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Economic Cooperation

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Global Electric Vehicle Outlook 2017

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Global EV Outlook 2017

Renske Schuitmaker

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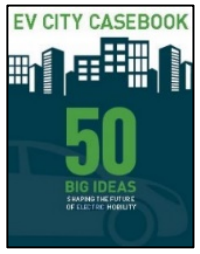
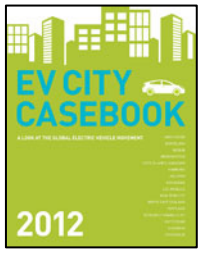
IEA

Electric Vehicles Initiative (EVI)

- Government-to-government forum comprising 14 economies
  - Canada, Chile, China, Finland, France, Germany, India, Japan, Sweden, Mexico, the Netherlands, Norway, the UK and the US
- Currently co-chaired by Canada and China, and coordinated by the IEA
- Released several analytical publications (Global EV Outlook, City casebook)





- Engaged stakeholders in high-level roundtables (CEM8 and Pilot City Forum in Beijing, June 2017)
- Instrumental to mobilize action and commitments (Paris Declaration on Electro-Mobility and Climate Change at COP21, Government Fleet Declaration at COP22)

➢ **In 2017, the EV30@30 Campaign was launched** (aim for a 30% market share for EVs by 2030)

Global EV Outlook 2017

- Annual EVI report drafted at IEA
  - Data reporting (EV stock, sales, EVSE, battery costs)
  - Policy analysis and TCO assessment
  - CO_2 impact and role of EVs in low carbon scenarios (2030 timeframe)
  - Insights on grid integration

- Global EV Outlook 2018 released end of May

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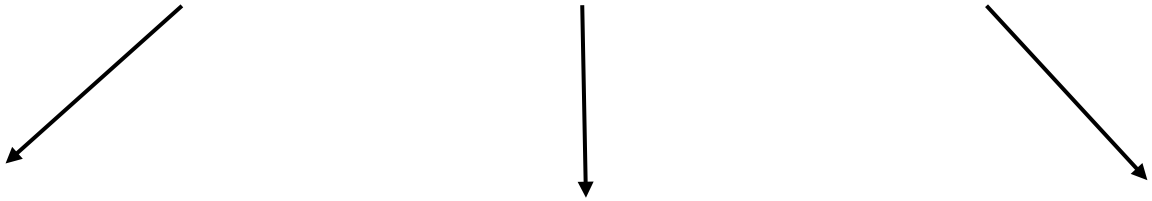
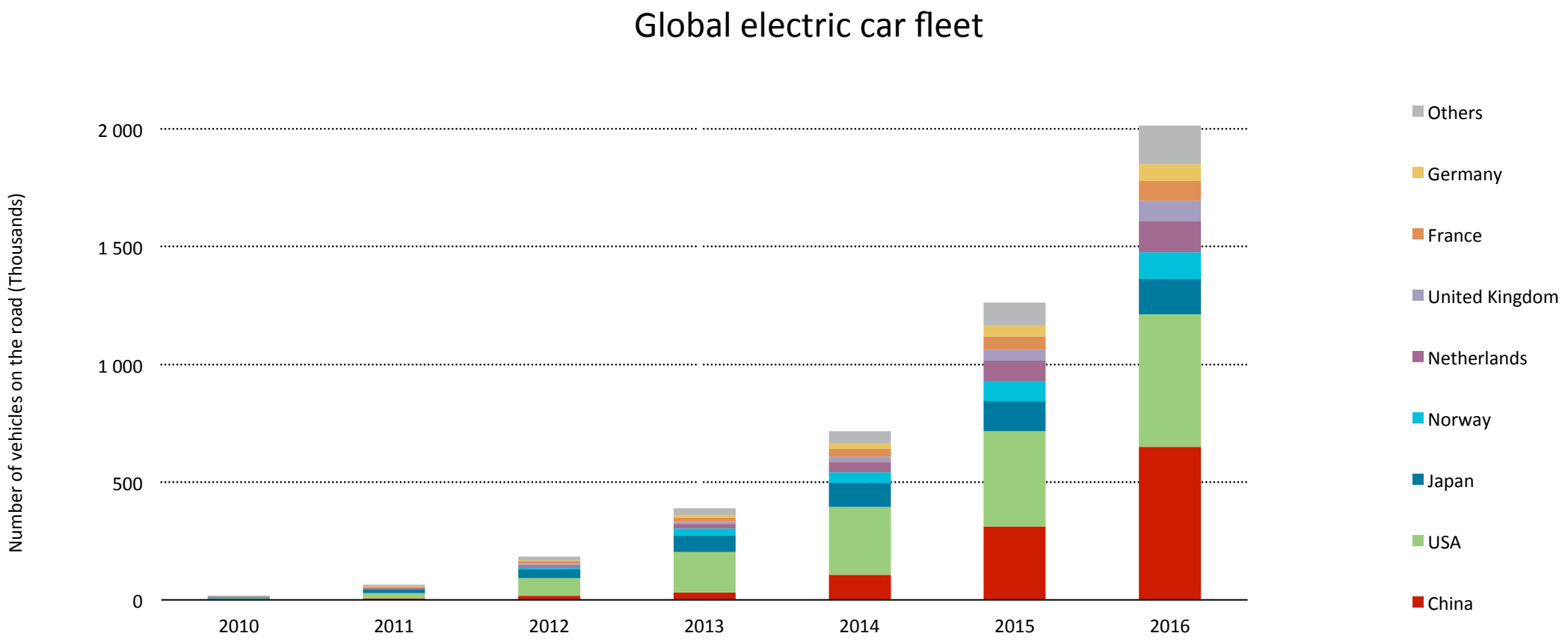


