



CHAdeMO

CHAdeMO in Europe FY2015

1 June 2016

PRESENTATION PLAN

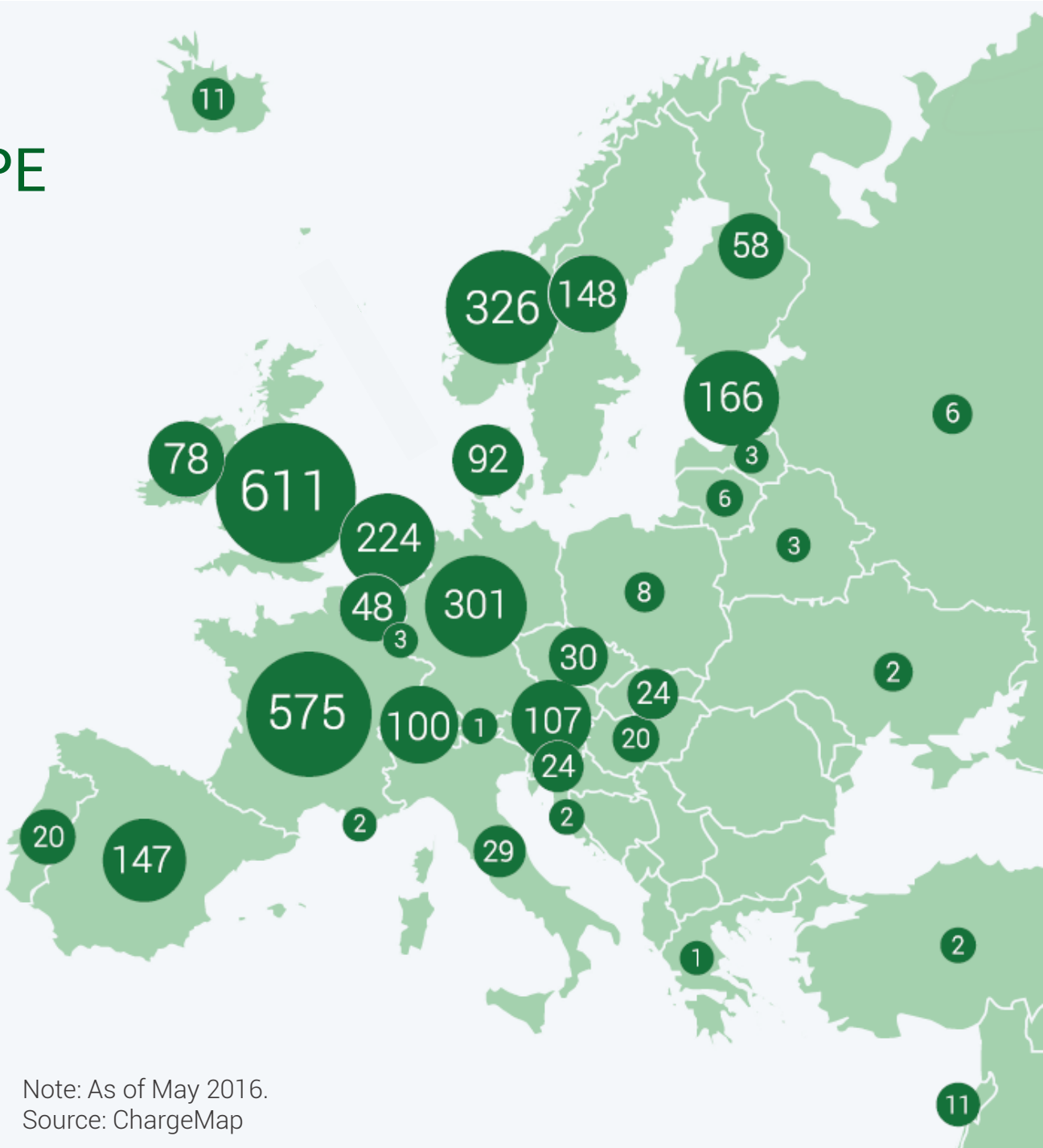
- European charger installation
 - Latest installation
 - Charger density evolution
 - Multi-standard chargers
 - European projects
- CHAdeMO Europe's activities
 - Trade shows
 - Member meeting
 - Communication tools



