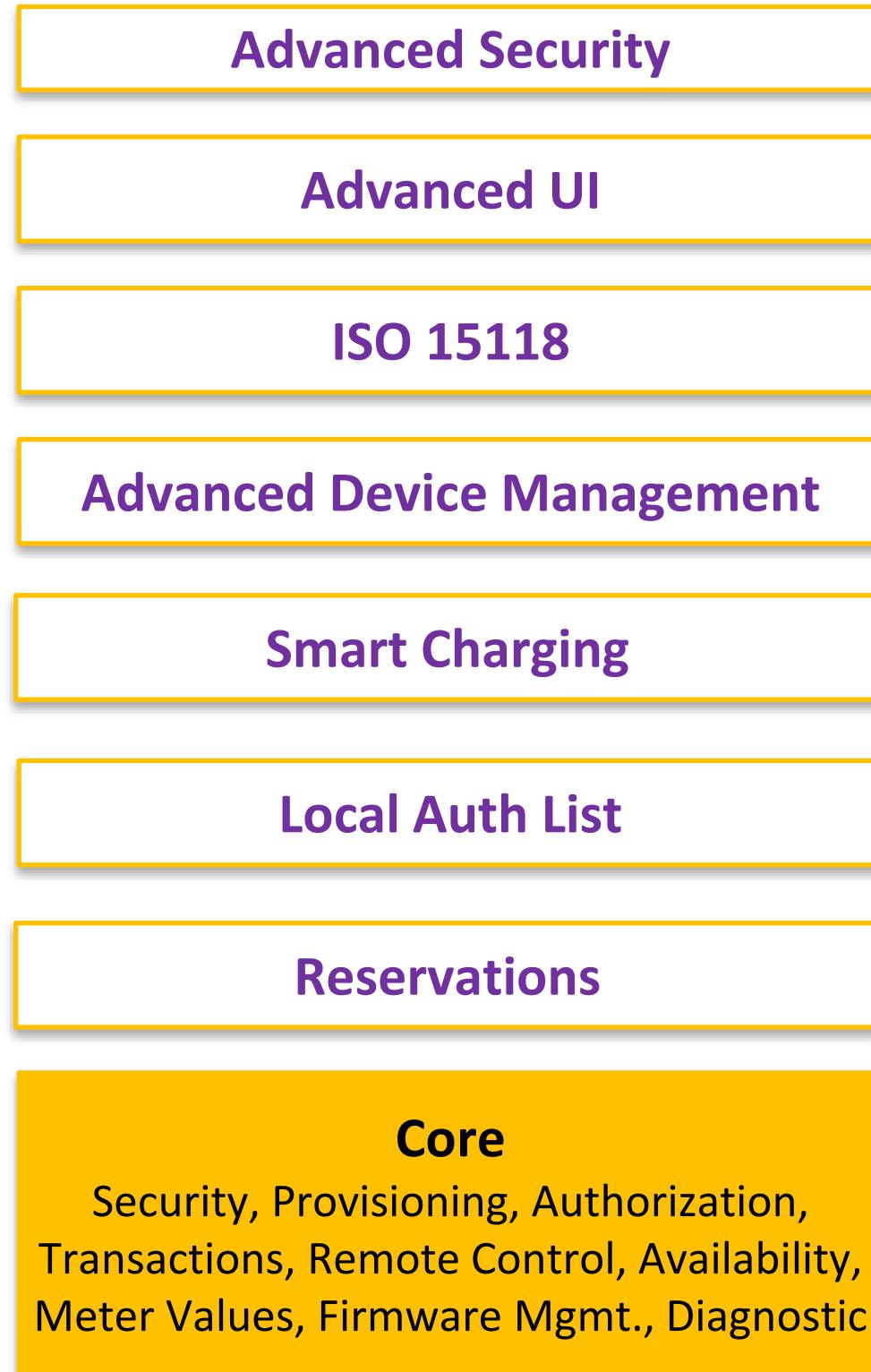
## Options

- Minimize firmware size
- Only implement essential OCPP messages  
E.g. omit GetReport, MeterValues, GetInstalledCertificates, DeleteCertificates
- Simplify transaction handling: only support PowerPathClosed start/stop points
- Minimize device model
- Only support required variables (54)
- Limit number of ReadWrite variables where possible (15)
  - → Avoids the need for embedded database
- Minimize RAM usage
- Limit messages sizes via configuration variables: ItemsPerMessage
- Limit # of charging profiles stack levels and schedule periods
- Reduce TLS buffer from 16 to 2 kB
- Etc...

