

Driving Electrification

A global comparison of fiscal incentive policy for electric vehicles

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**10th meeting of the GRPE informal group on
Electric Vehicles and the Environment (EVE)**

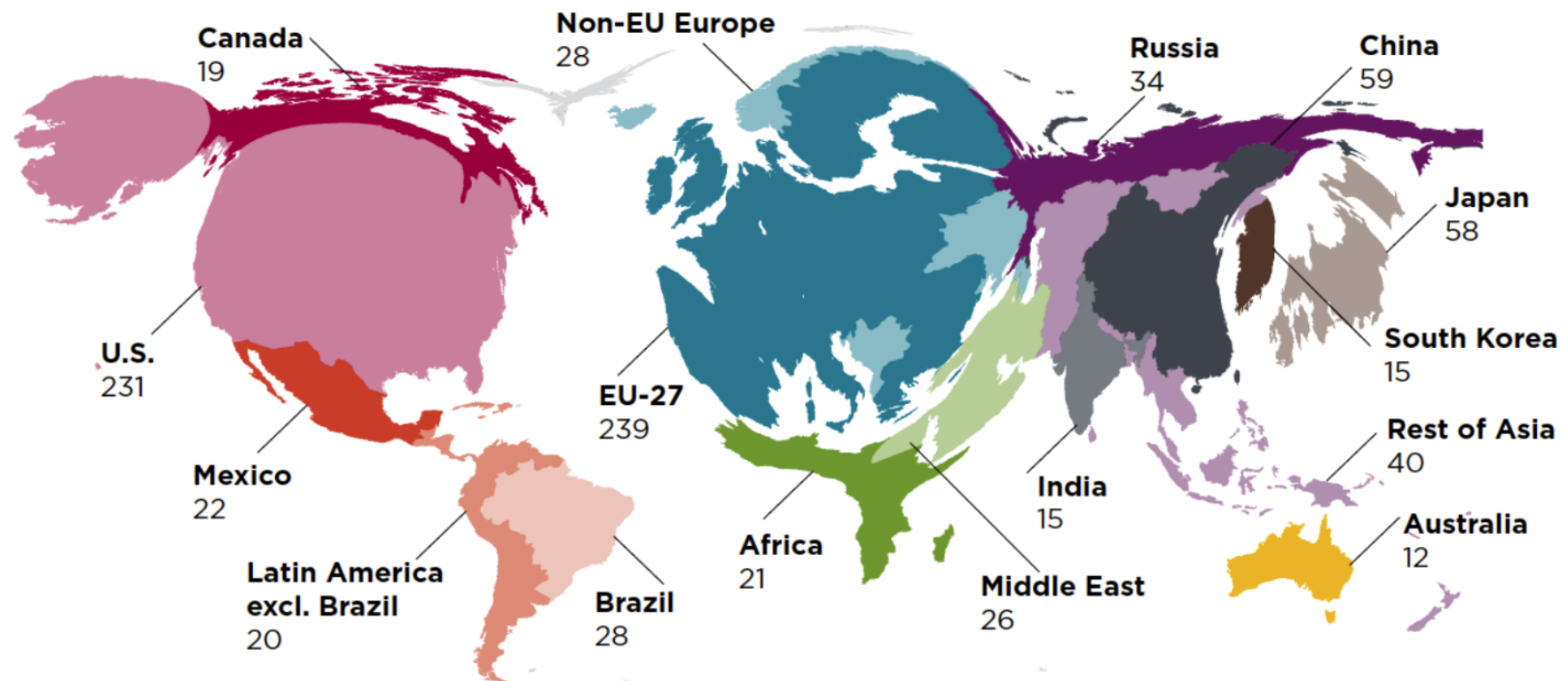
Geneva, June 2, 2014

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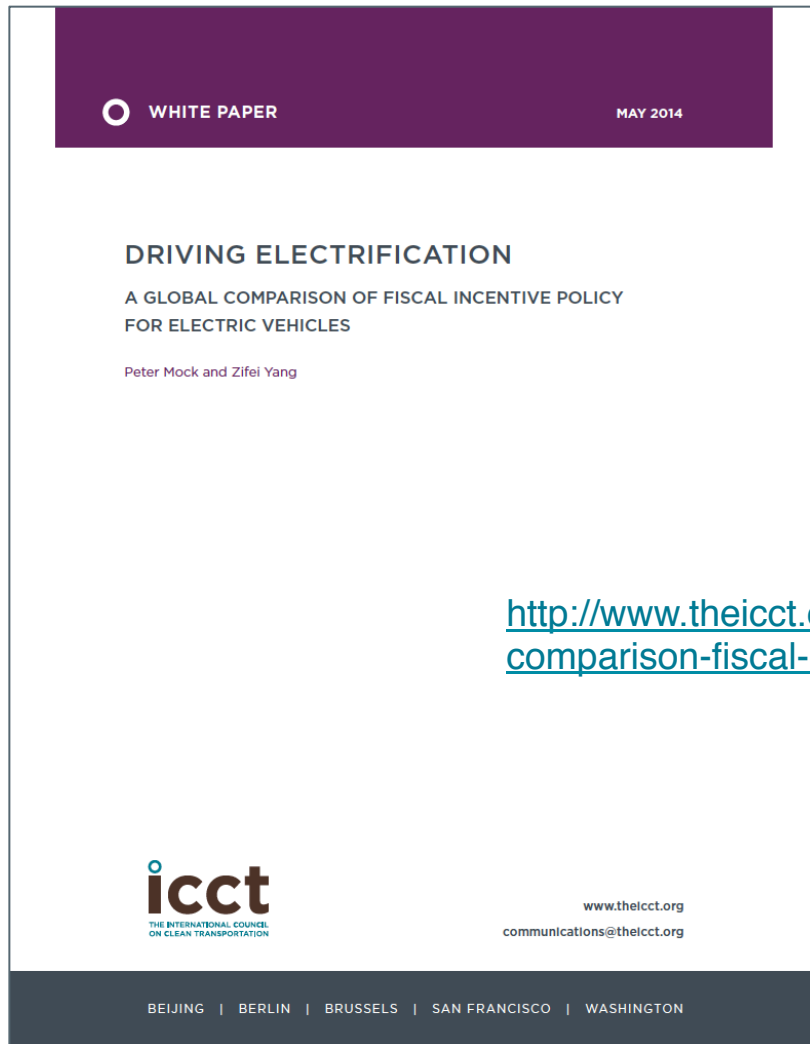
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ICCT is working with governments in the top vehicle markets worldwide

Number of light-duty vehicles on the road in 2010



Driving Electrification – A “kick-off” report

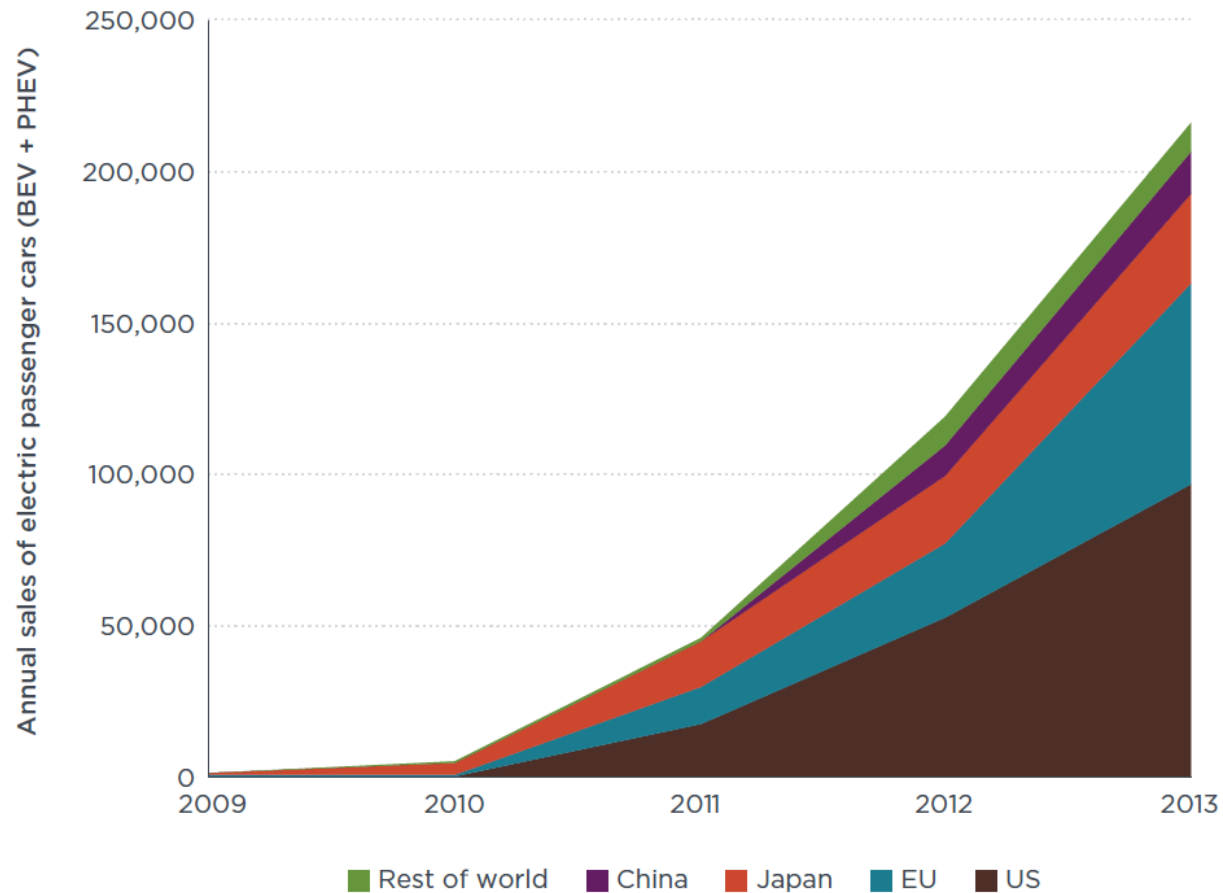


<http://www.theicct.org/driving-electrification-global-comparison-fiscal-policy-electric-vehicles>

