

MÉXICO-ALEMANIA

DIÁLOGOS POR UN FUTURO SUSTENTABLE | TRANSICIÓN ENERGÉTICA HACIA UNA ECONOMÍA DE BAJO CARBONO

La Embajada de Alemania en México y el Centro Mario Molina le invitan a participar en la 10ª edición de los Diálogos por un Futuro Sustentable México-Alemania

Alternative Technology Solutions for a Sustainable Urban Transport

Lugar: Hacienda de los Morales, CDMX

Confirmar asistencia: mrodriguez@centromariomolina.org



Embajada
de la República Federal de Alemania
Ciudad de México



ALEMANIA
MÉXICO

ALIANZA
PARA EL FUTURO



centro
mario
molina

Miércoles 21 de junio, 2017

Registro: 14:30

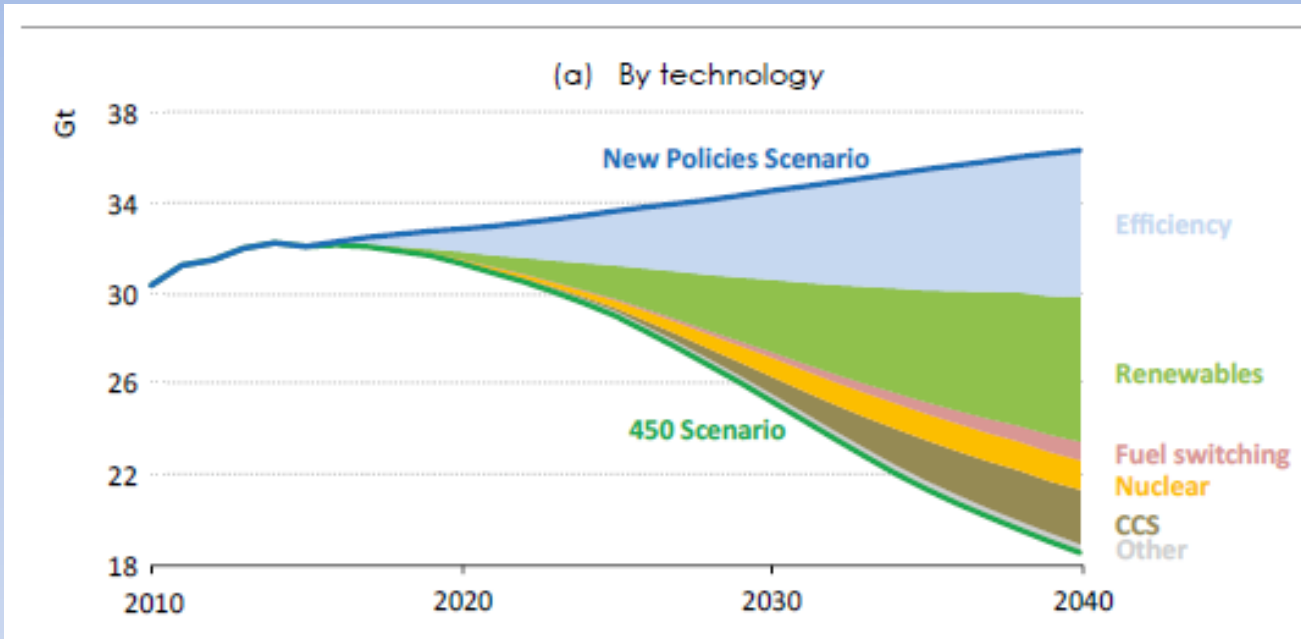
Evento y brindis: 15:00-18:30

Dr.-Ing. Harald Diaz-Bone / harald@diaz-bone.de

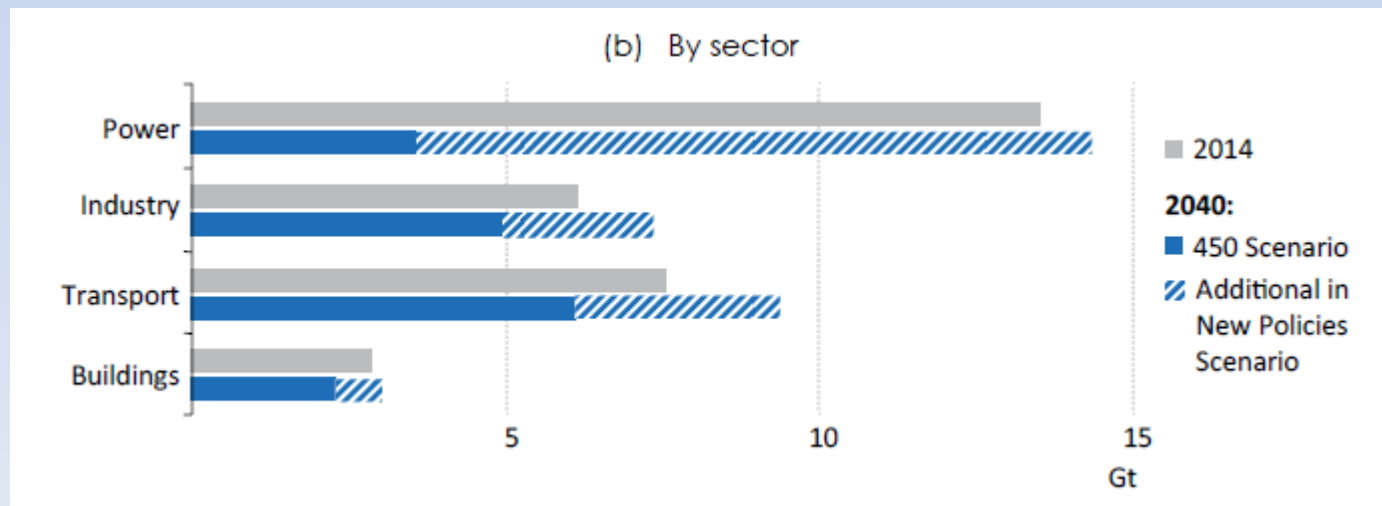
Key messages

- Implementation of the Paris Agreement asks for ambitious climate action at global scale
- Compared to other sectors, transport is lagging behind in mitigation of GHG emissions
- Decarbonization of the transport sector is possible through its electrification
- Batteries as key technologies are coming by 2030
- Key to success: A regulatory and fiscal framework that stimulates the transition process