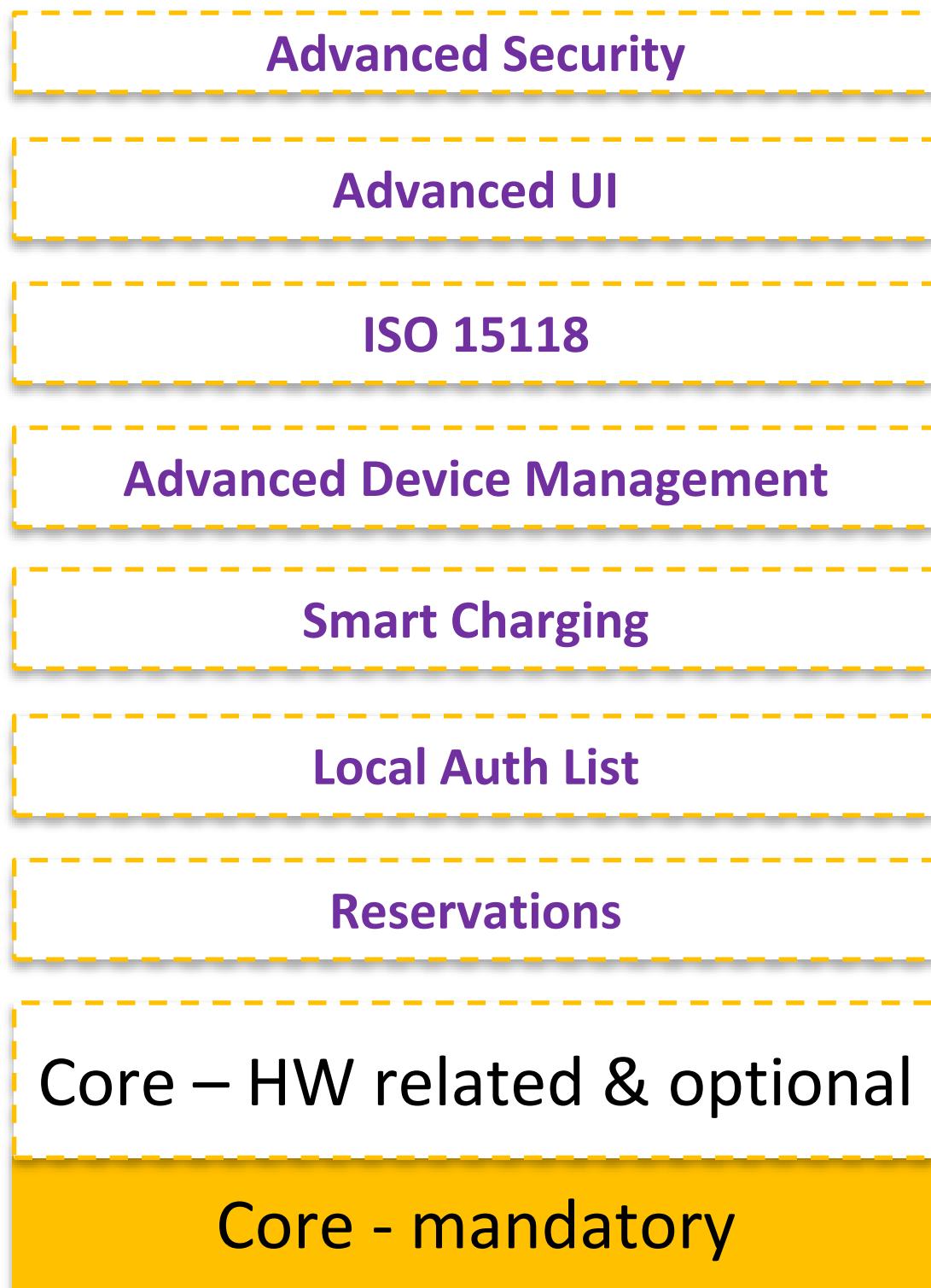
# Special Task Group: Identify and quantify a Lite implementation of OCPP2.0.1

## and compare this to OCPP1.6

### OCPP2.0.1



### OCPP2.Lite: Minimal implementation of 2.0.1

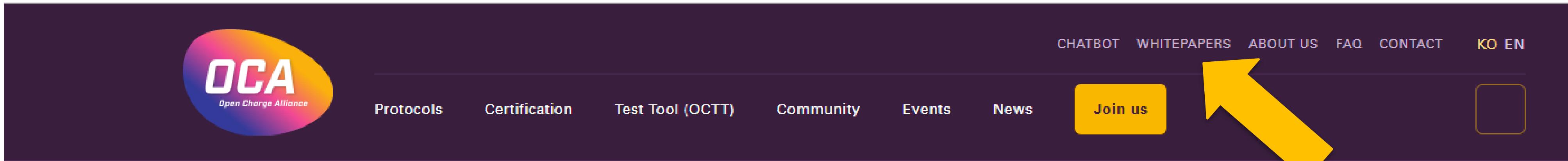


### Quantify impact

- CPU cycles: a series of steps that the CPU goes through to fetch, decode and execute instructions.
- RAM (random access memory): A running application will require working memory for a stack and heap to store data.
- ROM (read-only memory): The OCPP firmware itself is read-only memory.
- Flash memory: This is persistent memory, which is used, for example, to store configuration settings.
- Data communication usage does not relate to resource limitations but to reducing operational cost