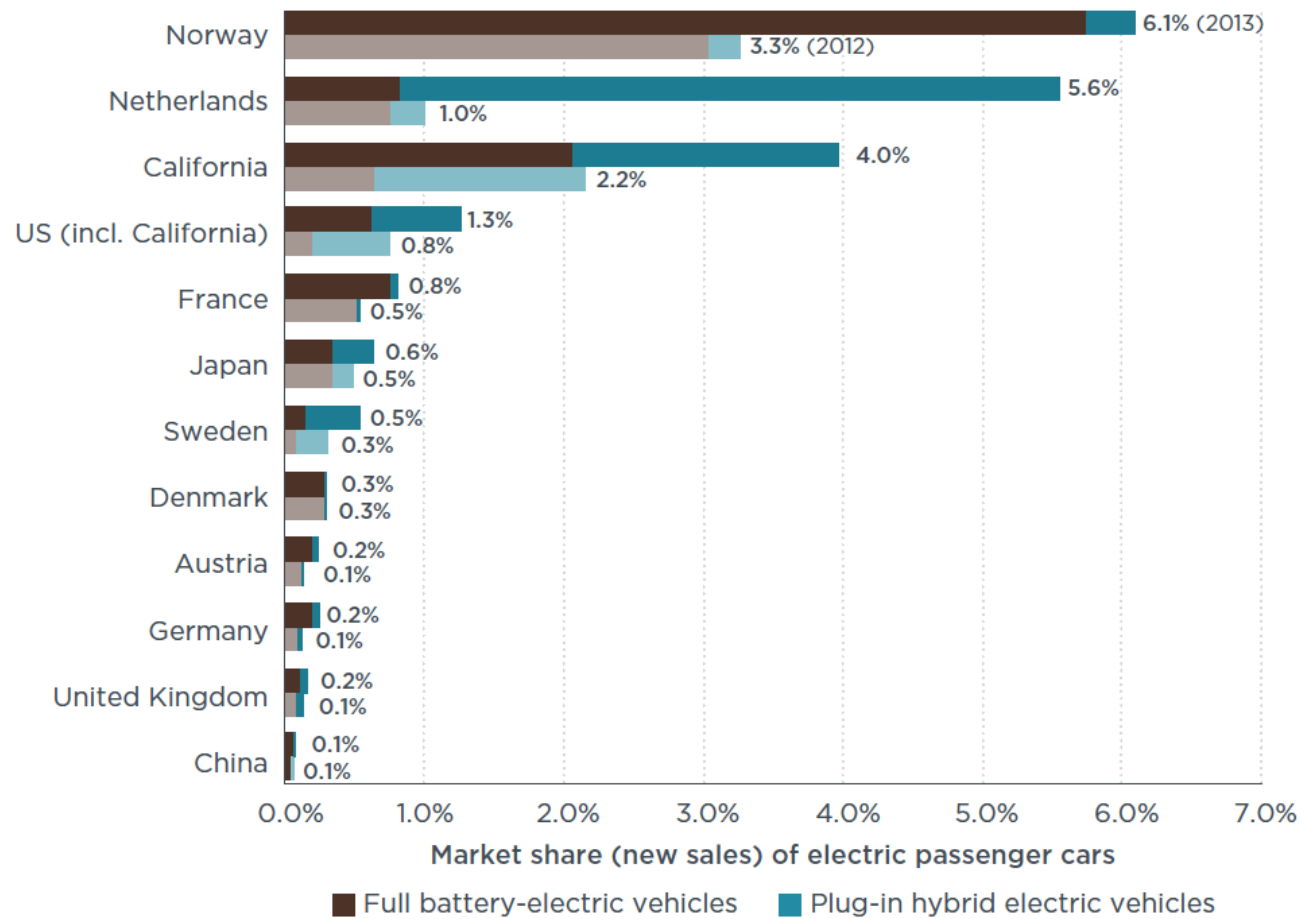
The starting point

How many EVs are sold, and where?

