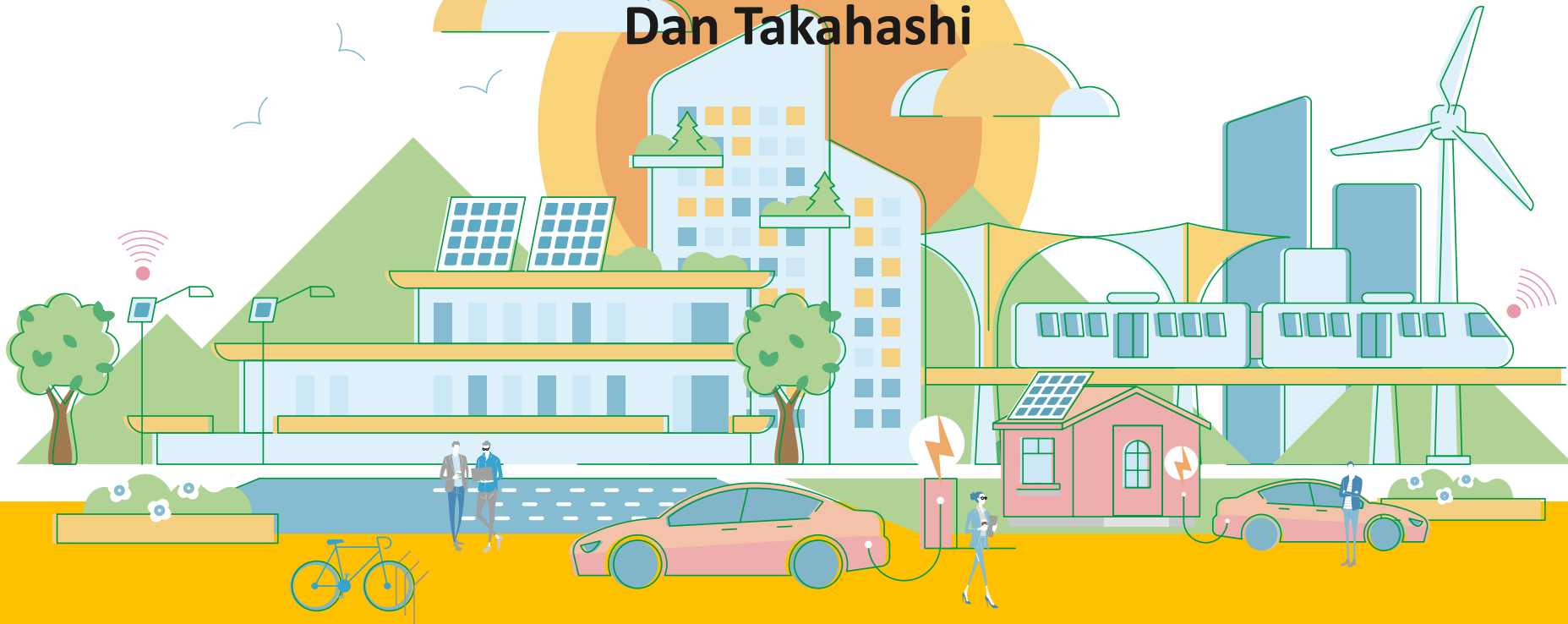




CHAdeMO “Charge2Bike” Project: DC charging standard for Electrically Power Assisted Cycles