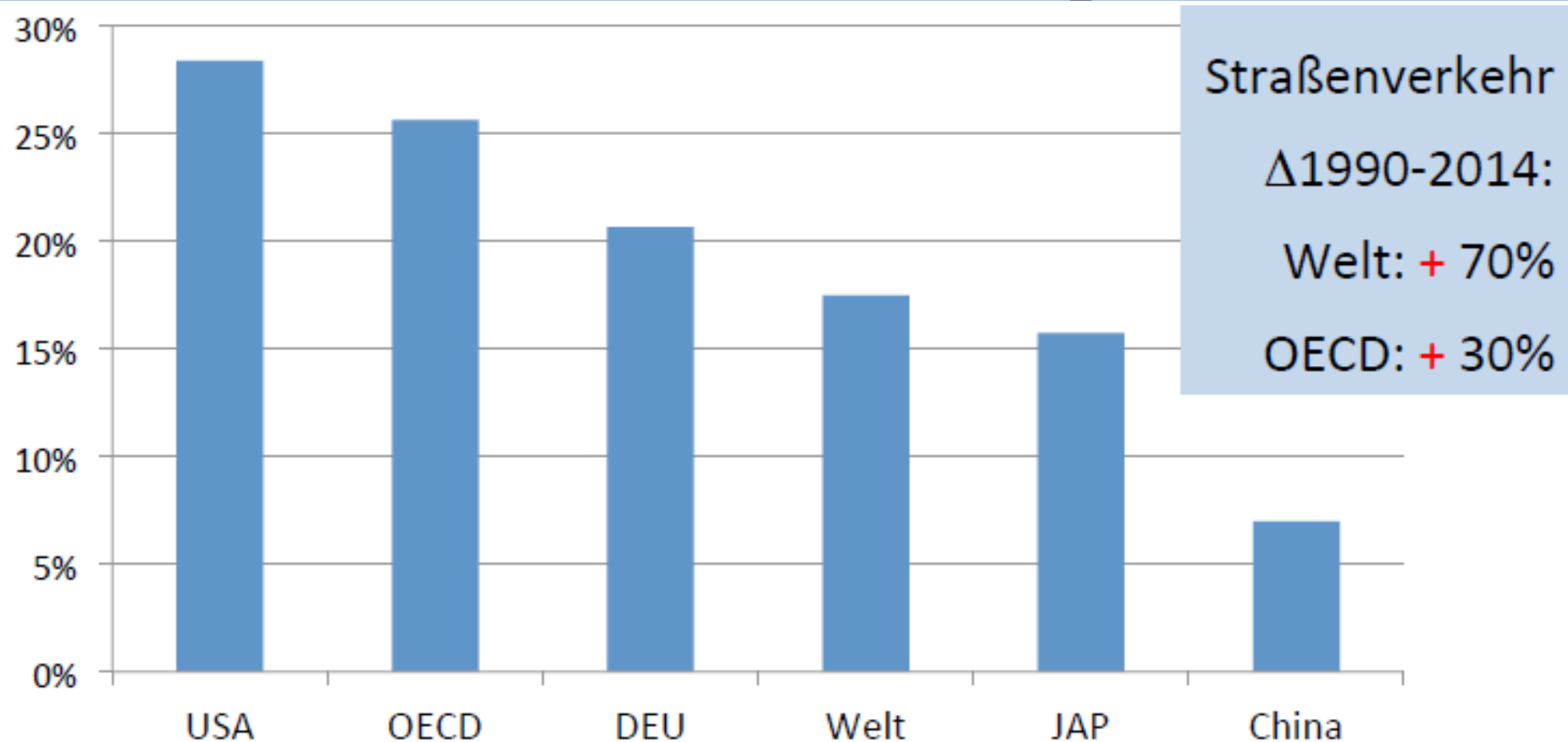
Main options are energy efficiency and renewable energy sources



