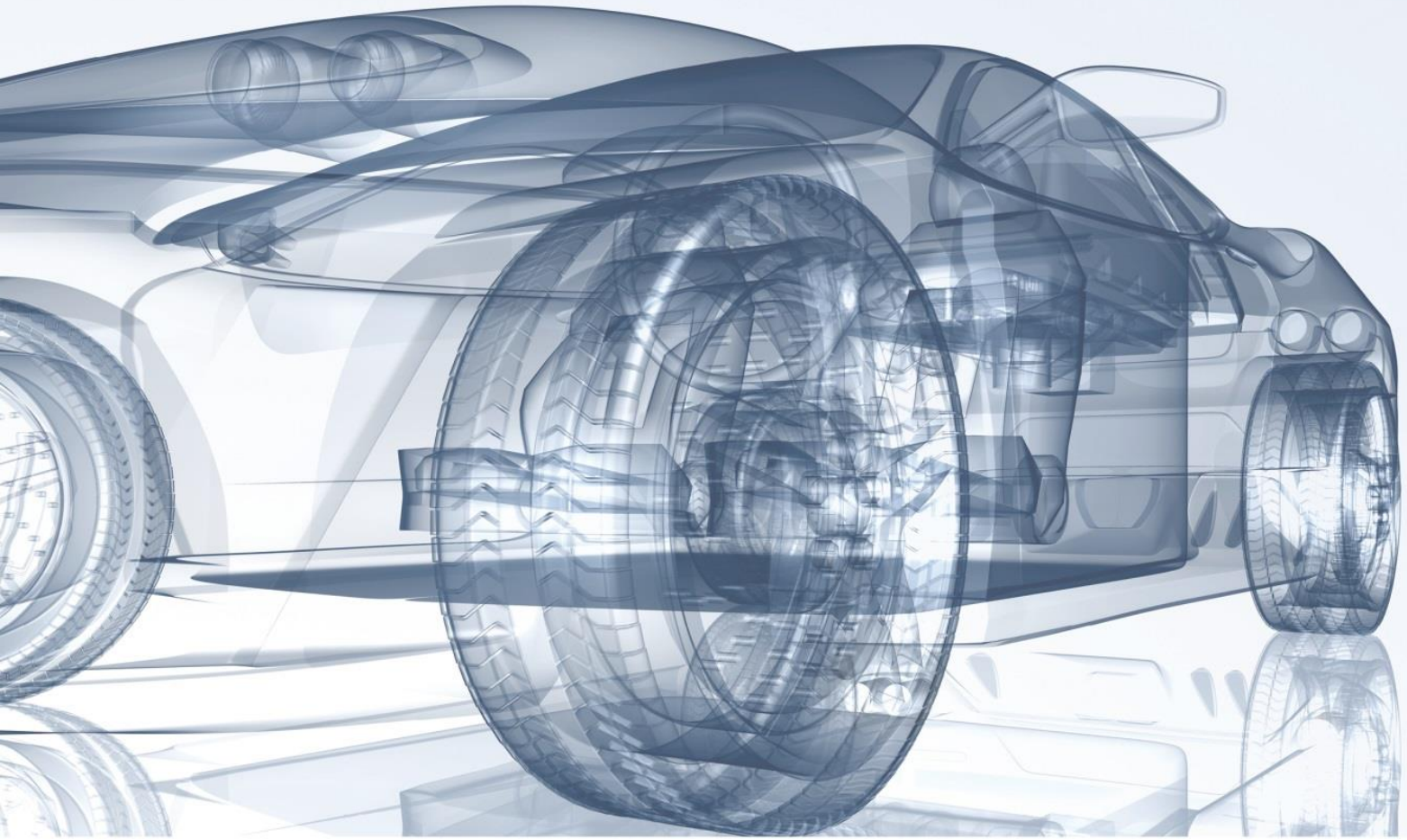
evs30



The 30th International
Electric Vehicle
Symposium & Exhibition

October 9–11, 2017

Messe Stuttgart, Germany

www.evs30.org

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INCENTIVES FOR CLEANER VEHICLES IN URBAN EUROPE

Rob Kroon
Project Manager / Consultant
FIER Automotive

EVS30 - Stuttgart
9th of October, 2017

Co-funded by the Intelligent Energy Europe Programme of the European Union.

FIER - New mobility business development

We believe in moving from:

- Conventional to smart
- Combustion to electric
- Ownership to mobility as a service

Smart e-mobility & logistics

- International business development
- Support industry, retail/distribution & public authorities
- (EU-) project & consortia development (PPP)

Themes:

EU Project examples:

I-CVUE

PARTNERS FOR INTERNATIONAL BUSINESS ELECTRIC MOBILITY South and West Germany

FRevue

eCARSHARE.nl

ENEVATE

Electric Green Last Mile

Smart Charging in Practice

BATTERI

Introduction

Aim

- Reduce CO2 & other hazardous emissions in urban environments
- Support the uptake of plug-in vehicles across Europe

AUSTRIAN ENERGY AGENCY
DLR
energy saving trust
IRU Projects
BOSCH
FIER Automotive & Mobility
Coventry University
EVU ELECTRIC VEHICLE UNION
RACC
Transport for London

Deliverables

- Several studies and analyses
- Policy advice / Authority support
- Business cases for fleets / Mentoring
- Decision making tool

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Fleet Mentoring

•Replace of 1.000 ICE vehicles with EV´s	60+ fleets receive mentoring	Intensive and flexible approach resulting in a client led service
• Support fleet managers with knowledge and experience to identify the potential for making the fleet greener • This is done by several meetings, desk research, reports, etc.	• Large and small company and governmental fleets • Grey fleets (private cars, compensation for km's by company) • Professional fleets (Taxi, (small) delivery van's, (light) trucks etc.)	1 Analyse 2 Typology 3 Calculation 4 Consult 5 Preparation 6 Implemen-tation 7 Monitor



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Fleet Mentoring

Success of EV uptake

Countries

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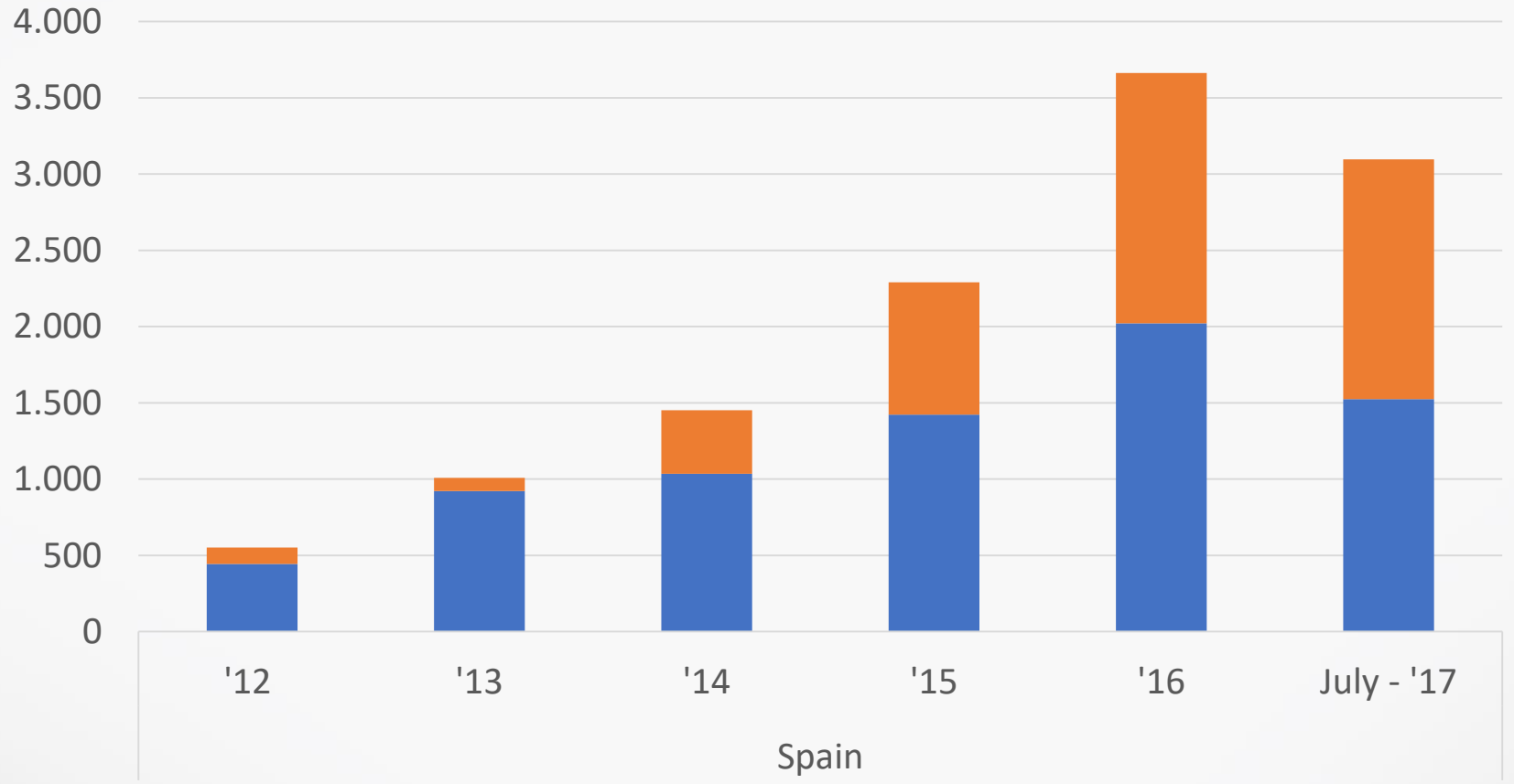
Success of EV uptake

Absolute number of sales of BEV/FEV and PHEV/E-REV per country



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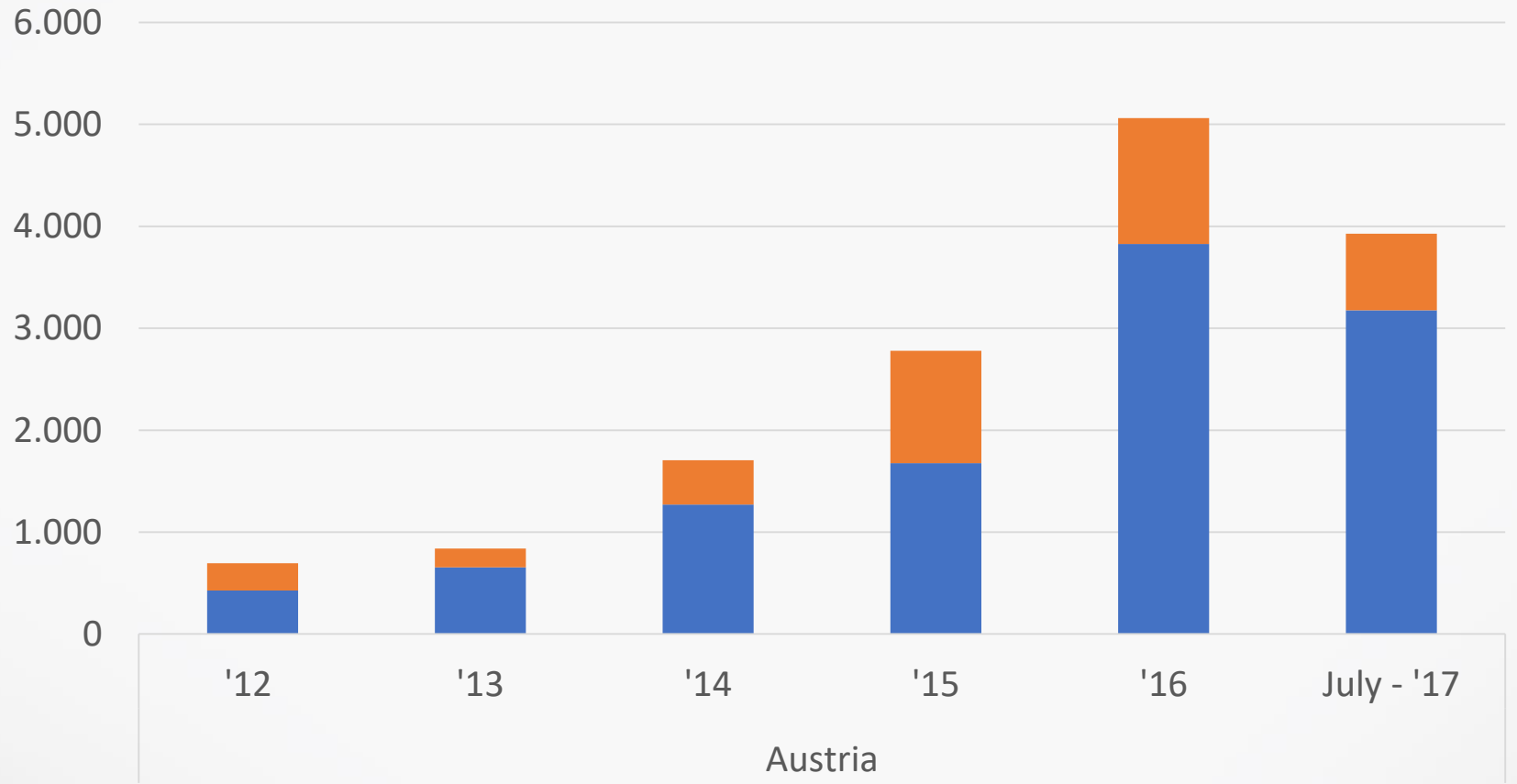

