



Empowering
the **next level**
of green mobility
and energy.

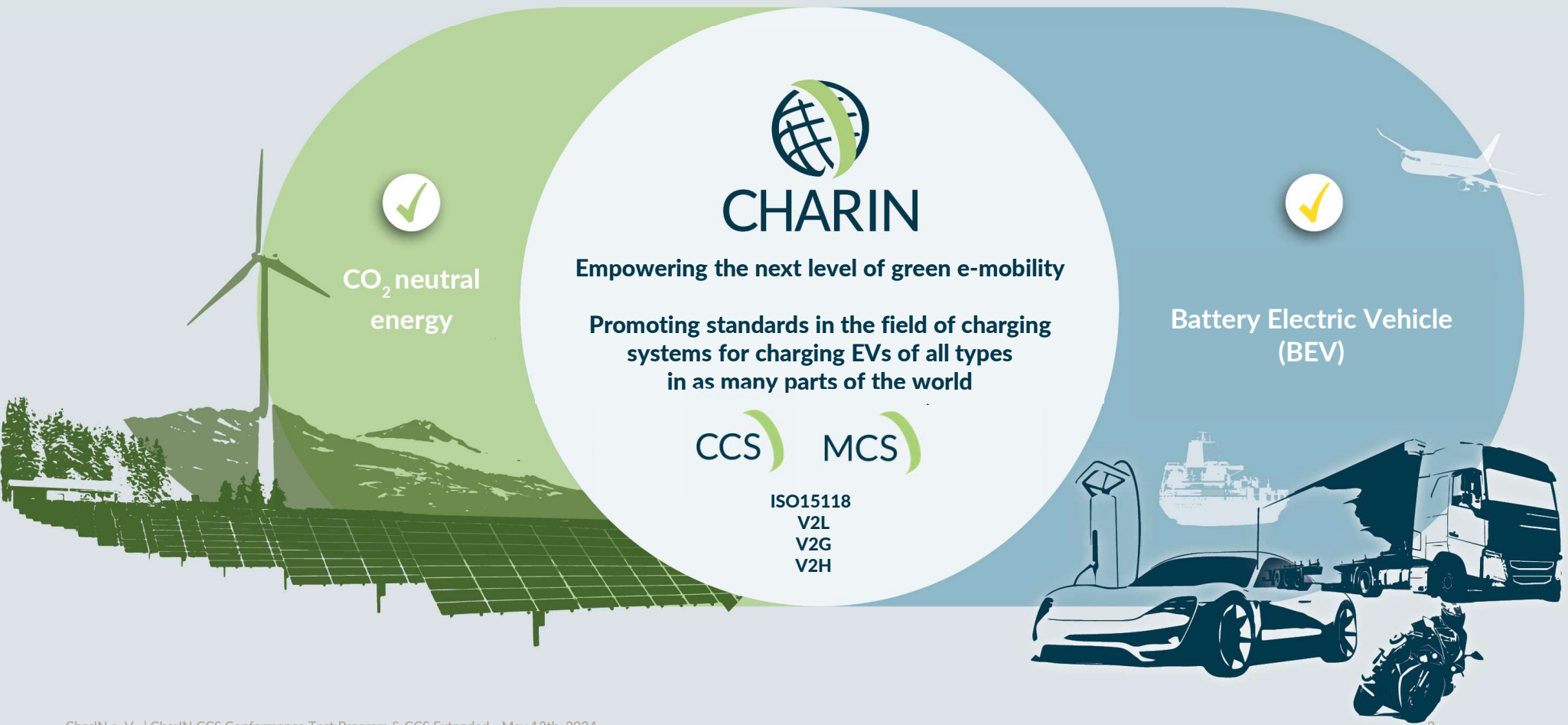
CharIN – Charging Interface Initiative e. V.

Appendix

CharIN Conformance Test Program & CCS Extended

General Goal

CO₂ Neutral Mobility



CharIN's Mission

Contribution to the Conformance Program



Promoting standards in the field of charging systems for charging EVs of all types in as many parts of the world

- 1 Spread the word**
 Promote awareness of consumer benefits of a common CCS standard and create more visibility
- 2 Broadening the tent**
 Collaboration between involved parties in EV charging incl. regulators, industry, + EV related associations
- 3 See it means believe it**
 Proof of concept by live Festivals, Plug & Charge demonstration, customer journeys, and others to experts and a wider public

