

# EV Charging Infrastructure: Refueling without Oil

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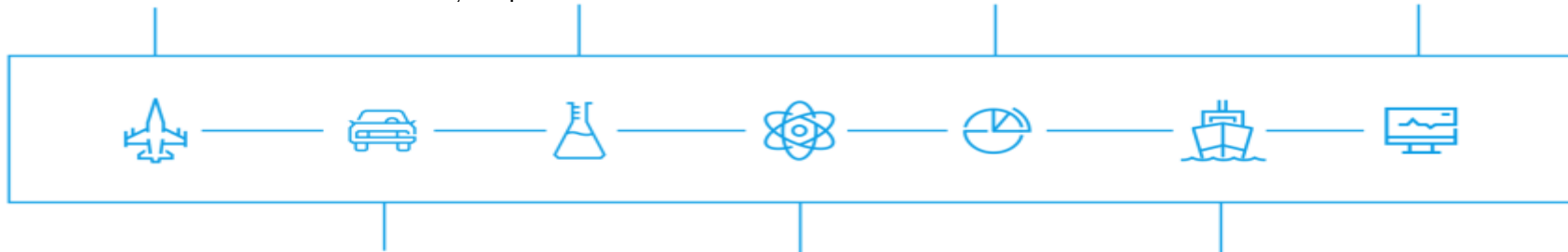
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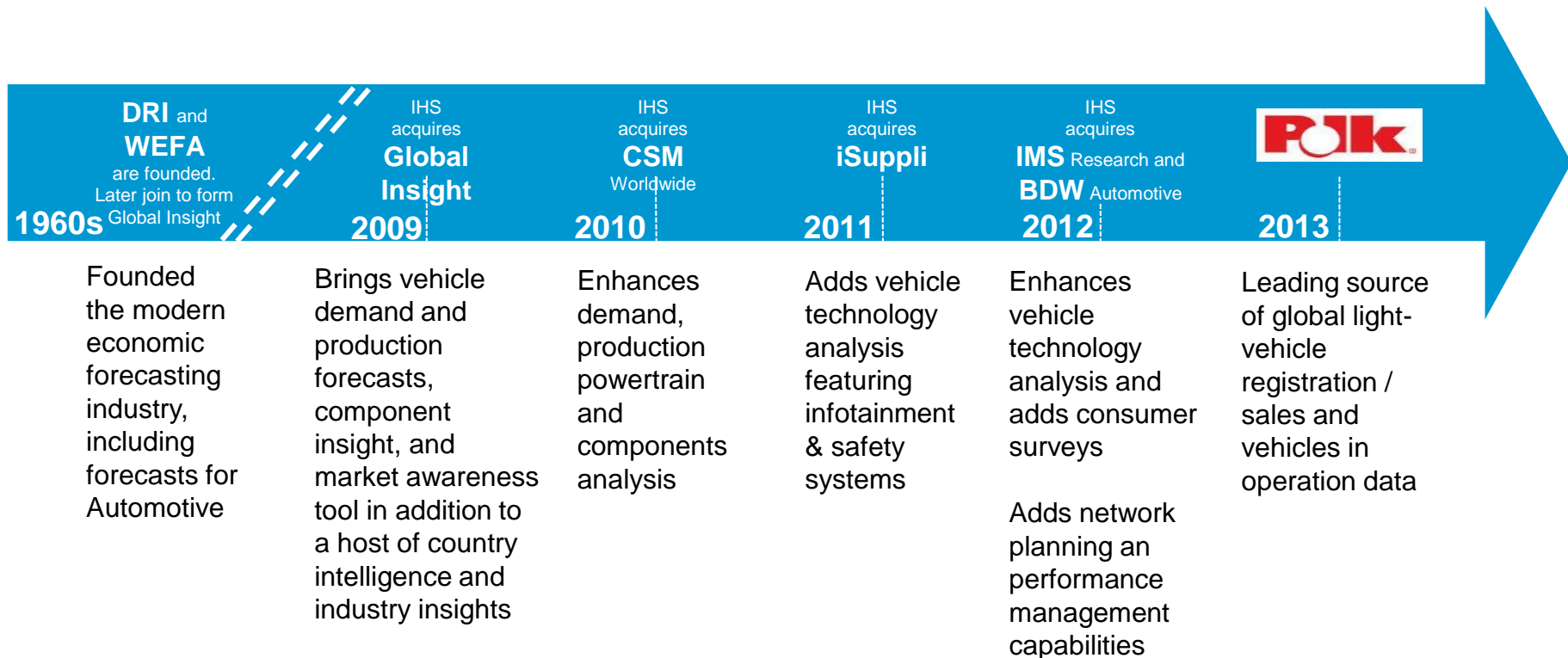
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# Where are all the Electric Vehicles?