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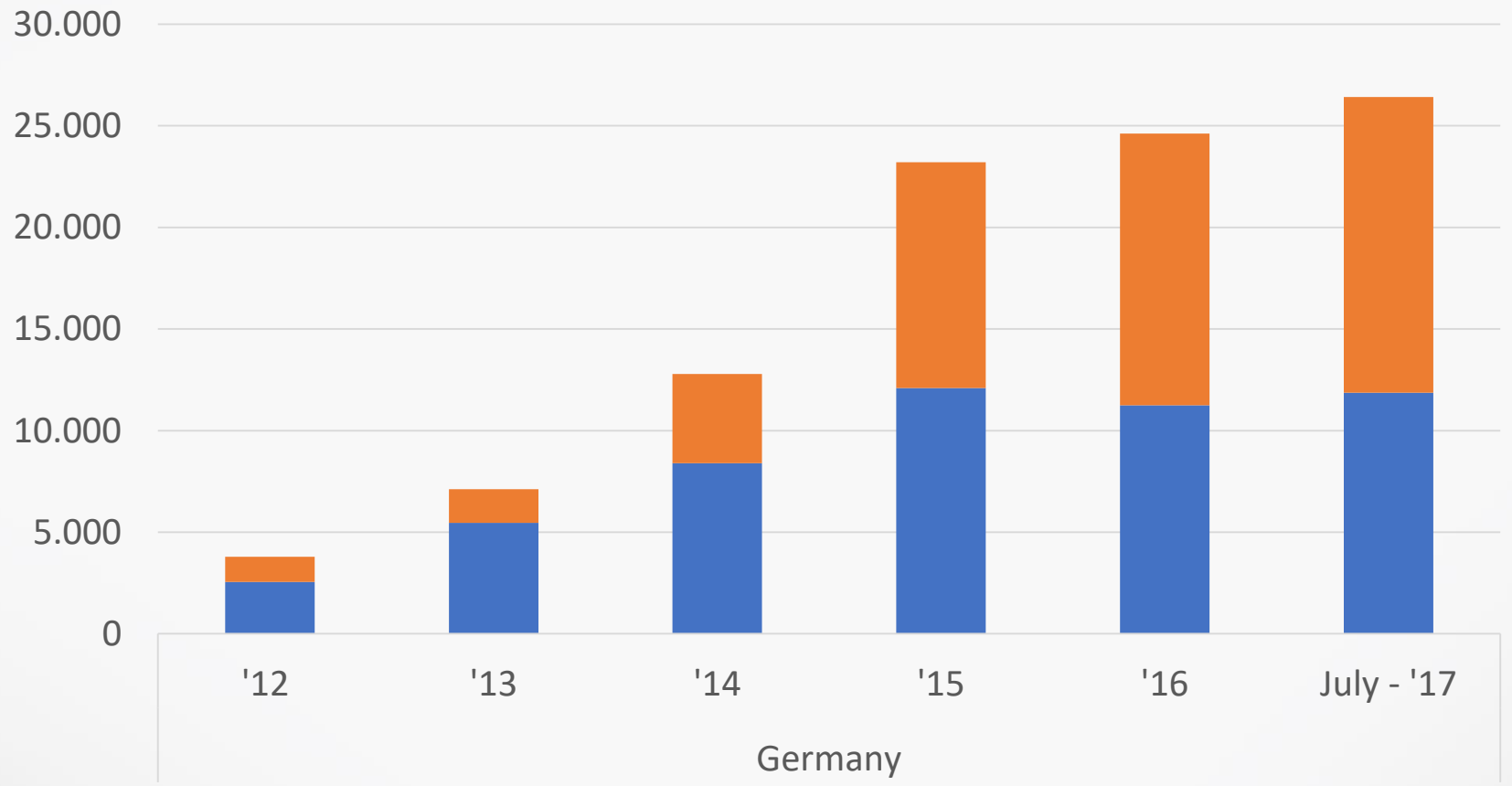

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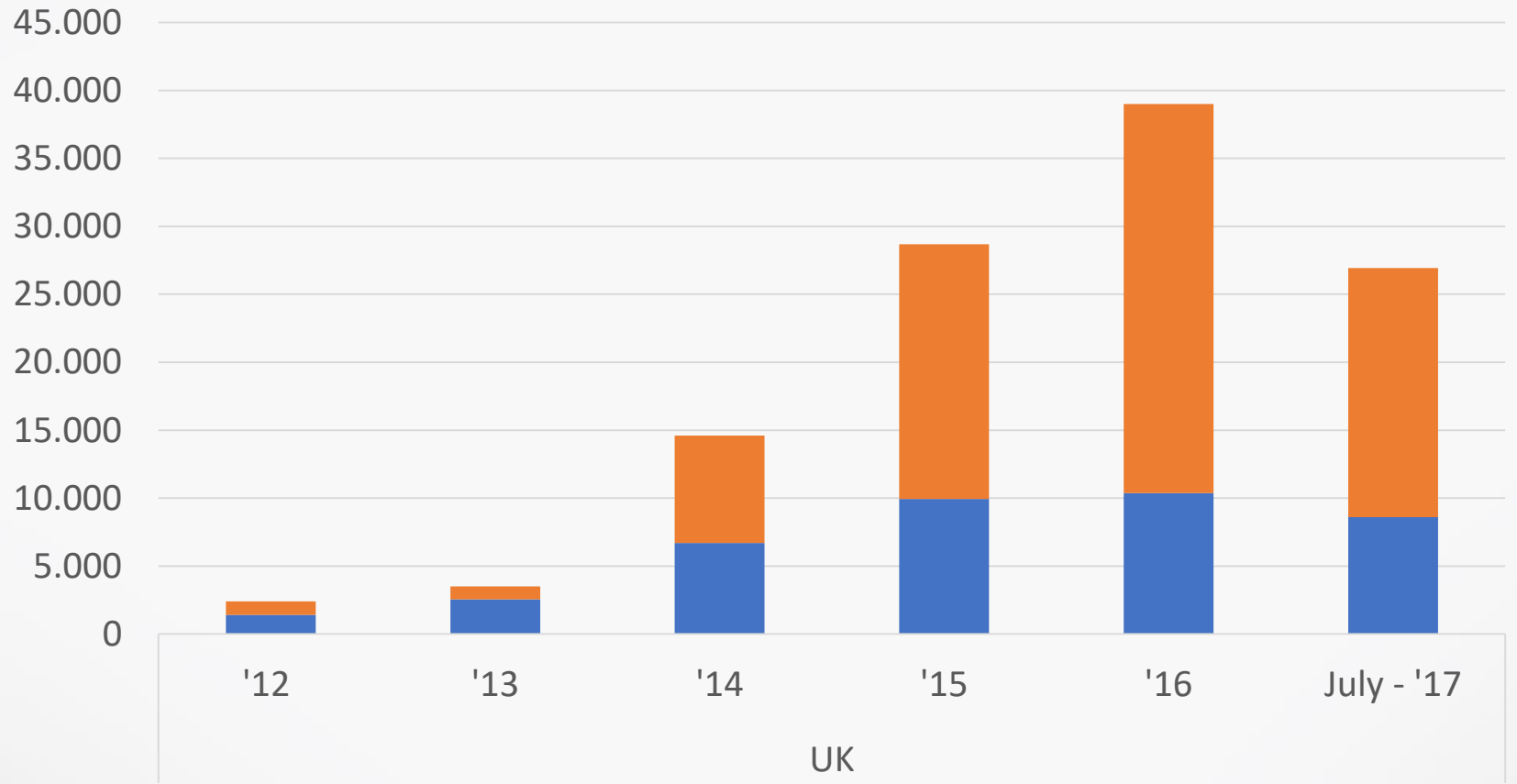

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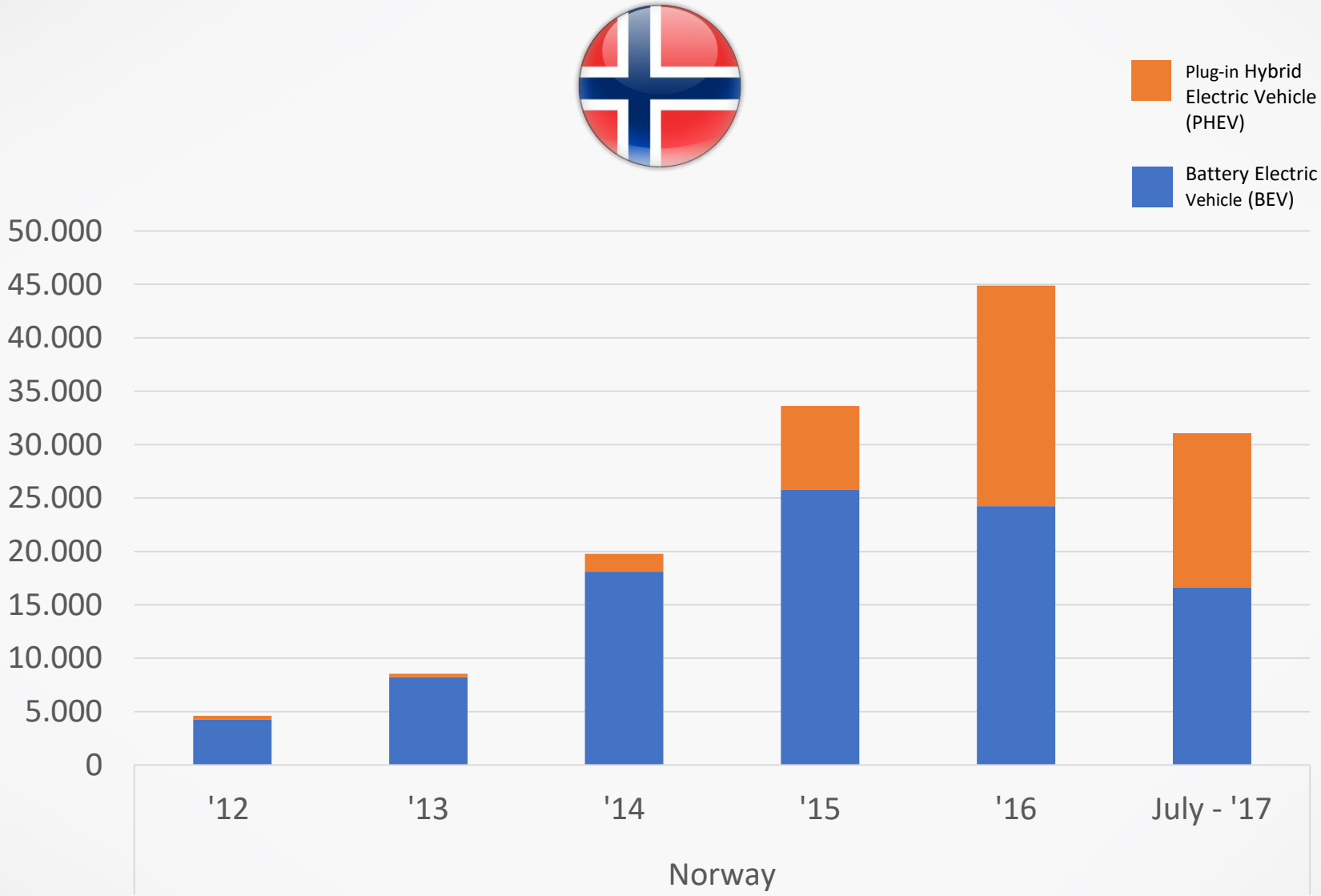

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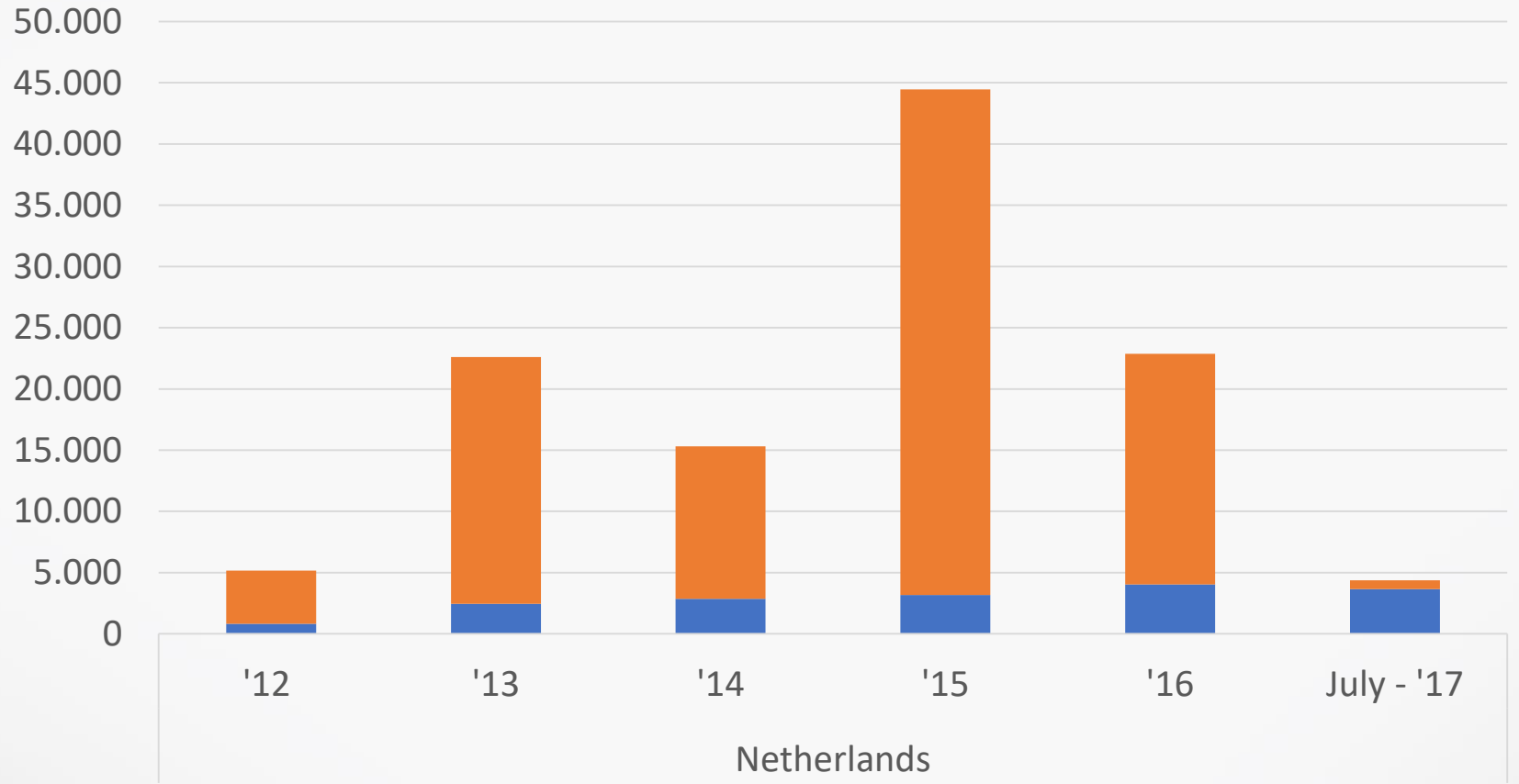