Climate

Public health

Energy security

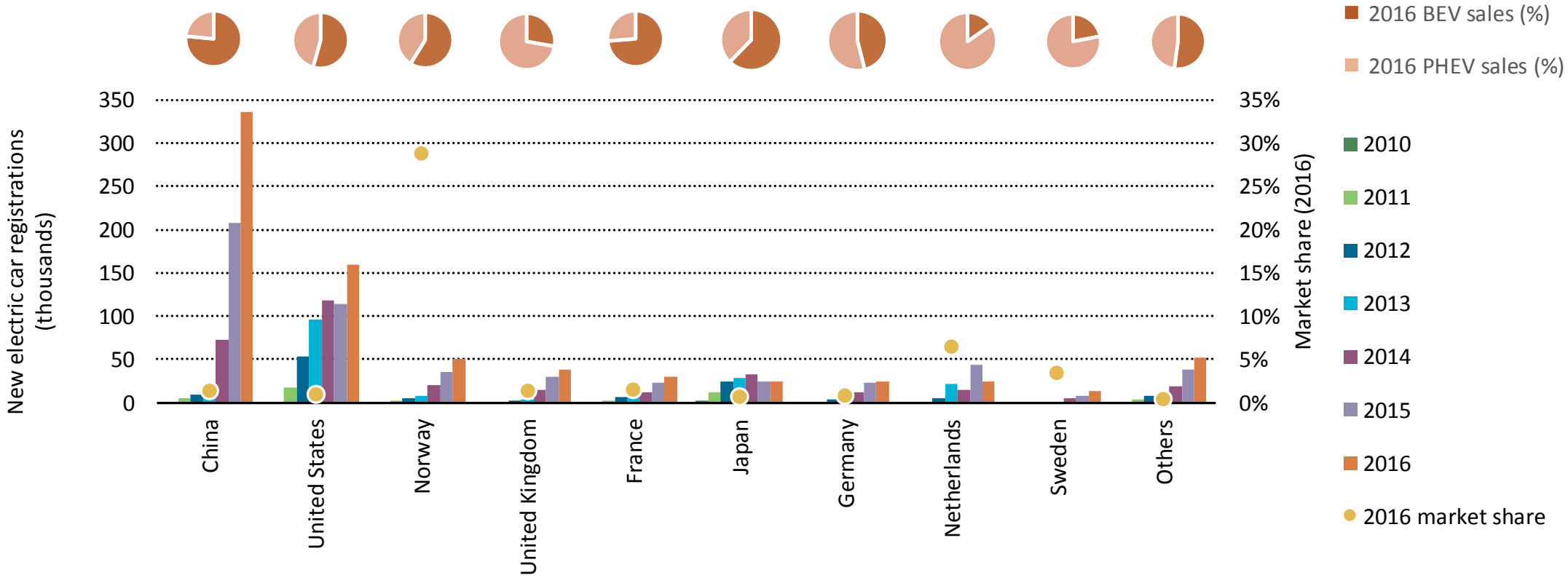
Electric mobility is breaking records, but policy support remains critical



The global electric car fleet reached 2 million units in circulation in 2016, but growth of sales fell from 70% in 2015 to 40% in 2016, suggesting an increasing risk of falling off track

New electric car registrations reached 750 000 units in 2016

Electric car sales, market share, and BEV and PHEV sales shares in selected economies, 2010-16



95% of global electric car sales in 2016 took place in 10 economies, and 6 economies had a market share above 1%:China, France, Norway, Netherlands, Sweden, and the United Kingdom

