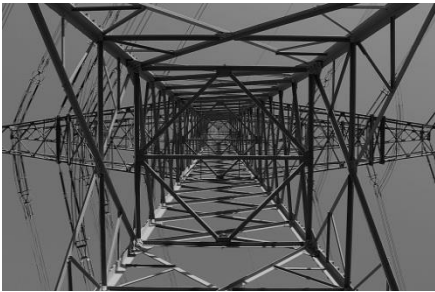


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# Mobility and Energy Infrastructure

Hans Poser, 5th Energy Infrastructure Day, Munich, 17 October 2017



Finadvice, Advising The Energy And Infrastructure Sector Since 1998

# Current political and technological developments around the world incl. the VW-emission scandal are pushing towards emission free mobility

## All Volvo cars to be electric or hybrid from 2019

The Volvo chief executive, said: "This announcement marks the end of the solely combustion engine-powered car."



## By 2030 all cars in the Netherlands must be emission free

The Dutch government confirms plan to ban new petrol and diesel cars by 2030



## China sets target for EV quota starting 2019

China sees an opportunity to leapfrog to the global stage. It's about making China more green and building up a global player. The government sees a disruptive opportunity



## Volkswagen is investing 70 billion Euros into electric vehicles

"We have got the message and we will deliver," the CEO said. "This is not some vague declaration of intent. It is a strong self-commitment"



## EV in Norway are maintaining their incredible 35% market share of new sales.

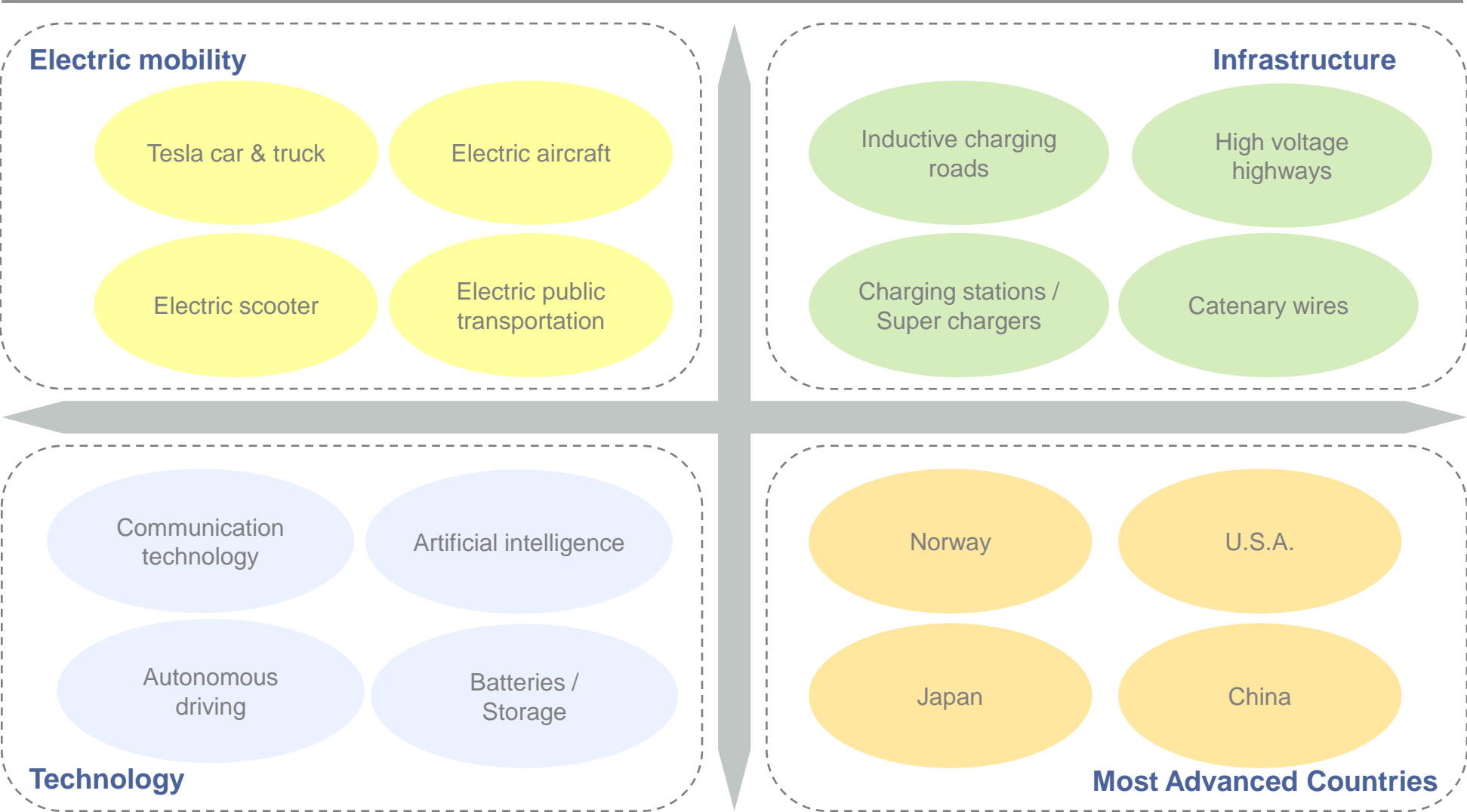
The country has the goal of 100% of new car sales to be zero-emission vehicles starting in 2025.