Review: 2008/2009 - Present

**“1 million electric vehicles on the road in the US by 2015”**

**Actual: ~250,000 (EVs + PHEVs)**

**“1 million electric cars in Germany by 2020”**

**Actual: ~30,000 (EVs + PHEVs)**

**“500,000 NEVs in China by 2015”**

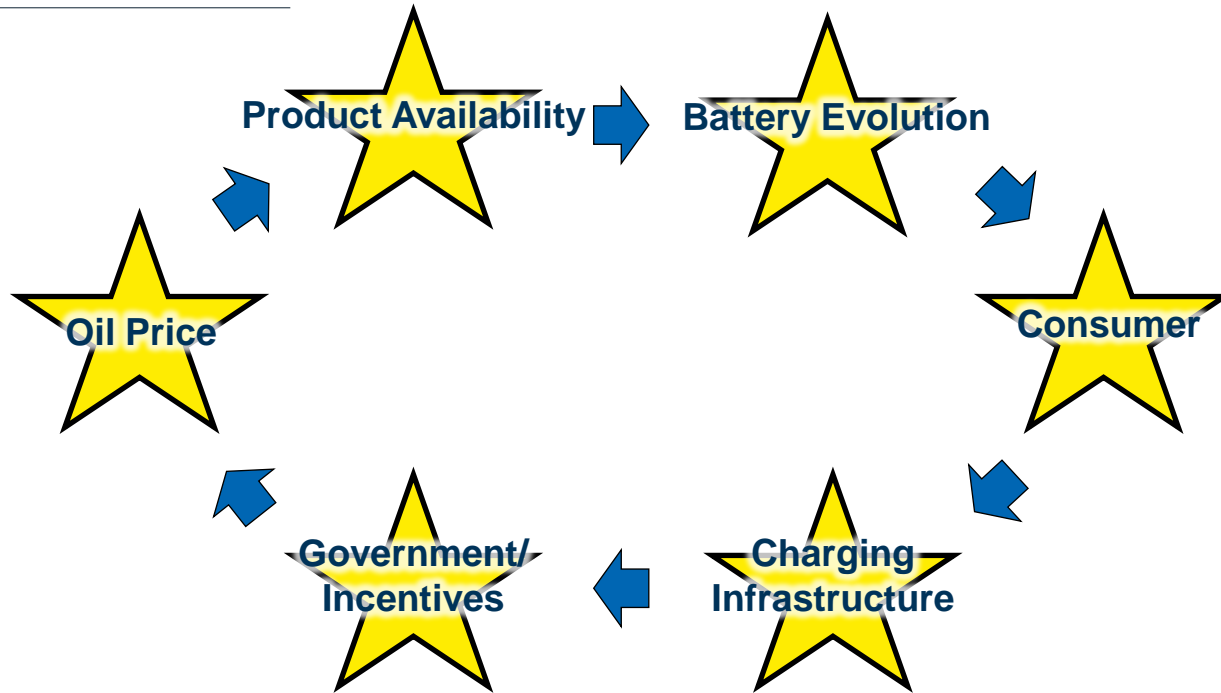
**Actual: ~100,000 (EVs + PHEVs + FCVs)**