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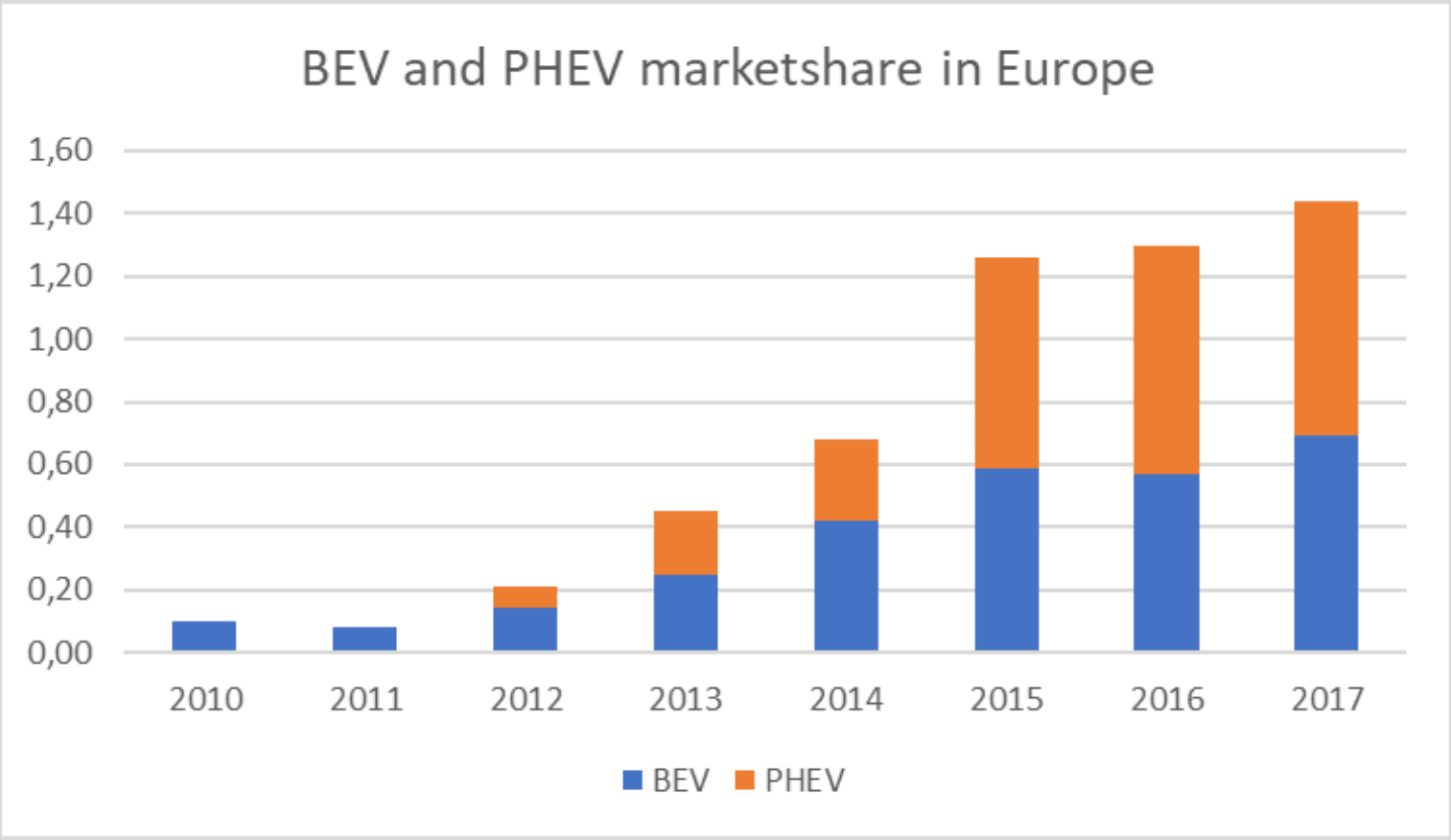
Success of EV uptake - EU

New registrations for PEV in the EU



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Success of EV uptake

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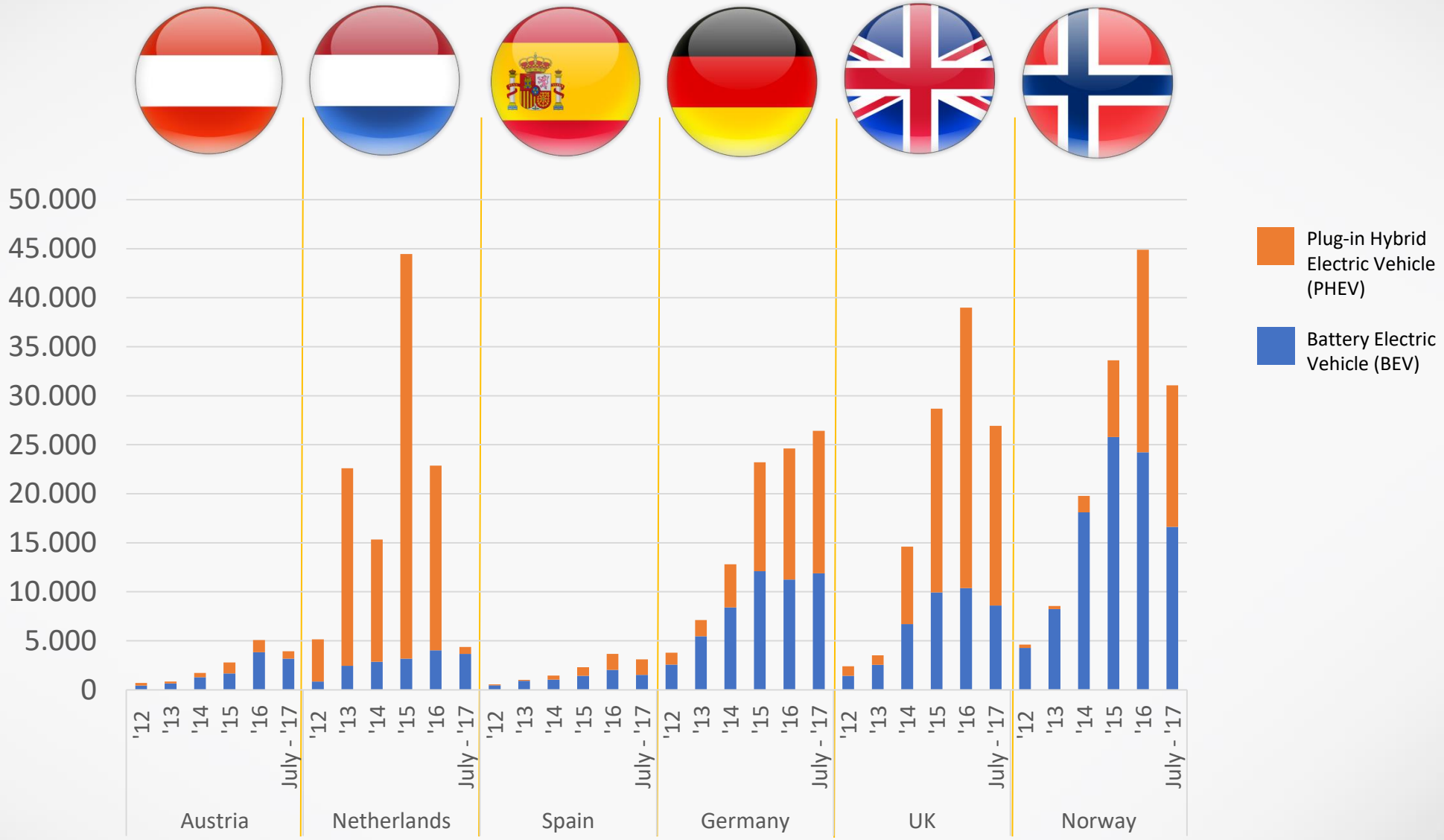

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Source: ICVUE

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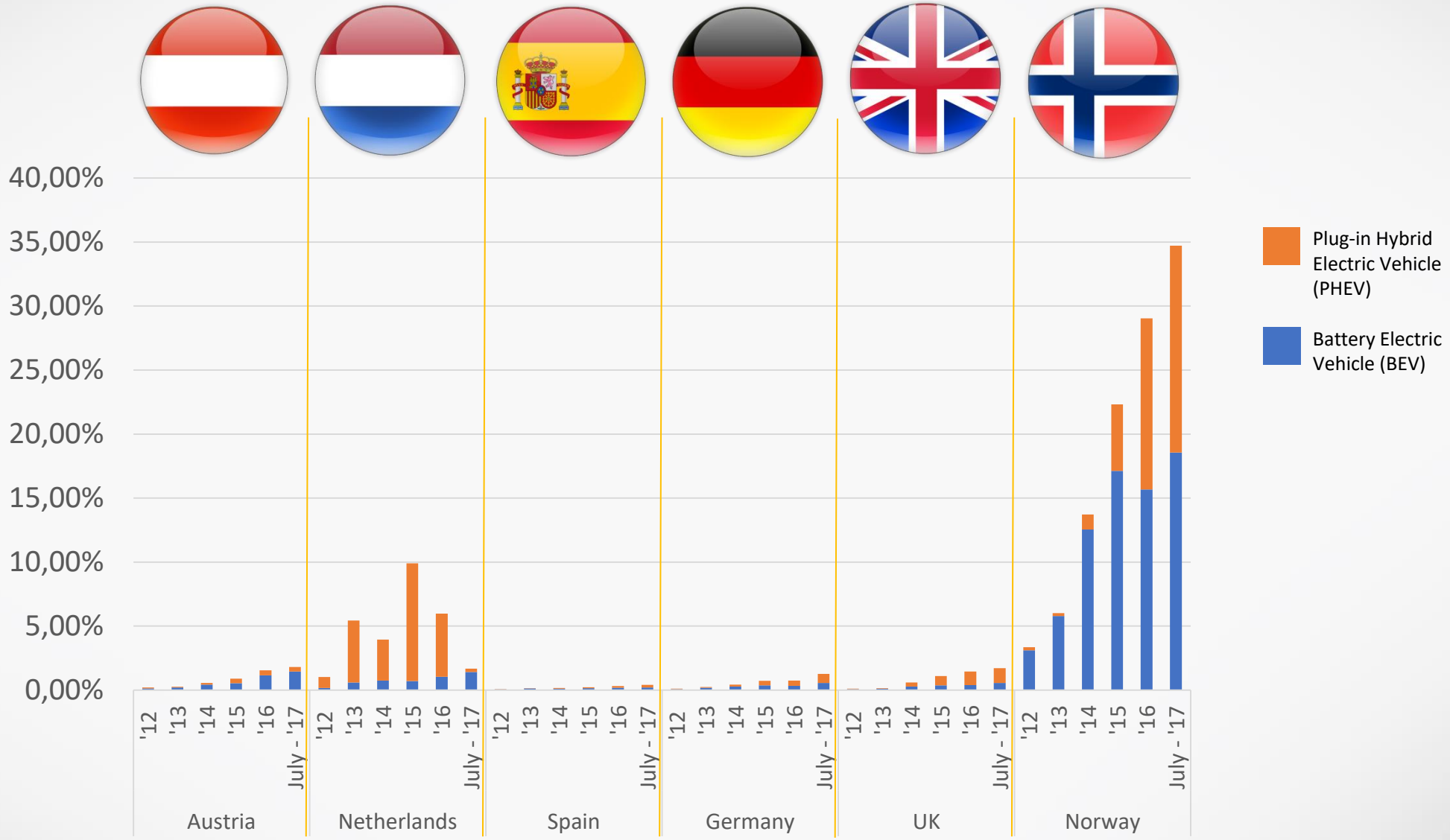

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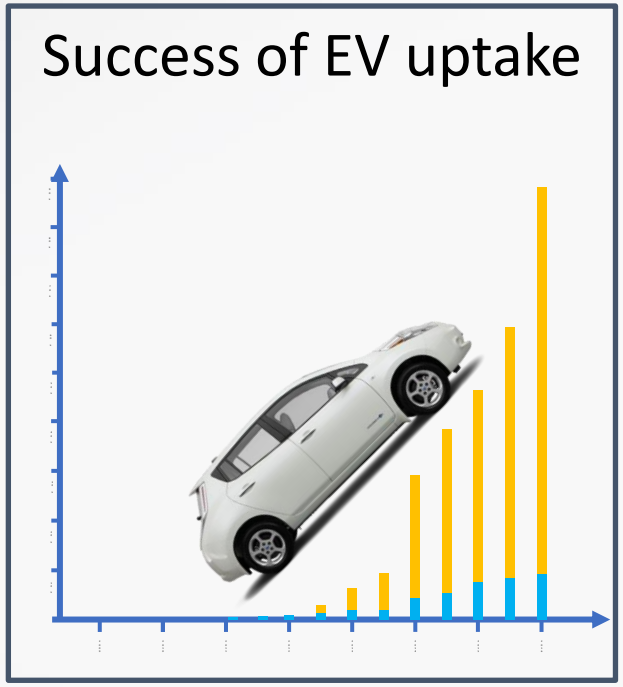
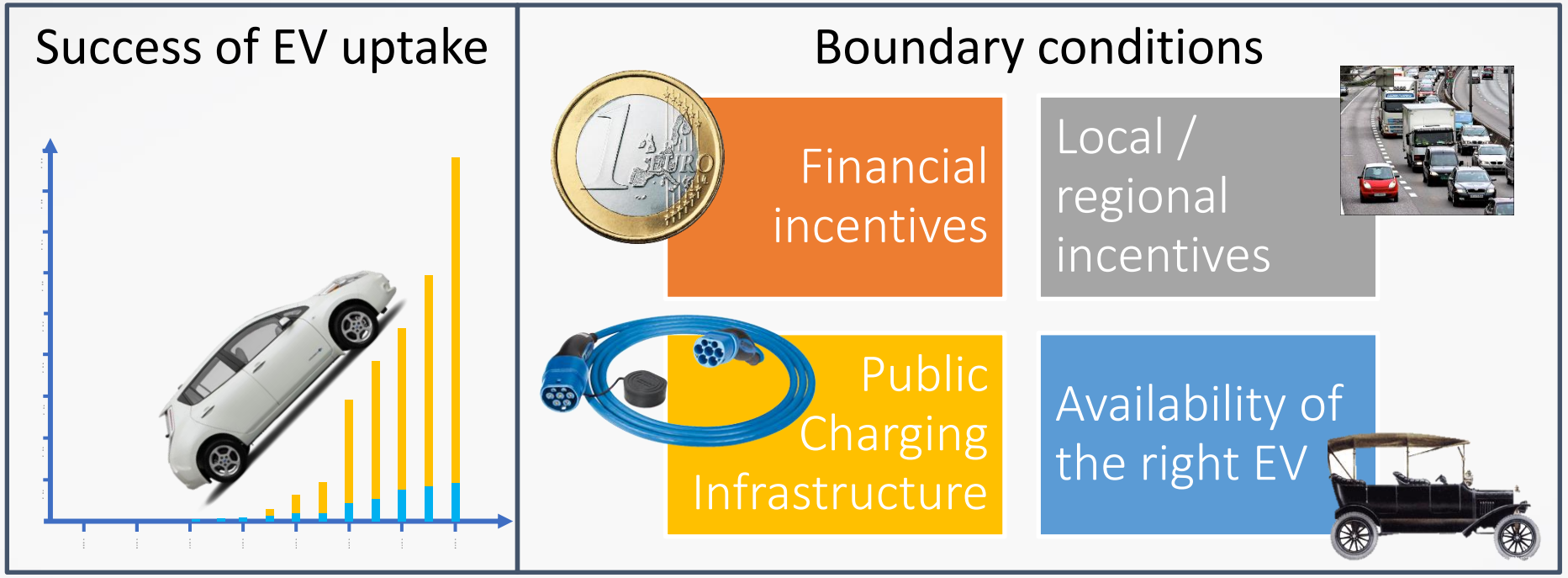
The 4 Boundary Conditions studied



The analysis of the boundary conditions is focused on the **relationships** between the **success of EV** uptake **and** the **boundary conditions** within each country and the selected regions

The 4 Boundary Conditions studied



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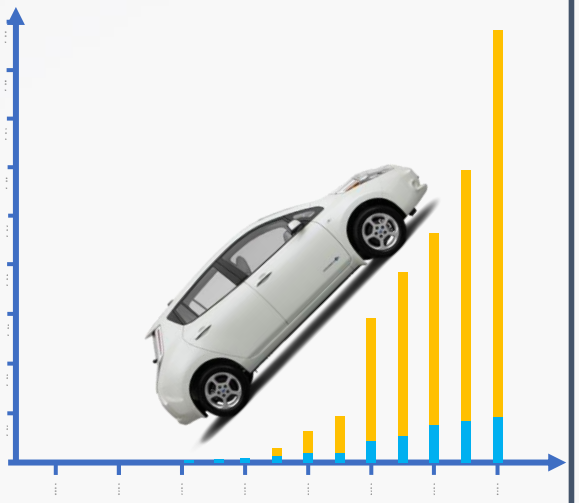