450 ppm CO₂ Scenario



Road Transport: High Shares in National CO₂ Emissions

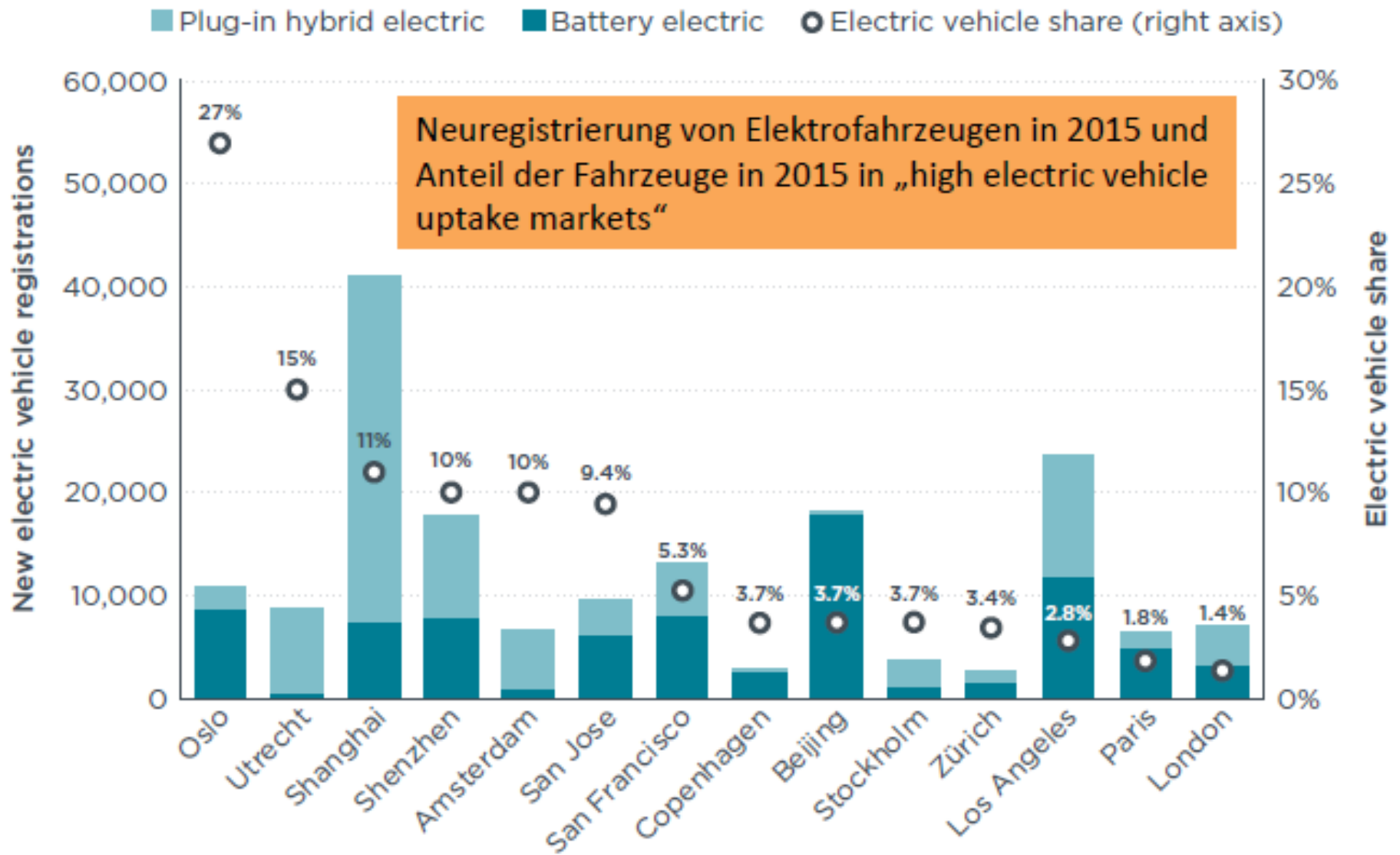


Total CO₂ emissions from road transport increased by 70% during 1990-2014 at global scale.

Winner of the Green Race for Alternative Technology Solutions in Urban Transport?



EV Registration Numbers by Cities

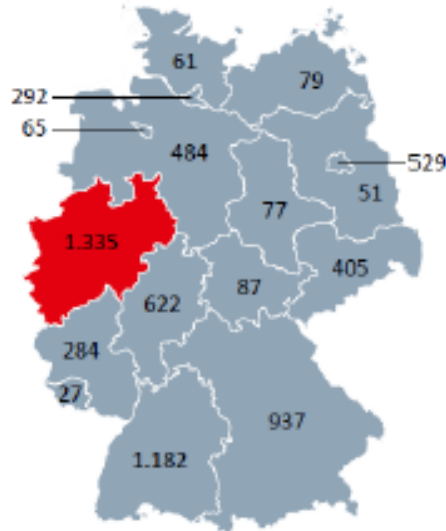


Public EV Charging Stations in Germany

Öffentlich zugängliche Ladepunkte

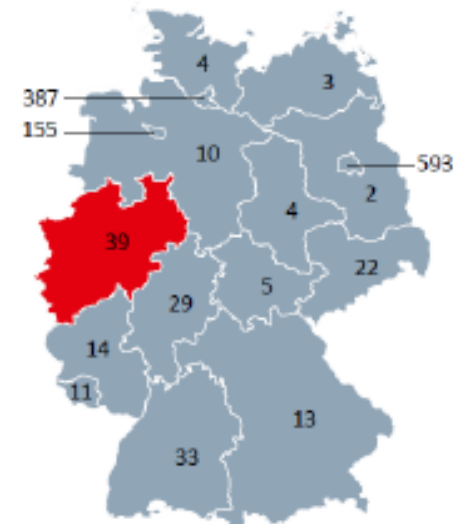
2.859 Ladestationen | 6.517 Ladepunkte
2,28 Ladepunkte pro Station