**Note: Actual numbers as of April 2015**

# When will there be widespread adoption of EVs?

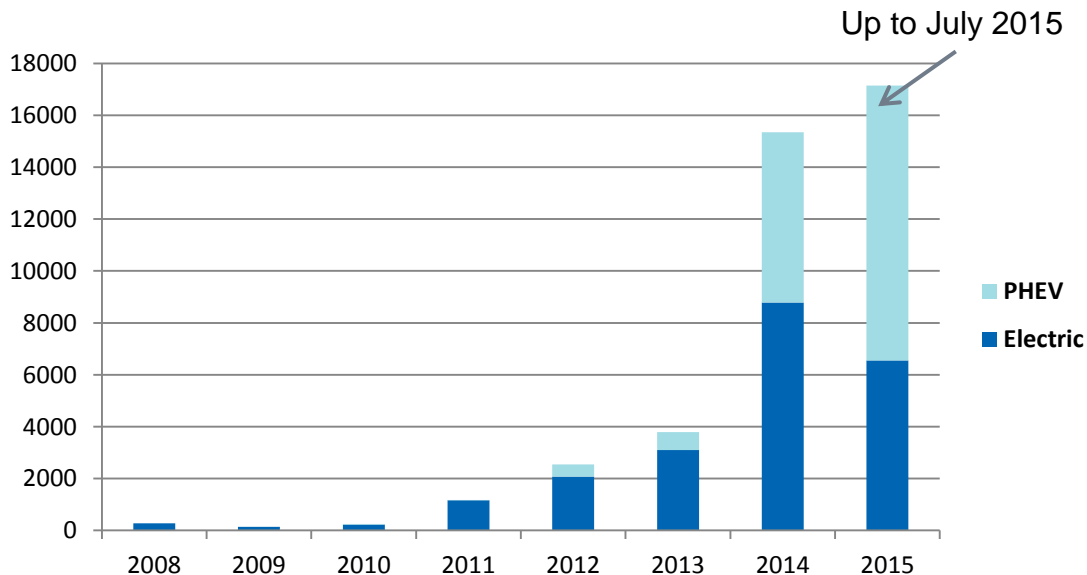
## 6 Stars

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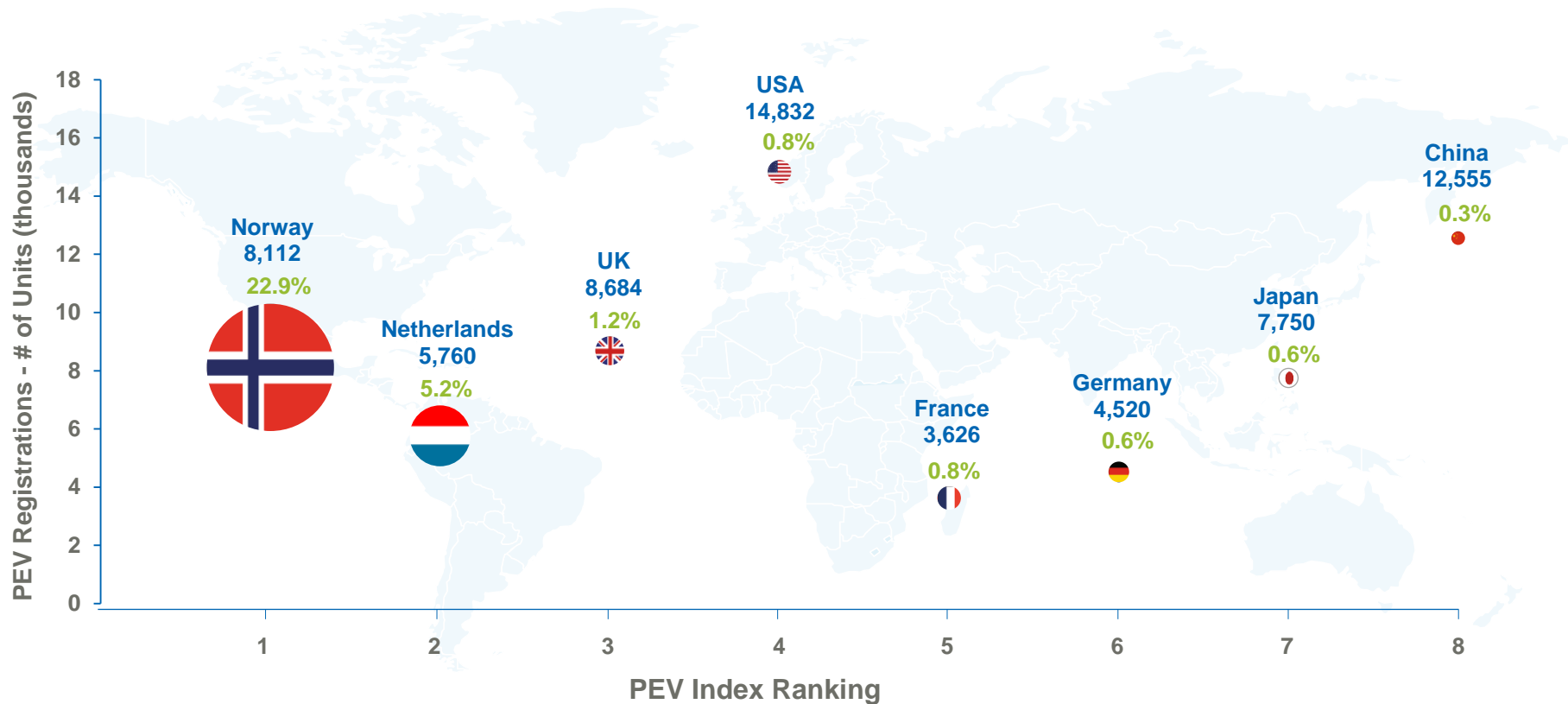
# The United Kingdom – Sales Overview