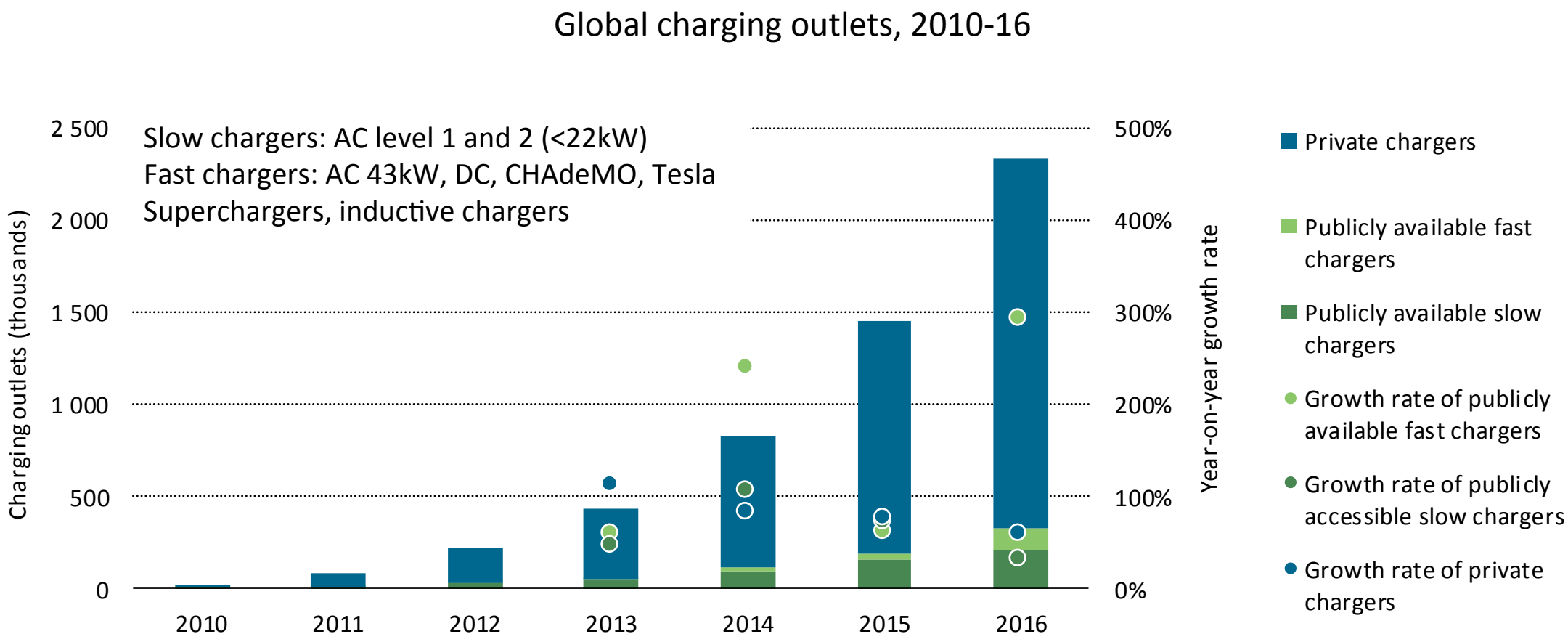
Electric car uptake is strongly linked to changes in EV policies

BEV and PHEV changes in incentives in a selection of economies, 2016

Economy	2015 vs. 2016 policy developments		2015 vs. 2016 sales growth		2016 sales	
	BEV	PHEV	BEV	PHEV	BEV	PHEV
China	~		75%	30%	257,000	79,000
United States	~		22%	70%	86,731	72,885
Norway	~	↗	6%	164%	29,520	20,660
United Kingdom	~		4%	42%	10,509	27,403
France	~		26%	36%	21,758	7,749
Japan	~		48%	-34%	15,461	9,390
Germany	~		-6%	20%	11,322	13,290
Netherlands	~	↘	47%	-50%	3,737	20,740
Sweden	~	↘	0%	86%	2,951	10,464
Canada	~		19%	147%	5,220	6,360
Denmark	↘		-71%	-49%	1,218	182
Republic of Korea	~		75%	-40%	5,099	164

Changes in electric car incentives, especially for vehicle purchase incentives, can have an immediate and sizeable impact on electric car sales and steer the market towards either BEV or PHEV preference.

EVSE deployment rates were higher than e-car adoption rates in 2016



Publicly accessible infrastructure is growing to support the emerging EV market, especially publicly accessible fast chargers. Developing the EVSE infrastructure is key to enabling EV uptake.