4th, July 2024

CHAdeMO EPAC WG
Dan Takahashi

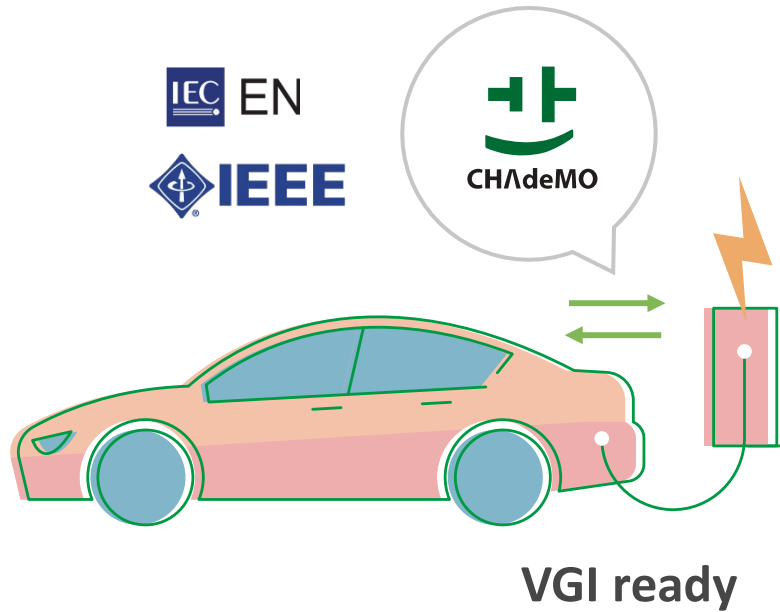


Agenda

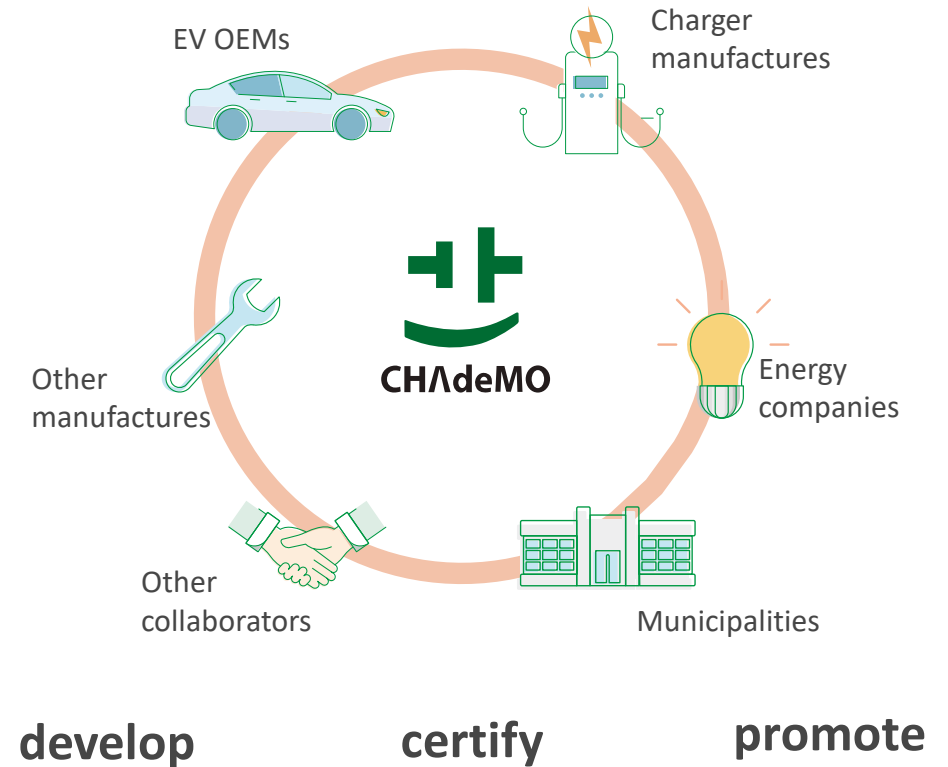
1. What is CHAdeMO Organization
2. Introduction of “Charge2Bike” standard
3. Key updates from V1.0 to V1.2
4. CHAdeMO position regarding the EU regulations
5. Advantages of “Charge2Bike”
6. Project Working Group

What is “CHAdemo Association” ?