# The Whitepaper is available on the OCA website

openchargealliance.org

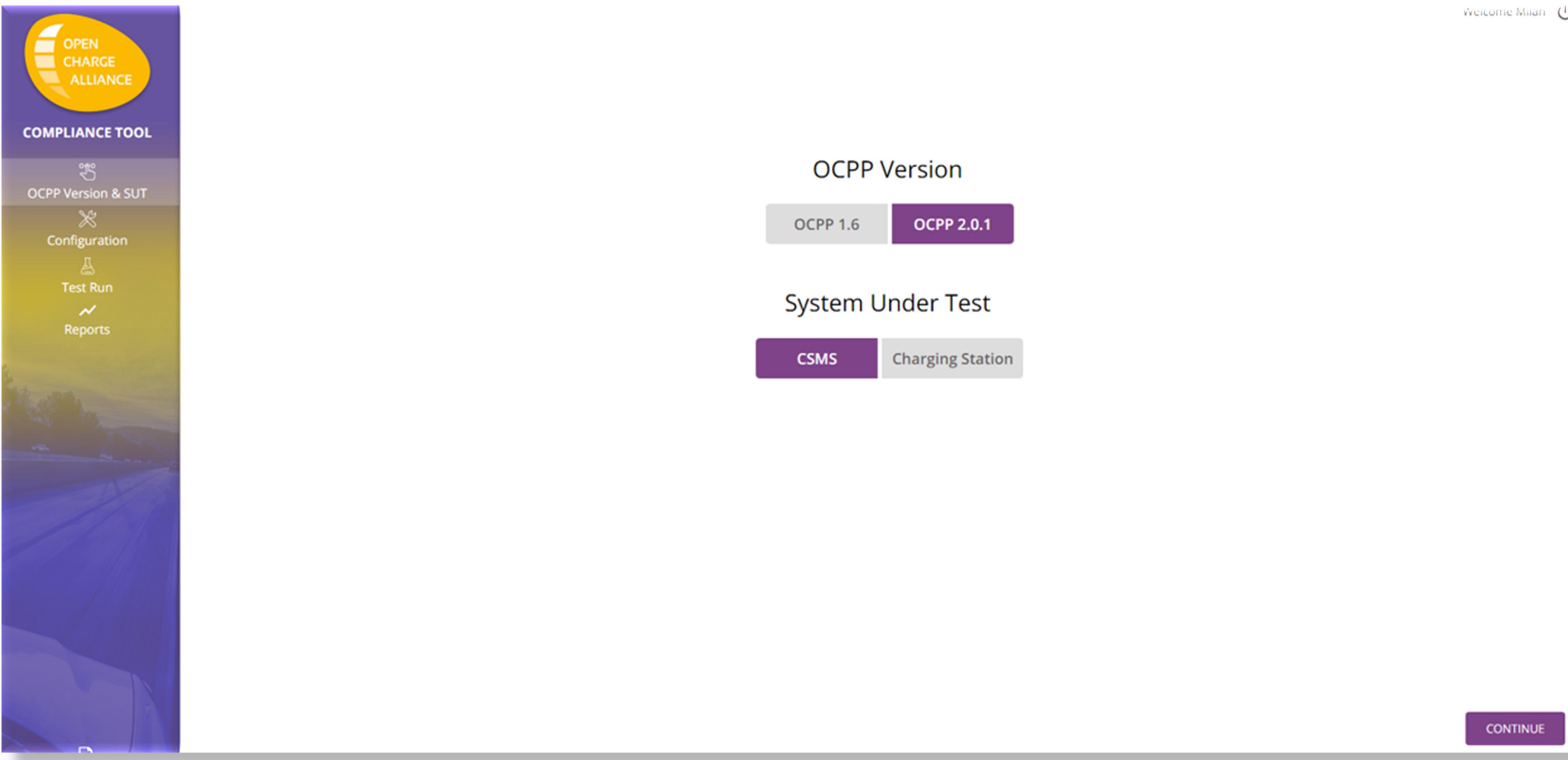


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- Real-world benchmarks demonstrate that a streamlined implementation of OCPP2.0.1 can operate within 50 kB of RAM and 200 kB of ROM, making it viable for low-resource environments!
- Whitepaper will be updated with measured data from MicroOCPP and OpenOCPP
- **OCPP2.Lite Hackathon coming soon!**

# OCTT (OCPP Conformance Testing Tool) is available and updated every 2 months





# New OCPP Certification Program

# Certification for OCPP1.6 and OCPP2.0.1

OCPP 1.6 Certification  
opened in November 2019

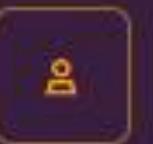


*For Charging Stations, CSMSs and Software  
Stacks*

OCPP 2.0.1 certification opened in June '23 for  
'Core' & 'Advanced Security' and in March 2025  
for the additional profiles



*For Charging Stations, CSMSs and Software Stacks*



## OCPP CERTIFICATION PROGRAM

Every company involved with an OCPP implementation can get an official independent OCPP Certificate. This OCPP Certification Program gives companies the opportunity to validate their OCPP implementation on conformance with the OCPP 2.0.1 or 1.6 specification.