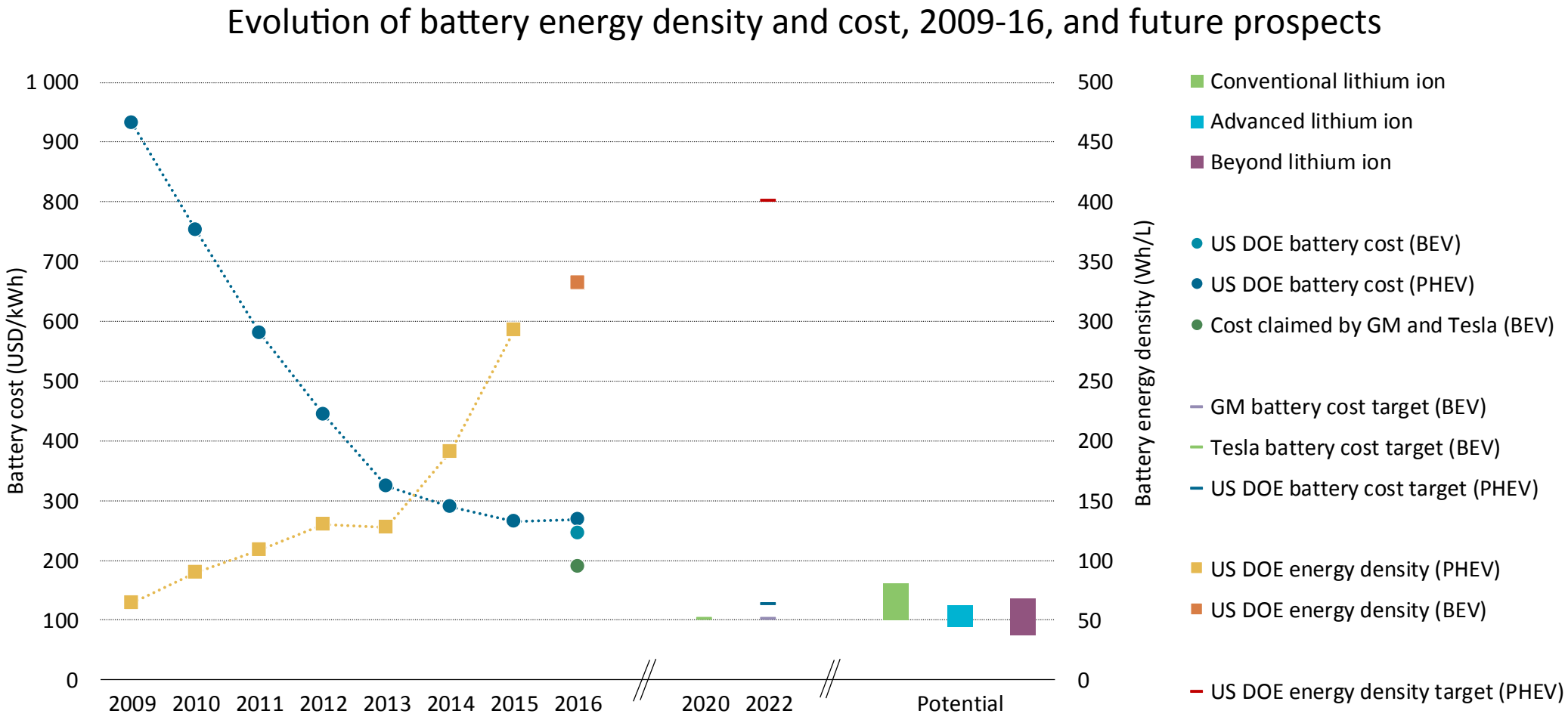
E-mobility is also gaining ground in non-car modes; China leads the way

Electric 2-wheelers: > 200 million, mainly in China.
In other economies: ~200 000 in India, ~30 000 in the Netherlands, ~1 000 in the UK