Global sales of electric vehicles doubled in each of the past three years



Norway and Netherlands were leading EV markets in 2013

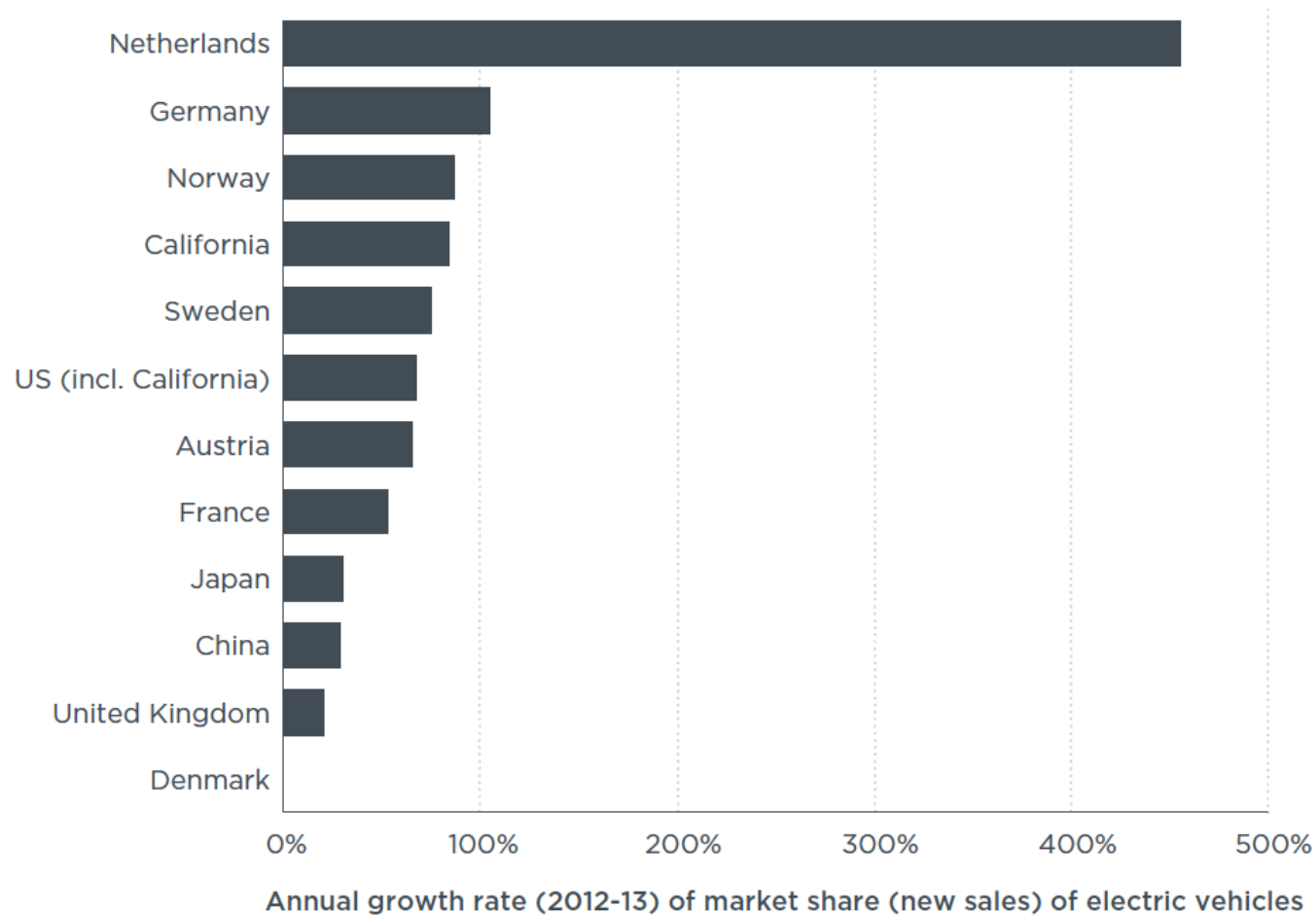


Some countries have very ambitious sales targets for 2020

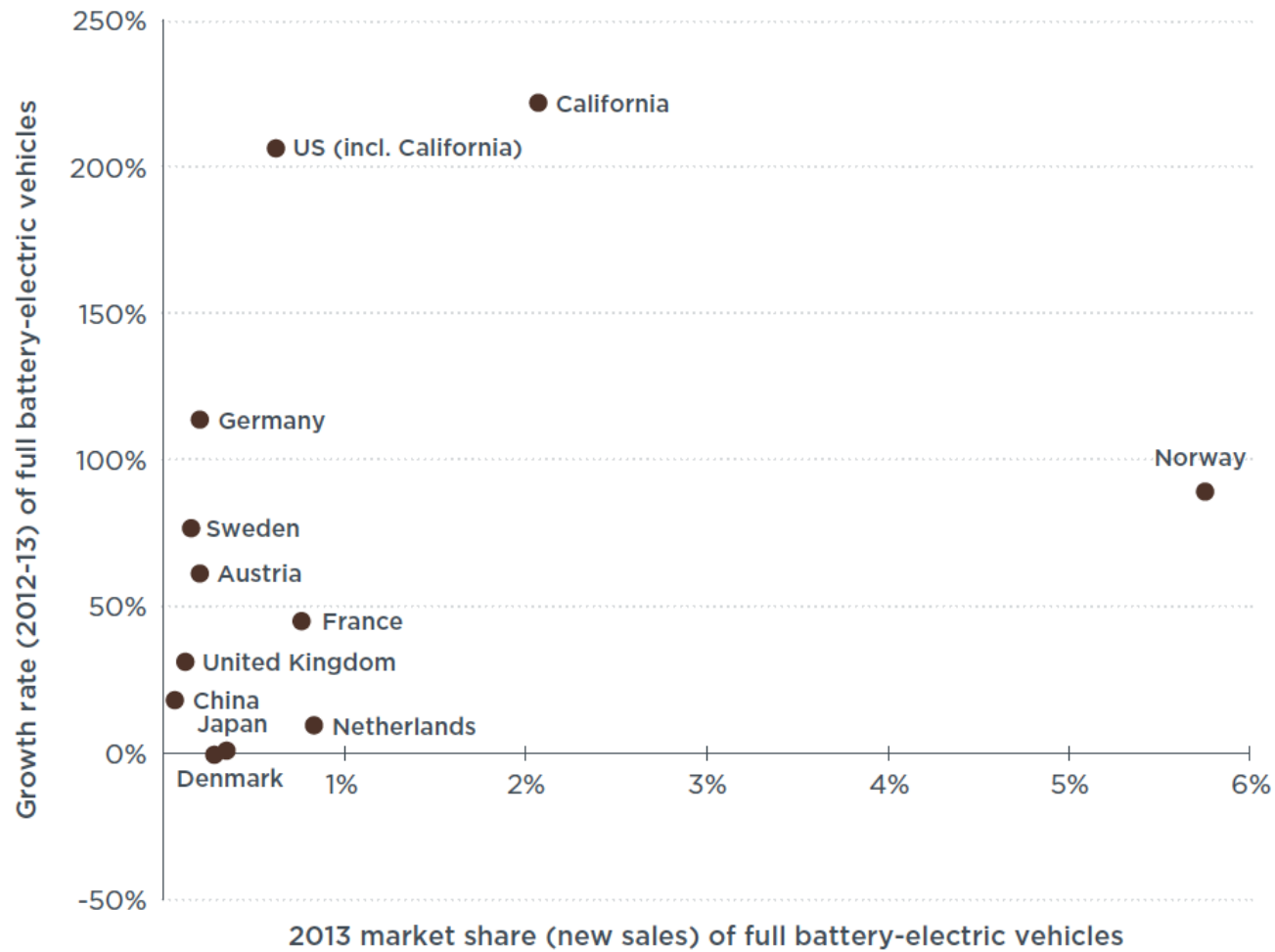
Country	EV shares targets in 2020
Sweden	60%
Denmark	30%
France	25%
Japan	25%
Austria	20%
Norway	20%
Netherlands	15%
United Kingdom	15%
Germany	10%
China	10%
California	8%
US	3%

*Numbers are only estimates, for passenger car market only
– Table not included in the report!*

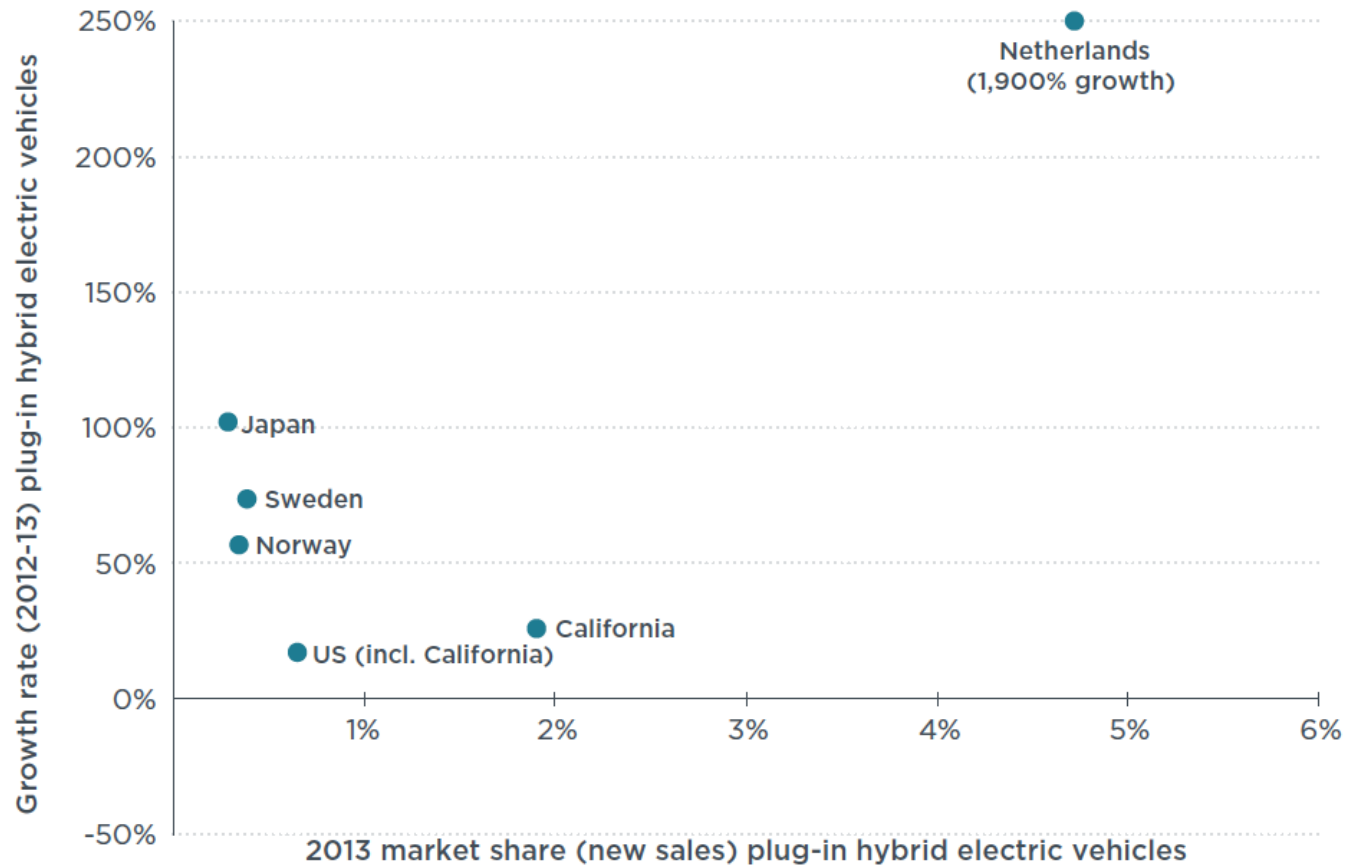
Strong increase of sales in Germany, but at a very low level



In Norway market is dominated by BEV



In Netherlands there are mostly PHEV



The methodology

How to compare fiscal incentives for EVs in different markets?