Boundary conditions

Financial incentives

Local / regional incentives

Public Charging Infrastructure

Availability of the right EV

The analysis of the boundary conditions is focused on the **relationships** between the **success of EV** uptake **and** the **boundary conditions** within each country and the selected regions

Examples of National Purchase incentives

Financial incentives

Tax break & Subsidy

Fleet buyers: 100% 1st year amortization ➔ corporation tax

No purchase tax for cars with low CO2 ≈ € 2.900

Up to 36% extra depreciation for companies (lower tax on profit)

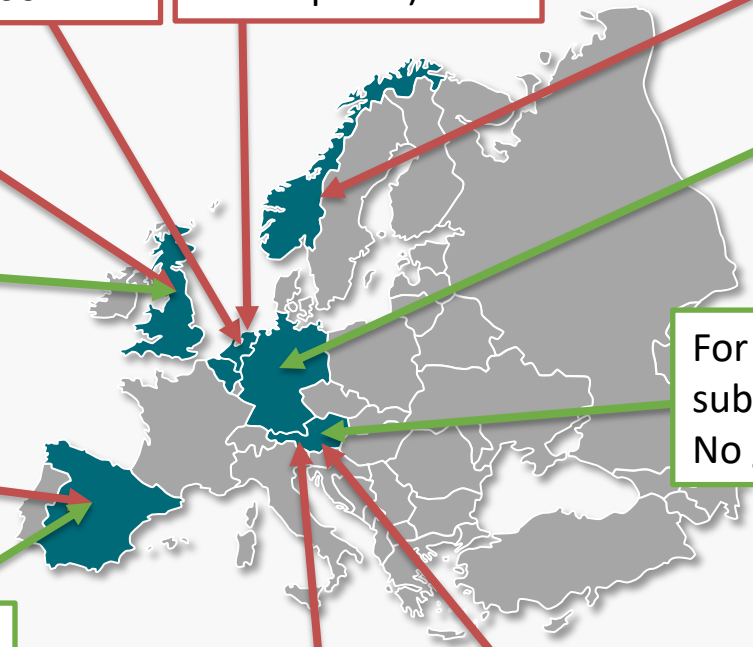
No purchase tax for BEV ≈ € 5.700
No VAT (usually 25%) for BEV ≈ € 5.800

7/2016: 4.000 subsidy for BEV and € 3.000 for PHEV

Cars with CO2 emission <75g/km: purchase cost reduction of 35% up to € 6.000

For company cars (PH)EV: 4.000€ subsidies purchasing an EV.
No green electricity it is 2.000€

Registration tax: 0% for EV's, normally: 14,75%



€ 2.700 subsidy for EV < 40 km e-range; € 3.700 between > 40 but < 90 km; € 5.500 > 90 km

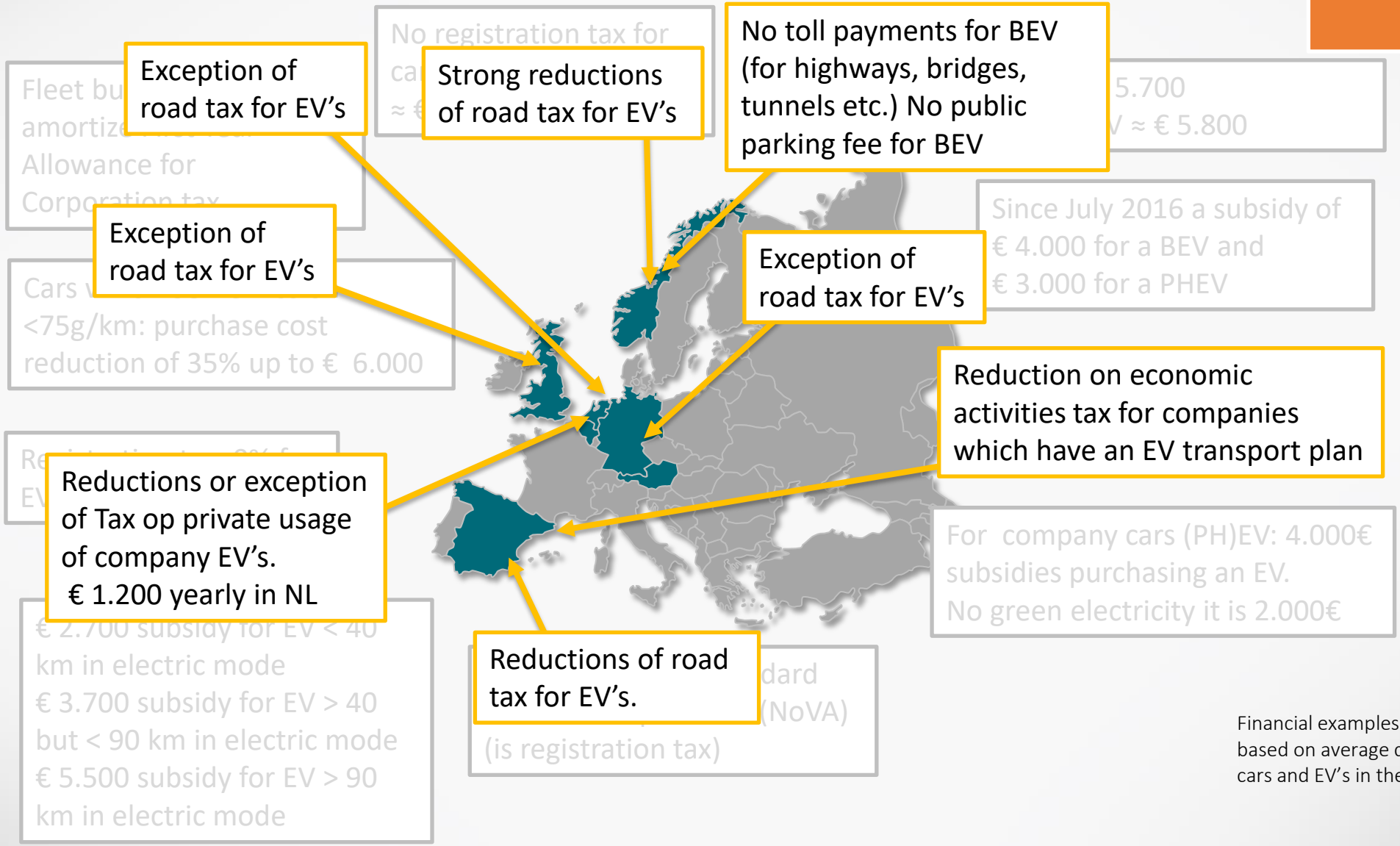
No standard fuel consumption tax for (PH)EV, NoVA (registration tax)

For companies VAT on EV's deductible

Financial examples which are given are based on average difference between ICE cars and EV's in the C-segment

Examples of National Operational incentives

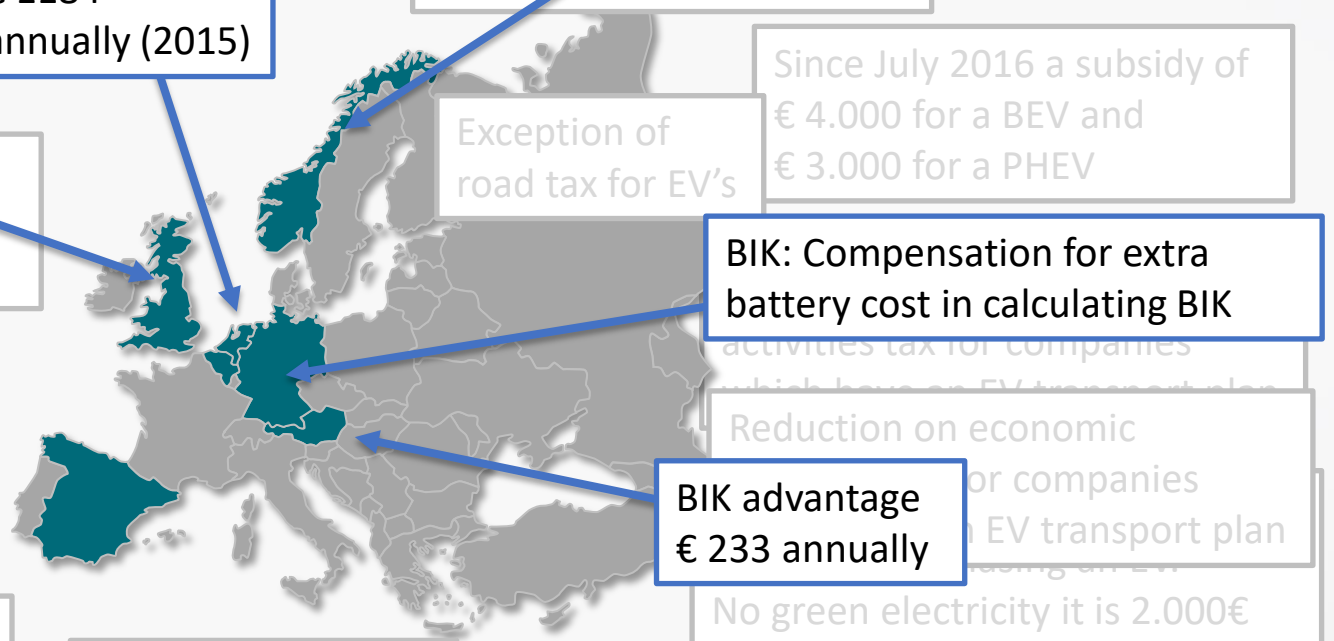
Financial incentives



Financial examples which are given are based on average difference between ICE cars and EV's in the C-segment

Examples of Taxation for private usage

(Benefit in kind – private usage of company car)



BIK advantage € 950 annually

BIK advantage € 1184 annually (2015)

BIK advantage € 350 annually

BIK: Compensation for extra battery cost in calculating BIK

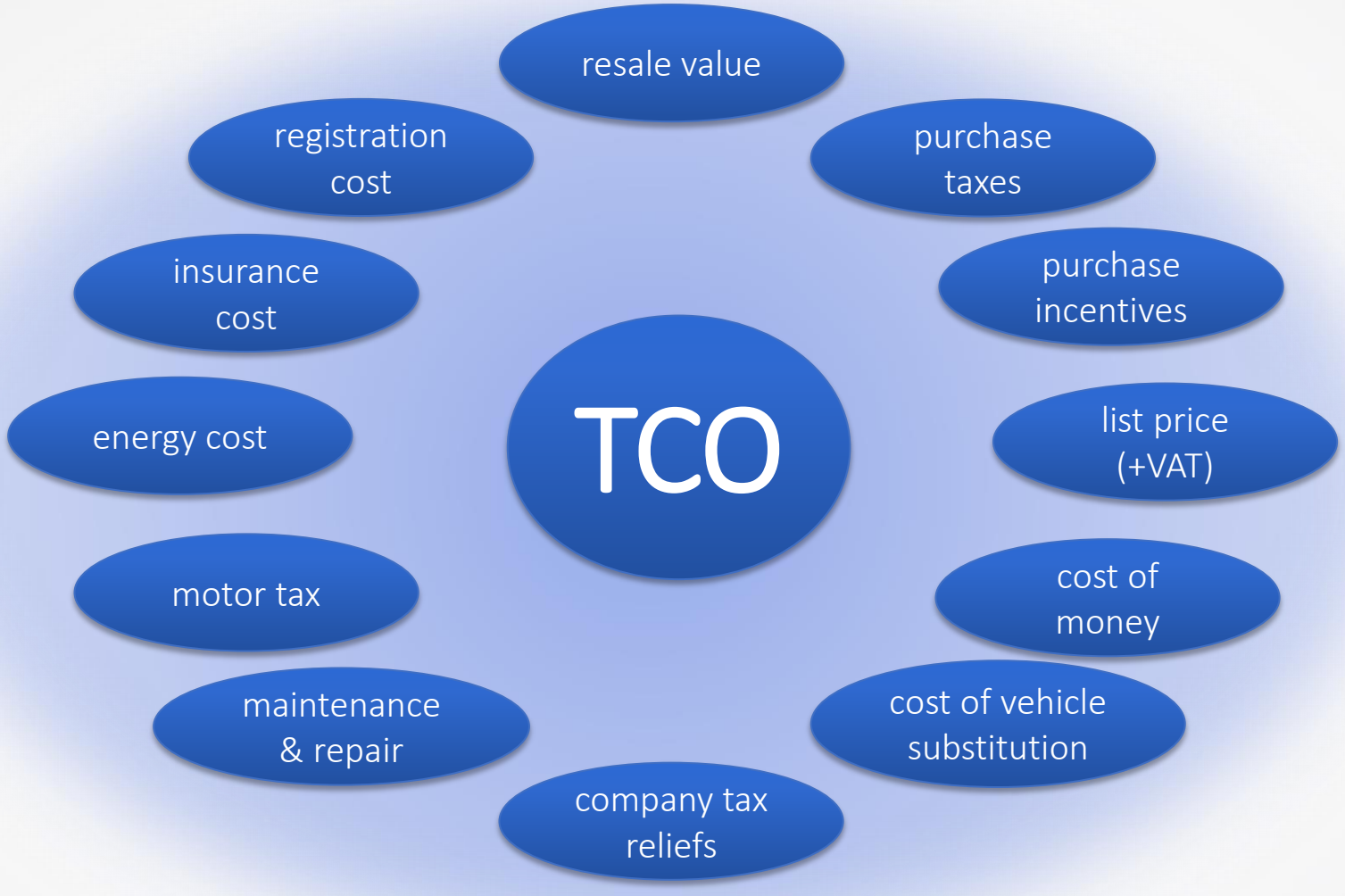
BIK advantage € 233 annually

Financial incentives

Financial examples which are given are based on average difference between ICE cars and EV's in the C-segment

Total Cost of Ownership

Financial incentives



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Segments selected for TCO calculations

Financial incentives

A: mini cars

B: small cars / supermini

C: medium cars

D: large cars

E: executive cars

N: delivery van

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Purchase costs, Company ownership, C segment

