



CHAdemo

欧州報告

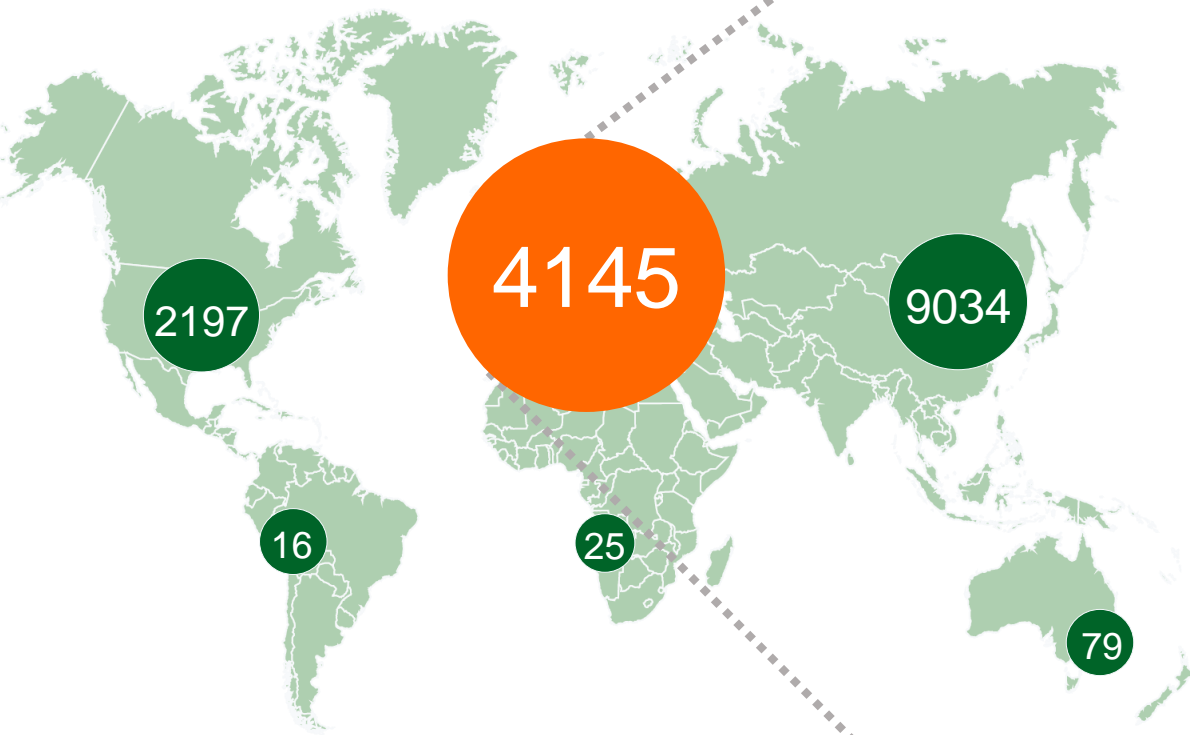
2017年5月31日

欧州報告

- 欧州のチャデモ CHAdeMO in Europe
 - 充電器設置状況 Charger deployment
 - 電気自動車市場 EV market
 - チャデモ会員数推移 CHAdeMO members
- マーケットトレンドMarket trends in Europe
 - 大出力化対応 High power
 - 50kWベース充電網 Passway charging
 - 中速充電 Destination charging
 - 商用車 Business fleet usage
 - スマート充電ビジネス Smart charging business
- 会員および一般向け活動報告 CHAdeMO member services and activities