CHAdeMO CHARGERS IN EUROPE

3,178

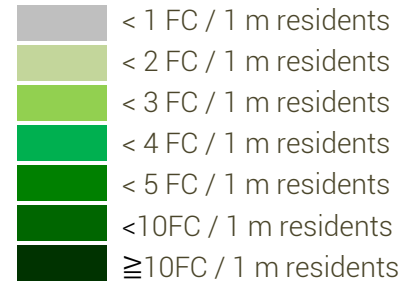
TOTAL



Note: As of May 2016.
Source: ChargeMap

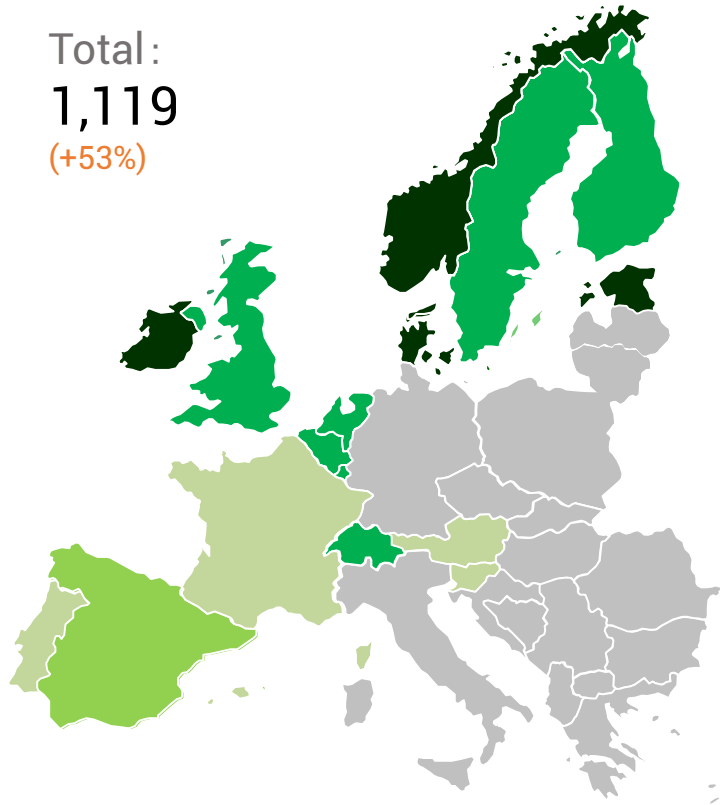
Charger density evolution

CHAdEMO density



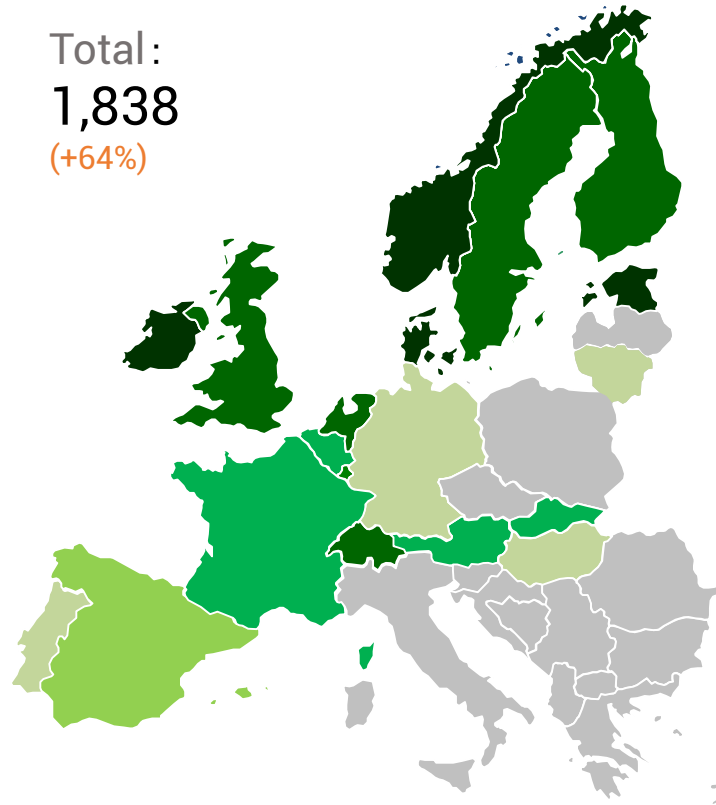
May 2014

Total:
1,119
(+53%)