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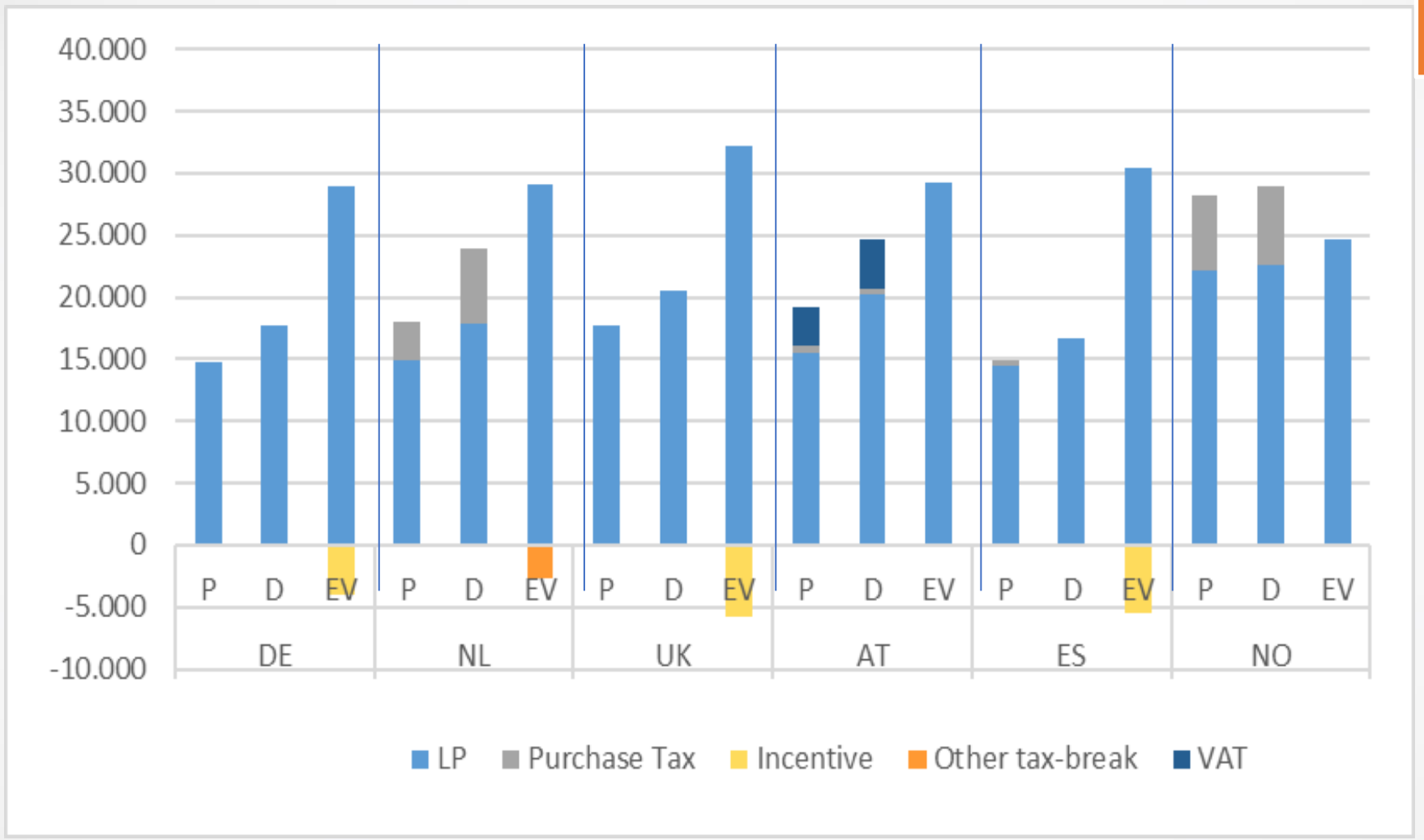

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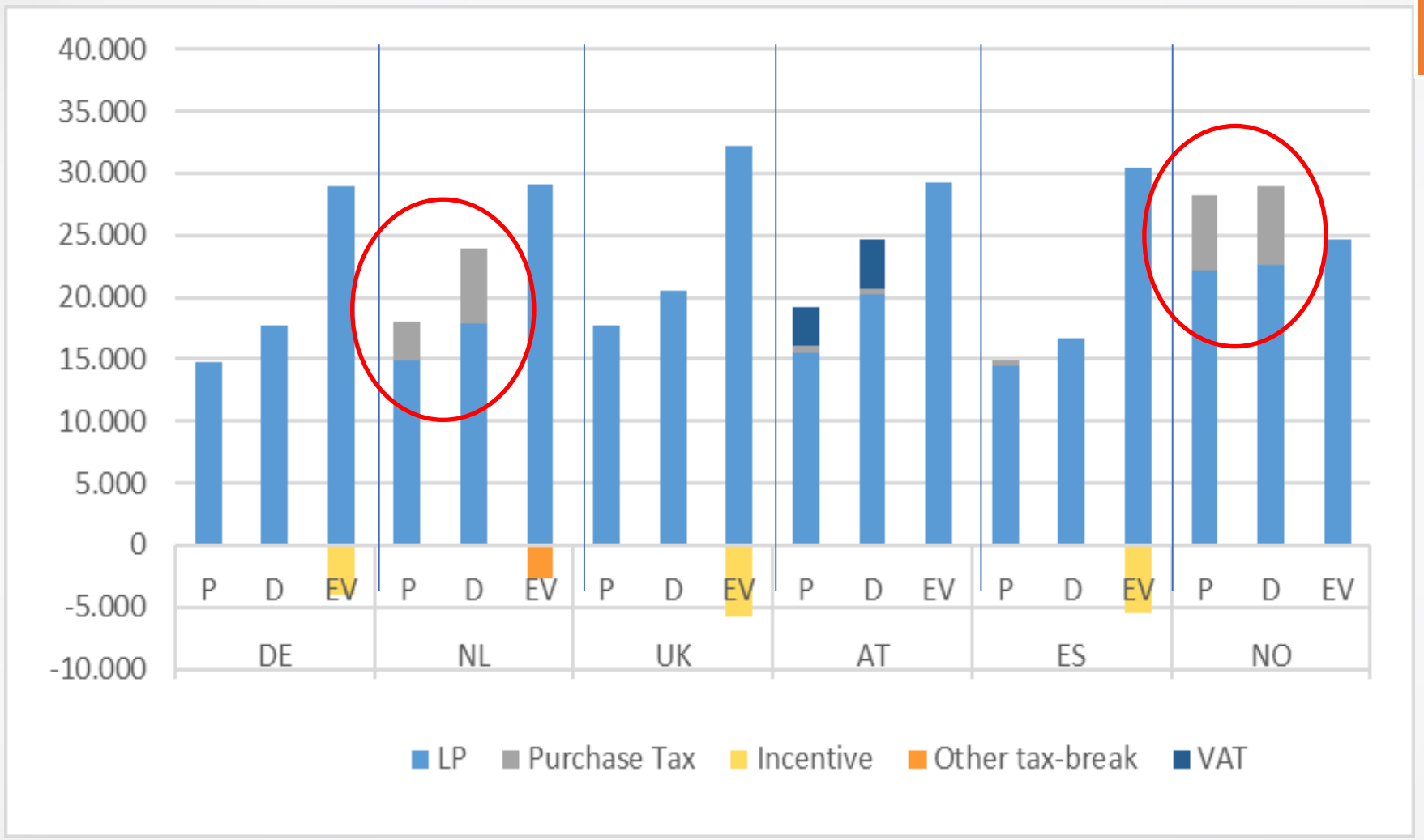
P: Petrol
D: Diesel
ICE: Internal Combustion Engine
EV: Electric Vehicle
LP: List Price
OTC: One Time Costs

Purchase costs, Company ownership, C segment

Financial incentives



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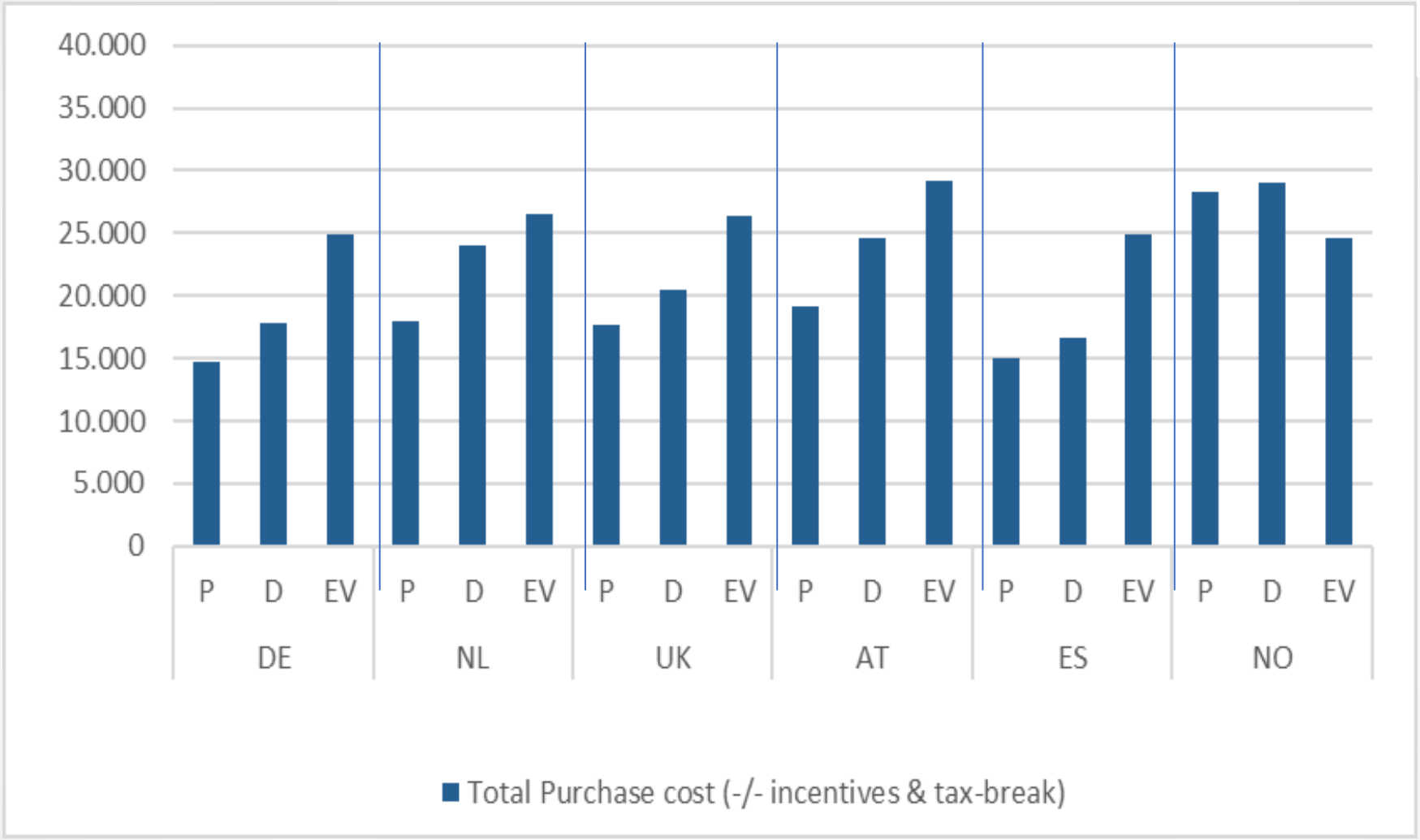

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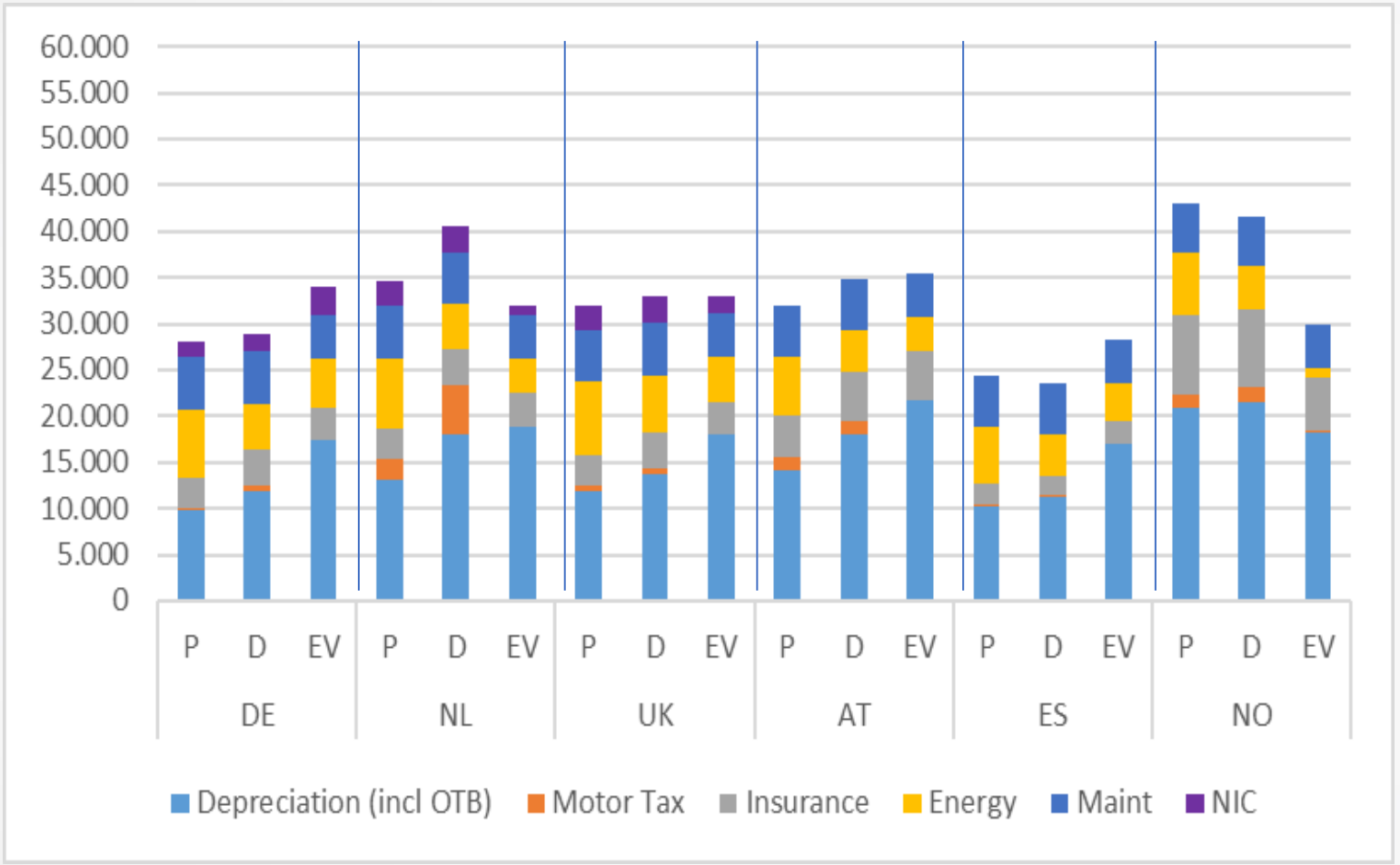
TCO, 4 year company ownership, C segment, 24.000 km/a

Financial incentives



TCO costs are cumulative cost of 4 year

P: Petrol

D: Diesel

EV: Electric Vehicle

TCO: Total Cost of Ownership

Energy: petrol/diesel/ electricity costs

NIC: National Insurance Contribution (social tax)