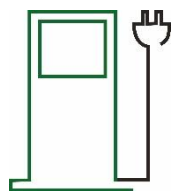


世界のチャデモ充電ポイント Globally over 15 000

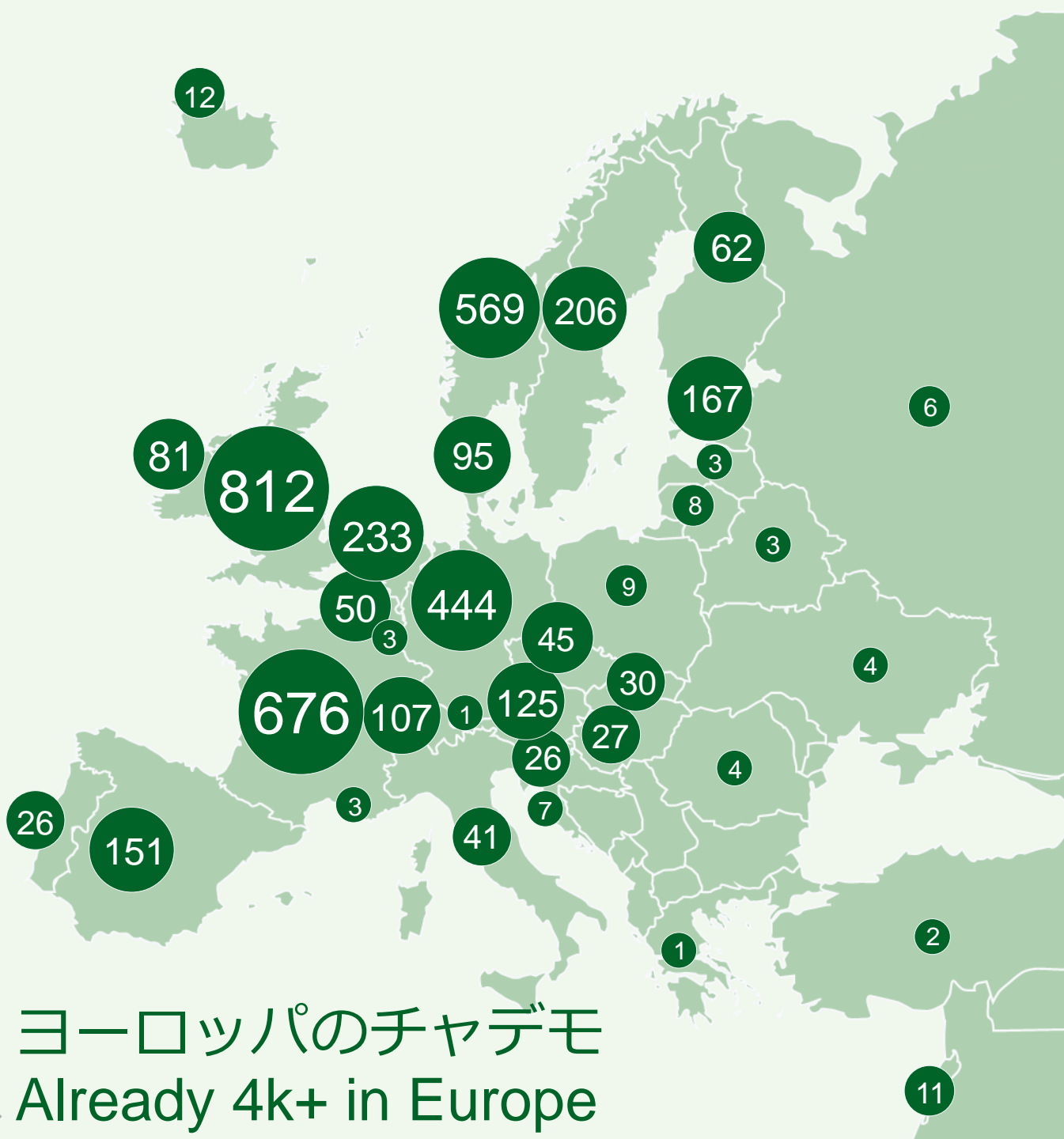


TOTAL

15 496



Note: as of May 2017

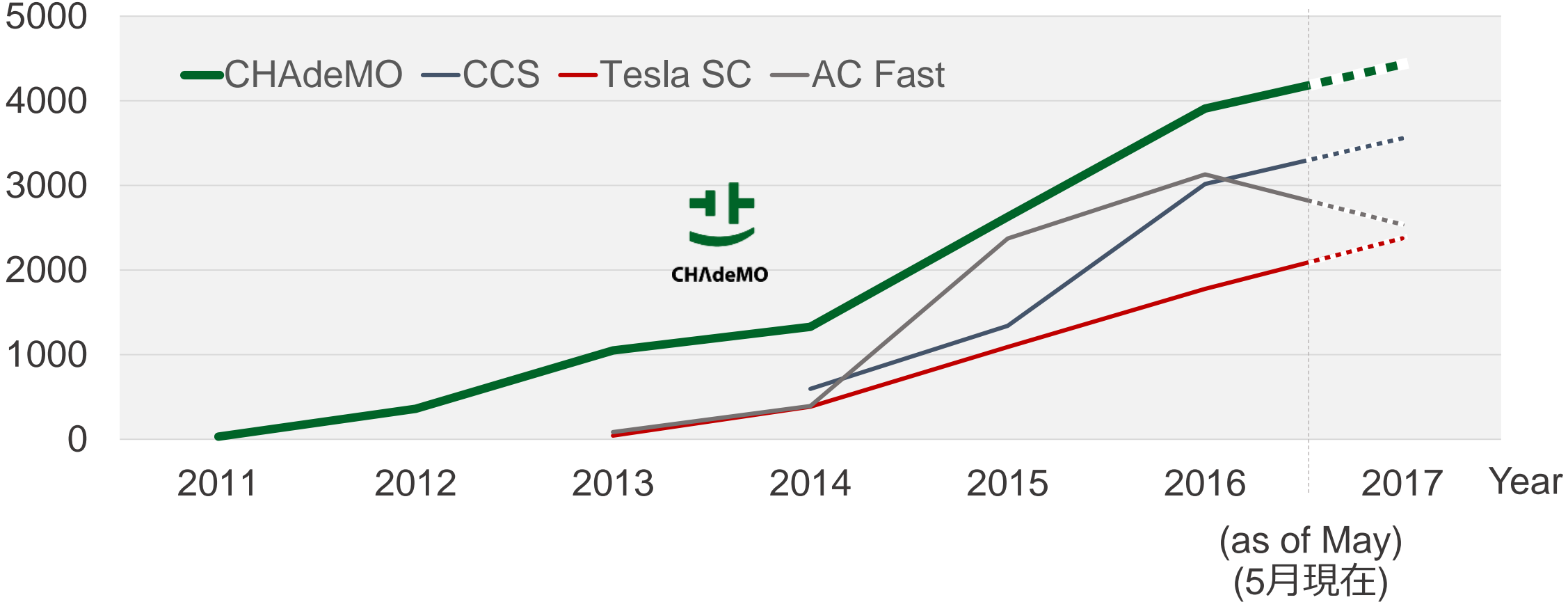


ヨーロッパのチャデモ Already 4k+ in Europe

欧州急速充電ポイント数の推移（累積）

EU fast charge points continuing steady growth

Evolution of EU fast charge points (cumulative)