**LEARN MORE  
ABOUT CERTIFICATION**

[Certification OCPP 1.6](#)[Certification OCPP 2.0.1](#)[Testing laboratories](#)

**LIST OF CERTIFIED PRODUCTS**

[Certified products](#)

# 5 OCA Certification Test Labs in 11 locations



# All certified products are on the OCA website



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## CERTIFIED PRODUCTS

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

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

CERTIFIED COMPANIES

Organisation	Cert. number	OCPP Version	Country	Product type	Product designation	Certificate type	Software version	Date of regis
A-Pro Co. LTD.	OCA.0016.0441.CS	OCPP 1.6	Republic of Korea	Charging Station	EVD100K2C	Subset	1.0	July 18th 2022
ABB E-mobility B.V.	OCA.0016.0653.CS	OCPP 1.6	The Netherlands	Charging Station	Terra 184	Subset	1.7.4.135	April 19th 2022
ABB E-mobility B.V.	OCA.0016.0654.CS	OCPP 1.6	The Netherlands	Charging Station	Terra 184	Security	1.7.4.135	April 19th 2022
AddEnergie Technologies Inc.	OCA.0016.0214.CS	OCPP 1.6	Canada	Charging Station	SmartDC	Subset	v8.8.15	December 31st 2022
AHA Co., Ltd	OCA.0016.0190.CS	OCPP 1.6	Republic of Korea	Charging Station	AHA-EVC	Subset	VF2201-R001	September 9th 2022
AHA Co., Ltd	OCA.0016.0397.CS	OCPP 1.6	Republic of Korea	Charging Station	AHA-007Y1-S1010	Subset	AHA350-07-001	June 9th 2022
AHA Co., Ltd	OCA.0016.0398.CS	OCPP 1.6	Republic of Korea	Charging Station	AHA-011Y1-S1010	Subset	AHA350-11-001	June 9th 2022
AHA Co., Ltd	OCA.0016.0516.CS	OCPP 1.6	Republic of Korea	Charging Station	A050-B440	Subset	VF2023-R001	October 6th 2023



**Certificate Holder:** Broadband TelCom Power, Inc.  
**Certificate Number:** OCA.0201.0061CS  
**Product Type:** Charging Station  
**Product Designation:** BTC DC Fast Charger (HPCD-500-05-005)  
**OCPP Software Version:** BT-2025-1  
**Certification Date:** December 30, 2024

This certificate attests that the above mentioned product successfully completed certification testing in conformance with the reference specification OCPP 2.0.1 (Edition 3 FINAL, 2024-05-06 including Errata 2024-II). The optional OCPP protocol features that are covered by this certificate can be found in the Abstract of the Test Report that is part of this certificate.

Test cases have been performed as described in the test report referred to below. The results and remarks can be found in this complete test report.

Applied	Performed by / On	Document Evidence
Conformance testing according to the test specification referenced by the test report	DEKRA Certification, Inc December 26, 2024	BTC-360KWCharger-OCPP-2.0.1-PICS-CS-v1.3.4-With-Advance-Security-Signed_DEKRA

The abstract of test report is an integral part of this certificate. This certificate is valid from the Certification Date specified above. This certificate is only applicable to the product designation described above and permits the use of the OCPP logo as laid down in the OCA certification logo license agreement on this product only.

This certificate shall neither be tendered nor accepted by any party as a guarantee covering quality of a product which includes OCPP. The Open Charge Alliance, and/or its agents, including, inter-alia, test laboratories, disclaim liability for any damages or losses incurred by the certified company or by any other party resulting from reliance on the results of OCPP certification testing.

For the Open Charge Alliance:

ONOPH CARON  
Chairman

Authenticity of this certificate can be verified at: [www.openchargealliance.org](http://www.openchargealliance.org)



## Abstract of the Test Report

### Test Report OCPP 2.0.1 Certification

Test laboratory:	DEKRA Certification, Inc
Location:	Sterling, VA
Test Report Reference:	04826RCO.002
Product Designation:	BTC DC Fast Charger (HPCD-500-05-005)
Vendor name:	Broadband TelCom Power, Inc.
Device Under Test:	Charging Station
OCPP Software Version	BT-2025-1

### Test Result Summary for the Certified Functionalities

Certification Profile	Test Result	Description
Core	Pass	Basic Charging Station functionality for booting, authorization, configuration, transactions, remote control, including basic security.
Advanced Security	Pass	Support for TLS with client authentication.
Local Authorization List Management	Not Tested	Support for local authorization list management and optionally of an authorization cache.
Smart Charging	Not Tested	Support for Smart Charging, to control charging.
Advanced Device Management	Not Tested	Support for the OCPP Device Model and advanced logging and monitoring.
Reservation	Not Tested	Support for reservation of a connector of a Charging Station.
Advanced User Interface	Not Tested	Support for tariff & cost and DisplayMessage functionality.
ISO 15118 Support	Not Tested	Support for ISO 15118 Smart Charging and Plug and Charge authorization.