Maint: Maintenance costs

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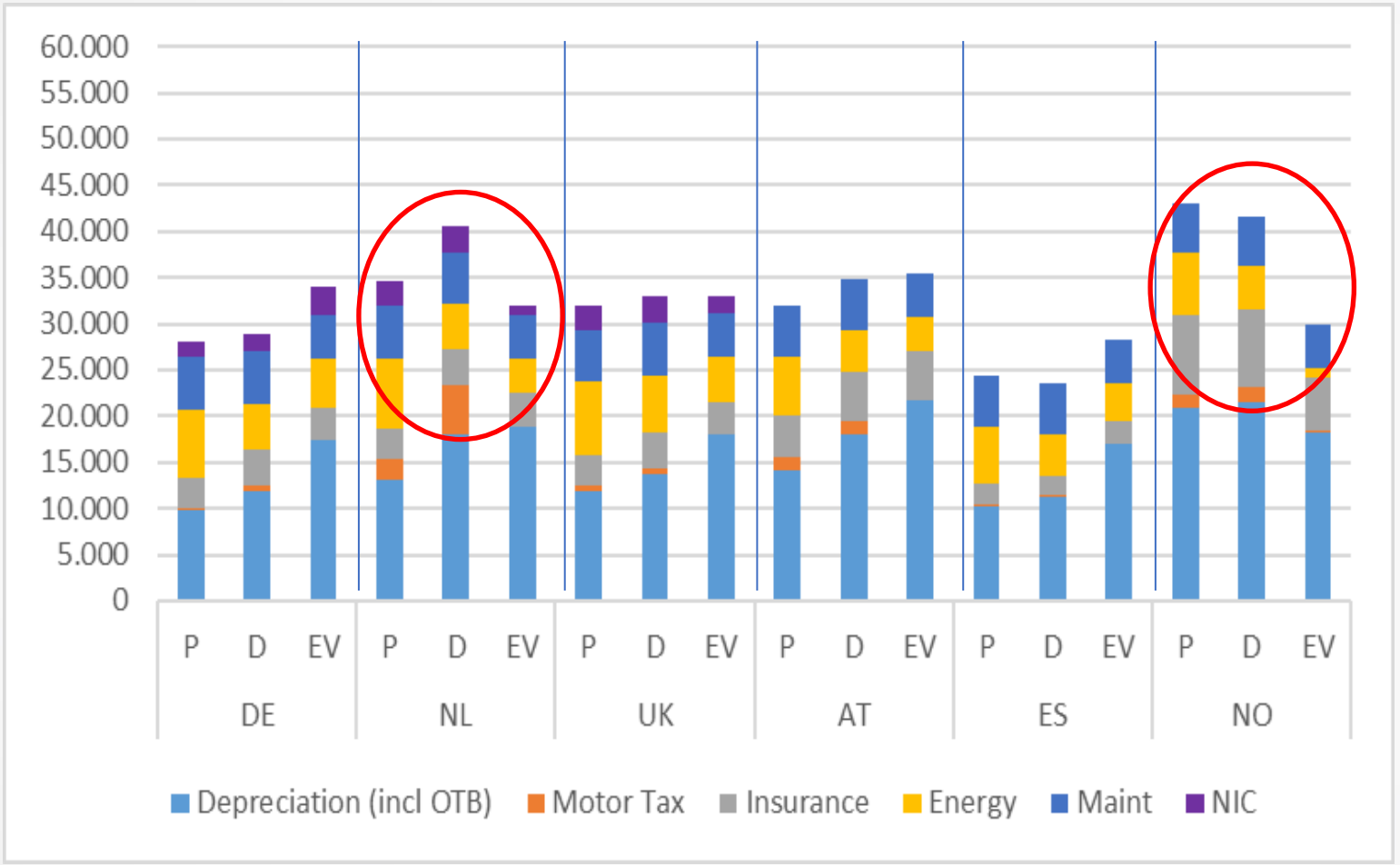
TCO, 4 year company ownership, C segment, 24.000 km/a

Financial incentives



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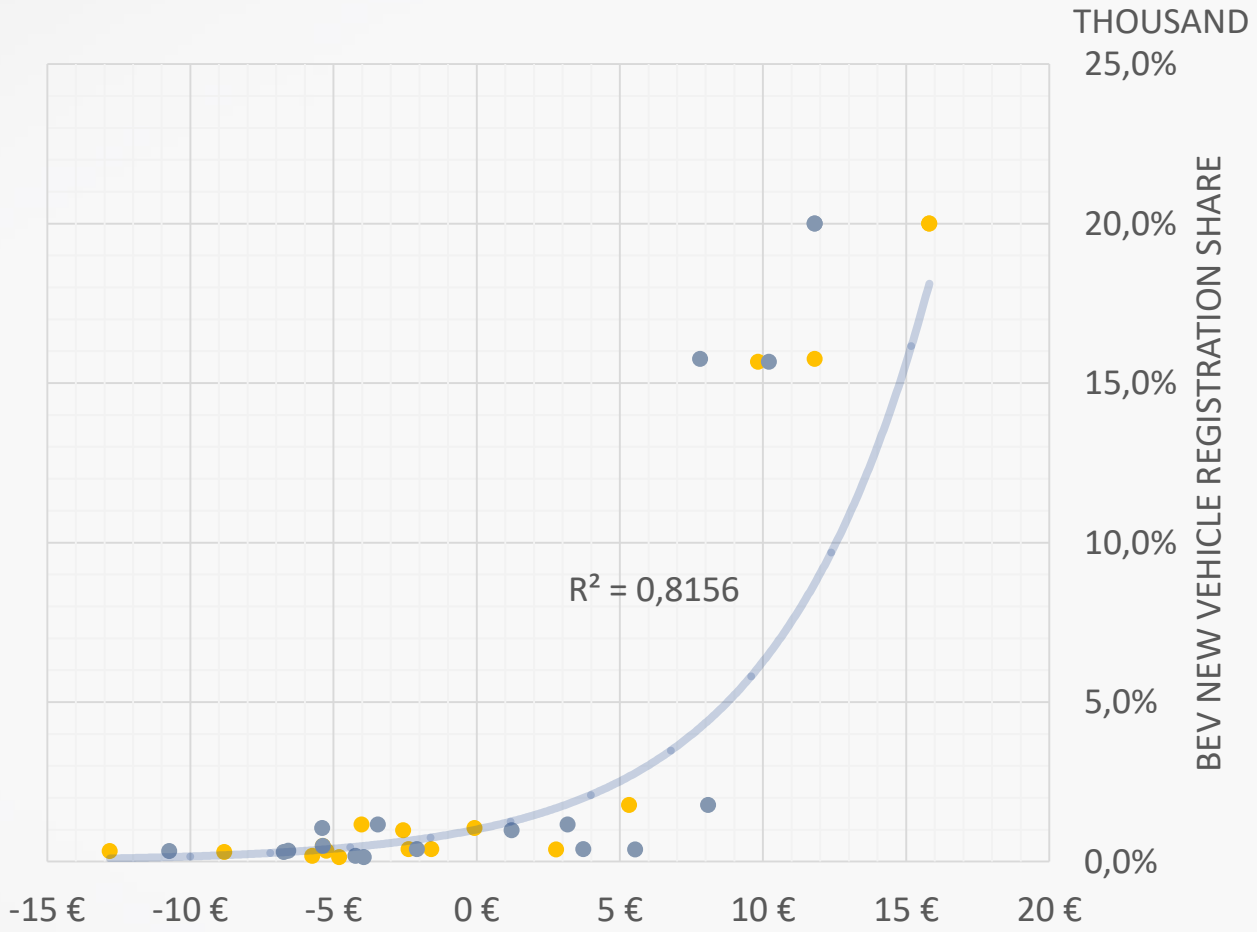
Price elasticity – Logarithmic scale

Financial incentives



DRAFT!

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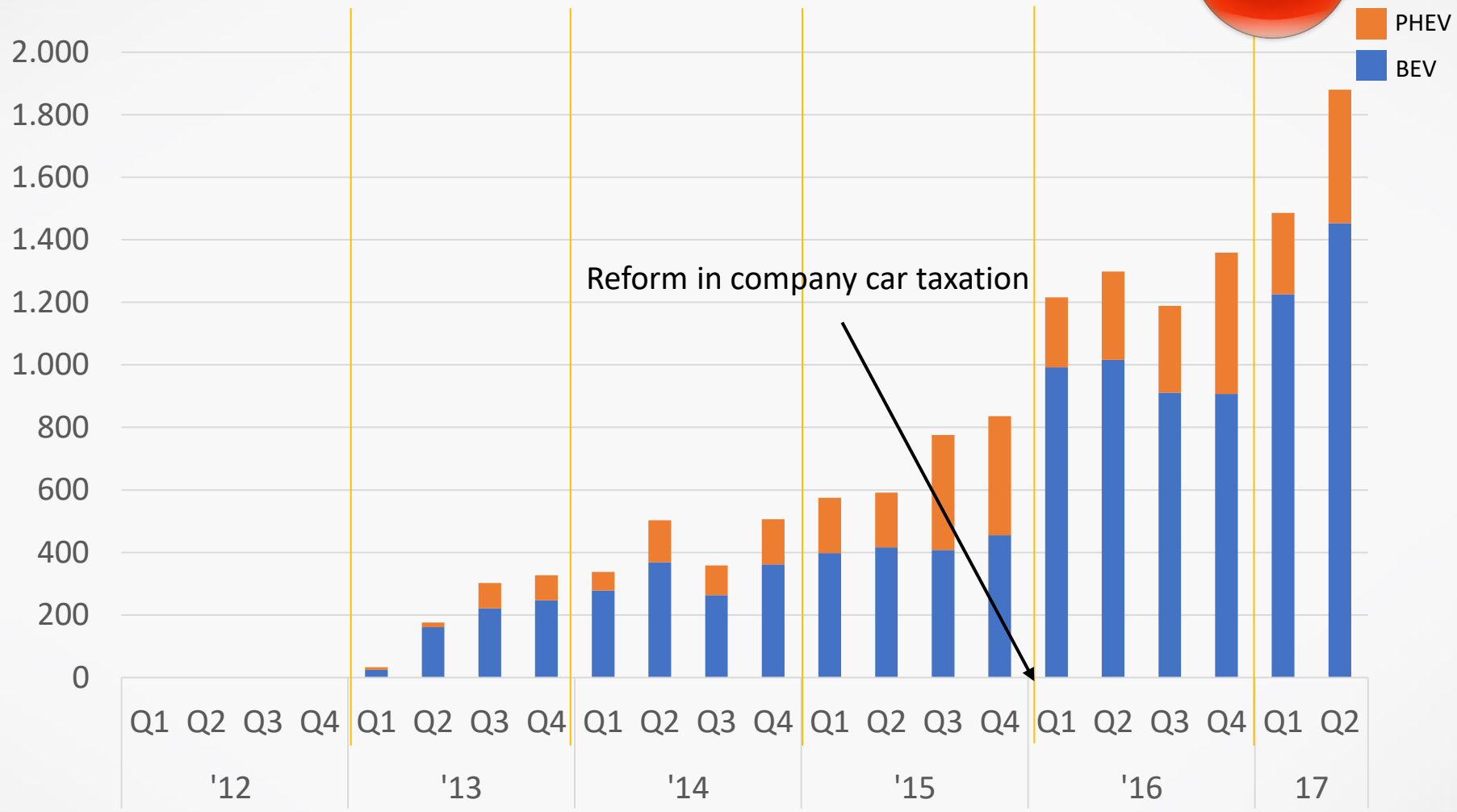
Success of (B)EV uptake – Austria



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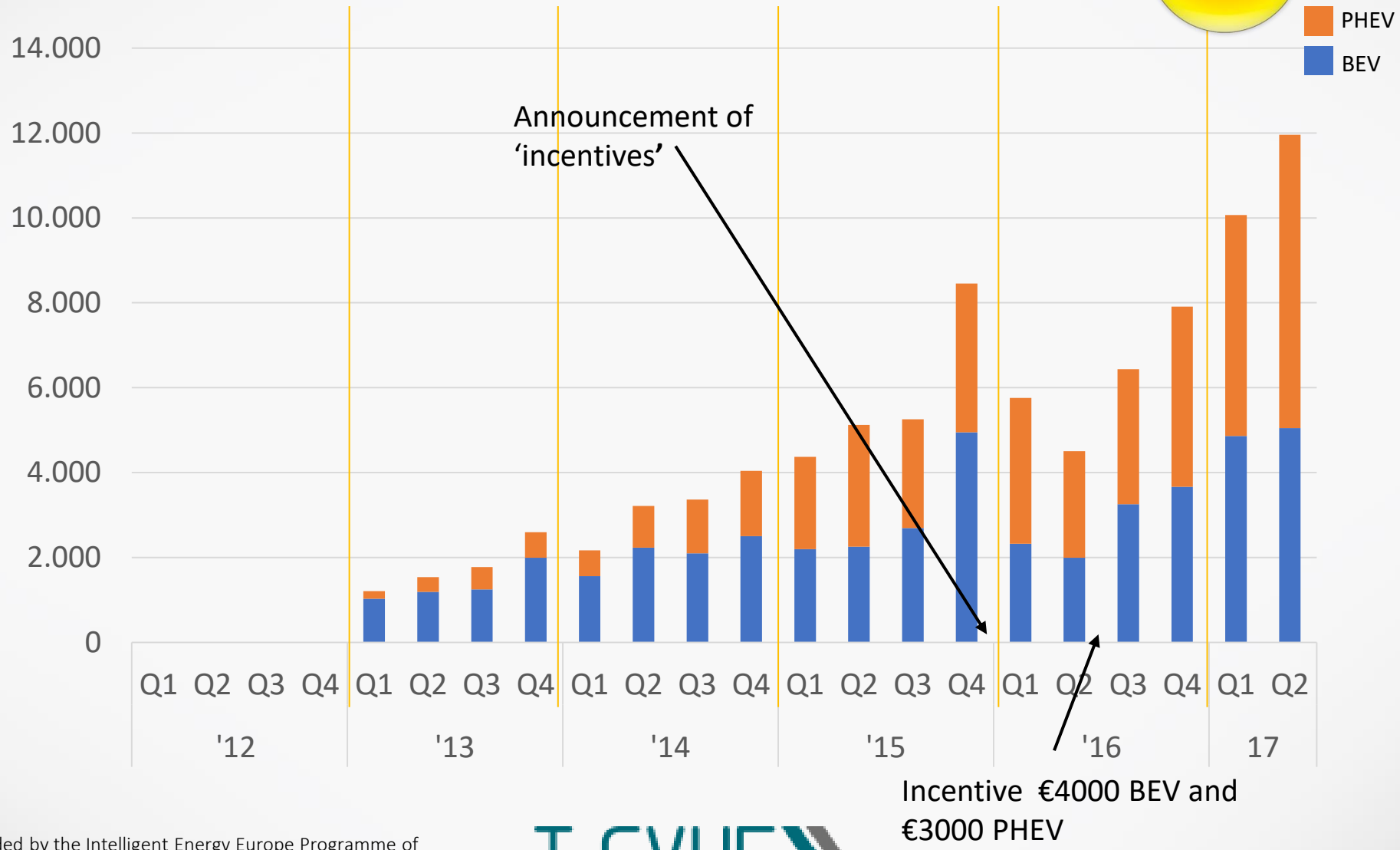
Success of (B)EV uptake – Germany