Quelle: BDEW Erhebung Sept 1016



Öffentlich zugängliche Ladepunkte je 1.000 km²

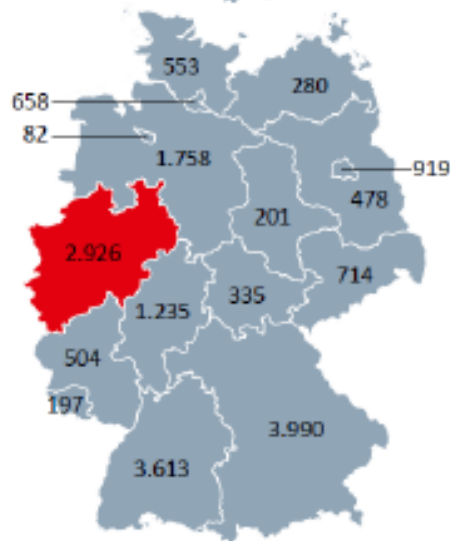
2.859 Ladestationen | 6.517 Ladepunkte



Halb-/Öffentliche Ladepunkte

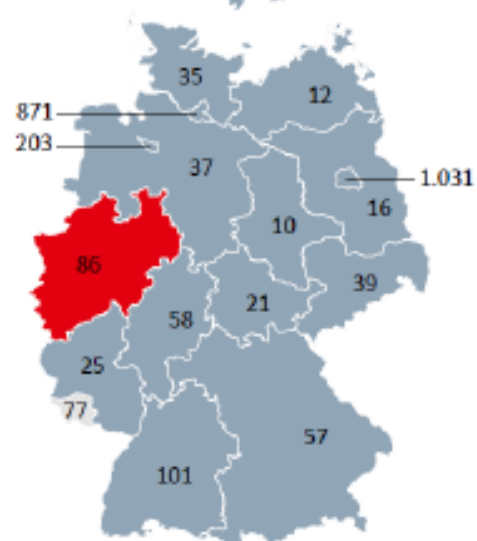
6.279 Ladestationen | 18.567 Ladepunkte
2,96 Ladepunkte pro Station

Quelle: GoingElectric Sept 1016





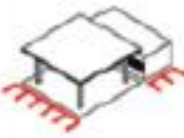




Halb-/Öffentliche Ladepunkte je 1.000 km²

6.279 Ladestationen | 18.567 Ladepunkte



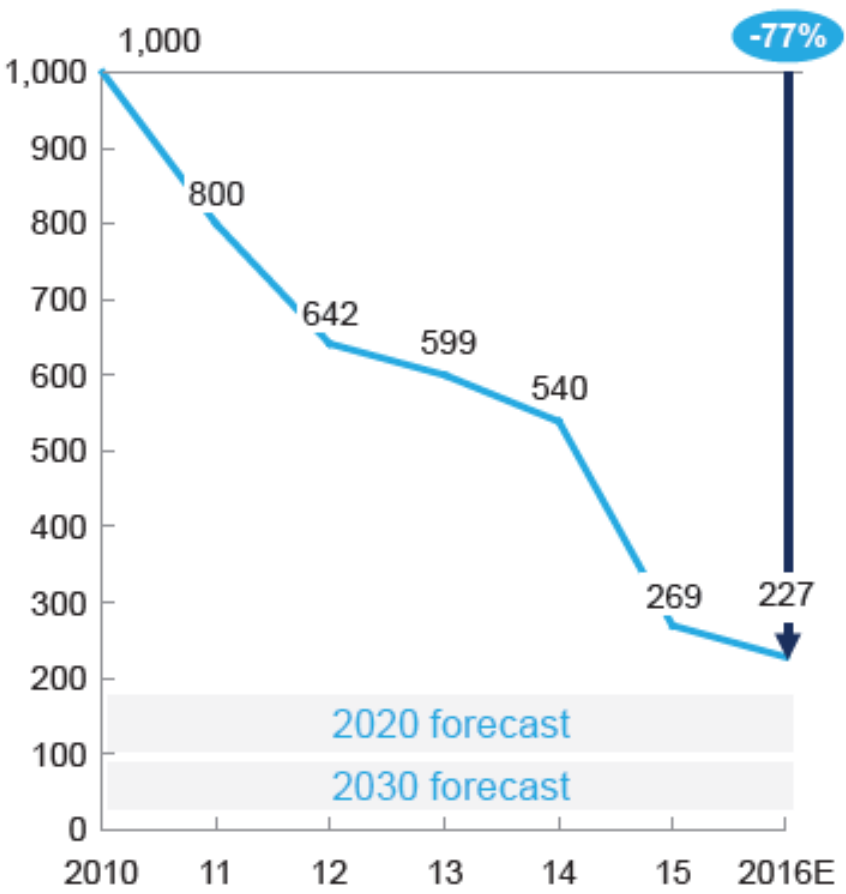
Federal Support Program for Public Charging Stations in Germany