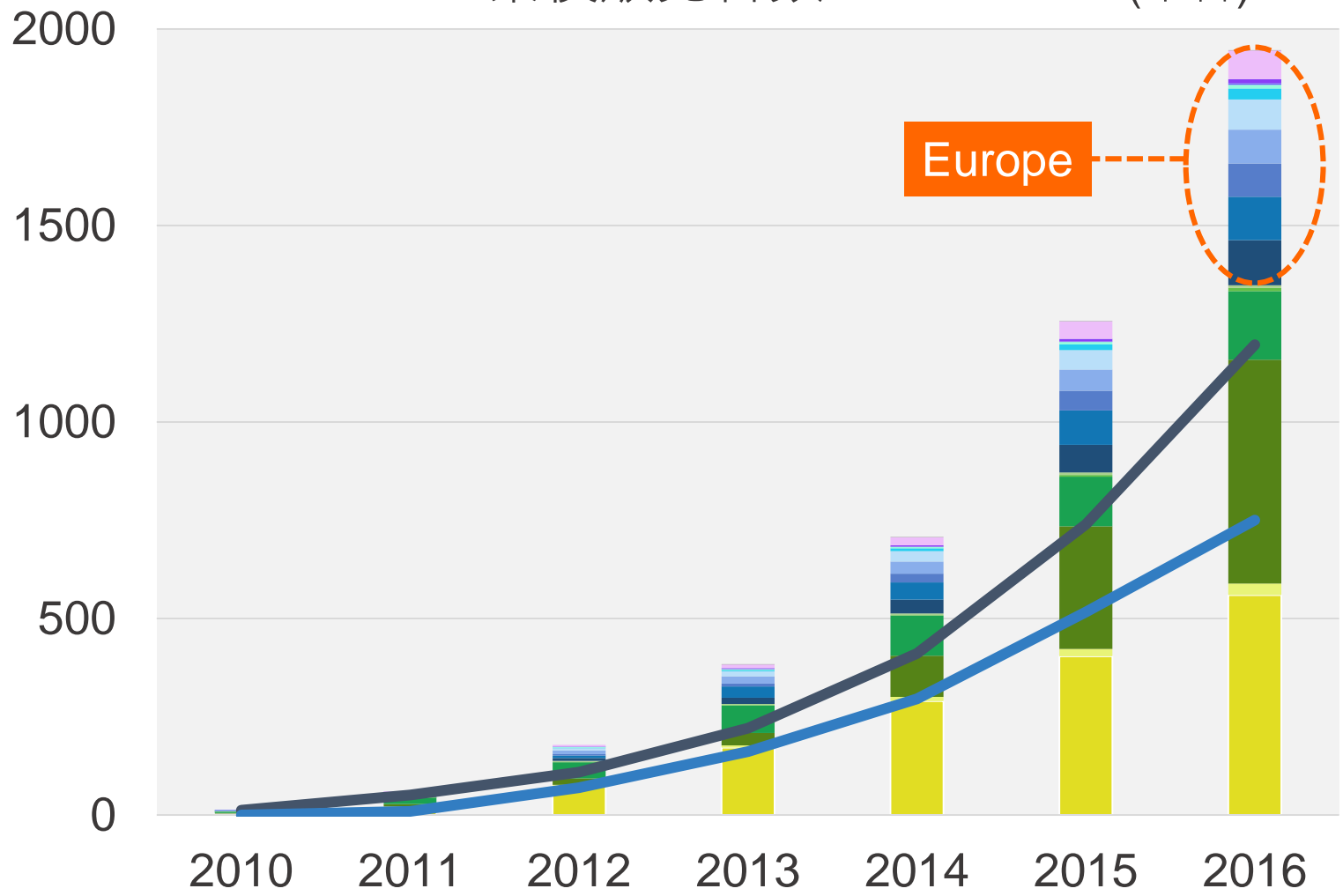
Source: EAFO, 各年12月現在, (2017年を除く), AC fast > 22kW

世界の電気自動車市場と欧州

Global EV stock in increase

EV/PHEV累積販売台数 2010-2016 (千台)

EV stock
in 000's
(千台)