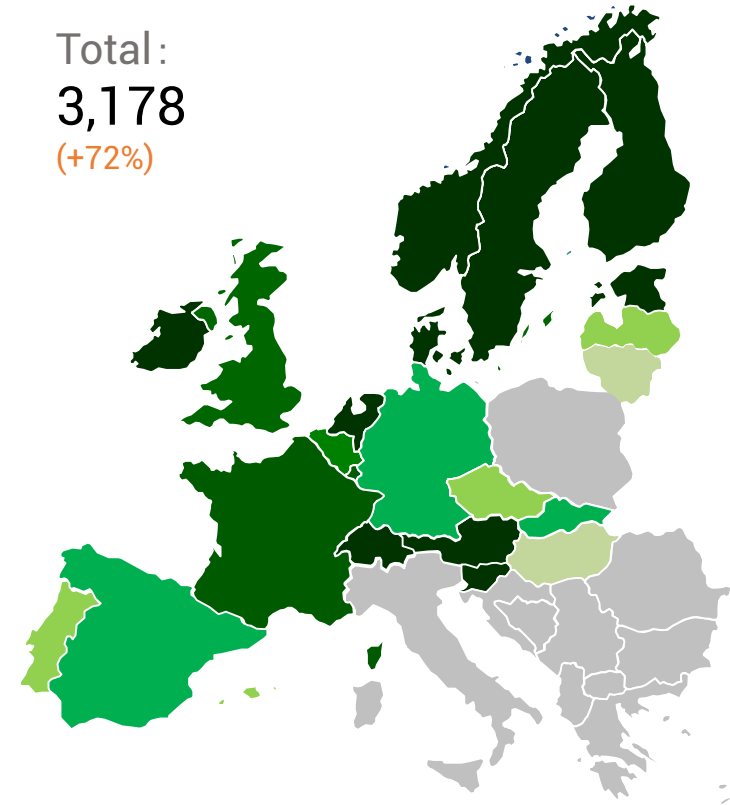
May 2015

Total:
1,838
(+64%)