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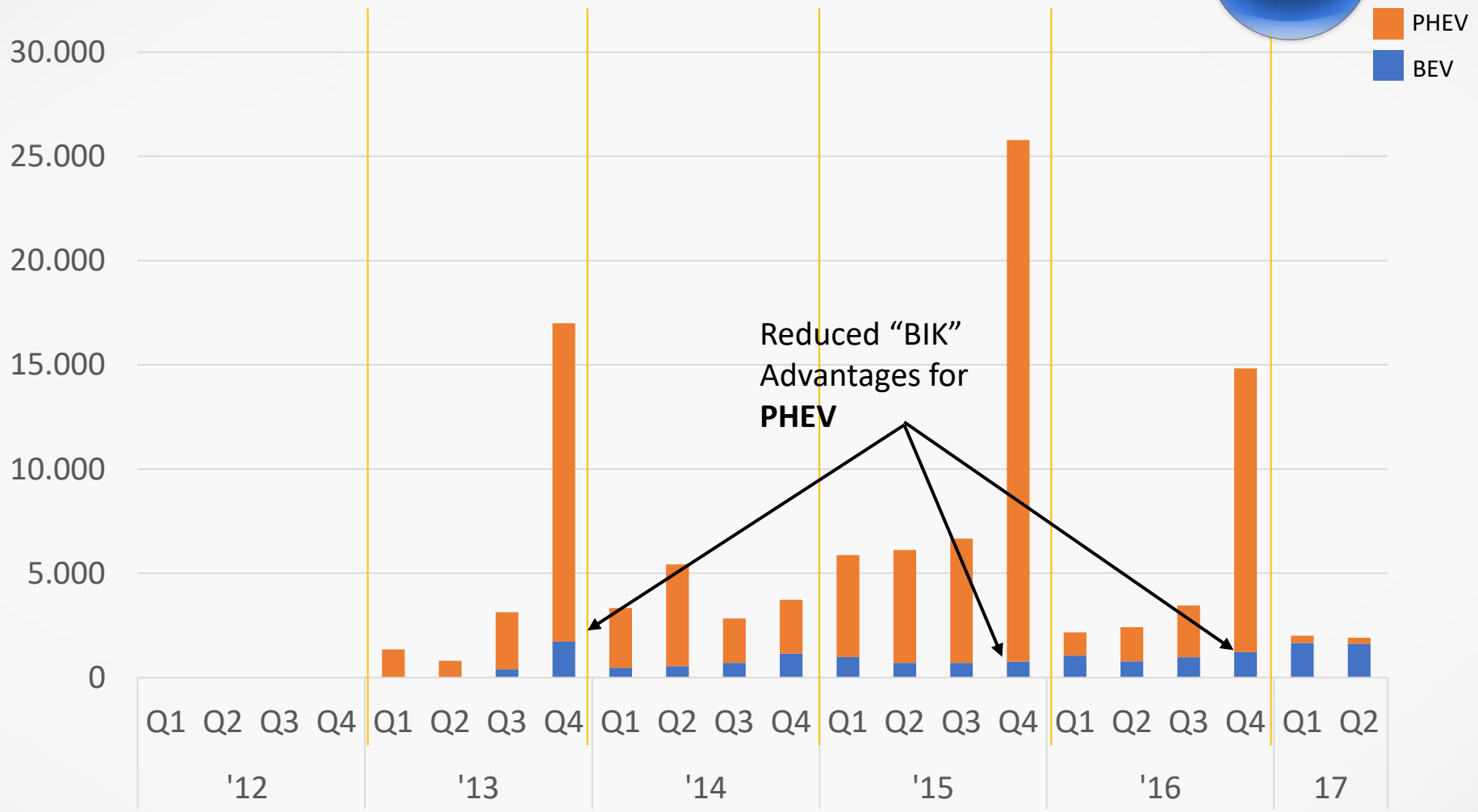
Success of (B)EV uptake – The Netherlands



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Critical succes factors

Financial incentives

Is a positive business case a guarantee for sales…? No!

- Uncertainties: Battery lifetime; Accelerated technology innovation ➔ Residual value
- For substantial impact on EV uptake, financial incentives need to:
  - Minimize the purchase price premium (EV – ICE)
  - Create a TCO advantage over ICE (overcome the obstacles and limitations of EV)
- Above threshold uptake-effects of incentives become progressive, below threshold effects are minimal
- More room for incentives for countries with high purchase tax ➔ The polluter pay principle!

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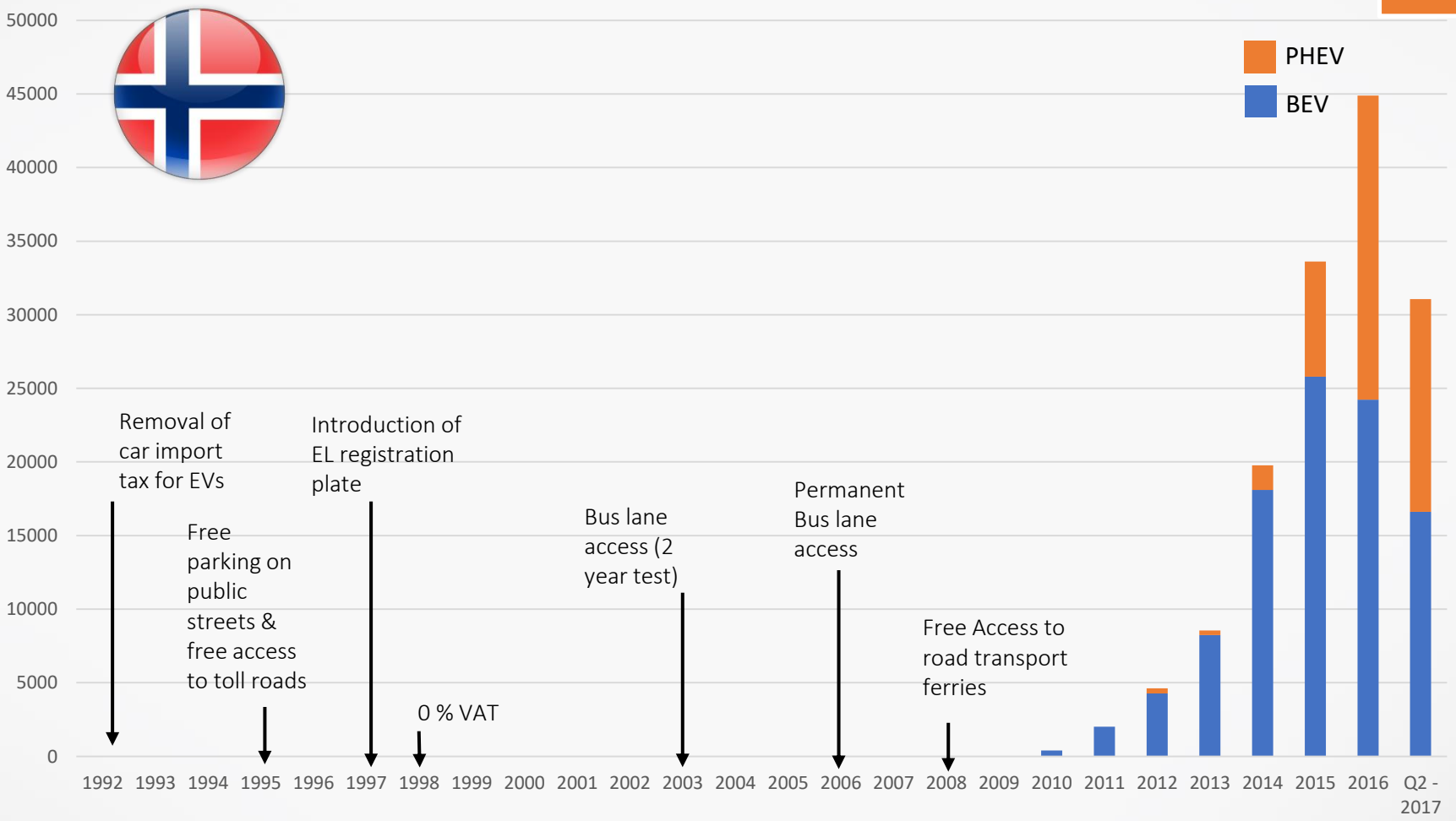
Success of (B)EV uptake – Norway

Financial incentives

Purchase TCO (24.000km) BIK



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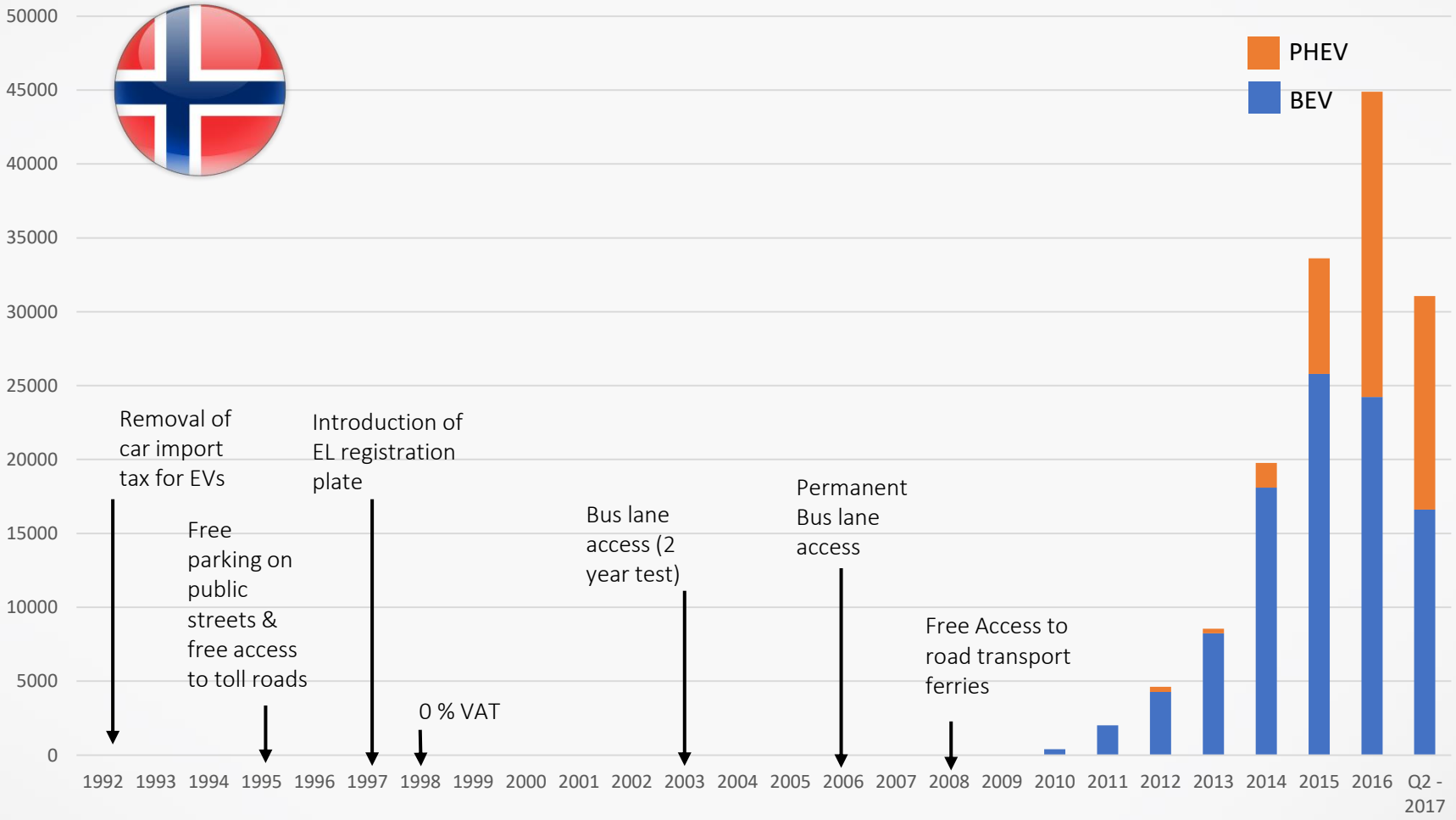
Availability of the right EV



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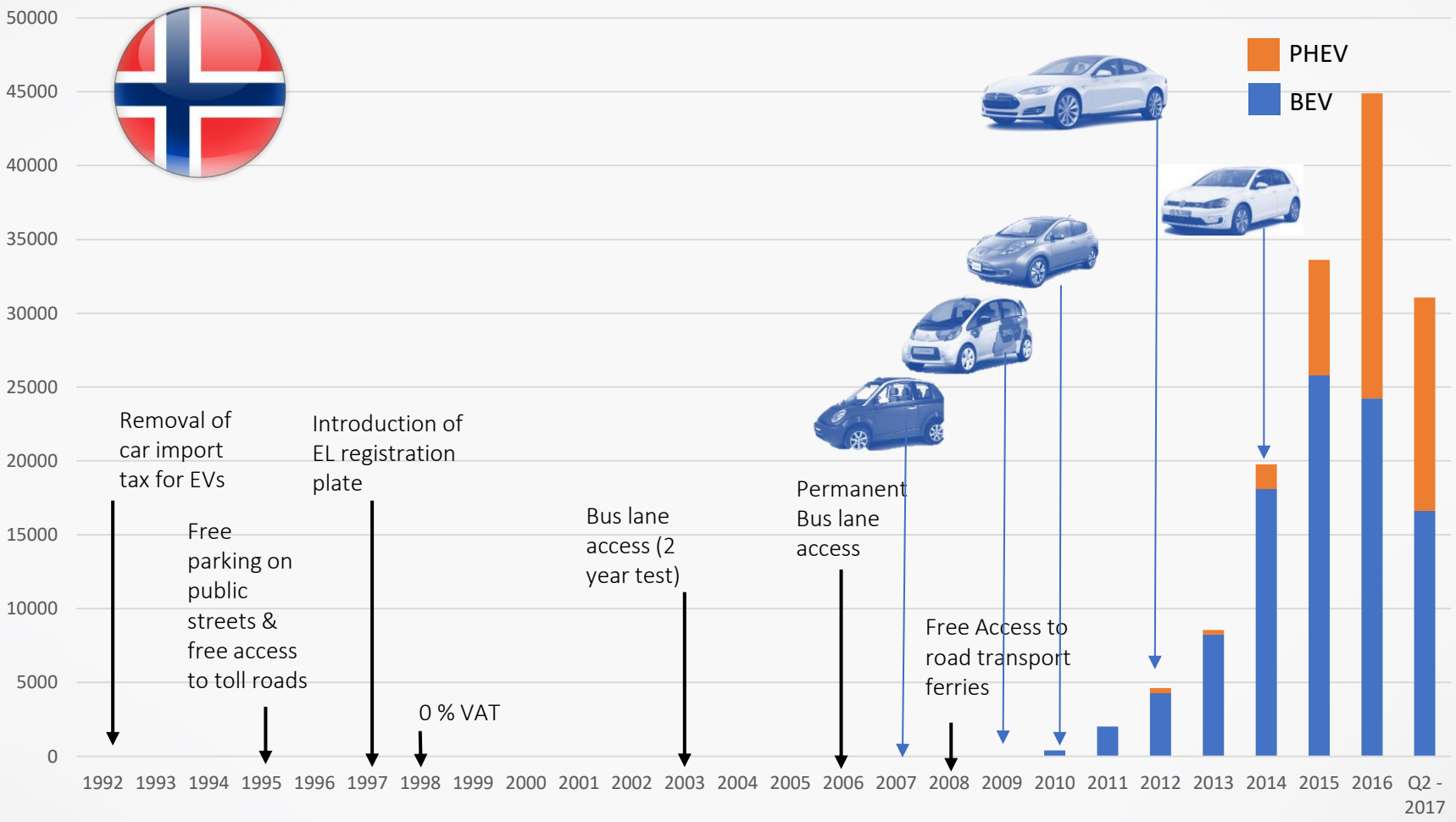