Authenticity of this certificate can be verified at: [www.openchargealliance.org](http://www.openchargealliance.org)



## Hardware Feature Set

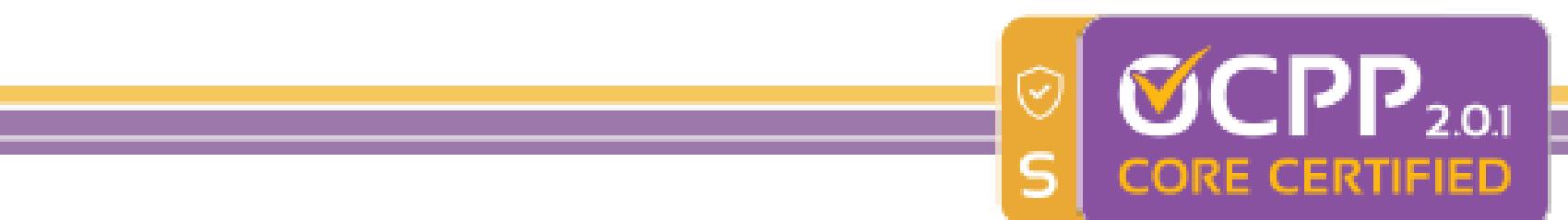
ID	Feature	Supported / Present
HFS-1	Has a detachable cable	No
HFS-2	Has a fixed cable	Yes
HFS-3	Has AC support	No
HFS-4	Has DC support	Yes
HFS-5	Has 1 phase support	No
HFS-6	Has 2 phase support	No
HFS-7	Has 3 phase support	No
HFS-8	No. EVSEs	1
HFS-9	Communication technology	Ethernet, Mobile Network
HFS-10	RFID readers	One per EVSE

EVSE	Current	Phases	Connector	Type	Cable Type
1	DC		1	cCCSI	Fixed Cable

## Optional Features

### Core

ID	Core Features	Supported / Present
C-01	Support for offline authorization of transactions	No
C-02	Support for allowing Offline Authorization for Unknown Ids	No
C-03	Support for maximizing energy for invalid ids	No
C-04	Support to limit StatusNotifications	No
C-06	Authorization status after cable disconnected on EV side	
C-06.1	Support for maintaining authorization when cable disconnected on EV side	No
C-06.2	Support for not maintaining authorization when cable disconnected on EV side	Yes
C-07	Support for using a Master Pass for charging stations with UI	No
C-08	Support for using a Master Pass for charging stations without UI	No
C-09	Supported Transaction Start points	
C-09.1	Start transaction options - EVConnected	No



ID	Core Features	Supported / Present
C-09.2	Start transaction options - Authorized	No
C-09.3	Start transaction options - DataSigned	No
C-09.4	Start transaction options - PowerPathClosed	Yes
C-09.5	Start transaction options - EnergyTransfer	No
C-09.6	Start transaction options - ParkingBayOccupancy	No
C-10	Supported Transaction Stop points	
C-10.1	Stop transaction options - EVConnected	Yes
C-10.2	Stop transaction options - Authorized	Yes
C-10.3	Stop transaction options - PowerPathClosed	No
C-10.4	Stop transaction options - EnergyTransfer	No
C-10.5	Stop transaction options - ParkingBayOccupancy	No
C-12	Unlocking of connector when cable disconnected on EV side	
C-12.1	Support for unlocking connector when cable disconnected on EV side	Yes
C-12.2	Support for not unlocking when cable disconnected on EV side	No
C-13	Support for Reset per EVSE	No
C-14	Support for retrieving / deleting CustomerInformation - CustomerIdentifier	No
C-20	Allowing New Sessions Pending a FirmwareUpdate	No
C-21	Support for queuing all or only Transaction related messages until they are delivered to the CSMS	No
C-23	Supported time sources	Heartbeat RealTimeClock
C-25	Support for setting a TimeOffset	No
C-26	Support for setting the TimeZone	No
C-28	Toggle sending clock aligned meter values when a transaction is ongoing / Idle	No
C-29	TriggerMessage	
C-29.1	Trigger message - MeterValues	No
C-29.2	Trigger message - TransactionEvent	No
C-29.3	Trigger message - LogStatusNotification	No
C-29.4	Trigger message - FirmwareStatusNotification	No
C-29.5	Trigger message - StatusNotification	No
C-29.6	Trigger message - BootNotification	No

# Verification of OCPP certificates: check the website and the PDF signature



Certificate Holder: Amecee Technologies Co.,Ltd.  
Certificate Number: OCA.0028.0561.CS  
Product Type: Charging Station  
Product Designation: HSDC601000  
OCPP Software: AMECEE.20240820  
Version: September 12, 2024

This certificate attests that the above mentioned product successfully completed certification testing in conformance with the reference specification OCPP1.6 (Edition 2 FINAL, 2017-09-28 including Errata v4.0 Release, 2019-10-23) and Security Whitepaper Edition 3 (Improved security for OCPP1.6-J v1.3, 2022-02-17). The optional OCPP protocol features that are covered by this certificate can be found in the Abstract of the Test Report that is part of this certificate.