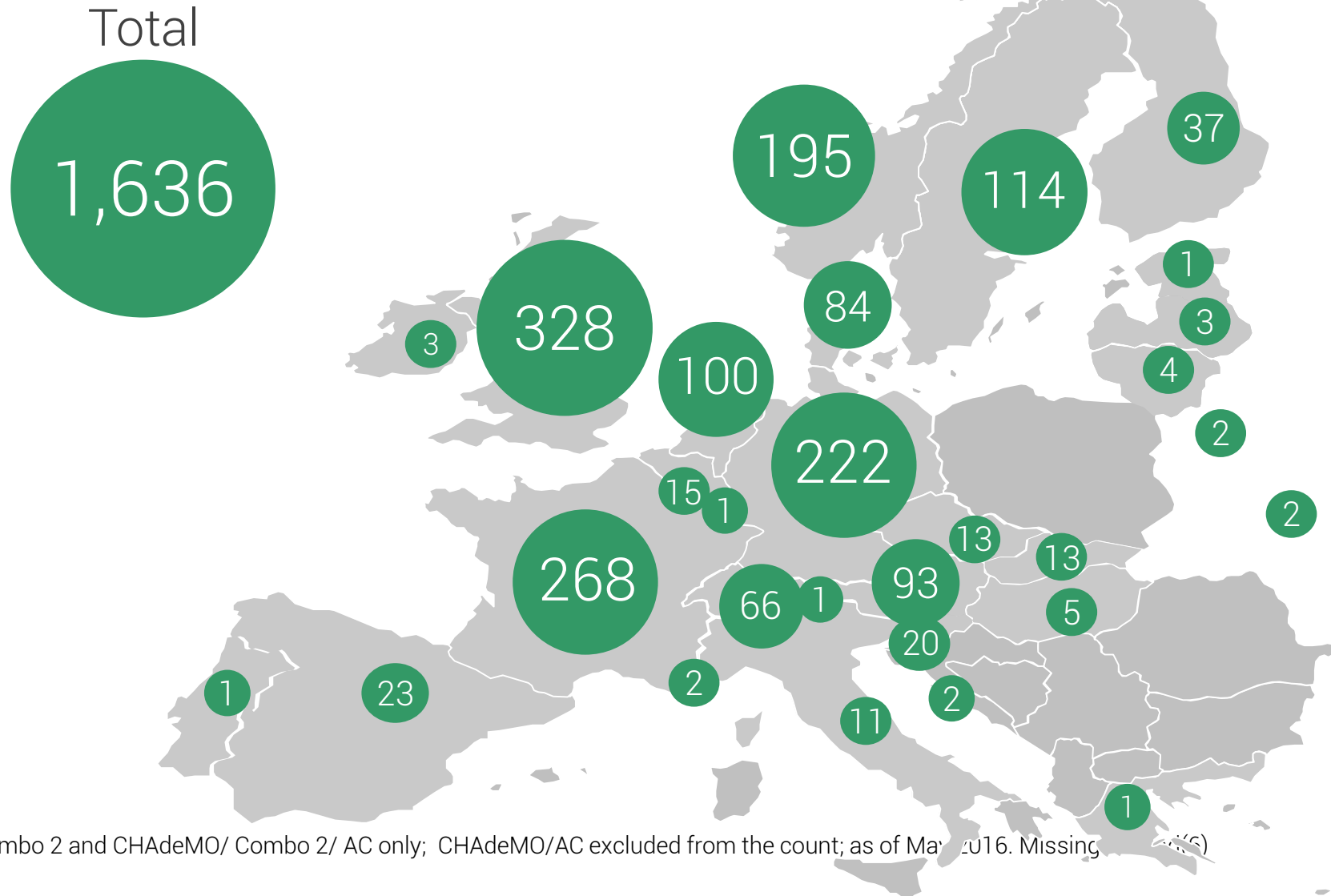


May 2016

Total:
3,178
(+72%)



Multi-standard stations in Europe



Note: CHAdEMO/ Combo 2 and CHAdEMO/ Combo 2/ AC only; CHAdEMO/AC excluded from the count; as of March 2016. Missing data for (6)
Source: ChargeMap

The EU projects (TEN-T 2013-2015)

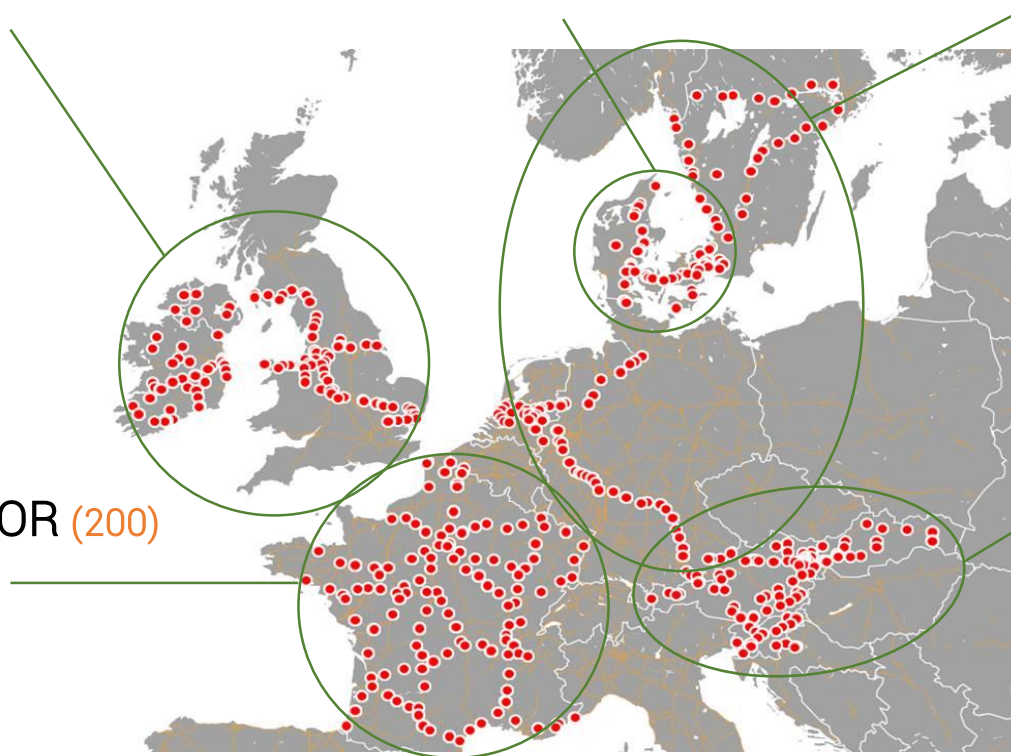
■ **RCN (74)**
The UK, Ireland

■ **Greening NEAR (53)**
Denmark

■ **ELECTRIC (155)**
Sweden, Denmark,
Germany, The Netherlands

■ **CEGC (115)**
Austria, Slovakia, Slovenia,
Germany, Croatia

■ **CORRI-DOOR (200)**
France



Co-financed by the European Union
Trans-European Transport Network (TEN-T)

Directive 2014/94/EU
(Recital 33)

Interface to charge electric vehicles could include several socket outlets or vehicle connectors as long as one of them complies with the technical specifications set out in this Directive, so as to allow multistandard recharging.