Charging Standard



Organisation



Our vision: Powering global zero-emission mobility for the happiness of future generations

Our member



550

entities
from

51

countries

And many, many more..

Automotive
Manufactures

Electric (Grid)
Power

Elec. instauration
& equipment













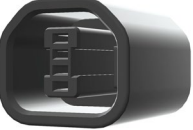
Test & certificate
institutes

& others



CHAdeMO

CHAdeMO charging solutions

Application	Output Power	Specification
 EV Bus   and more...	> 1 MW	ChaoJi
 Commercial EV  Passenger EV	10 to 400 kW (150V to 1,000V)	CHAdeMO (IEC 61851-23)  
 eMotorcycle  LEV	1 to 10 kW (20V to 120V)	e-PTW CHAdeMO (IEC 61851-25) 
 EPAC* S-EPAC  eScooter	< 800 W (24V to 60 V) Max 2kW by Extended mode	Charge2Bike eBike (EPAC) CHAdeMO (Modified from ISO/TS 4210-10) 

*EPAC = Electrically power assisted

CHAdeMO to provide EPAC focused solutions besides others

Why we need the consortium ?

EBIKE now has the global market



CHAdeMO can access to the global stakeholders.

Purpose of the project

“Charge2Bike” provides “common charger” for global EPACs



Charging Station

- Used by anonymous users
- Place at public space
(include shops and delivery-service)
- Max (=800W) output
- Max 60Vdc output
- CC or CC/CV charging mode



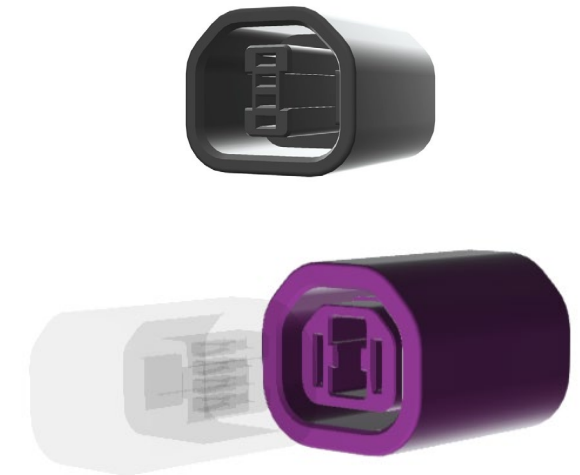
Desktop Charger

- Used by personal or family
- Place at Private space
- 100W to 250W output
- Max 60Vdc output
- CC/CV charging mode