Picking two exemplary vehicle models allows for a comparison of tax levels



Vehicle type	Renault Zoe	Renault Clio	Volvo V60	
	BEV	gasoline	diesel-PHEV	diesel
Engine power [kW]	65	66	206	158
Engine displacement [cm ³]	n/a	898	2,400	2,400
Acceleration time 0-100 km/h [s]	13.5	13.0	6.1	7.7
Empty weight vehicle [kg]	1,428	1,009	1,955	1,821
Transmission type	automatic	manual	automatic	automatic
CO ₂ emission [g/km NEDC]	0	99	48	169
Fuel consumption [l/100km NEDC]	0	4.3	1.8	6.4
Electricity consumption [kWh/100km]	14.6	n/a	21.7	n/a
Battery range [km]	210	n/a	50	n/a
Vehicle base price (Germany) excl. VAT [EUR]*	21,422	13,277	51,571	43,412

* Vehicle prices are adjusted for optional equipment and, for EV, include costs for battery (four-year rent cost if the battery is not purchased)

Direct (one-time) subsidies

	Renault Zoe (BEV)	Volvo V60 (PHEV)
France	7,000 EUR	5,000 EUR
UK	5,800 EUR	5,800 EUR
Sweden	4,500 EUR	4,500 EUR
US	5,400 EUR	3,900 EUR
California	7,200 EUR	5,000 EUR
Japan	4,600 EUR	3,400 EUR
China	6,000 EUR	4,200 EUR

all numbers are approximations only

Other fiscal incentives

- **Value added tax (VAT) savings**
e.g. Norway: 4,500 EUR (BEV), 0 EUR (PHEV)
- **One-time purchase / registration tax savings**
e.g. Denmark: 14,000 EUR (BEV), 17,000 EUR (PHEV)
- **Annual circulation tax savings**
e.g. Netherlands: 380 EUR (BEV), 1,900 EUR (PHEV)
- **Company car tax savings**
e.g. Netherlands: 1,100 EUR (BEV), 4,300 EUR (PHEV)

Fuel cost savings

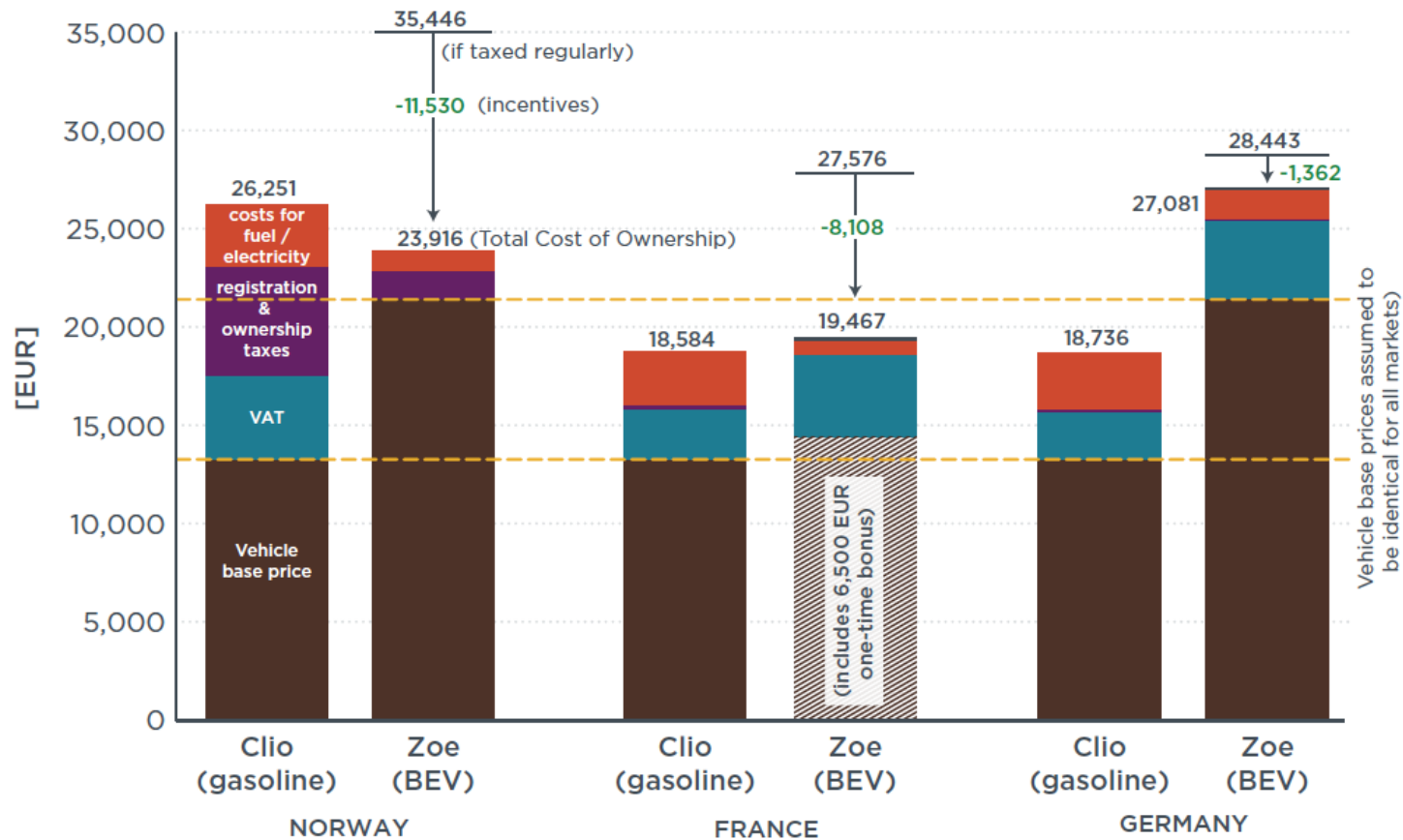
	Gasoline price* [EUR/l]	Gasoline price [EUR/kWh]	Electricity price [†] [EUR/kWh]	Fuel cost savings [‡] [EUR/4 years]
Norway	1.80	0.20	0.18	2,045
Netherlands	1,76	0.20	0.19	1,921
France	1.57	0.17	0.15	1,854
UK	1.68	0.19	0.18	1,847
Sweden	1.71	0.19	0.21	1,725
Austria	1.45	0.16	0.20	1,312
Germany	1.49	0.18	0.27	1,275
China	0.94	0.10	0.06	1,271
Denmark	1.70	0.19	0.30	1,188
Japan	1.12	0.12	0.19	815
California	0.69	0.08	0.11	521

* Sources: EC, 2013, EIA, 2013, BJCDR, 2012, <http://www.californiagasprices.com/>.

† Sources: EC, 2013. Where data available, electricity price for domestic consumers, band DC: 2,500 kWh-5,000 kWh per year.