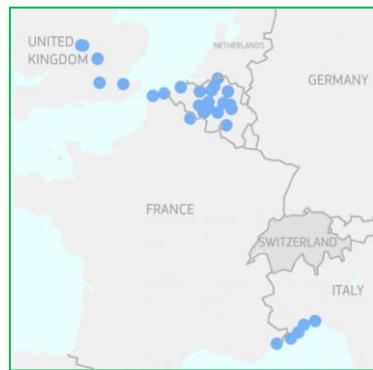
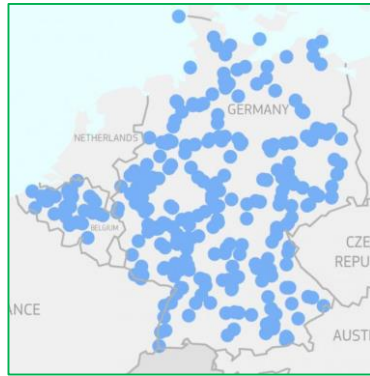
Total
multistandard
chargers

597

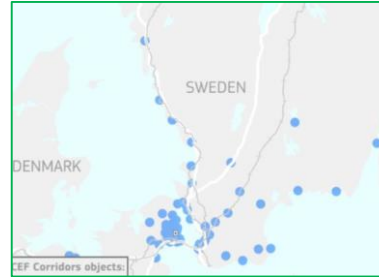


The EU projects (CEF 2014-2017)

■ **FAST-E DE/BE (278)**
Belgium/Germany



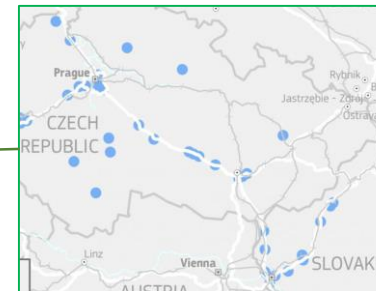
■ **UNITE-E (38)**
France/Belgium/Italy/ UK



■ **MECOR (120)**
Denmark/Sweden



■ **GREAT (65)**
Denmark/Sweden/Germany



■ **FAST-E CZ/SK (29)**
Czech Republic/Slovakia



Total
multistandard
chargers

530

Mobiltec / Hannover Messe

- Hannover, April 2015
- Biggest ever stand (85m²)
- 9 co-exhibitors



eCarTec

- Munich, October 2015
- 80m2 with 9 co-exhibitors
- 2EVs 3 multistandard chargers 2 V2XPCS 1 connector 1 BMS



Member Meeting 2015:10/20 @ Munich



 34

Participants AM

 54

Participants PM

 11

Presentations

 4.3

Overall
satisfaction

Note*: Not at all satisfied = 1, Extremely satisfied = 5. 93% rated 4 or 5 for overall satisfaction.

Sample: 22

COMMUNICATION TOOLS: BROCHURE

CHAdEMO ASSOCIATION & PROTOCOL In a nutshell

Who we are

We are an e-mobility collaboration platform around CHAdEMO DC charging protocol. As an ecosystem of companies offering CHAdEMO-related products and services we

What we do

- WE DEVELOP THE PROTOCOL** adapting it to the market needs and our members' requests.
- WE CERTIFY CHARGERS** ensuring compatibility between the infrastructure and the EVs.
- WE PROMOTE FAST CHARGERS** by actively disseminating their benefits and data through various communication channels.

Protocol

Protocol currently enabling EV charging with power capability of 150kW in preparation. It follows 4 principles:



SMART READY
CHAdEMO is Smart ready through bidirectional charging capability. Also compatible with any local or smart functions and charging.

EASE OF APPLICATION
The protocol works with CAN communication, making its integration with the rest of the car that easy and reliable.

UNIFORMITY
CHAdEMO connector is identical across the globe and is a standard plug that can be with or without an AC connector. It saves costs for EV makers and enables cross-continental EV travels.