Conferences, Exhibitions & Round Tables

Social Media

Focus Groups

Projects

Partners

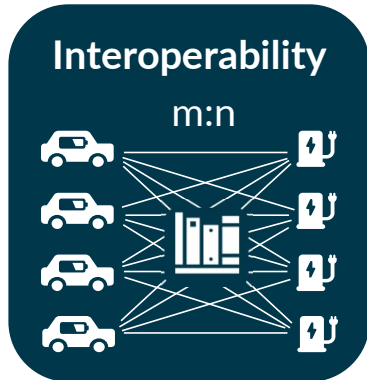
Dashboard ([here](#))

Interoperability Festival

Features to Test and added Value of CharIN



Festivals



- ✓ Communication protocols
- ✓ Plug & Charge (end-to-end)
- ✓ Smart charging
- ✓ Bi-directional power transfer
- ✓ Security testing (Pentesting)
- ✓ CCS, MCS, NACS, ...

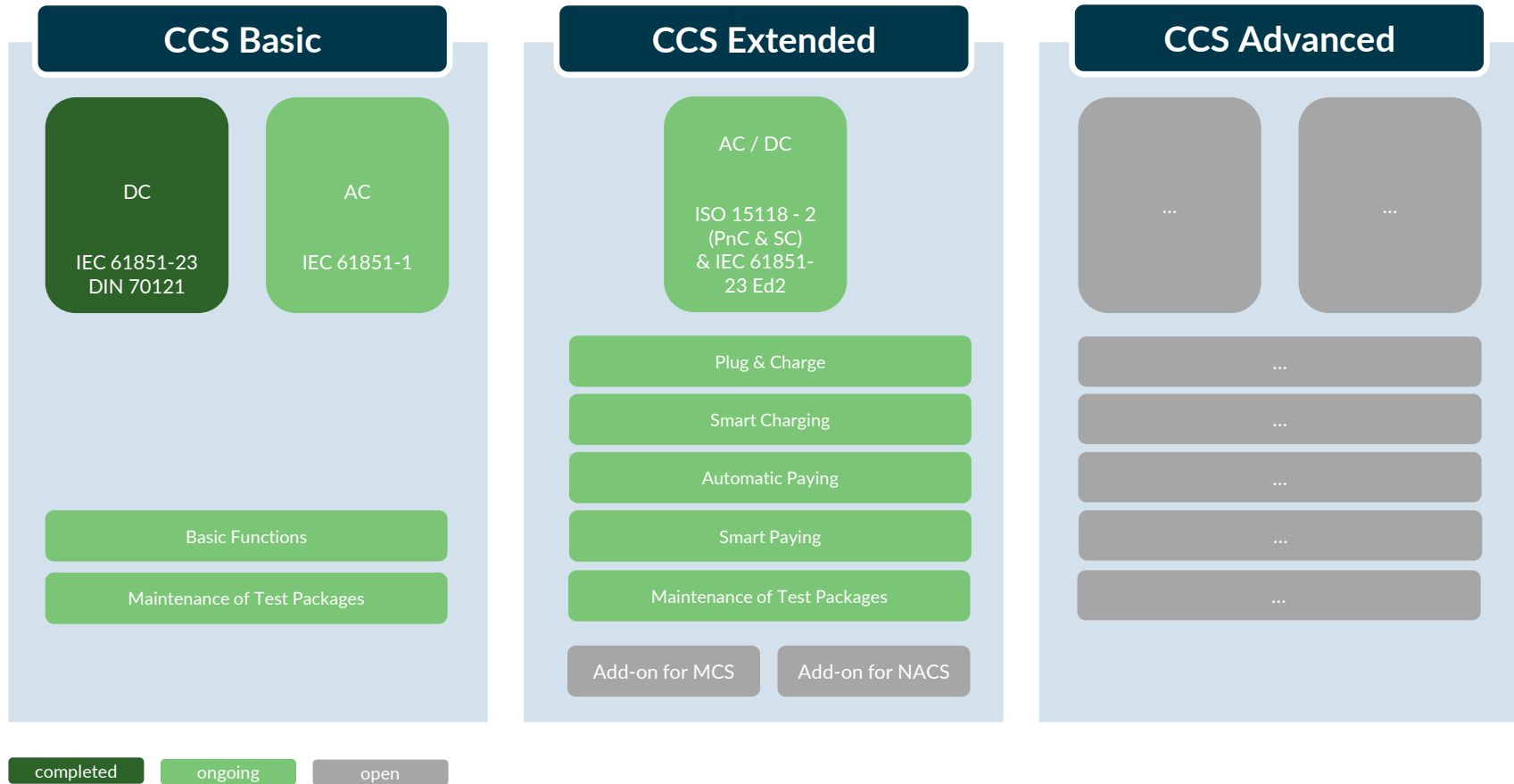
CharIN Implementation Guides, Feedback to standardization, filling the white spots of specification; Supporting Trust into standards