Low-Speed Electric Vehicles: ~4 million in China

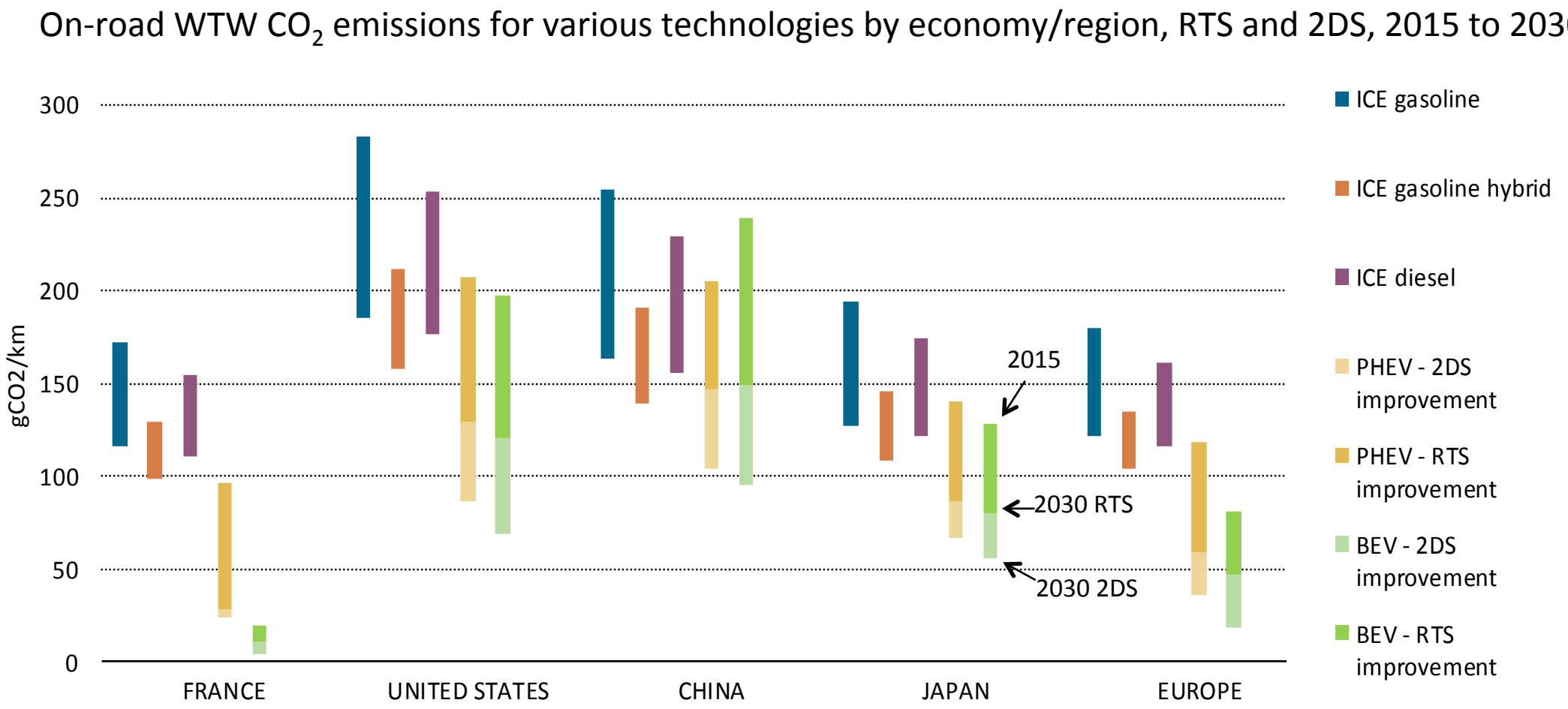
Electric buses: city-level procurement plans announced globally
China: already 350 000 in the fleet

Battery costs and range as key factors for the success of e-mobility



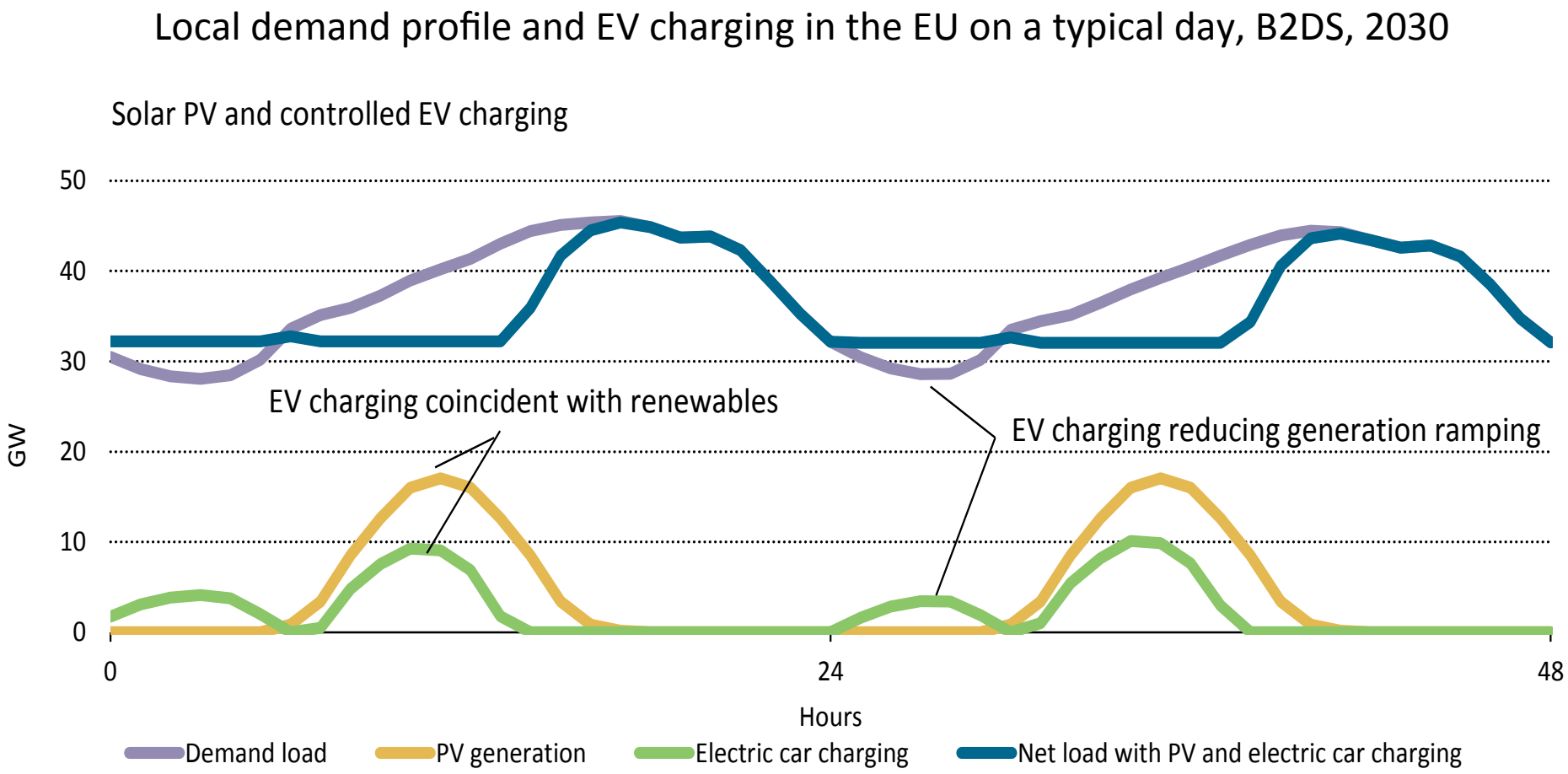
Battery costs and energy density progresses are expected to keep improving. This will help to lower adoption barriers.