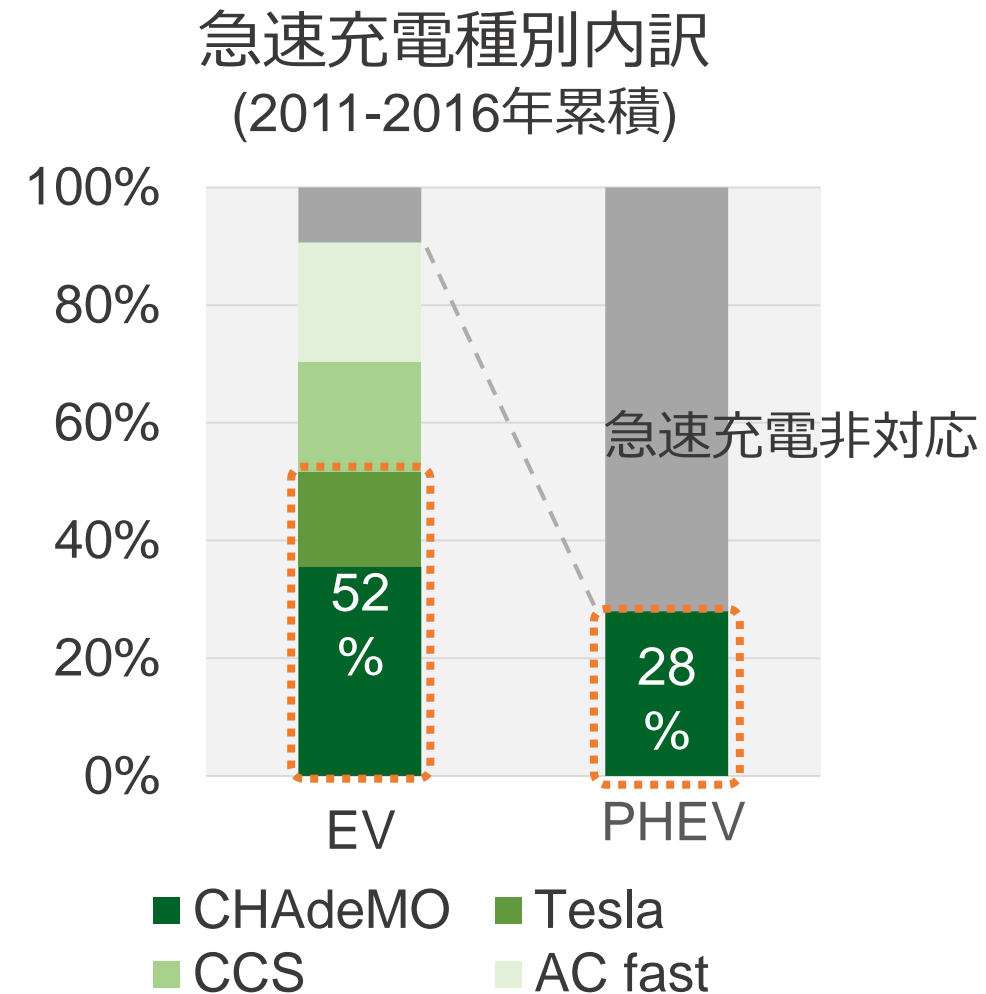
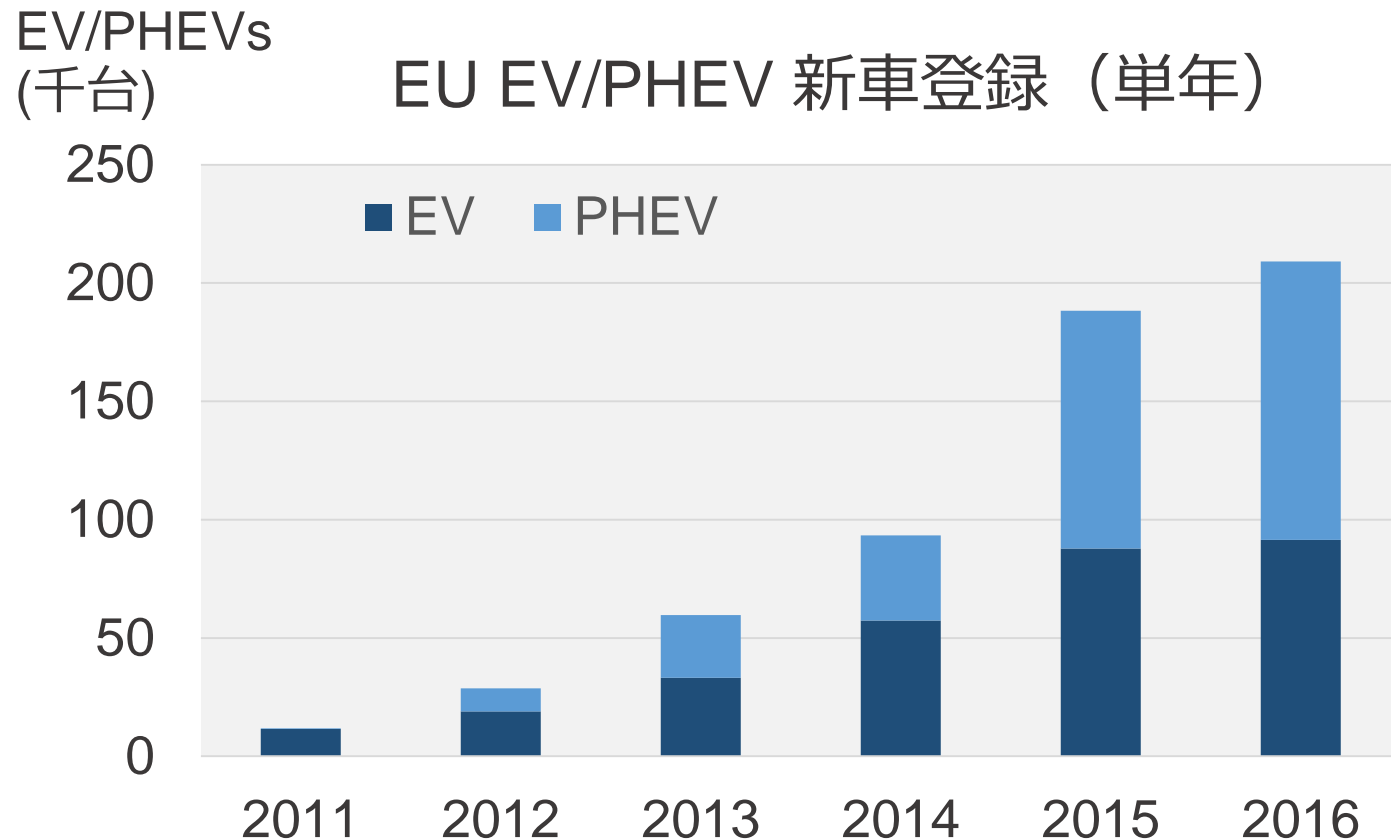
- South Africa
- Other EUR countries
- Spain
- Portugal
- Italy
- Sweden
- Germany
- France
- United Kingdom
- Netherlands
- Norway
- India
- Korea
- Japan
- China
- Canada
- United States
- BEV Stock
- PHEV Stock