User orientation, Functionality, Ease of Charging (e.g. PnC), Quality, Safety, Security

CCS Step Model

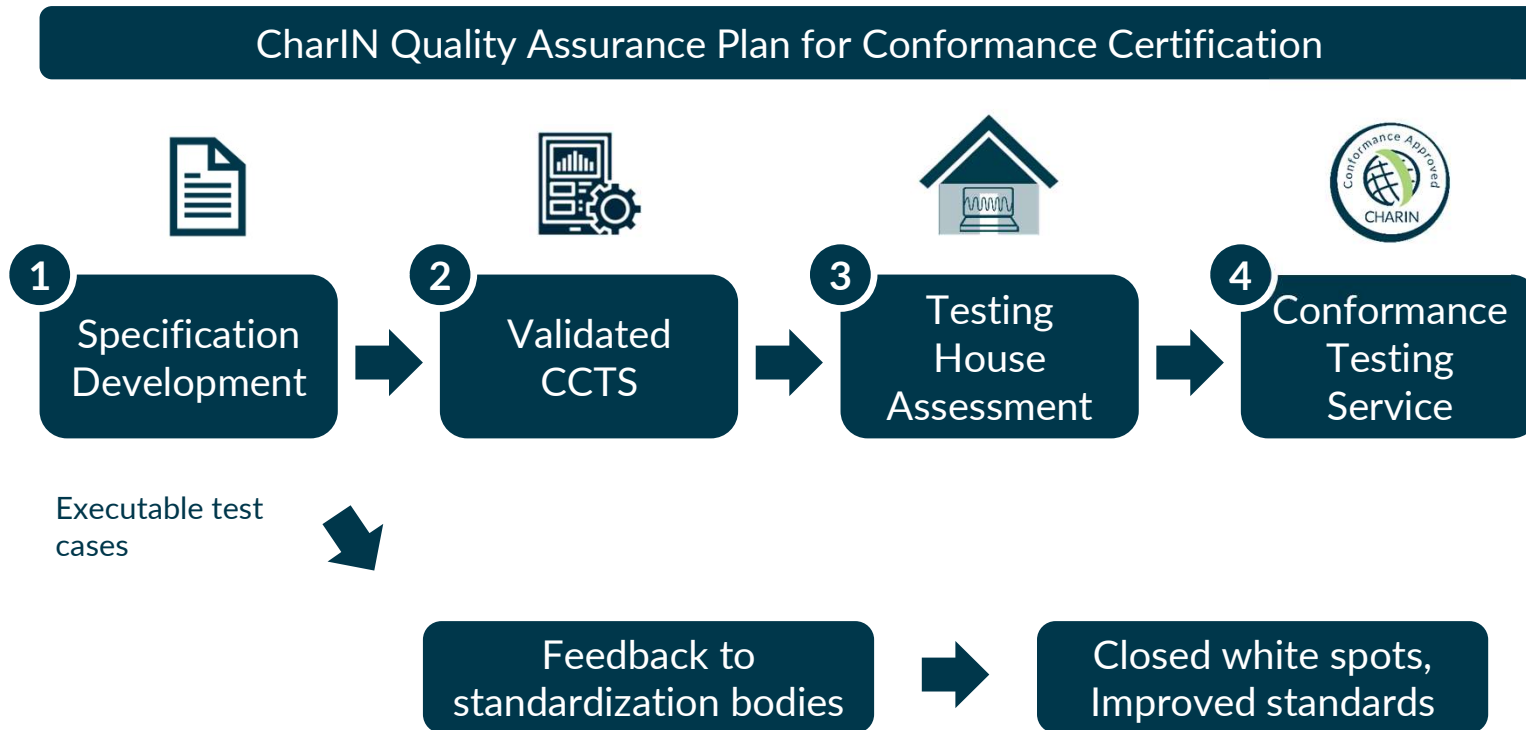
CCS Basic	Basic Functions
	AC Charging DC Charging (incl. HPC = High Power Charging → CharIN Powerclass)
CCS Extended	Smart Charging
	Local Load Balancing Local Load Balancing w Data connection Online Load Balancing
	Automatic Paying
CCS Extended	Plug and Charge (ISO 15118)
	Smart Paying
	Payment app (MSP = Mobility Service Provider)
	Payment app (ad hoc)
	Credit Card (EIM = External Identification Means)
CCS Extended	RFID (EIM = External Identification Means)
	Vehicle-to-Vehicle Charging
tbd	Grid Integration Level V2X
	Bidirectional Charging Aggregated Bidirectional Charging
CCS Advanced	Automated Connection Device (ACD)
	ACD-S (Automated Conductive Device - Side coupler)
	ACD-U (Automated Conductive Device - Underbody coupler)
	Pantograph
CCS Advanced	WPT (Wireless Power Transfer)