EVs are essential for CO_2 emissions reduction in the transport sector



If coupled to low-carbon power, the high energy efficiency of EVs offers prospects for substantial CO_2 emissions reductions. This complements their air quality, energy security and noise reduction benefits.

Grid integration with EVs and variable renewable energy (VRE)



Smart charging will help to improve grid stability and delay or avoid grid upgrades needed when EV stock shares increase, and with the uptake of variable renewable energy.

Impacts on the grid?

Slow charging:

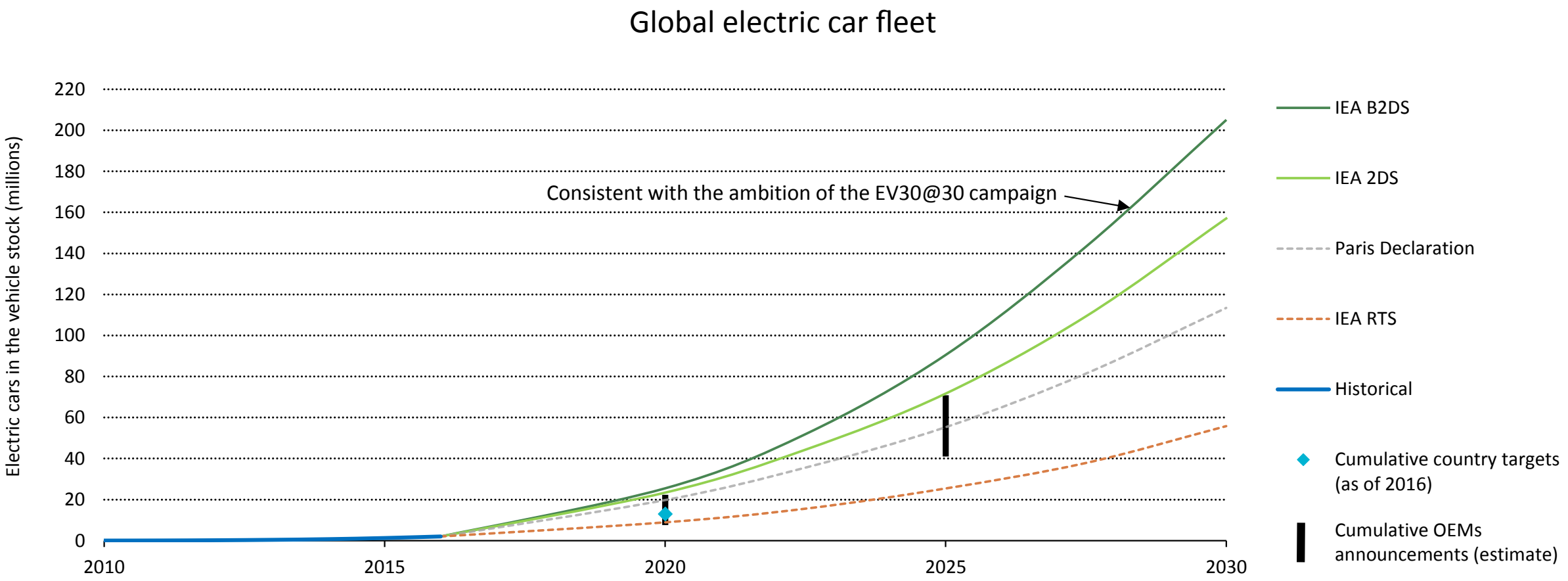
- Potential for flexibility through smart charging: requires price signal, demand-side management tools.
- Synergies with the integration of variable renewables

Fast charging:

- Potentially disruptive locally for distribution grids
- Limited flexibility for flexible charging
- Business model?