Source: IEA, JATO, 世界40か国統計 selected countries only

EU市場は成長鈍化もチャデモ対応EVは引き続き過半数

In a slower growth EU plug-in market CHAdeMO remains strong



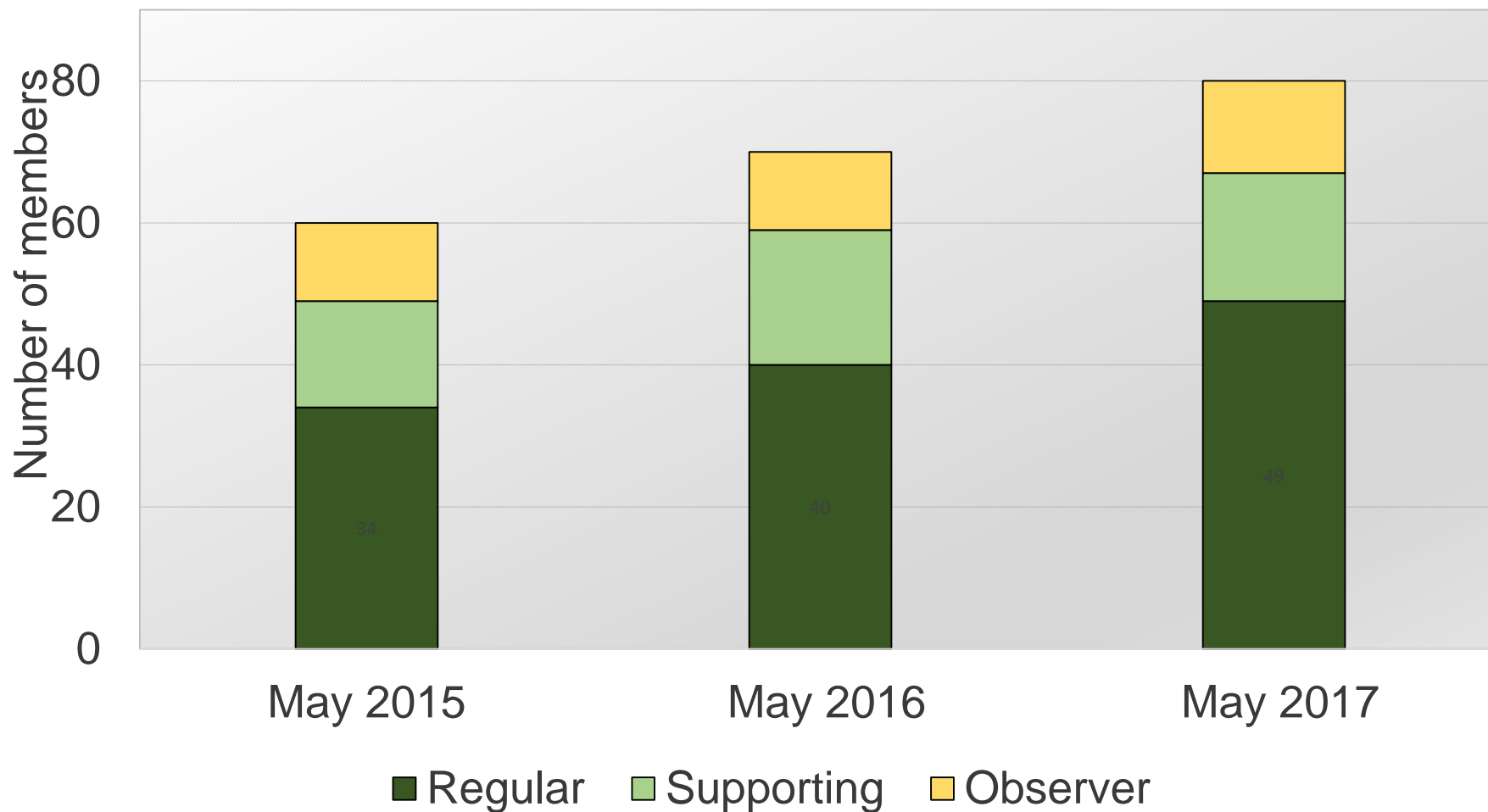
チャデモ欧州会員数は引き続き好調に推移 Our European member base keeps growing