‡ We assume an annual mileage of 10,000 km, and a time period of four years

Different markets, different incentive systems

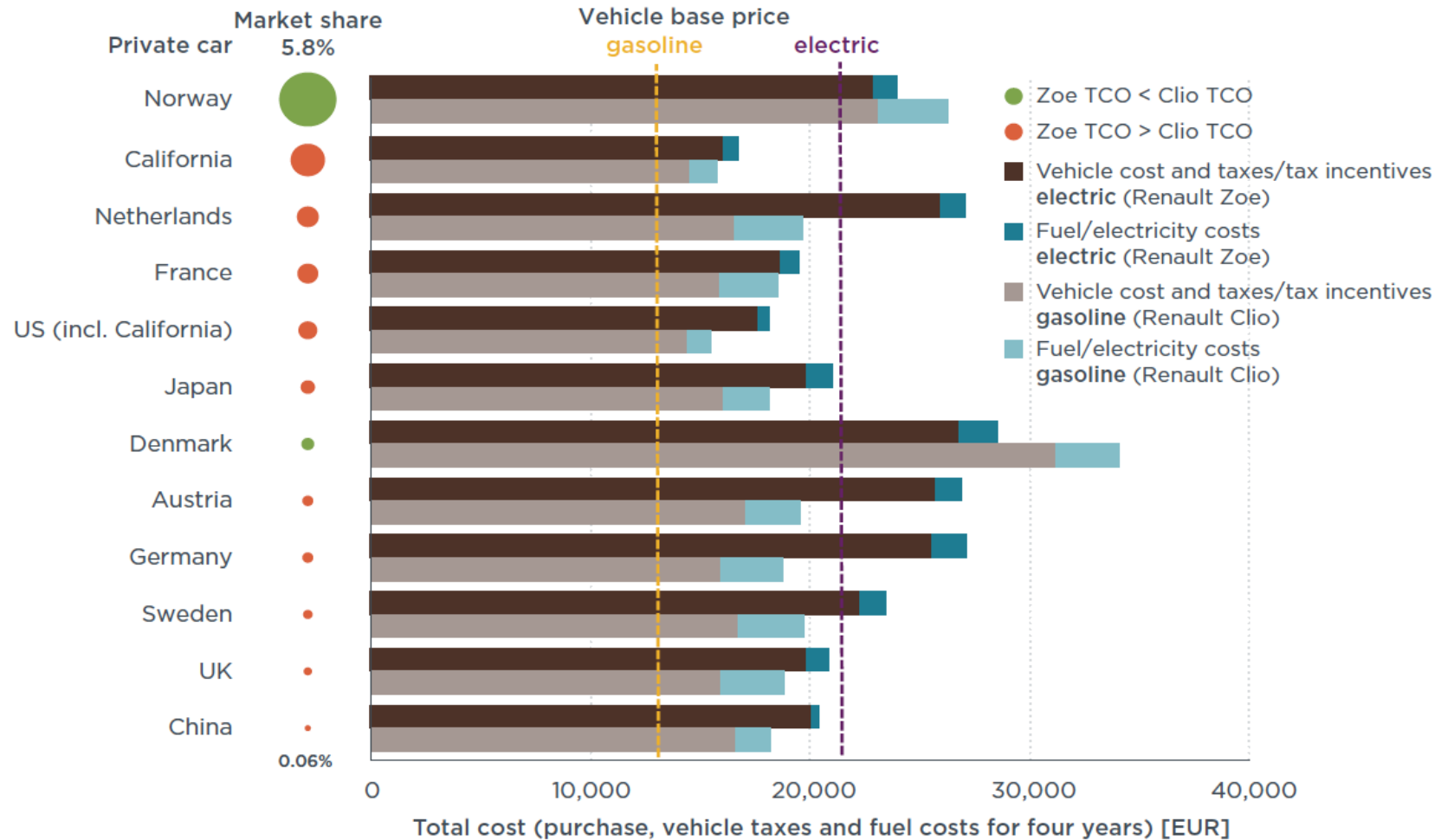


Total Cost of Ownership includes vehicle purchase and registration costs, as well as ownership taxes and fuel / electricity costs for 4 years. All data estimates for tax year 2013.

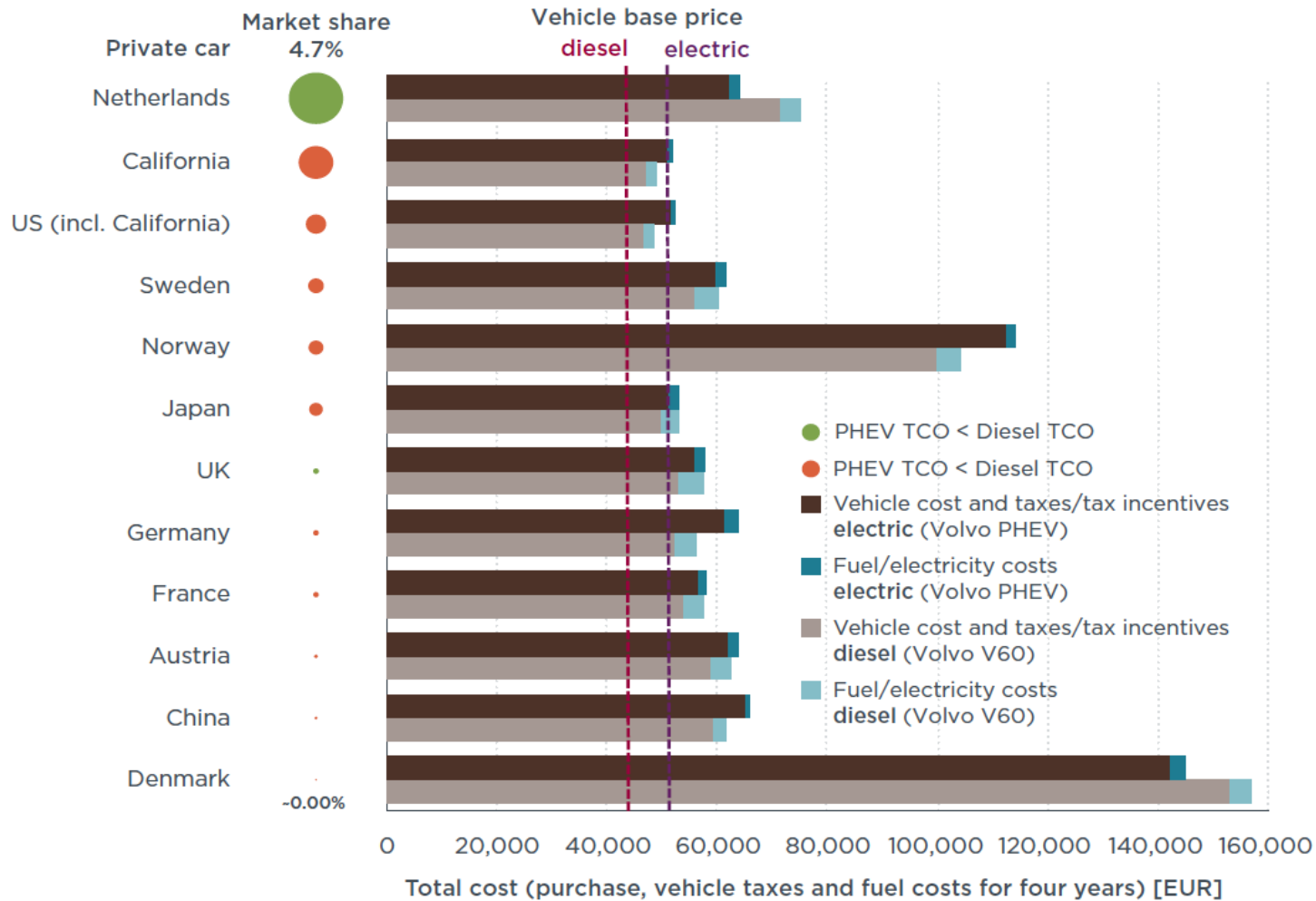
The results

**Why are EVs
successful in some
markets but not in
others?**

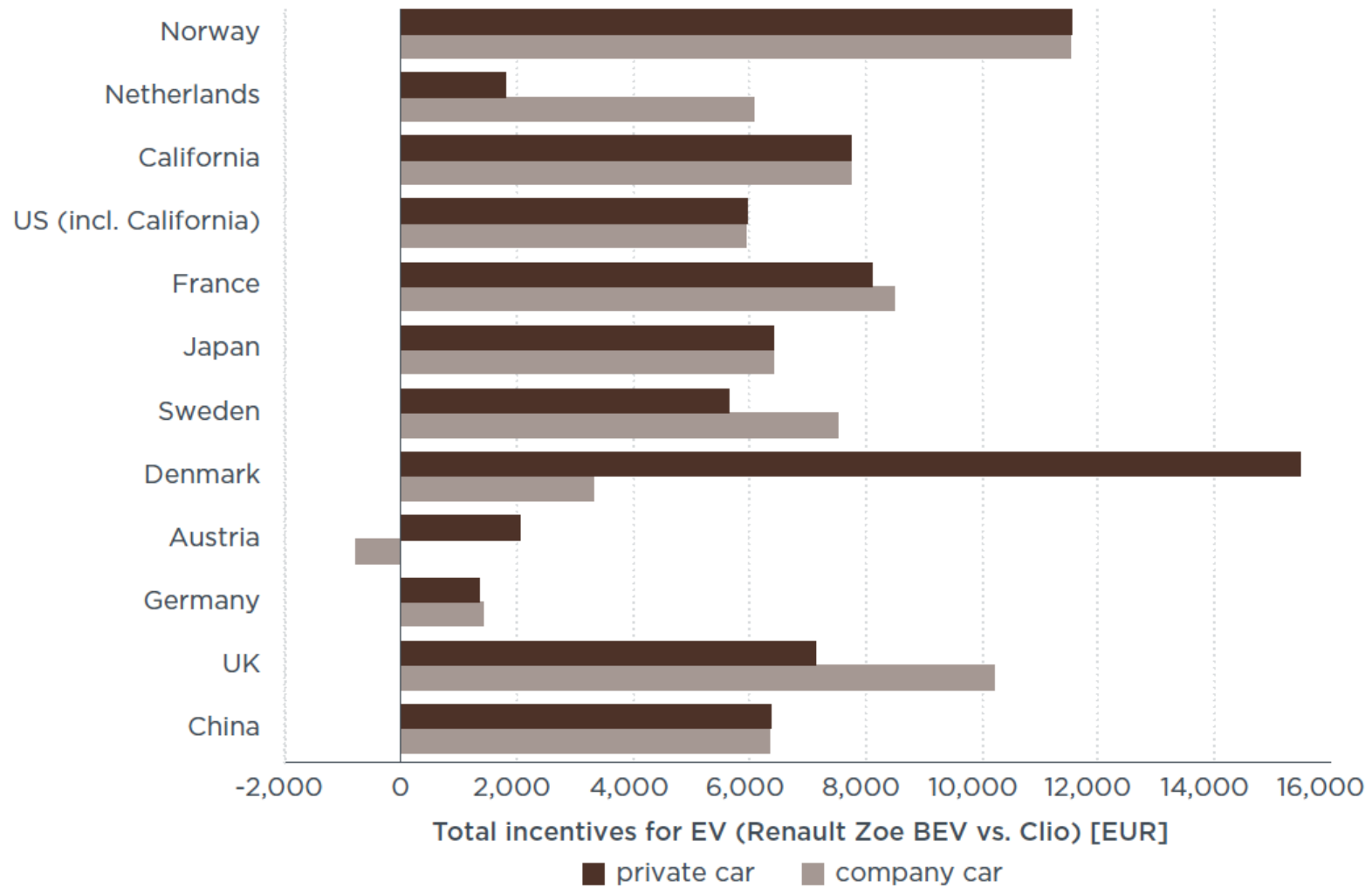
Norway and Denmark are only markets where TCO looks favorable for BEV