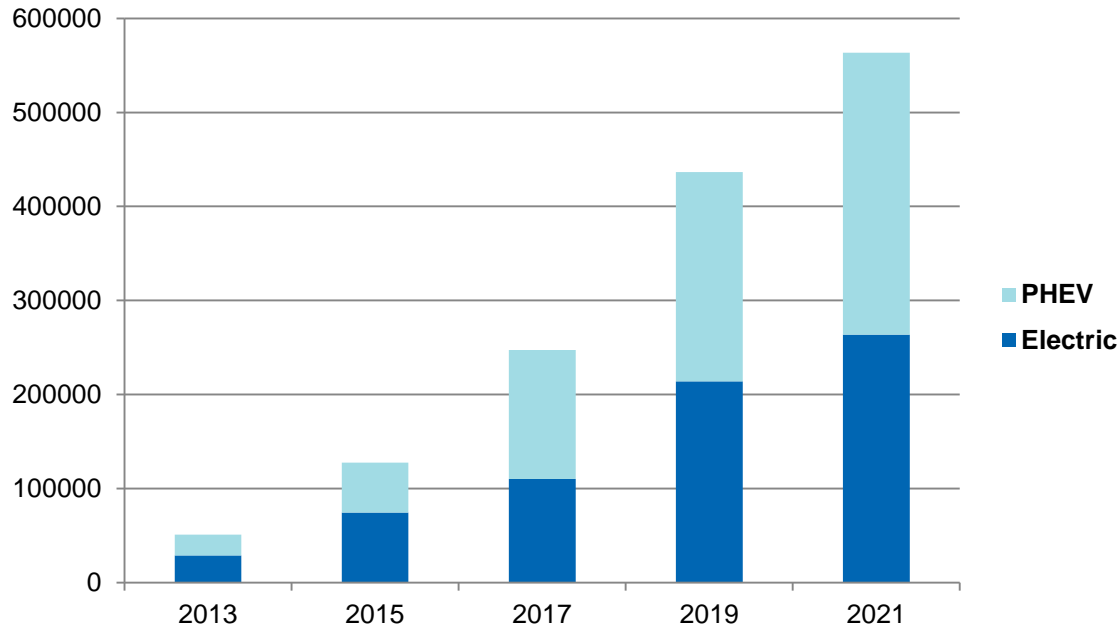
- UK Electric Vehicle Market traction
- 2015 already proving successful
- PHEV vs EV