80

EU地域会員

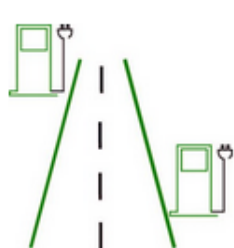
21 力国

会員数推移 Evolution of European members



欧州マーケットトレンド

Market trends in Europe: Diversification of charging



充電の多様化

High Power

Passway

Destination

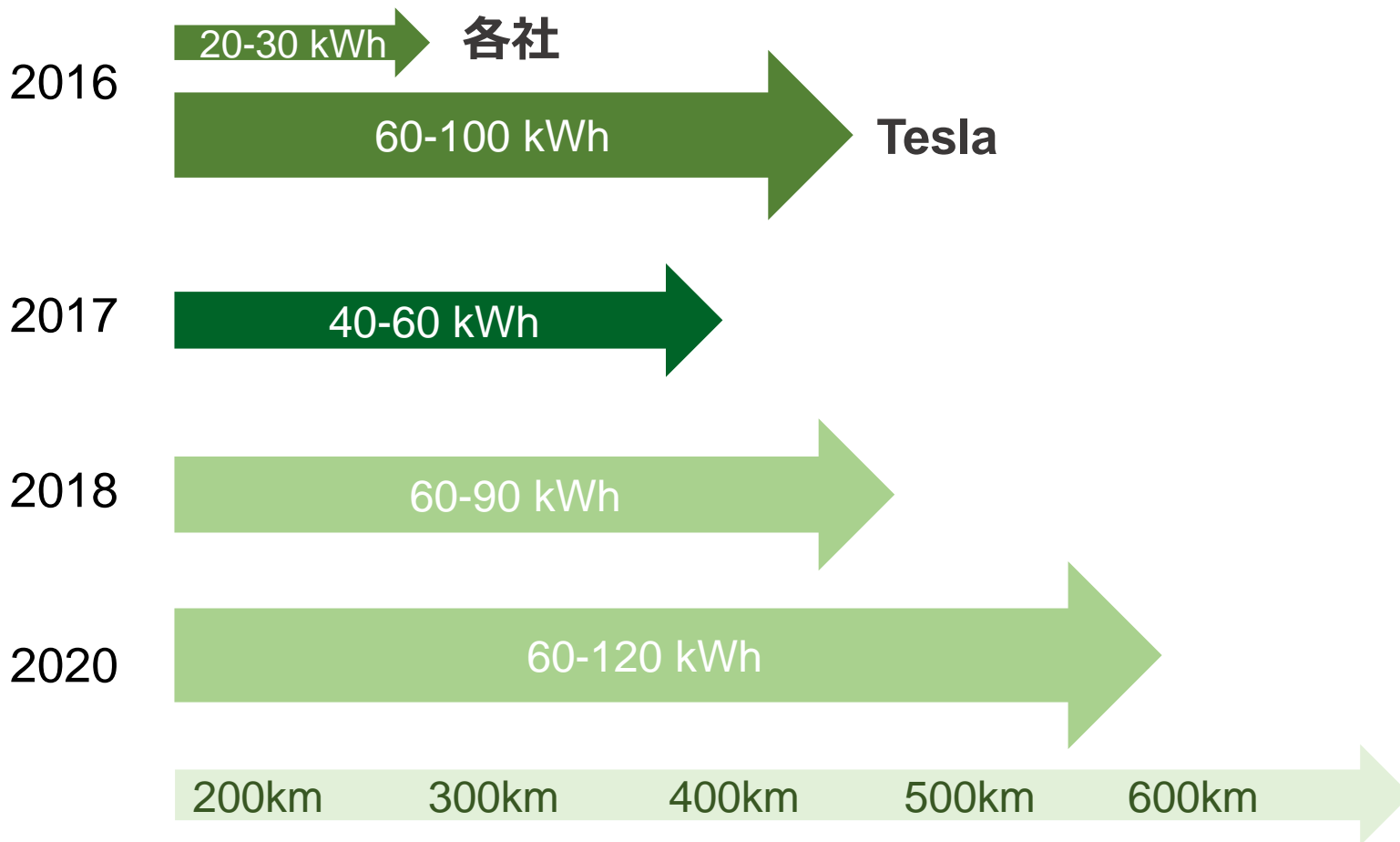
商用車

Business users

スマート充電ビジネス

Smart Charging

電池容量の増大傾向 Battery size is evolving....



2017年欧州市場投入予定EV例

Renault ZOE:

- AC fast
- 41 kWh
- 300 km



Opel Ampera-E:

- CCS
- 60 kWh
- 380 km



Tesla Model-3:

- Proprietary?
- 65-75 kWh?
- 345 km?

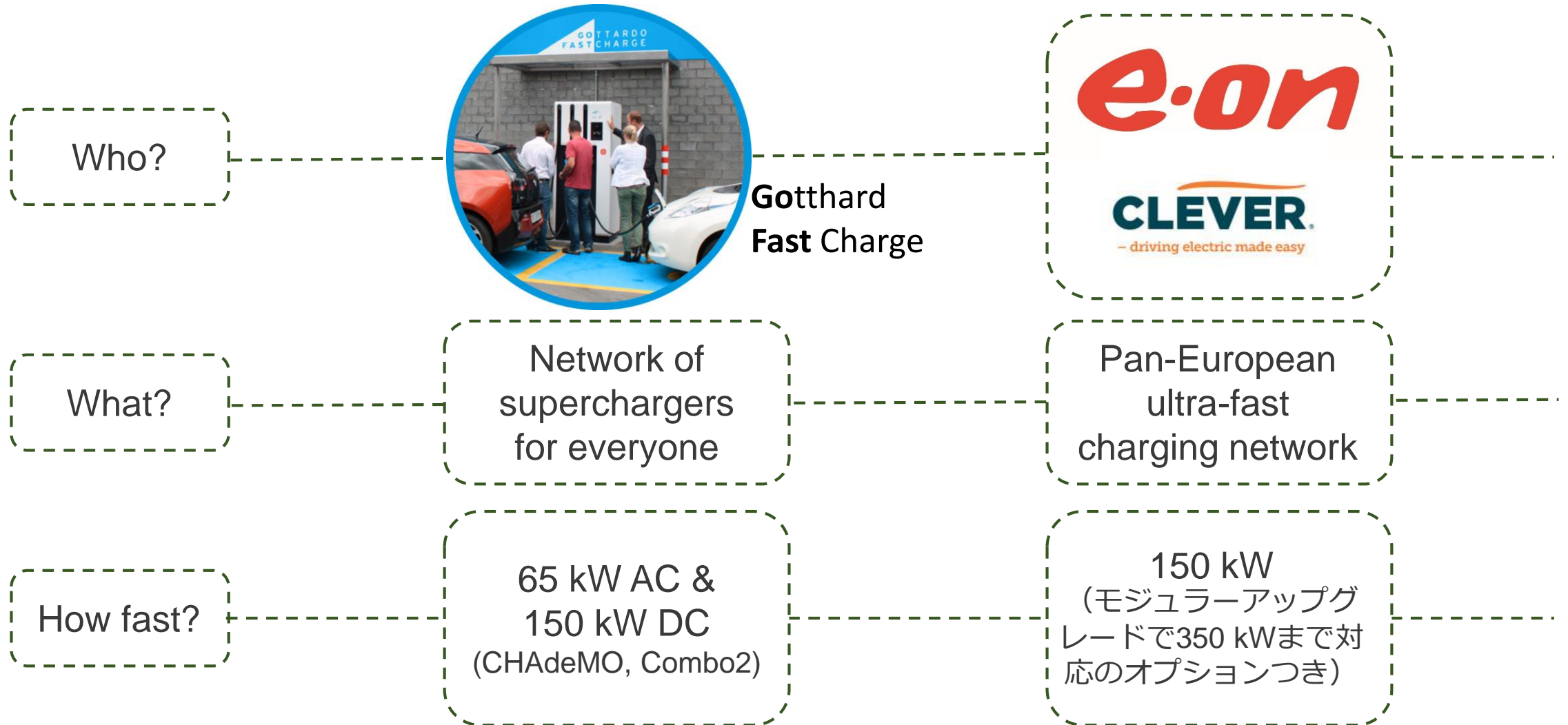


Nissan LEAF:

- CHAdeMO
- 40+ kWh?
- >300 km?