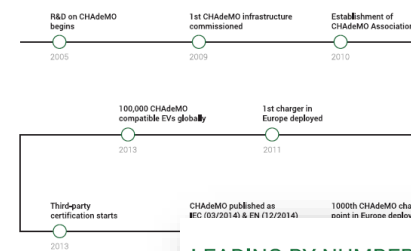


CHAdEMO

ASSOCIATION & PROTOCOL

MAY 2016

DECADE LONG ELECTRIC JOURNEY and planning for higher power



LEADING BY NUMBERS

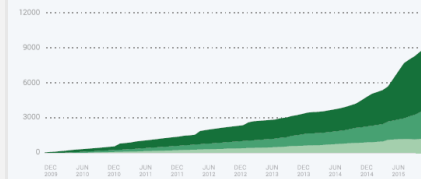
1 The largest global installation base

CHAdEMO equipped chargers are the most popular EV fast charging infrastructure choice in the world.

50 COUNTRIES ON 5 CONTINENTS HAVE CHAdEMO CHARGERS

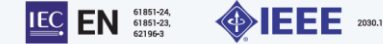
11500 CHAdEMO CHARGE POINTS ARE AVAILABLE TO EV DRIVERS GLOBALLY

CHAdEMO charge point evolution



STANDARDISED AND CERTIFIED A European and international standard

Confirming its global relevance, CHAdEMO has been published as various international standards by IEC, CENELEC (Europe) and IEEE (US).



The European Union recognises the importance of CHAdEMO by explicitly endorsing multi-standard chargers in its directive on the deployment of alternative fuels infrastructure.

Interface to charge electric vehicles could include several socket outlets or vehicle connectors as long as one of them complies with the technical specifications set out in this directive, so as to allow multistandard recharging.

Renal 33, Directive 2014/94/EU

Unique DC charging certification system

One of its kind dedicated to DC charging for EVs, the impartial and transparent process enables any company to build, certify and sell CHAdEMO devices. CHAdEMO certified means the charger conforms to the highest safety standards mandated by CHAdEMO and is fully compatible with all CHAdEMO EVs.

220 CHARGER MODELS HAVE BEEN CERTIFIED TO DATE

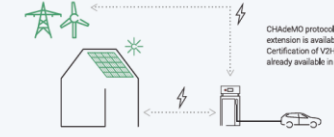


5 THIRD PARTY CERTIFICATION BODIES ARE AUTHORISED TO CERTIFY CHAdEMO CHARGERS



V to H/L 1ST IN THE WORLD CERTIFICATION OF DC "VEHICLE TO HOME" AND "VEHICLE TO LOAD" DEVICES

SPECIAL FOCUS Vehicle to X (V2X) already a reality at CHAdEMO



CHAdEMO protocol detailing V2X extension is available to Members. Certification of V2X/L chargers is already available in Japan.

A crucial element for a switch to renewables, V2X technology enables using EVs as both vehicles and portable batteries. With V2X devices, EVs can store energy from home PV panels to use later or feed to the grid and help balance the energy supply, all the while providing financial benefits to the EV owner. Currently, CHAdEMO EVs are the only mass-produced and marketed cars capable of V2X.

Gridwide revenue from V2G frequency regulation will grow from less than \$500,000 annually in 2013 to \$195.7 million by 2022.

Navistar Research

CHAdEMO V2X products



ALL TOP DC CHARGER MANUFACTURERS ARE CHAdEMO MEMBERS



50 COMPANIES PRODUCE CHAdEMO CHARGERS



First generation CHAdEMO chargers hit global roads in 2010. Since then, the portfolio of certified chargers increased to 220. All leading charger manufacturers as well as a broad range of SMEs providing fast charging infrastructure are our members, testimony to the Association's reach and global recognition.

CHAdEMO chargers



And more...



Note: new brochure can be downloaded/viewed from: http://www.chademo.com/wp/wp-content/uploads/2016/04/brochure_04.2016.compressed.pdf

COMMUNICATION TOOLS: NEWSLETTERS/ARTICLES



Powered



NEWSLETTER #3
July 2015

Dear CHAdEMO member,

Summer is finally here and, with all the e-mobility events that are happening in June, we can really feel the heat! You will actually see it in the newsletter - we prepared a lot of important updates and news for you. Without further delay, in this 3rd issue of CHAdEMO Europe 2015 newsletter we talk about:



CHAdEMO numbers continue to grow

While still a niche, fast charging market continues to grow - and a last year's over 100% growth of CHAdEMO charge points globally, from 3,740 to 8,549, is a testimony to that. Europe has just reached 1838, i.e. a 50% growth compared to 2014, Japan almost doubled its fast charging infrastructure reaching 5418 last month and the US saw 400 new chargers being added to their count since June 2014.