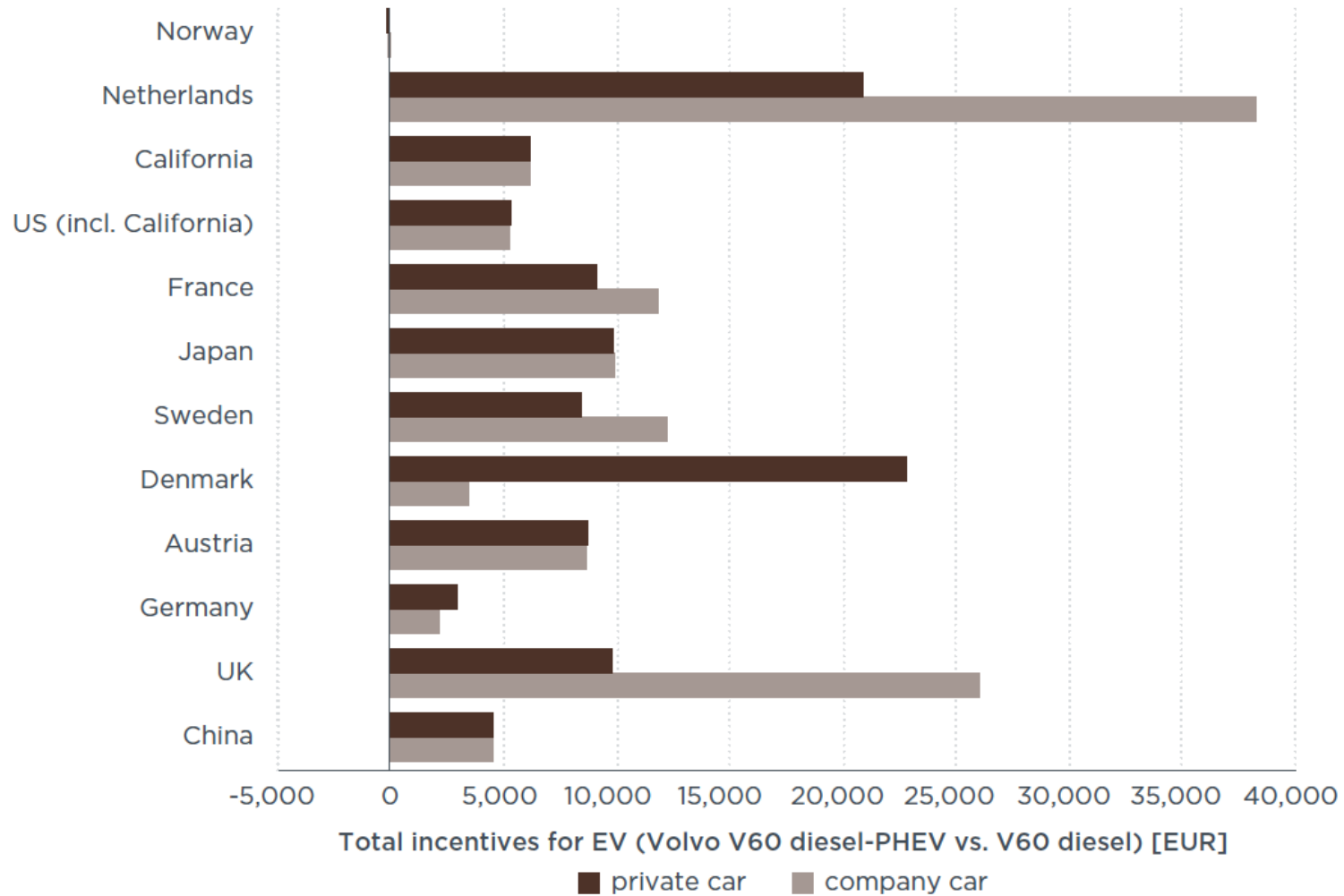
Only in Netherlands TCO looks favorable for PHEV



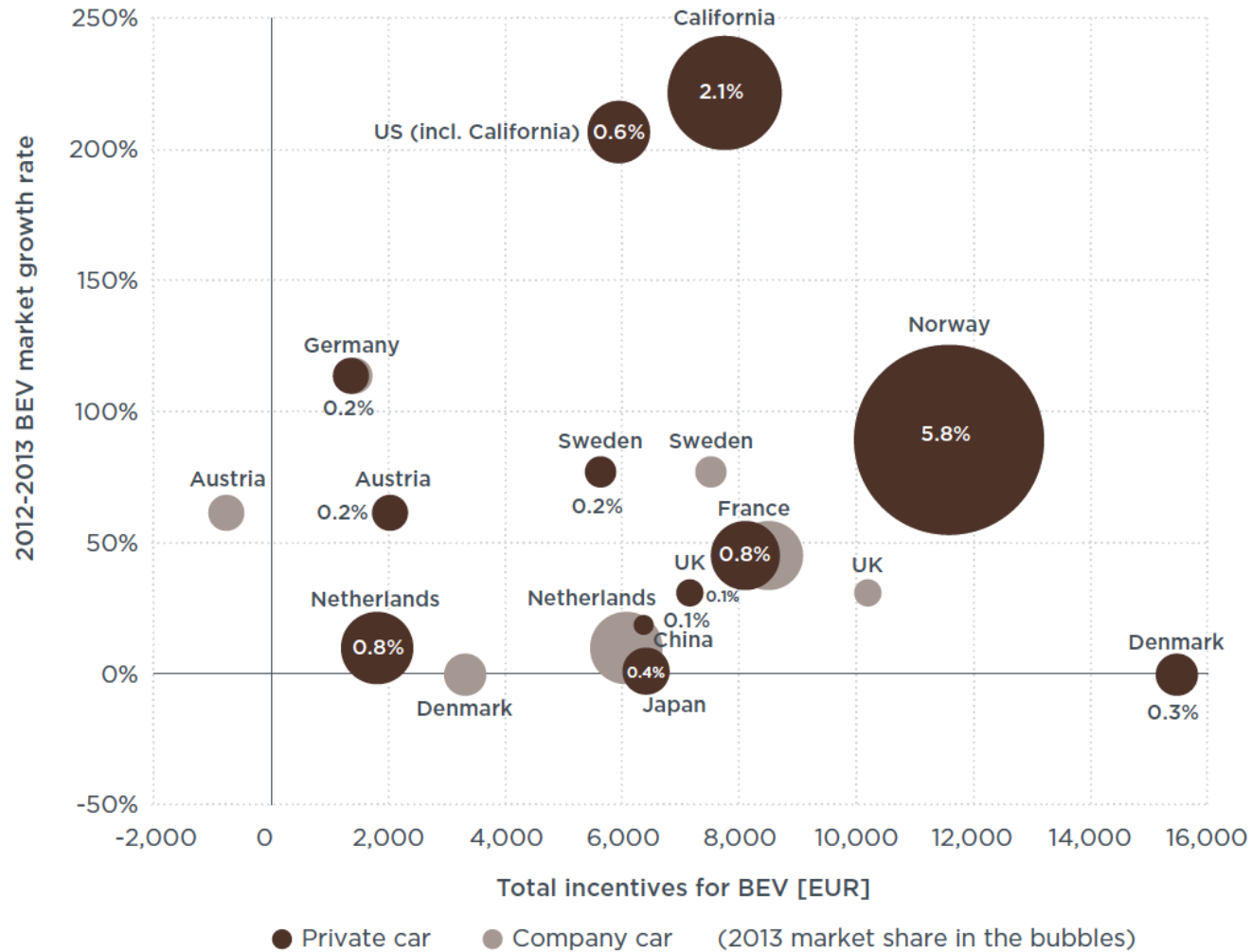
Norway and Denmark provide highest incentive levels for BEV