Test cases have been performed as described in the test report referred to below. The results and remarks can be found in this complete test report.

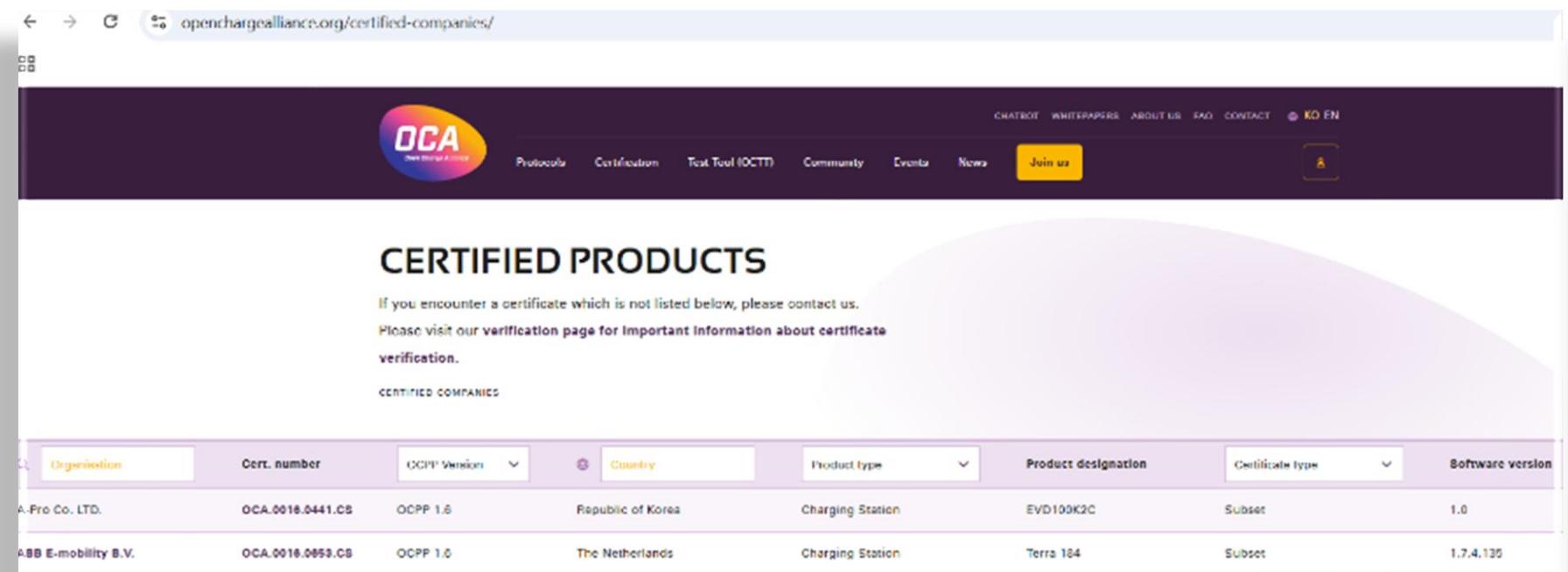
Applied	Performed by/On	Document Evidence
Conformance testing according to the test specification referenced by the test report	DNV Singapore Pte.Ltd. August 23, 2024	DNV_OCPP1.6_PICS_CS_HSDC601000_signed

The abstract of test report is an integral part of this certificate. This certificate is valid from the Certification Date specified above. This certificate is only applicable to the product designation described above and permits the use of the OCPP logo as laid down in the OCA certification logo license agreement on this product only.

This certificate shall neither be tendered nor accepted by any party as a guarantee covering quality of a product which includes OCPP. The Open Charge Alliance, and / or its agents, including, inter-alia, test laboratories, disclaim liability for any damages or losses incurred by the certified company or by any other party resulting from reliance on the results of OCPP certification testing.