Verteilung Ladevorgänge	Privater Aufstellort 85 %			Öffentlich zugänglicher Aufstellort 15 %			
Typische Standorte für Ladeinfrastruktur	 Einzel- / Doppelgarage bzw. Stellplatz beim Eigenheim	 Parkplätze bzw. Tiefgarage von Wohnanlagen, Mehrfamilienhäusern, Wohnblocks	 Firmenparkplätze auf eigenem Gelände	 Autohof / Tankstelle	 Autobahn-Raststätte	 Kundenparkplätze bzw. Parkhäuser (z.B. Einkaufszentren)	 Straßenrand / öffentliche Parkplätze
	regelmäßige oder Nachtladung			Schnellladung		Zwischendurchladen	
	AC			DC 50-150 kW		AC + DC	
	Gegenstand des Förderprogramms						

Rapid decreases in battery prices have helped accelerate EV sales, especially in Europe and China

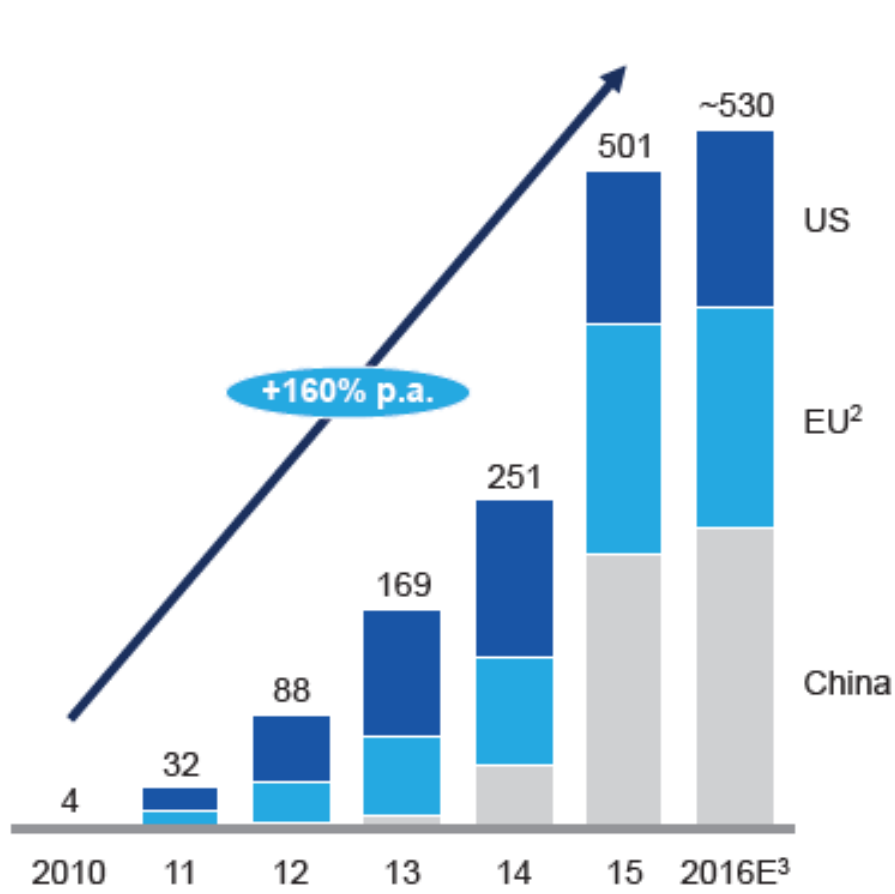
Average battery pack price

\$ per kWh



US, EU, and China electric vehicle sales¹

Units, thousands



¹ Plug-in hybrid electric vehicles and battery electric vehicles; excludes low-speed vehicles and hybrid electric vehicles without a plug