The local distribution grid will be the first to experience issues. Future uptake of fast and high-power charging will require innovative solutions to reduce impact on the local grid.

Prospect for EV uptake in different scenarios

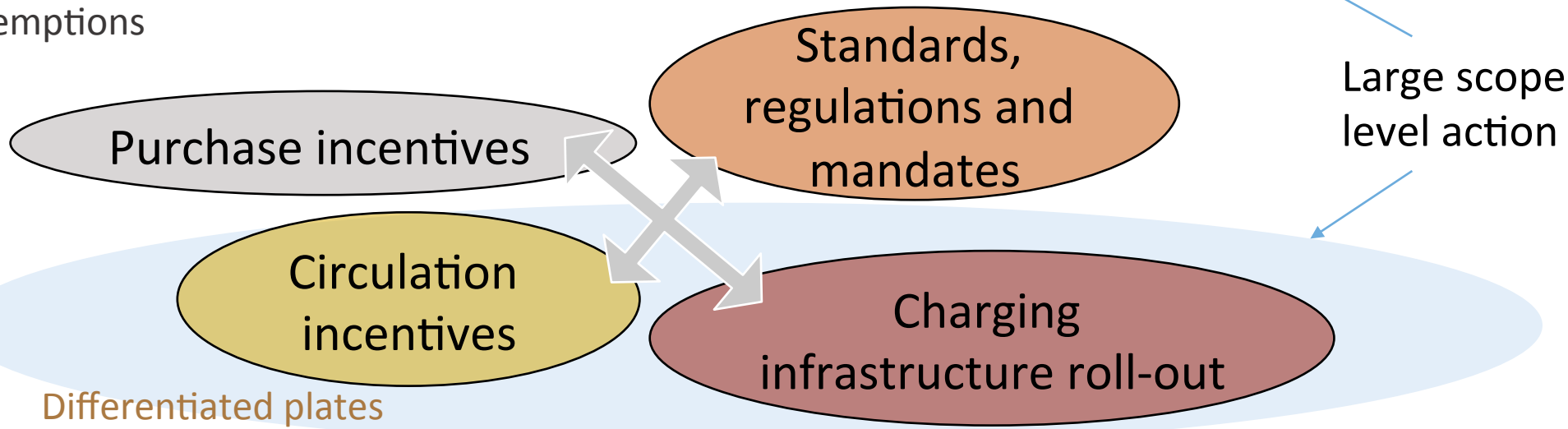


EVs will be needed to meet sustainability goals, as suggested by the EV30@30 campaign target. Active government support and industry commitment are essential.

EV support policies

- CO_2-based, technology-based differentiated taxation and rebates
- Feebates
- VAT exemptions
- …

- Fuel economy standards
- Fuel taxes
- Public fleets, taxi fleets initiatives
- …



Large scope for city-level action

- Differentiated plates
- Access to bus lanes
- Free/dedicated parking
- Circulation/congestion charge exemption
- …

- Direct public investment
- Public-private partnerships
- Charger standards harmonization
- Fast and slow charging network planning
- …

Close monitoring of the effect of EV support policies are paramount to avoid adverse effects

EVI > EV30@30 Campaign

Goal: at least 30% of new road vehicle* sales across all EVI members to be electric by 2030**

Implementing actions on:

- Deployment of **chargers and fueling infrastructure,** public procurement and private sector deployment of **fleets**, expanding **research (policy focus)** to improve the understanding of best practices on EV policy support, providing resources for **capacity building** to disseminate these best practices
- Establish a **Global EV Pilot City Programme**, aiming build network of 100 EV-Friendly Cities over five years

➢ Commitments open to all interested stakeholders : Governments, businesses, partner organizations, companies, research institutes, local authorities, association, NGOs, non-profit organizations

* Including passenger cars, light commercial vans, buses, and trucks; excluding 2- and 3-wheelers
** Including battery-electric, plug-in hybrid, and fuel cell

EV30@30 - engagement

Supporting Governments – so far

Canada, China, Finland, France, India, Japan, Mexico, the Netherlands, Norway and Sweden

Supporting NGOs and IGOs – so far

C40, FIA Foundation, GFEI, NRDC, Mission 2020, SLoCaT, The Climate Group, UN Environment, UN Habitat and the ZEV Alliance

EVI > EV30@30 > Global EV Pilot City Programme (PCP)