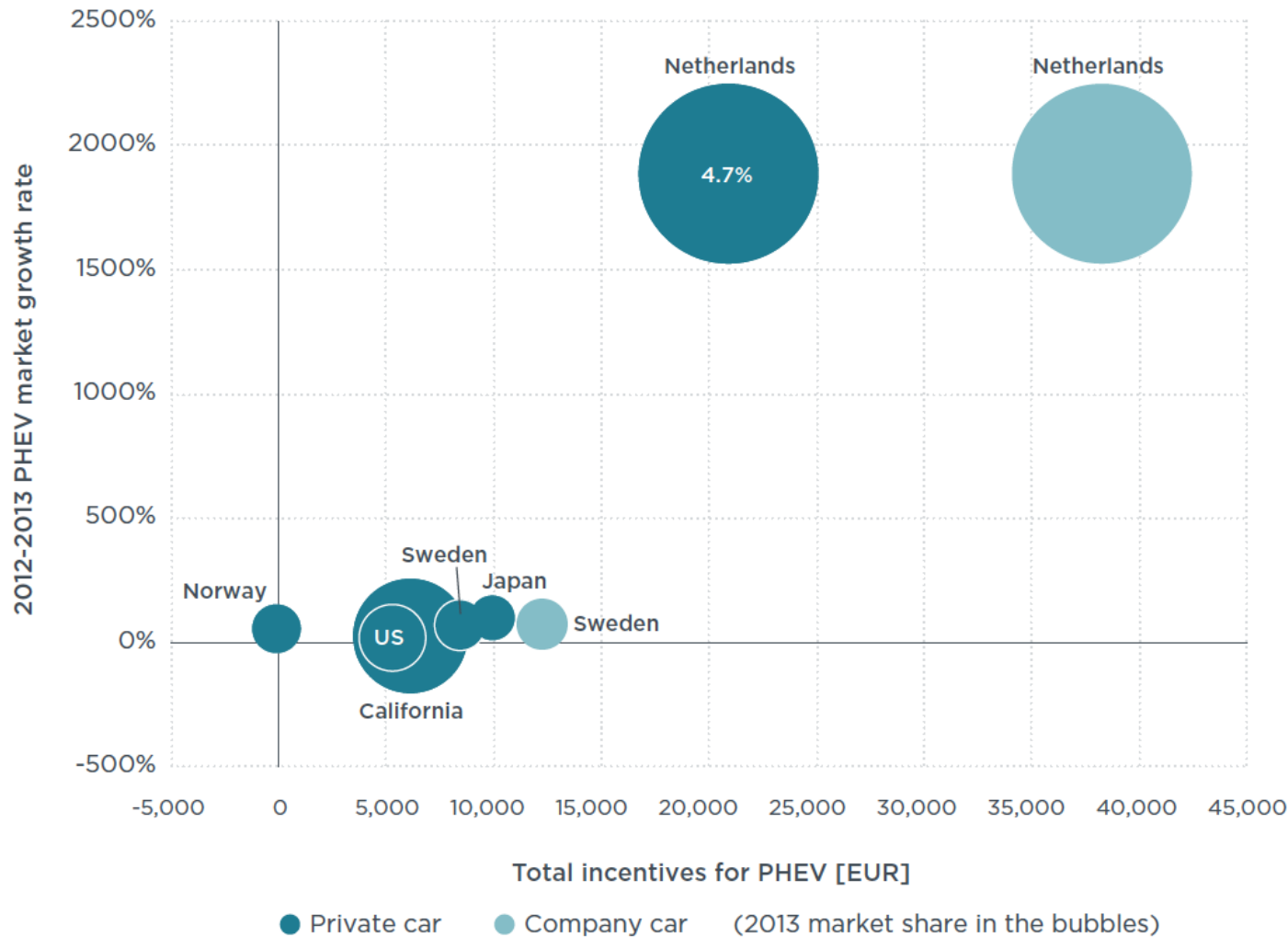
Netherlands and UK provide highest incentive levels for PHEV



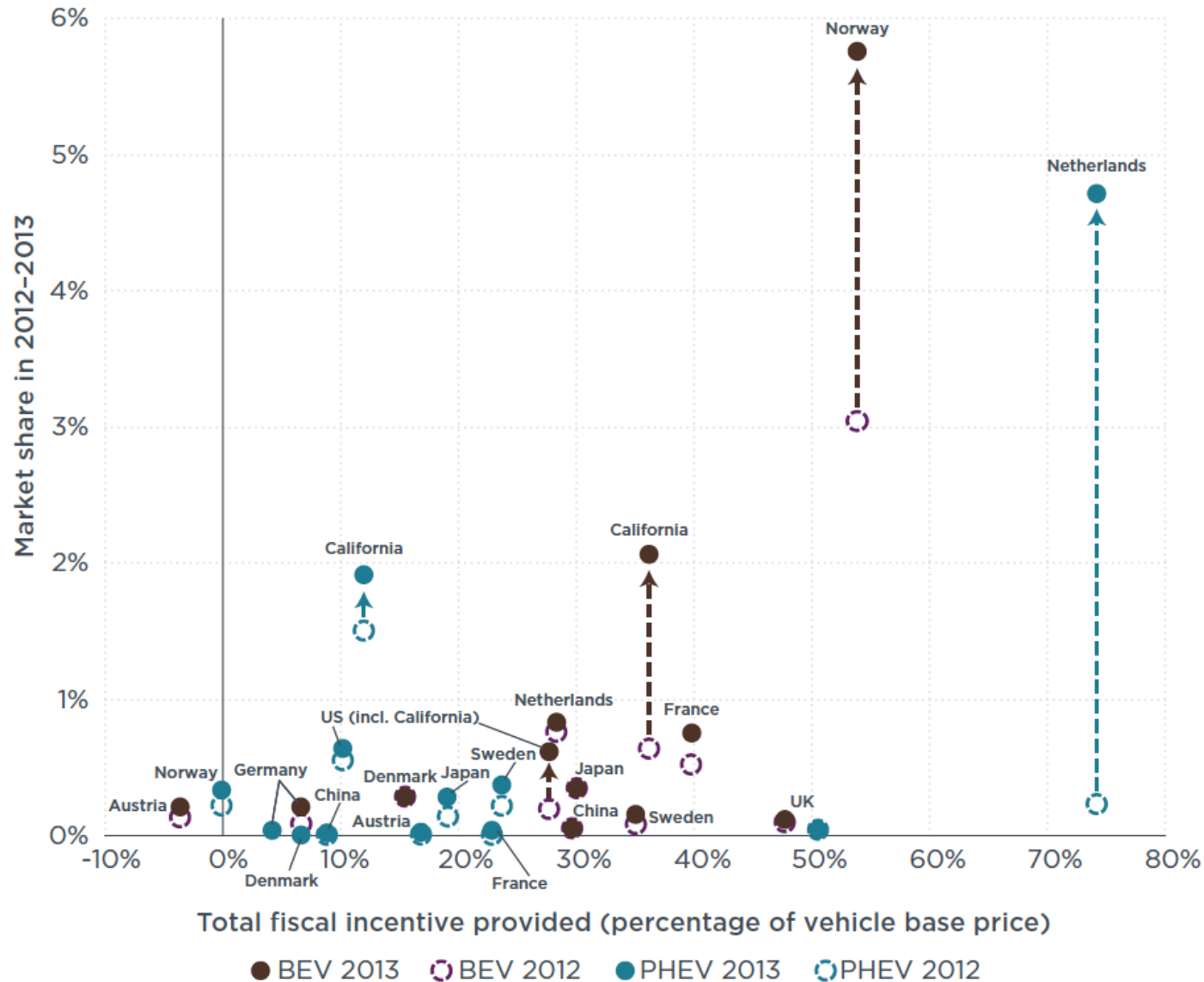
For Denmark large difference in incentive level for private and company customers



For Netherlands very high incentive level in 2013 lead to very high sales numbers



High incentive level leads to high sales – but not always!