² Includes Denmark, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, and the UK

³ Extrapolated based on Q1-Q3 2016 IHS data and assuming continued growth in all three markets in Q4

SOURCE: IHS, Bloomberg, New Energy Finance

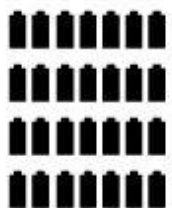
CHINA IS LEADING THE CHARGE

Lithium-ion megafactories in China to grow capacity 6X by 2020



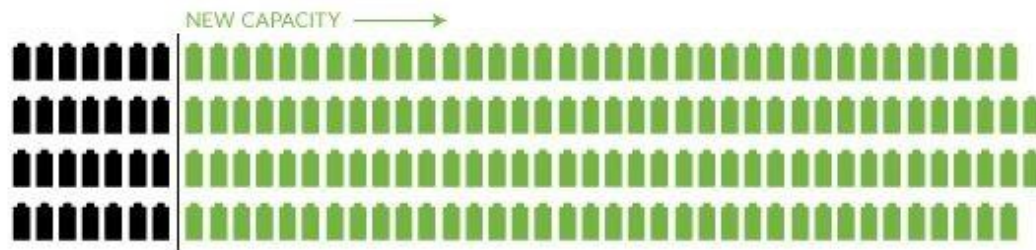
Global lithium-ion battery production capacity will increase by **521%** between 2016 and 2020.

Capacity in
2016

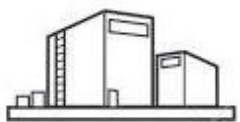


28
GWh

Capacity in
2020



174
GWh



China's battery sector continues to be a hub for most of this growth.

Source: <http://www.visualcapitalist.com/china-leading-charge-lithium-ion-megafactories/>

	2016 Capacity (GWh)	2020 Capacity (GWh)	% of Global Total (2020)
United States	1.0	38.0	22%
China	16.4	107.5	62%
Korea	10.5	23.0	13%
Poland	0.0	5.0	3%
Total	27.9	173.5	100%

Policy implications for the transport sector

- McKinsey 2017: Automobile consumer demand is shifting in favour of e-mobility, key technologies improve faster than anticipated -> accelerate investment in charging infrastructure at national, regional, and city levels
- TonySeba 2016: Disruption of the automobile market before 2030 -> avoid stranded investments in traditional car technologies
- Shift in transport paradigm towards driverless, shared e-mobility has strong implications on the labour market, traffic rules, consumer behaviour and mobility patterns

-> Transport policy makers need to (re-)act now!

Automotive industry megatrends are self-reinforcing and will likely accelerate the transition to e-mobility in the long term

Examples of potential EV reinforcement points from other automotive megatrends

A Autonomous

- EV vehicle architecture has a central control unit to facilitate autonomy
- Autonomous charging could add convenience



C onnected

- A connected EV ecosystem could increase the convenience of charging
- Connected car grid solutions could enable cost-effective load balancing



Automotive industry megatrends

S hared

- Greater annual driving distances can offer a decisive TCO edge for EVs
- Some consumers may prefer access to multiple vehicle types over ownership (including EVs)



E lectrified

- Tightening emissions efficiency rules make EVs necessary to meet standards
- Lower battery costs improve EV economics





12:56

CLEAN DISRUPTION OF ENERGY AND TRANSPORTATION: HO...

CLEAN DISRUPTION

OF ENERGY AND TRANSPORTATION

Tony Seba

**How Silicon Valley
Will Make Oil, Nuclear,
Natural Gas, Coal,
Electric Utilities and
Conventional Cars
Obsolete by 2030.**





IRENA Report Shows Renewables Are Gaining Ground in Nearly Every Measure

IRENA Membership



Events

IRENA event on 'Battery storage cost and market outlook 2030'
15 – 16 March 2017
Düsseldorf, Germany

Berlin Energy Transition Dialogue
20 – 23 March 2017
Berlin, Germany

Kick-off Meeting for RRA Mali
3 – 6 April 2017
Bamako, Mali

[More Events](#)