UK Cumulative EV + PHEV = 40,000

# IHS Automotive: Plug-In Electric Vehicle Index, Q1 2015

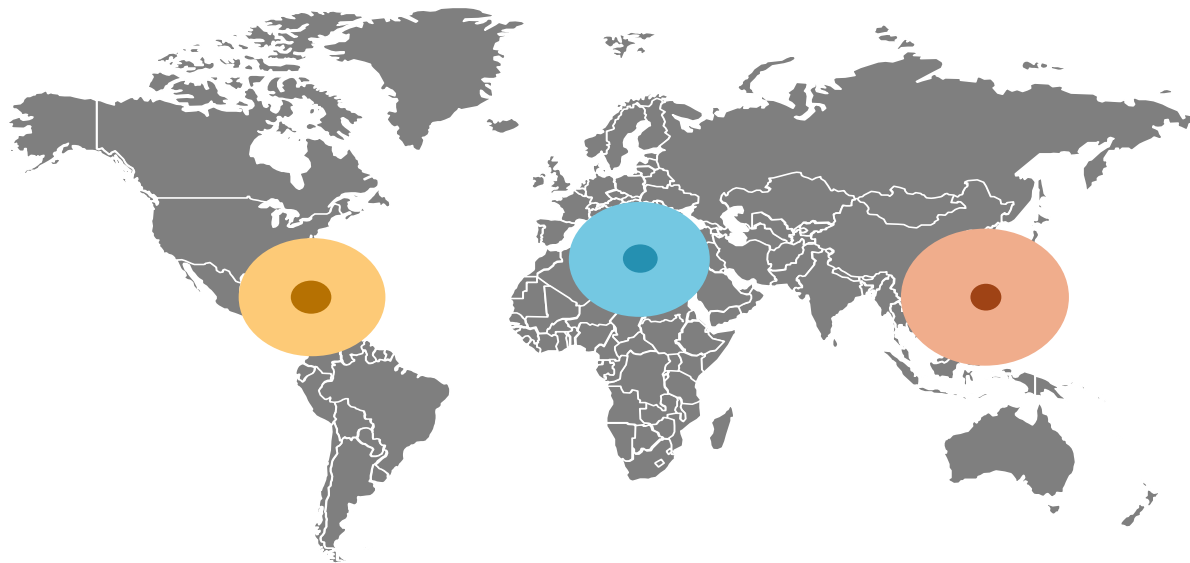


# Sales Forecast for Europe



- **550k EVs + PHEVs in 2021**
- **PHEV vs EV**
- **Need infrastructure to support with growth – 6 stars**