インフラ側の大出力化対応すすむ High power projects on their way:



50kW充電ネットワークのEU補助も継続

The 50 kW charger network continues to develop with EU support

CEF事業



■ GREAT (70)
Germany/Denmark/
Sweden



■ CIRVE (75)
Spain/Portugal



■ FastEVNet (85)
Poland/Slovakia



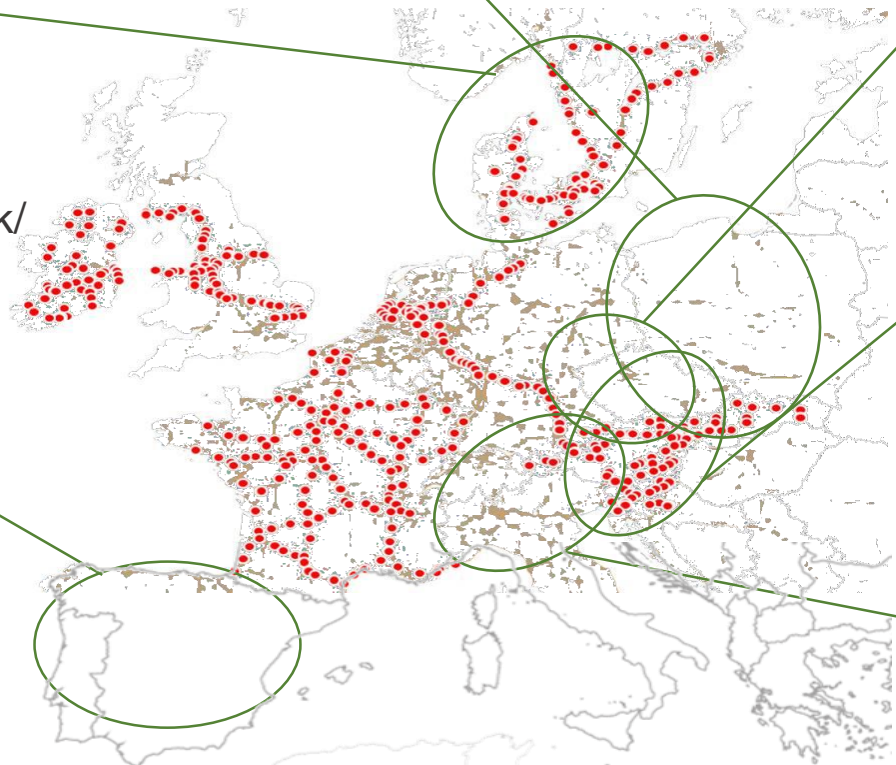
■ EV Backbone Network (42)
Czech Republic



■ EAST-E (57)
Croatia/Slovakia/Czech Republic



■ EVA+ (200)
Italy/Austria



Total
948

Total investment
€60MM



Source: European Commission

中速充電器製品も拡大

In parallel, destination charging diversifies:

ユーザの滞留時間に応じた目的地充電



中速充電器製品の例



- Lafon 24 kW DC Wallbox



- Delta 25 kW DC Quick Wallbox



- ABB Terra 23 CJK 20 kW



- CIRCONTROL 22 kW Quick Charger

商用EVの採用すすむ：郵便事業者の取り組み例 (Public) fleets leading the change



LA POSTE

- >5500台EV購入済
- 国関連の公用車は「新規購入の50%は電動」目標



www.moteurnature.com

Deutsche Post



- 子会社StreetScooter GmbH
- >2500台 Work電子ワゴン導入済み
- 年末までに2万台/年の生産規模
- 2050年にネットゼロ・オペレーション



スマート充電ビジネスあれこれ

Smart charging business applications: already a reality



- 商用車フリートのグリッド統合
- デンマーク周波数調整力市場で実際に取引
- EV10台 & V2G10台
- 1000€-1400€ /EV/year

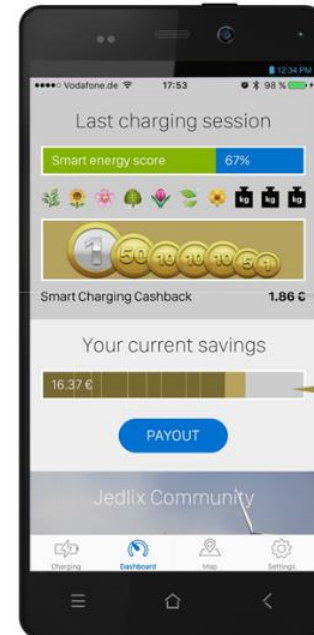


Source: <http://parker-project.com/>



JEDLIX

- スマート充電アプリ
- 再エネ導入による電力価格変動とEVスマート充電でユーザとプロフィットシェア
 - >1000台AC充電器 + EVユーザ500人



Example of e-drivers daily reward

1.86 €

16.37 €

Example of e-drivers monthly reward

Source: <https://jedlix.com/>





EUのEV推進関連法案

EU continues to push for EV adoption

EPBD

商業施設エネルギー効率法改正案

Amendment of Energy Performance of Buildings Directive:

- 2025年以降新商業施設の建築および大規模修繕時、駐車スペース10台につき1台には充電器設置を義務付け
- 同集合住宅についてはPre-cablingの義務付け

CVD

クリーン自動車法改訂

Revision of Clean Vehicles directive:

- クリーン自動車の再定義
- 公用車両におけるクリーン車両の最低調達枠を義務付けか

欧州チャデモの活動報告と今年度の予定 (1/3)

Member meetings

- 欧州地区会員年次総会 Annual European member meeting

- #7: Munich, 10/19/2016
- #8: Stuttgart, 10/11/2017 (EVS30)



- 北米地区会員ミーティング North American information meeting

- Montreal, 6/21/2016 (EVS29)

- 欧州技術部会 Technical meetings

- 会合

- Paris, 4/25/2016
- Munich, 10/20/2016



- Telco

- “Chat with Dave” sessions
- V1.2 Final Draft discussion
- Vehicle ID SWG

- High Power demo

- Autumn 2017, details TBC

欧州チャデモの活動報告と今年度の予定 (2/3)

CHAdeMO booths at trade fairs



Hannover Messe 2017 CHAdeMO stand (24-28 April),
56sqm

2016:

- Hannover Messe (4/25-29)
- EVS29 (6/19-21)
- eMove360/eCarTec (10/18-20)