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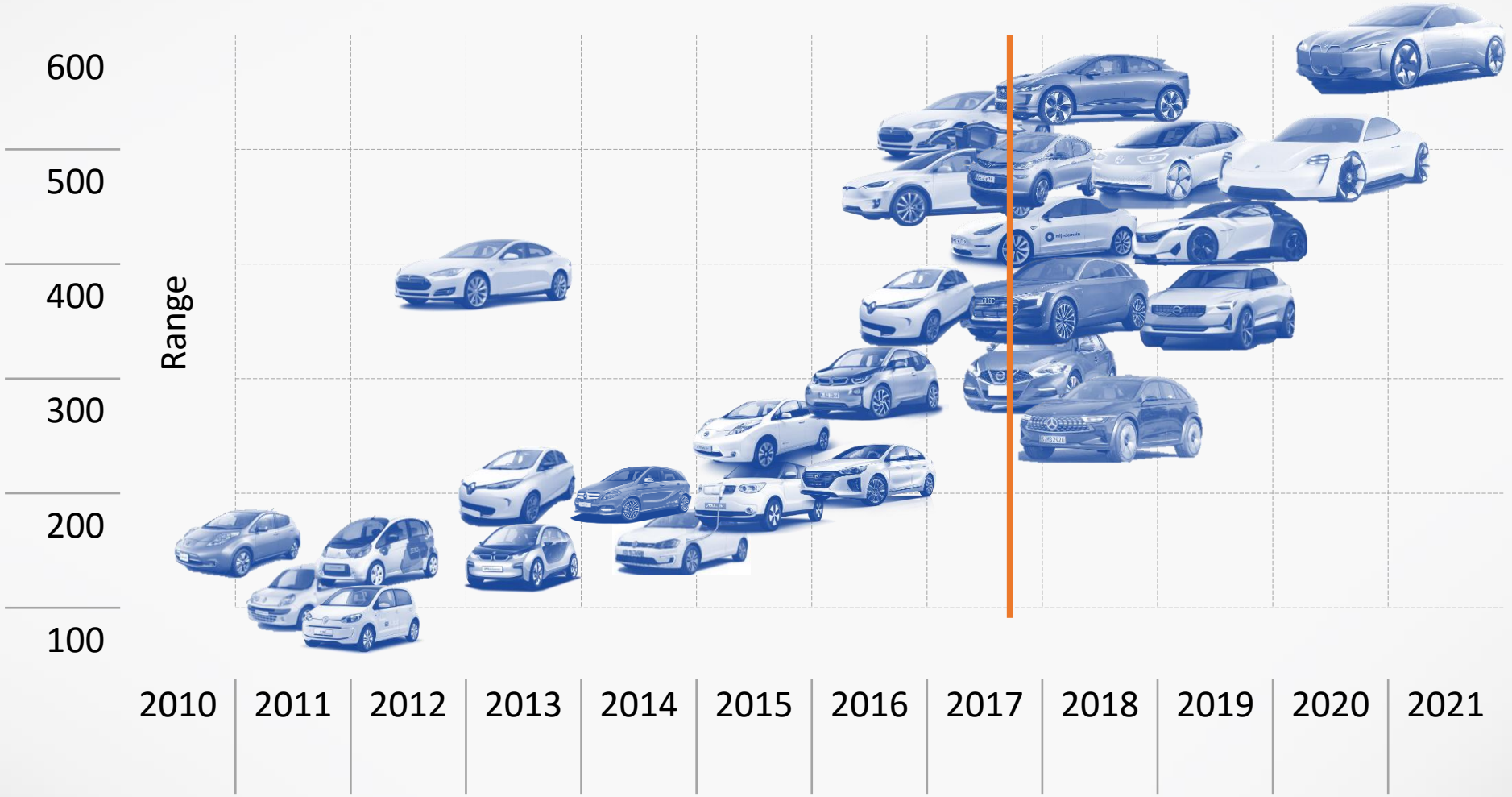
Growth of available models/range of BEV's

(incl. future expectations):

Availability of the right EV



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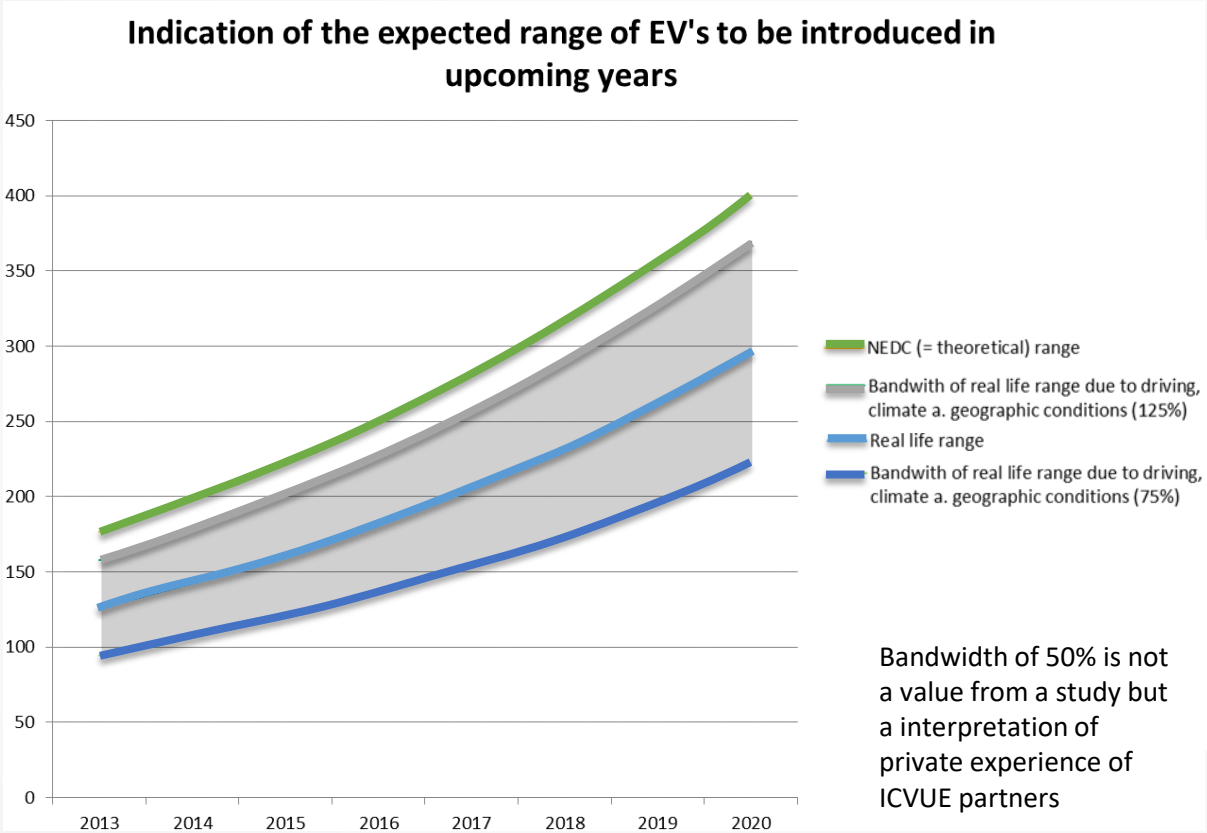
Indication of expected range of EV's

Availability of the right EV



Bandwidth of 50% is not a value from a study but a interpretation of private experience of ICVUE partners

Remarks:

- Theoretical range is based on information provided by OEM's and/or market experts
- Real life range from current available models is based on information from journalists / vehicles tests
- Real life range for future models is based on the average deviation between theoretical range and real life range of current available models (27%)
- Vehicles which are included in this research have (or will have) a list price in a range of € 20.000 and € 40.000.

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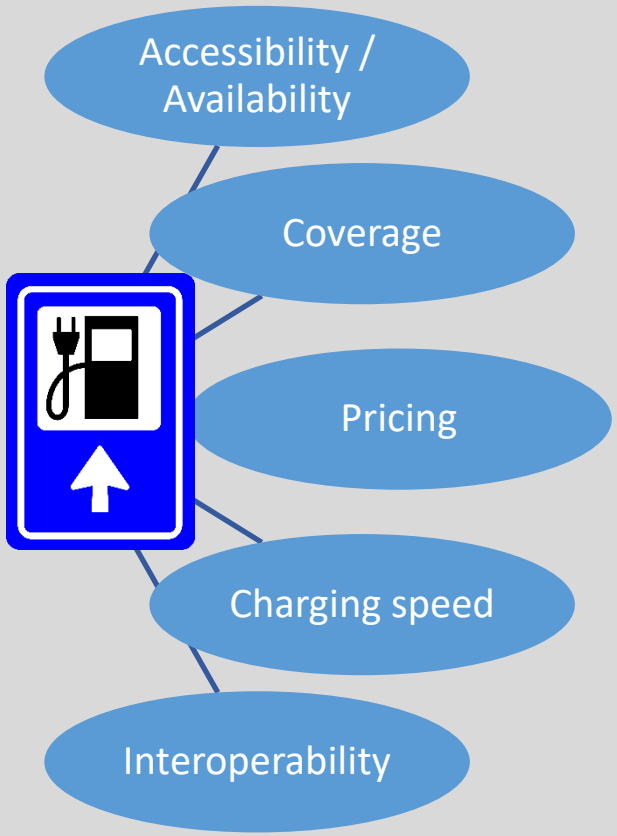
Public Charging Infrastructure



Dense network of (public) chargers satisfying the needs of EV drivers and matching the characteristics of their cars: Right locations, available & accessible, affordable prices and right charging speed.

- Charging infrastructure, in most countries many hurdles still to overcome:
  - For slow charging: Interoperable, right locations / dense network, right speed, affordable;
  - For fast charging: Interoperable charging corridors allowing for incidental longer distances

Impact of regional/local incentives

Operational incentives

Local / regional incentives

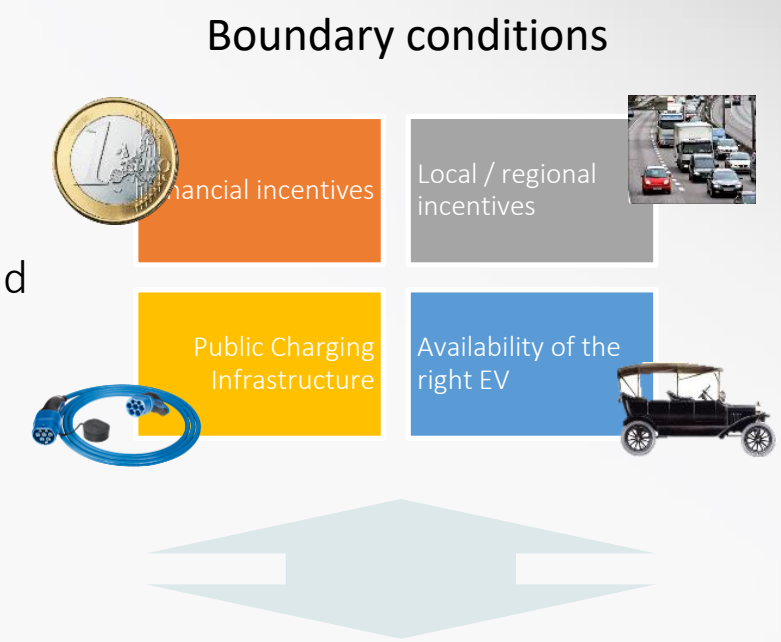
Examples or regional EV incentives

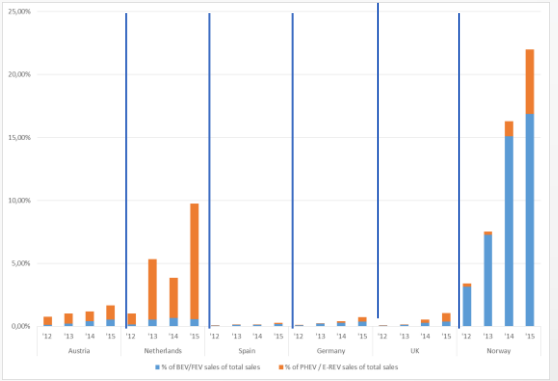
Grants / subsidies
Bus lanes/Taxi lanes/HOV Lanes
Toll payments on Bridge / Tunnel/ Highways / Ferry
Environmental zones/Congestion tax
Better / cheaper / free parking spots for EV's
Cheap / free charging
Support/initiate E car share scheme's
Support EV uptake at taxi's (priority pick-up locations)
EV's in governmental fleets
Car Allowance Rebate System

- The local policies/incentives create micro-environments with a substantial impact on national figures

Main conclusions

- High (purchase) tax = more room for incentives;
- TCO advantage over ICE needed to overcome the obstacles and limitations;
- Above threshold uptake-effects of incentives become progressive, below threshold effects are minimal;
- Dense network of (public) chargers satisfying the needs of EV drivers
- Tremendous impact of daily advantages like road/parking priorities and recurring toll-cost;
- Availability of the right types of vehicles (choices in all segments)





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Spreading the word

Highlights of ICVUE's communication and cooperation

Who did we work with?

- Cities
  - Dortmund, Amsterdam, Oslo, Vienna, Stuttgart, London & Barcelona
  - Via one-on-one meetings
  - Via 2 City workshops
- National governments
  - Formule E-team (Motie Groot)
  - Various politic fractions in Netherlands / Norway
  - National Platform Electricmobility NPE
- EU Electromobility stakeholder forum → Freveu, zeEUs, DG Move
- AVERE (TCO tool integration)

Who did we reach? (presentations/workshops)

- GEAR 2030
- BEUC (Brussels)
- EU parliament (Brussels)
- Polis Yearly Event (Rotterdam)
- AVERE congress (Amsterdam)
- EEVC 2014, 2015, 2017
- EVS (Montreal)
- LIVE platform (Barcelona)
- EVRoadMap (Portland 2x)
- International Motor Show (Barcelona)
- AEGFA – Confreso Nacional (Barcelona)
- PBL (The Hague)
- Joint Research Centre (JRC)
- Fleets
  - Fleet Europe Management congress
  - Remarketing Forum
  - BCA workshops on marketing used EV's
  - Fleet Hero Conference and Awards (London)
  - Fleet Stakeholder RoundTable event (London)
  - Taxi organisations (Berlin and Antwerp)

I-CVUE

Invitation for cooperation

- Contact us if interested in
  - Continuation and expansion of analyses
  - Interested in EV policy (advice) or fleet analyses

www.icvue.eu
or

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