Key updates from V1.0 to V1.2

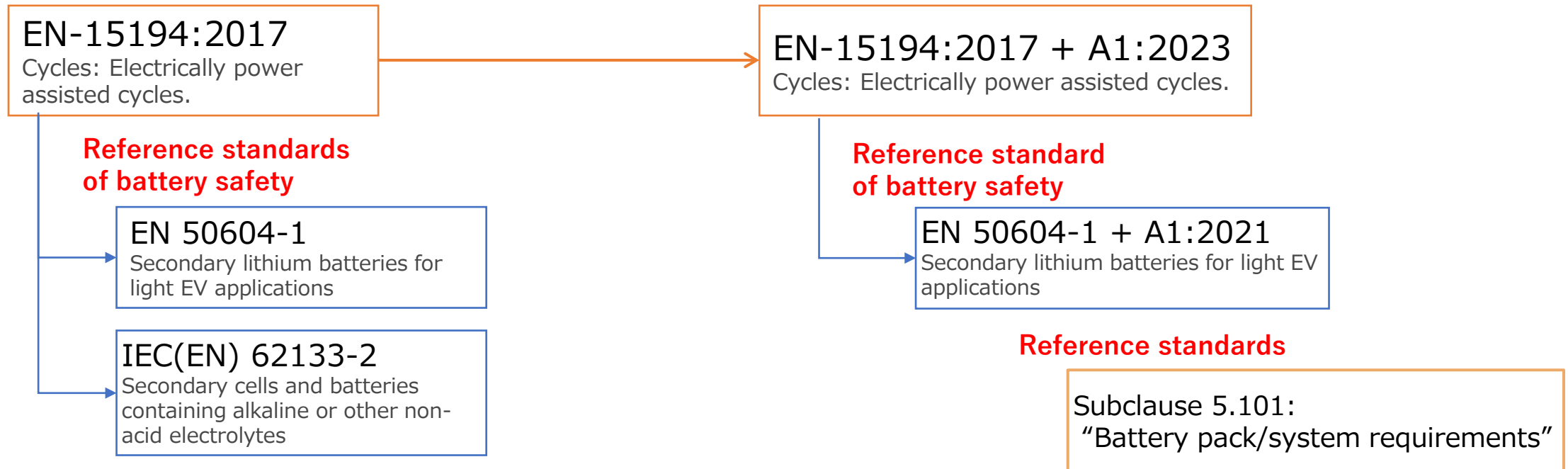
Specifications		EPAC CHAdeMO
Target battery		7 - 14 cells Li-ion batteries
Output	Power	Max 800 W (2kW ^{*1})
	Current	Max 20A W (40A ^{*1})
	voltage	24V to 60V
Use cases		Charging station & Household
Connector size		18.4mm * 16.1mm
Charing mode		[CC only] or [CV & CC]
Communication		CAN communication
Dedicative electrical instauration		NOT required

*1: 2kW output is only for a limited period of time



The “Charge2Bike” standard document is under peer review.
(will be releases soon.)

CHAdEMO position regarding the EU regulations



For the **battery management system (BMS)**, manufacturers have the choice between:

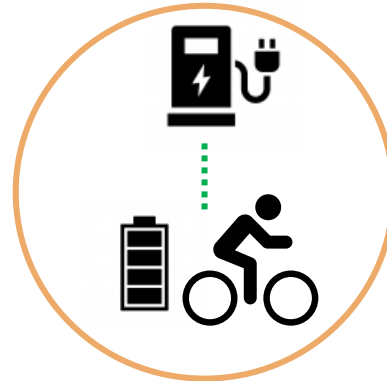
- Manufacturer specific solutions
- Interoperable solution using CANopen communication
- **Interoperable solution using any other communication solution proved to be equally suitable**

All advantages at a glance

Full Backwards Compatibility

EPACs in focus

Focused on charging



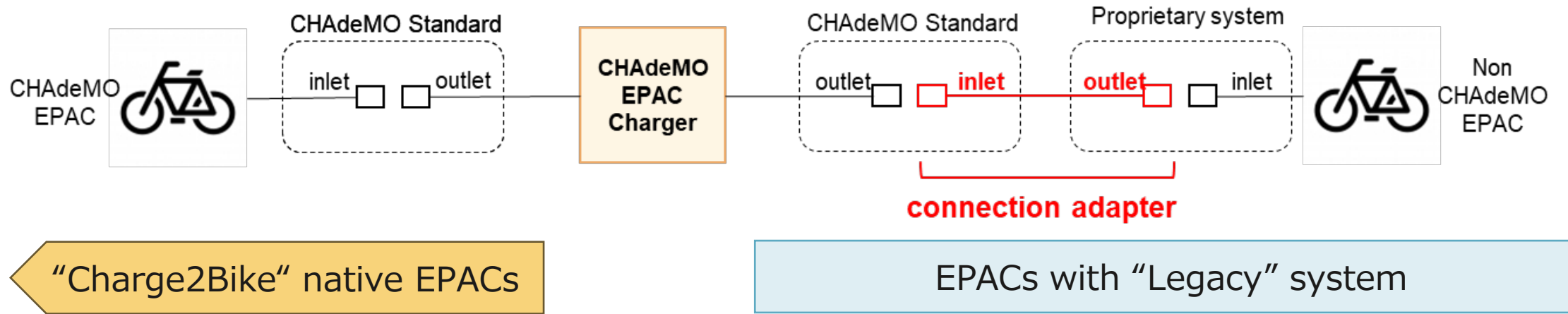
**Non-patented &
License-free solution***