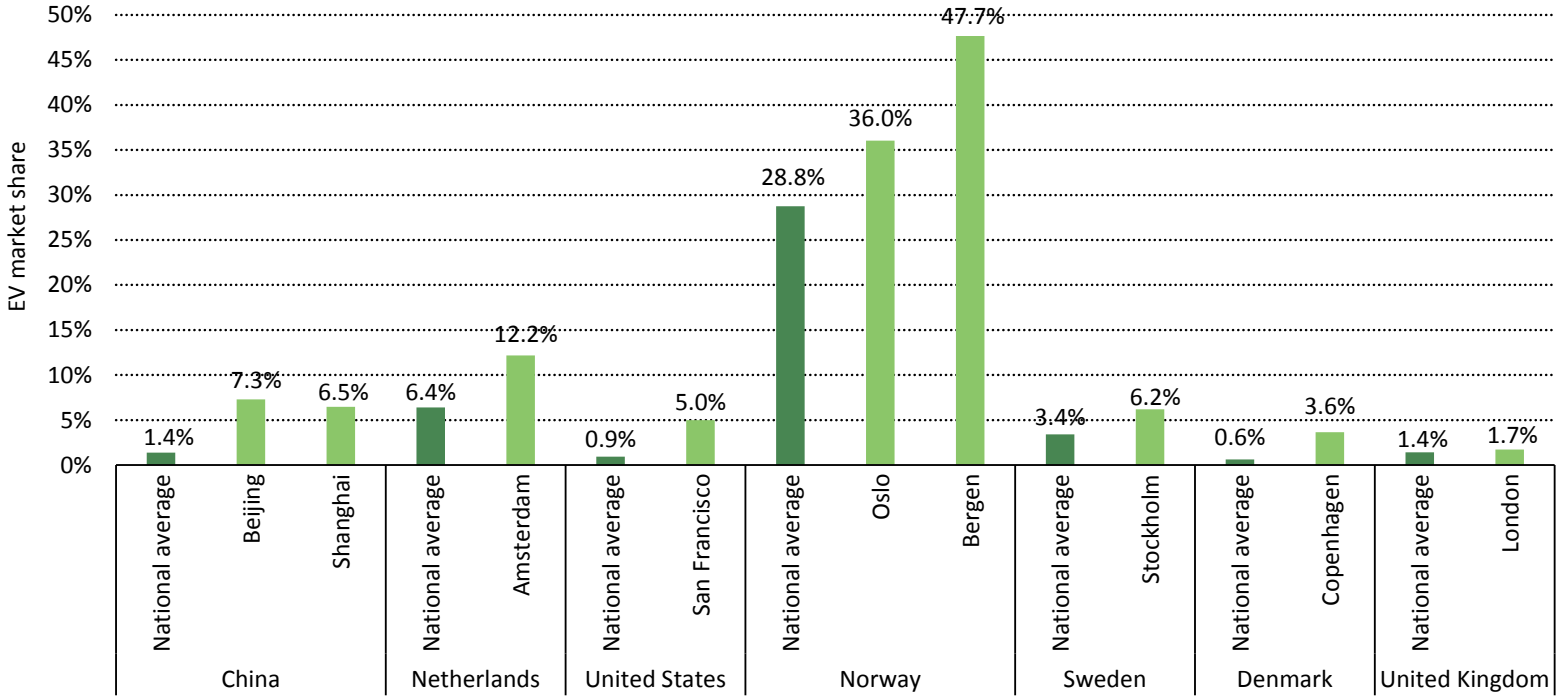
- **Goal: build network with 100 EV-Friendly Cities over five years**

- Provide **support** to municipal governments
  - Topics: urban planning, infrastructure and charging technology, mass transit (including electric buses) and mobility as a service (including car and ride sharing)
- Support **dialogue** with government and private sector
- Identify **good practices** and facilitate their **replication** and improvement
- Annual event: **Pilot City Forum**
  - ➢ **Exchange event** allowing to facilitate **networking** and **communication** across interested stakeholders, to be held alternatively in China in odd years and in another economy in even years
- **Monitor and report** progress : data and information sharing among PCP members

Launch: 23-24 May 2018, Clean Energy Ministerial in Copenhagen

Cities can be a privileged space for EV support and deployment

Market share of electric cars in leading EV economies compared to EV-friendly cities, 2016:



Nearly one third of global electric car sales took place in just 14 cities in 2015

- "Cities have been at the **forefront** of stimulating EV deployment"
- "Leading EV cities have shown that, as a result of **dedicated local policies** complementing economy-wide EV policy schemes, they can create a **favourable environment** for EV use and **reduce consumer barriers**"
- "Cities can have a **leadership** role in developing and testing **innovative** policy actions before widespread adoption"

(Global EV Outlook 2017, IEA)

Cities have a unique role to play in supporting EVSE rollout and in implementing measures enhancing the value-proposition of driving electric. They act as innovation test-beds for the future of mobility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