Newsletter


CHAdEMO's representative Tomoko Diech interviewed Electrive.com, a leading e-mobility industry news provider, has interviewed Tomoko Diech, CHAdEMO's European representative, during Hannover Messe. Watch the video to find out what she has to say about the infrastructure developments in Europe and Germany!

Events

Last chance! Join CHAdEMO booth at eCarTec Munich 2015, 20-23 October 2015

Once again we are exhibiting at eCarTec, the biggest e-mobility fair in Europe. With 5 charger and 1 connector manufacturers and 2 car manufacturers we have secured an **80sqm booth** which is as big as our booth at Hannover Messe this year. Our booth will be in a very attractive location, along the main

Information



29/02/2016
CHAdEMO PUBLISHED AS IEEE STANDARD

IEEE STANDARDS ASSOCIATION



CHAdEMO, the most widely deployed DC fast charging protocol in the world and already an IEC/EN standard, has gained another formal recognition last month as it was published as IEEE Standard 2030.1.1TM-2016, following the draft approval by the IEEE Standards Association Board in September 2015.

With an active portfolio of nearly 1,800 standards and projects under development, IEEE Standards Association is a leading developer of industry standards in a broad range of technologies, not just in the automotive sector.

IEEE Standard 2030.1.1TM-2016 is provided to assist developers for the reason of necessary interoperability and defines requirements for the designs of electric vehicles (EV) and DC fast chargers that promote efficient and rapid charging between EVs and chargers. The standard specifies the collaborative actions between EVs and fast chargers, referencing relevant international specifications including SAE Combo.

More concretely, Annex A of IEEE Standard 2030.1.1TM-2016 contains CHAdEMO specifications up to version 1.0.1, Amendment 1. This annex A gives detailed specifications for charging station and vehicle manufacturers, which conform to Annex AA of IEC 61851-23 and Annex A of IEC 61851-24. The detailed specifications include design and performance requirements not found in the IEC standards.

CHAdEMO as IEC standard was published in 2014, following which CENELEC, the European standardization organization, recognized CHAdEMO as EN standard the same year. This publication marks another milestone in CHAdEMO's standardisation effort, which has been one of the pillars of the work of the Association.





"We are delighted to have received an official recognition by IEEE, the world's largest technical professional association," Dave Yoshida, CHAdEMO Association's Secretary General, said. "With this US-based standard, CHAdEMO is now endorsed in the biggest EV market in the world, following the EN standards for Europe and the JIS standards for Japan. CHAdEMO shall continue to support EV expansion from the infrastructure side, in close collaboration with our Members and other e-mobility stakeholders."

Headquartered in the U.S.A., IEEE (Institute of Electrical and Electronics Engineers) is the technical professional association "dedicated to advancing technology for the benefit of humanity. IEEE Standards Association is the globally recognized standards-setting body within IEEE, which develops consensus standards through an open process that engages industry and brings together a broad community."


For more information, please contact: CHAdEMO Association Europe, www.chademmo.com, info@chademmo.com

CHAdEMO ver.1.0 Certified Chargers


1.0 chargers are certified interoperability, safety and quality based on CHAdEMO standard specification.

NIPPON STEEL & SUMIKIN TEXENG ABB(Switzerland) Shindengen Electric Kyuden Technosystems Corporation




10.000 CHAdEMO CHARGE POINTS IN NUMBERS



65%




OF ALL DC FAST CHARGE POINTS FOR EVs IN THE WORLD ARE CHAdEMO



50


COUNTRIES ON 5 CONTINENTS HAVE CHAdEMO CHARGERS

CHAdEMO BY CONTINENT

1400
2755
5974

CHAdEMO CERTIFICATION



50


MANUFACTURERS PRODUCE CERTIFIED CHARGERS

2009

CREATION OF ASSOCIATION

2010

CERTIFICATION EXTERNALISED




220

CHARGER MODELS HAVE BEEN CERTIFIED SO FAR


2013

EVs BY FAST CHARGING INLET GLOBALLY



50%

CHAdEMO



386,000

2010-2014