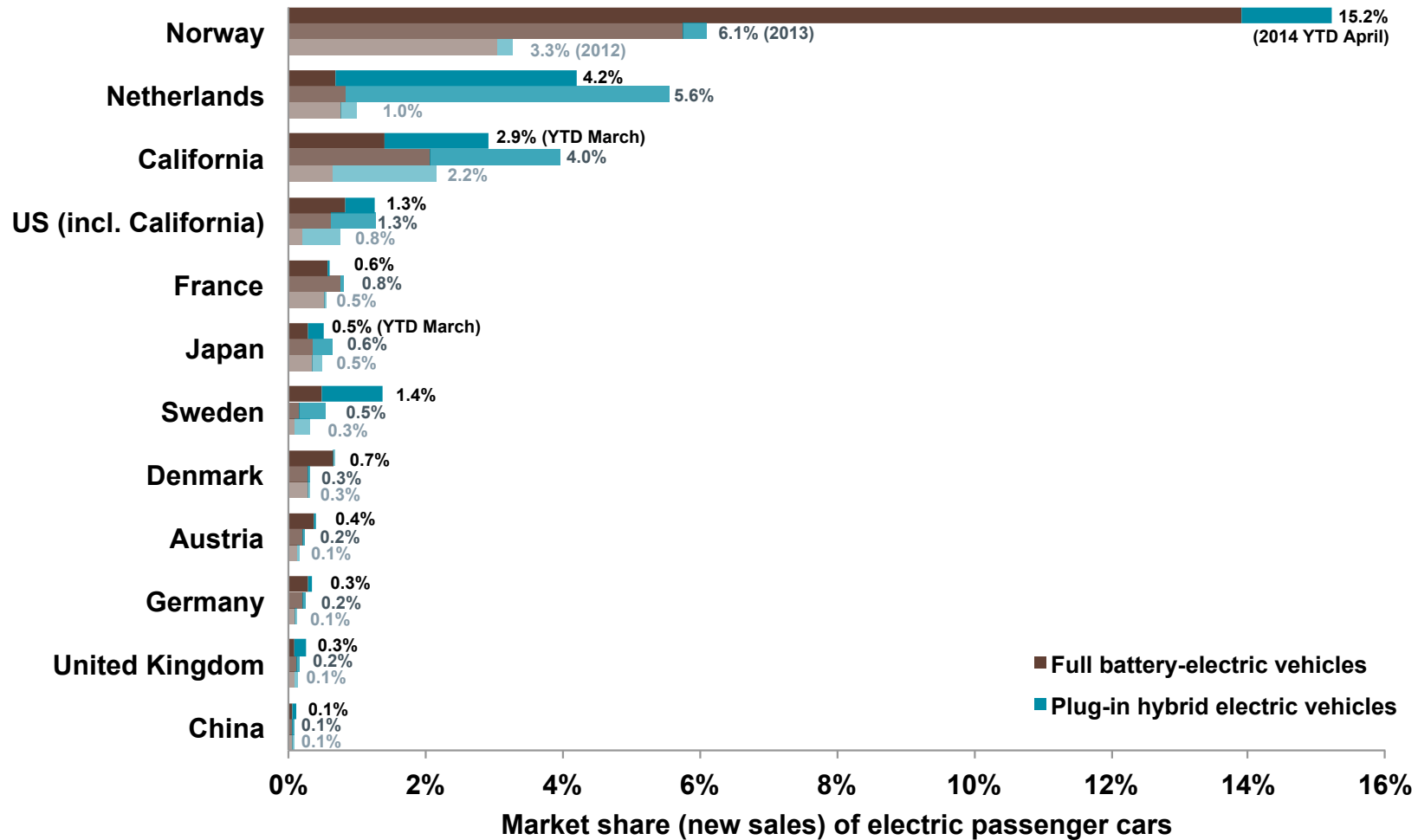


Outlook

**How can we quantify
“soft” incentives?**

**What is a sustainable
way of incentivizing?**

Norway continues to grow ...



... but for how long?

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A-HED

In Oslo, Electric Cars Drive Bus Operators Crazy

Government Incentives Fuel Sales of EVs in Norway, but Transit Workers Gripe About Vehicles in Their Lane

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By ELLEN EMMERENTZE JERVELL and JOHN D. STOLL [CONNECT](#)

Updated May 20, 2014 11:19 p.m. ET



Electric vehicles are on the rise in the Norwegian capital, but should they be allowed to drive in the bus lane?

OSLO—The rise of the electric vehicle may be working to chip away at emissions here in oil-rich Norway, but it is creating an unexpected headache for some of the most important people in the nation's big city—bus drivers.

In the capital, Oslo, sales of electric vehicles have ballooned as well-heeled Norwegians take advantage of generous government incentives aimed at juicing sales of cars that run on batteries. Incentives include a number of tax breaks, free car-charging stations in municipal parking lots and exemptions from certain tolls.



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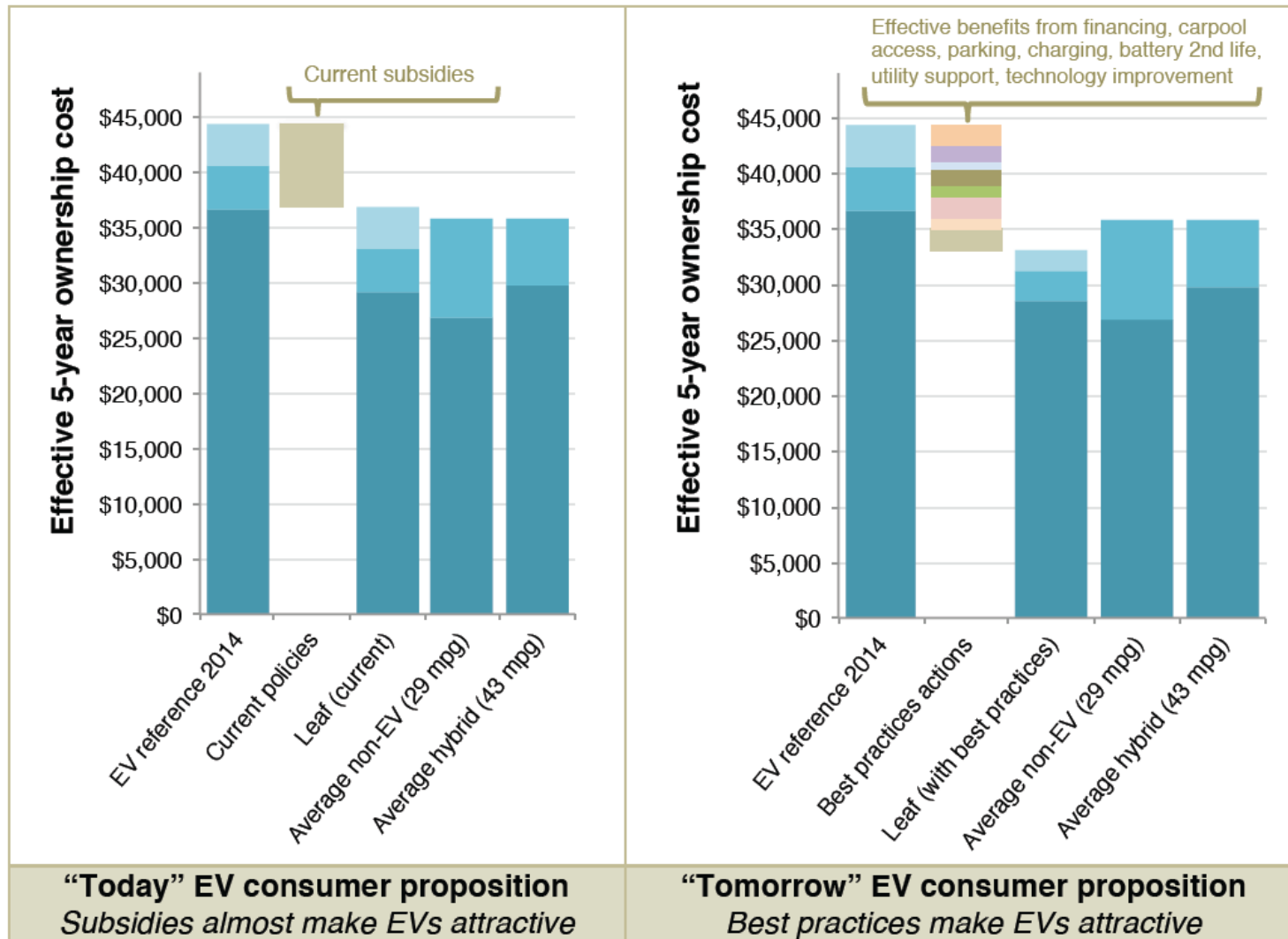
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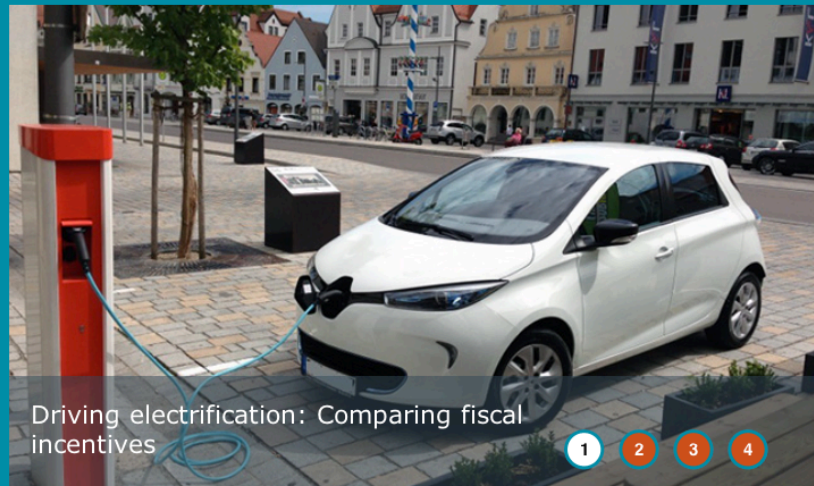


3 **Google Allows**



Incentives 2.0 – How to get there?





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EU Pocketbook, 2013



New edition of our annual market profile

Real-world fuel consumption



The growing gap between lab and on-road results in the EU

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