# EV Charging Infrastructure Forecast - Cumulative



2014 **439k**

Americas

2021 **5.7m**

2014 **336k**

EMEA

2021 **5.3m**

2014 **278k**

Asia

2021 **7.5m**

# Price of Charging Stations

**AC**

**\$395 - \$10,000**

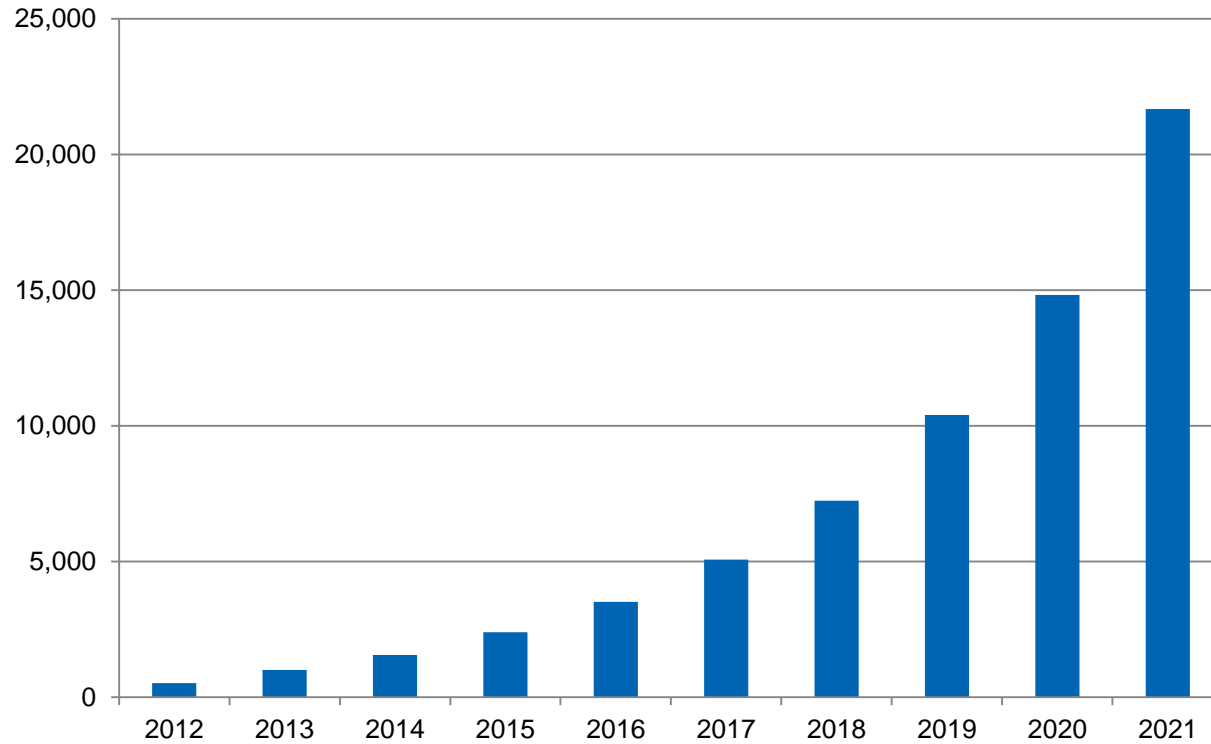
**DC**

**~\$35,000+**

Prices do not include installation costs



# DC Charging Station Deployments - Cumulative



# Fast Charging Plug Standards

## Two main Fast Charging Plug Standards

- CHAdeMO



- Combined Charging System (CCS)

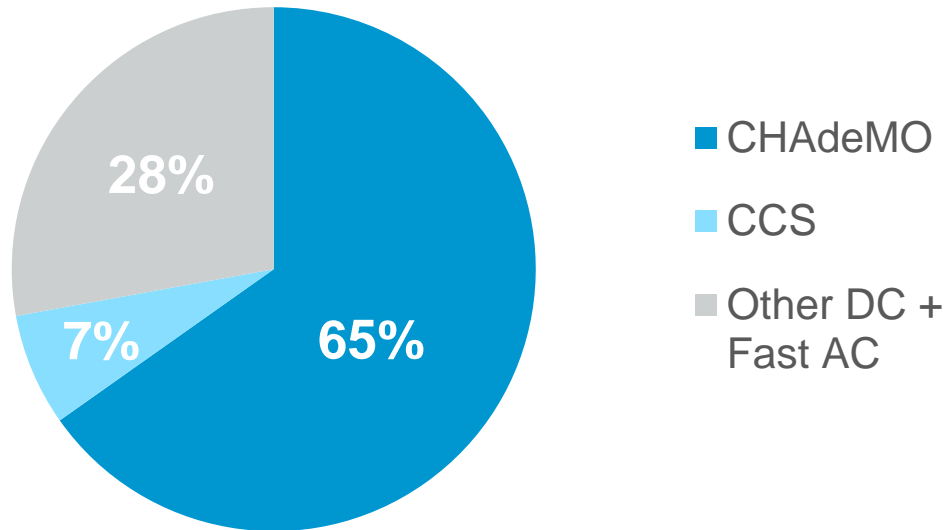


DAIMLER



# Fast Charging Plug Standards

Global Cumulative EV Sales with Fast Charging Plug Standard (2010 – 2014)





# Summary

- 6 Stars – Widespread adoption of EVs.
- UK market for EVs is getting some traction.
- Electric + PHEV Sales expected to reach 550k by 2021 in Europe.
- EV Charging Infrastructure Forecast – 18.5m by 2021 cumulative globally.

# Thank you for listening

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