*CHAdeMO membership is necessary

**State of the art in safety &
Functionality**

Designed with the Industry

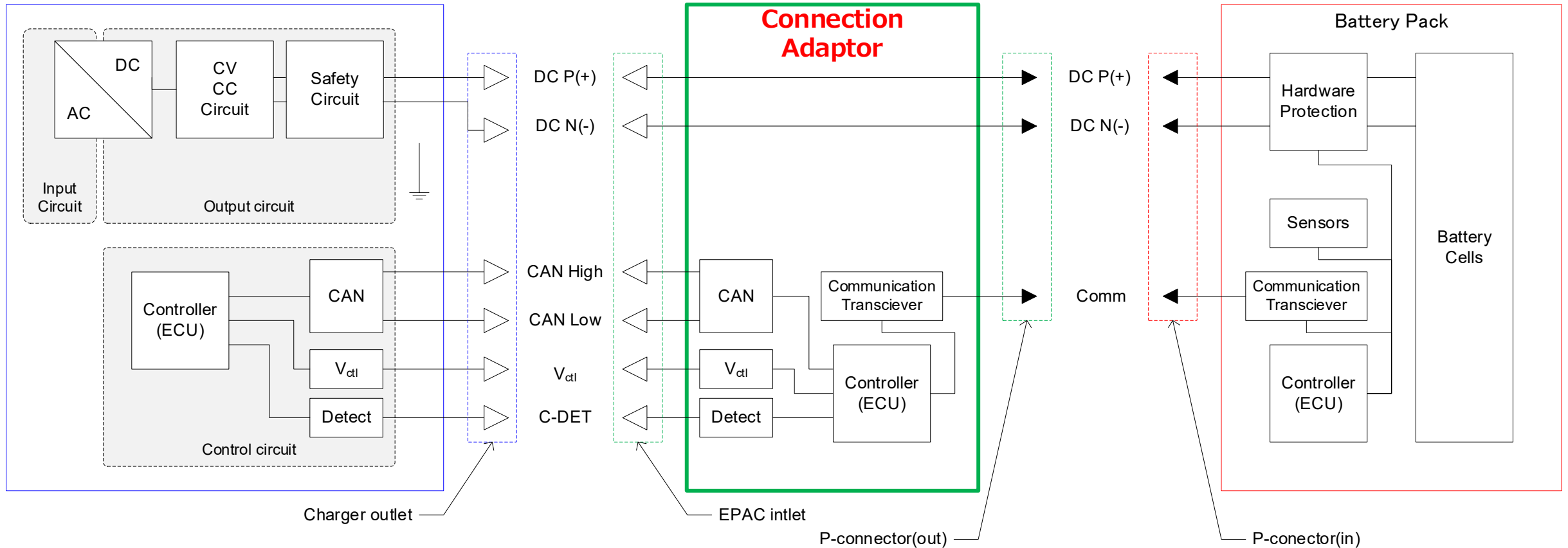
Full backward compatibility



Charge2Bike also provide the charging solution for existing EPACs, already sold in the market.

Full backward compatibility

Function of the “connection adaptor”



- “**Connection Adaptor**” plays like “**Translator**” between Charge2Bike charger and legacy system (battery).