For the Open Charge Alliance:

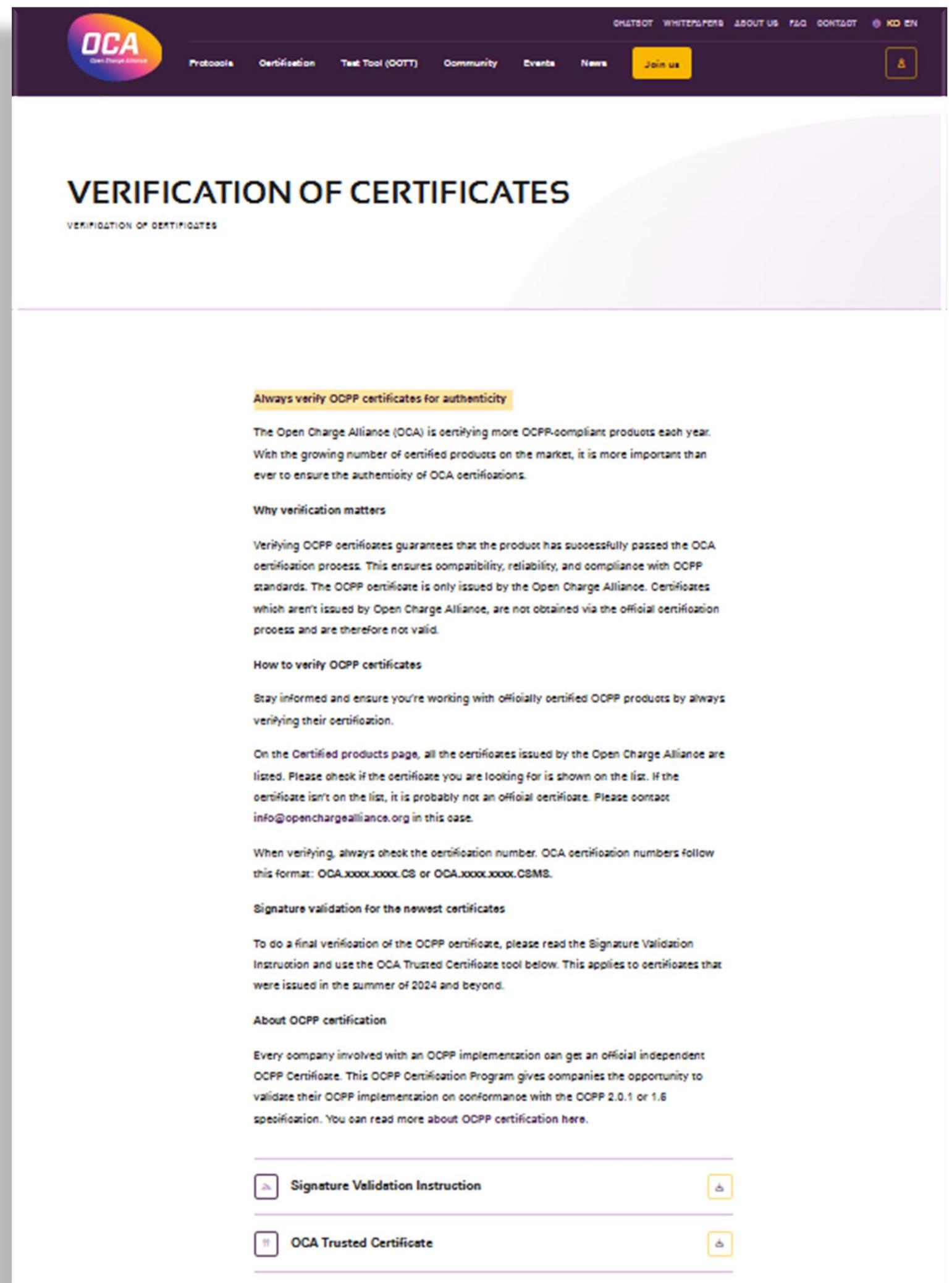
ONOPH CARON  
Chairman



CERTIFIED PRODUCTS

If you encounter a certificate which is not listed below, please contact us. Please visit our verification page for important information about certificate verification.

Organization	Cert. number	OCPP Version	Country	Product type	Product designation	Certificate type	Software version
A-Pro Co. LTD.	OCA.0018.0441.CS	OCPP 1.6	Republic of Korea	Charging Station	EVD100K2C	Subset	1.0
ABB E-mobility B.V.	OCA.0018.0959.CS	OCPP 1.6	The Netherlands	Charging Station	Terra 164	Subset	1.7.4.130



## VERIFICATION OF CERTIFICATES

VERIFICATION OF CERTIFICATES

Always verify OCPP certificates for authenticity

The Open Charge Alliance (OCA) is certifying more OCPP-compliant products each year. With the growing number of certified products on the market, it is more important than ever to ensure the authenticity of OCA certifications.

Why verification matters

Verifying OCPP certificates guarantees that the product has successfully passed the OCA certification process. This ensures compatibility, reliability, and compliance with OCPP standards. The OCPP certificate is only issued by the Open Charge Alliance. Certificates which aren't issued by Open Charge Alliance, are not obtained via the official certification process and are therefore not valid.

How to verify OCPP certificates

Stay informed and ensure you're working with officially certified OCPP products by always verifying their certification.