2017:

- Hannover Messe (4/24-28)
- EVS30 (10/9-11)
- eMove360 (10/17-19) (TBC)

■ チャデモブースの特長

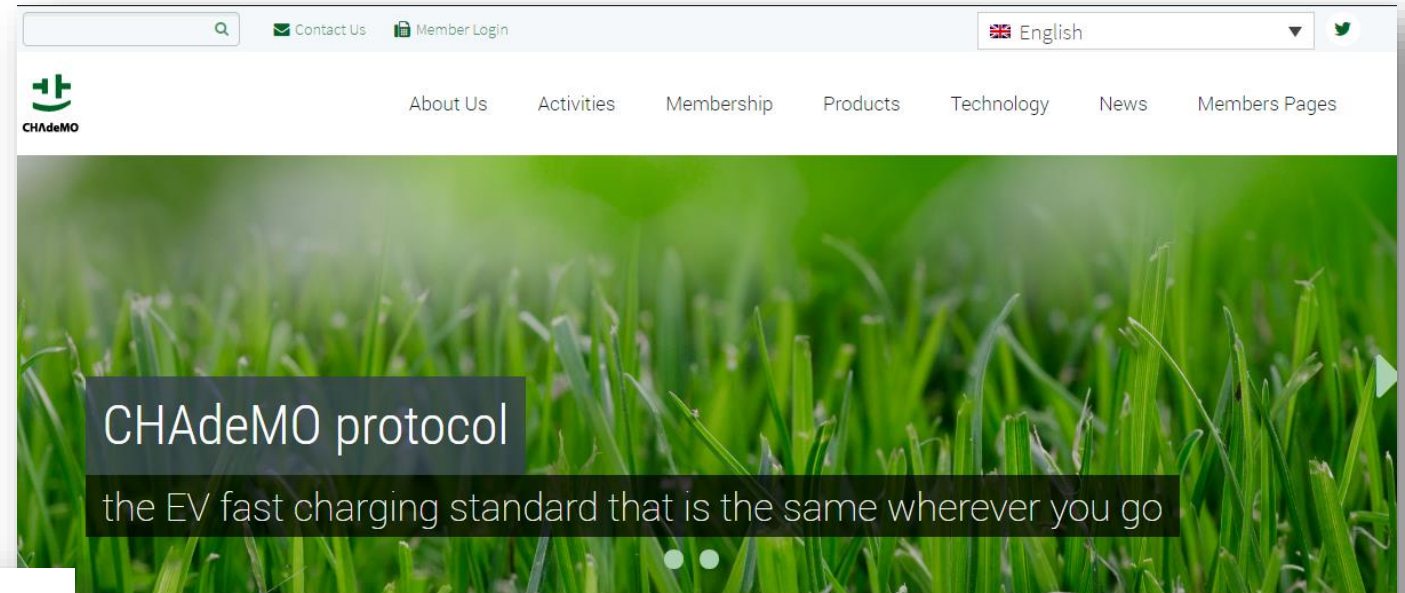
- ビジターへのワンストップサービス
- チャデモ関連製品やトレンド紹介
- 共同出展会員への便宜



欧州チャデモの活動報告と今年度の予定 (3/3)

PR/Communication

- サイト刷新
- Twitter (1,161 followers)
- ブローシャ
- 会議発表
- 法制度モニタリング
(Platform for electro mobility)



CHAdeMO ASSOCIATION & PROTOCOL In a nutshell

Who we are
We are an essential collaboration platform around CHAdeMO DC charging protocol. As an ecosystem of companies offering CHAdeMO-related products and services we work together to promote and enable electric mobility on a global scale.

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.

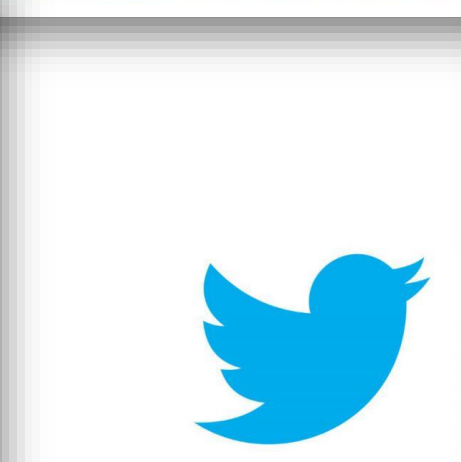
About CHAdeMO Protocol
CHAdeMO is a DC charging protocol currently enabling EV charging with power from 6kW to 50kW with a possibility of 150kW in preparation. It follows 4 principles:

- SAFETY**: CHAdeMO believes that in the context of high power electrical safety is crucial and mandates strict guidelines in designing chargers.
- FUTURE-PROOF**: CHAdeMO is Smart Grid-ready through its bidirectional charging capability. It is also compatible with any local or optional functions beyond charging.
- EASE OF APPLICATION**: The protocol works with CAN communication, making its integration with the rest of the car 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 travel.

DECADE LONG ELECTRIC JOURNEY and planning for higher power

- 2008: R&D on CHAdeMO begins
- 2009: 1st CHAdeMO infrastructure commissioned
- 2010: Establishment of CHAdeMO Association
- 2013: 100,000 CHAdeMO compatible EVs globally
- 2011: 1st charger in Europe deployed
- 2013: Third-party certification starts
- 2014: CHAdeMO published as IEC (IEC 61851-4) & EN (EN 15118)
- 2016: 1000th CHAdeMO charge point in Europe deployed
- 2016: CHAdeMO published as IEEE standard
- 2015: 10,000 CHAdeMO charge points globally
- 2016: 150 kW (max 350A) Draft specification
- 2017: Next Generation CHAdeMO in market

150kW To respond to the ever-increasing capacity of EV batteries and to keep the charge time to a minimum, development of the next generation CHAdeMO for higher power is on-going.




ご清聴ありがとうございました
Thank you!