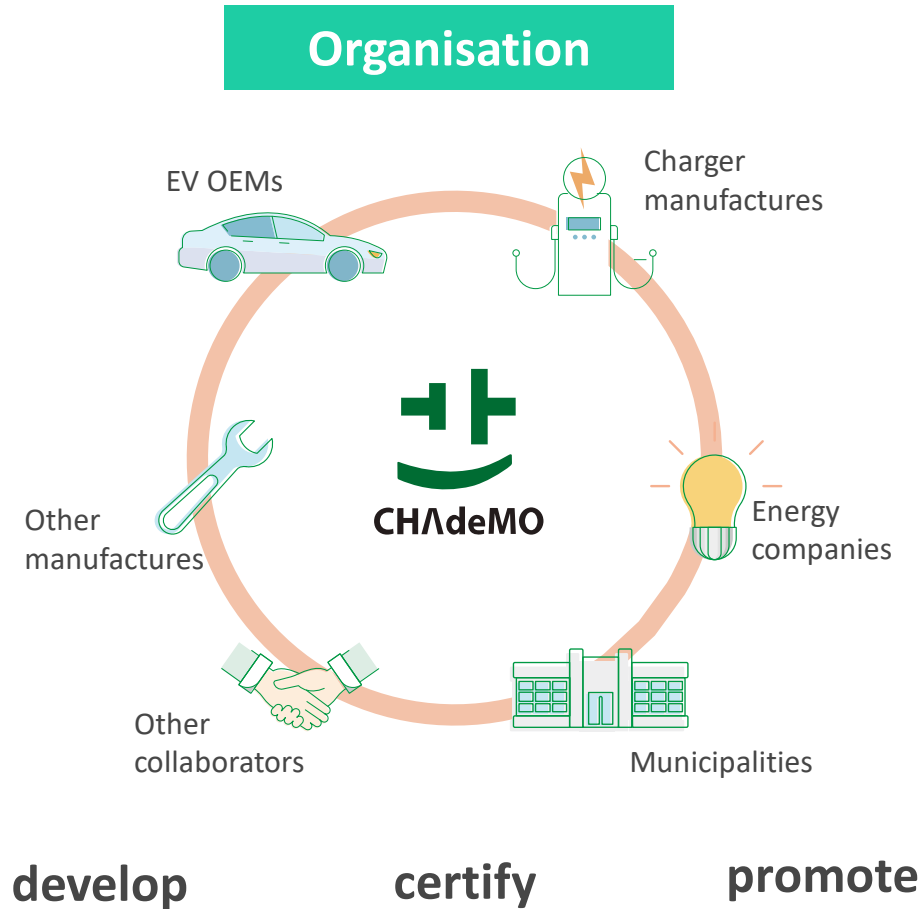
EPACs in Focus



Specifications	Charge2Bike	e-Motorcycle CHAdeMO
Output Power	1 to 800 W (2kW ^{*1}) 24V to 60V	1 to 10kW 20V to 120V
Use cases	Charging station & Household	Charging station
Connector size	18.4mm * 16.1mm	47.4mm * 48.0mm
Charing mode	CV & CC	CC
Dedicative electrical instauration	NOT required	Required

***1: 2kW output is only for a limited period of time**

Non-patented / license-free solution*



- CHAdeMO is the consortium that develop, certify & promote the charging standards for the Electric Mobilities.
- CHAdeMO's operating costs are supported by the annual membership fees.
- CHAdeMO members have a full access to all of technical standard of our solutions.

Designed with the Industry



CHAdEMO Membership

	REGULAR	SUPPORTING	SPECIAL
Annual member fee*	¥500 000 €4000	¥100 000 €800	¥0 €0
Benefits			
Protocol access	✓		
Tech WGs participation	✓		
Product certification	✓		
CHAdEMO exhibition booth participation	✓	✓	
Marketing opportunity	✓	✓	✓
Participation in member meetings	✓	✓	✓
Association's newsletter	✓	✓	✓

Tasks for Project Working Group



Standard Development

- Safety requirement
- Design standard
- Communication protocol (by CAN)



Validation

- Function
- Interoperability
- Safety



Prototyping

- Connector
- Charging station
- Adapters



Certification

- Legal compliance
- CHAdeMO specific

Thank you

For more information:

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✉ info@chademo.org