On the Certified products page, all the certificates issued by the Open Charge Alliance are listed. Please check if the certificate you are looking for is shown on the list. If the certificate isn't on the list, it is probably not an official certificate. Please contact info@openchargealliance.org in this case.

When verifying, always check the certification number. OCA certification numbers follow this format: OCA.xxxx.xxxx.CS or OCA.xxxx.xxxx.CBMB.

Signature validation for the newest certificates

To do a final verification of the OCPP certificate, please read the Signature Validation Instruction and use the OCA Trusted Certificate tool below. This applies to certificates that were issued in the summer of 2024 and beyond.

About OCPP certification

Every company involved with an OCPP implementation can get an official independent OCPP Certificate. This OCPP Certification Program gives companies the opportunity to validate their OCPP implementation on conformance with the OCPP 2.0.1 or 1.6 specification. You can read more about OCPP certification here.

Signature Validation Instruction

OCA Trusted Certificate



# Improving the OCPP Certification Program

# Starting in March: the improved Certification Program - More secure and cost effective

-  Printing the Firmware image hash on the OCPP Certificate
-  Product Family listing on the OCPP Certificate
-  Re-certification of Updated Software Versions: introduction of faster API testing
-   OCTT support for a Vendor Declaration of Conformance
- Certification of a software stack for 1.6
  -  Adding a limited access router to the Test set up
  -  Notification of additional communication ports on the certificate
  -  Randomization of certification test sequence and run specific tests first
  -  Determine which OCPP Software Version is running during testing



# The Certification Program is governed by the OCA Compliance Working Group

OCA Compliance WG ▾ CHARGE ALLIANCE

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**Documents**

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  - CWG Foundation
  - CWG meeting minutes
  - Test cases

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Maximum File Size: N/A

Restore Documents

Move Selected Download Selected Delete Selected

Displaying 1-50 of 310 results.

ID	Title	Modified Date	Modified By	Company	Sharing
1469	OCPP-2.0.1_edition3_errata_DRAFT	Sep 12, 2024 (7 total revisions)	Administrator		
1675	20240911- CWG - Meeting Minutes	Sep 11, 2024 (1 total revision)	Administrator		
1674	20240911 - OCA Compliancy Working Group - call #88	Sep 11, 2024 (1 total revision)	Administrator		
1673	20240828- CWG - Meeting Minutes	Sep 10, 2024 (1 total revision)	Administrator		
1667	20240828 - OCA Compliancy Working Group - call #87	Aug 28, 2024 (2 total revisions)	Administrator		
1664	20240814 - CWG - Meeting Minutes	Aug 15, 2024 (1 total revision)	Administrator		
1663	20240814 - OCA Compliancy Working Group - call #86	Aug 13, 2024 (1 total revision)	Administrator		
1657	20240731 - CWG - Meeting Minutes	Aug 1, 2024	Administrator		

# OCPP continues to develop in 2025 according to the industry's needs

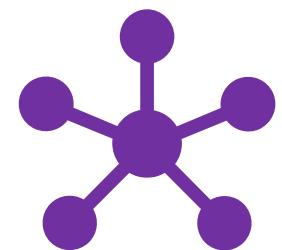
## Technology Working Group

In charge of developing the protocol specification (parts 0-4)



## OCPP Lite Task Group

Special focus on OCPP for resource constraint devices



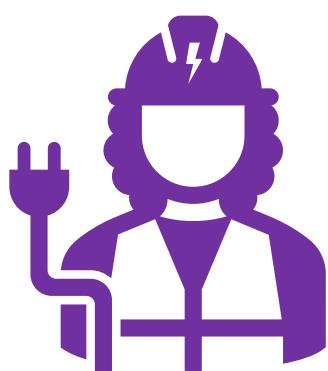
## Networking / Local Controller Task Group

Define clear requirements for a Local Controller



## Security Task Group

Revise and perhaps update the security specifications of OCPP

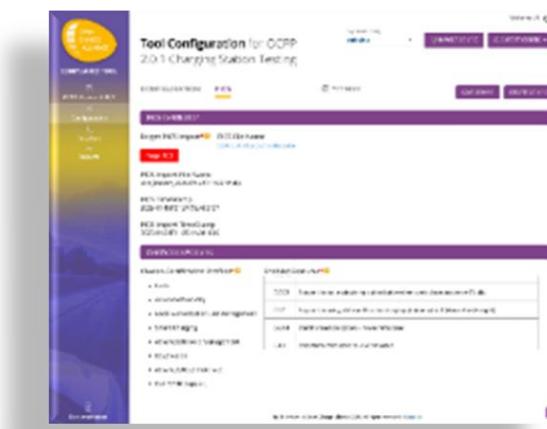


## Commissioning Task Group

Explore if we can define a standard, easy, secure specification for the commissioning of charging stations

## Compliance Working Group

In charge of defining Profiles and Test cases (parts 5-6) and Certification Program



## OCTT User Group

Feedback to improve OCTT



Thank you!

Innovate, collaborate, and drive  
change!