CCS Step Model and Scope of Packages



Conformance Test Process Overview

How CCS Extended would be made available and used



Dissemination of CCS Certification

Requirements and Additional Efforts - How to make CharIN Conformance Certification successful

Requirements

Conformance certification is able to indicate interoperability, but currently not required.

The main goal for CharIN is to create the awareness of the importance and the benefits of conformance certification.

CharIN Conformance Certification needs to become a requirement of CPO tenders and for public funding.

Benefits of becoming certified:

- Quality Label as USP and competitive advantage for the EVSE product OEM
- Reduced service costs for the operator
- Increased customer satisfaction
- Safer and more profitable investments for investors
- Contributes to the overall adoption of eMobility

Additional Efforts:

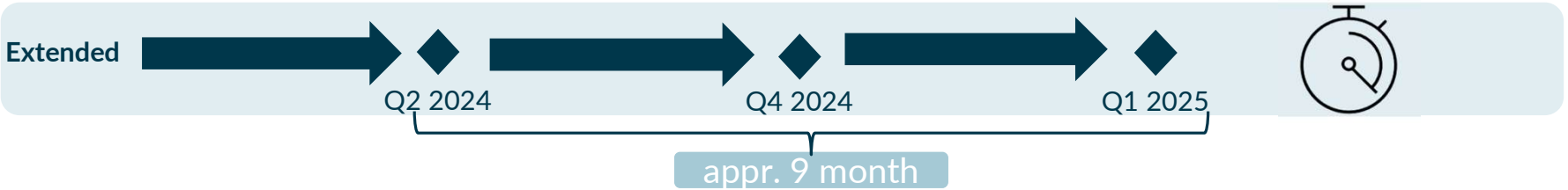
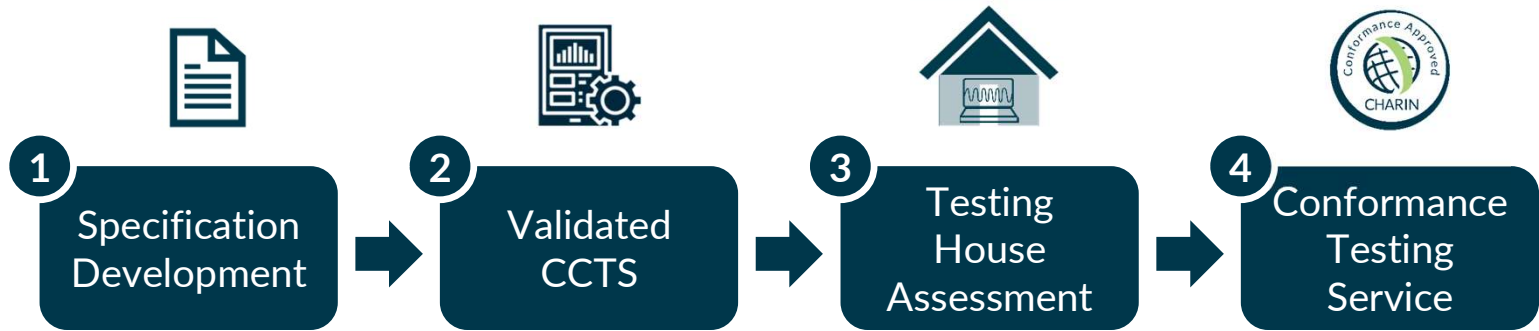
- Marketing campaigns for CharIN Conformance Certification
- Regular communication of the benefits in the markets
- Creating a demand for conformance certification (e.g. NACS)
- Regulatory recommendation at the national and international levels
- EV OEMs are requested to have the Test certificate

Conformance Test Process Overview

Expected availability of CCS Extended at labs



CharIN Quality Assurance Plan for Conformance Certification



Thank you for your kind attention!

Any questions?

Contact

Michael Keller (CharIN Board)

Phone +49 30 288 8388-0

Fax +49 30 288 8388-19

E-Mail michael.keller@charin.global

www.charin.global



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CHARIN