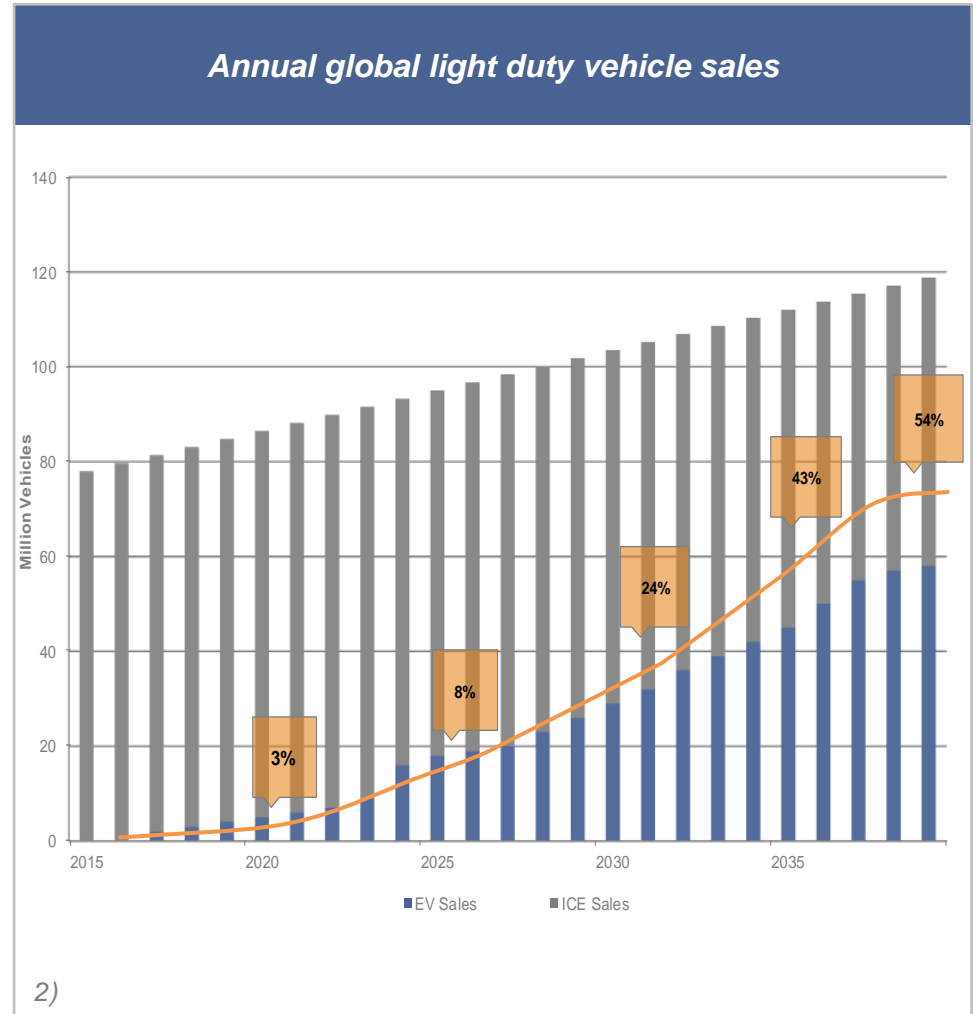
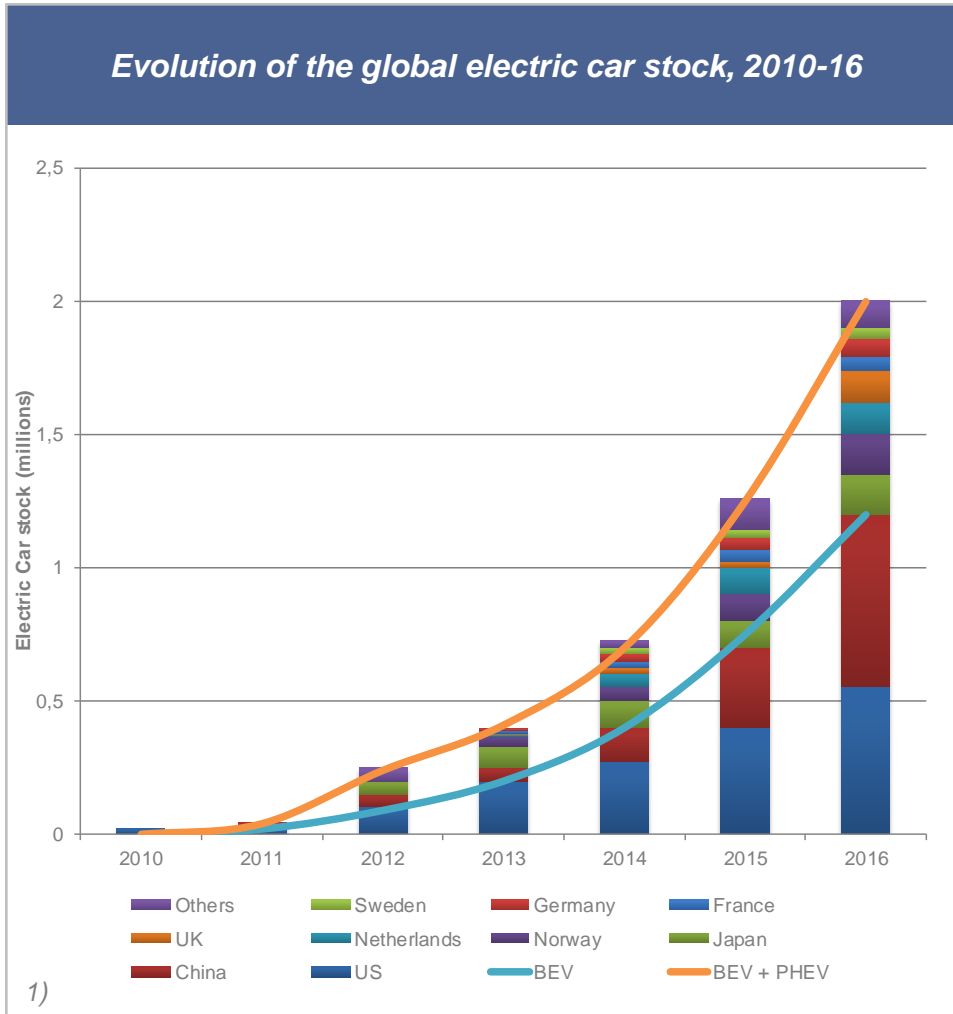
**A shocking turn that few could see coming**  
General Motors (GM) has announced its abrupt decision to phase out manufacturing cars that rely on diesel and gasoline and move towards an all-electric by 2023.



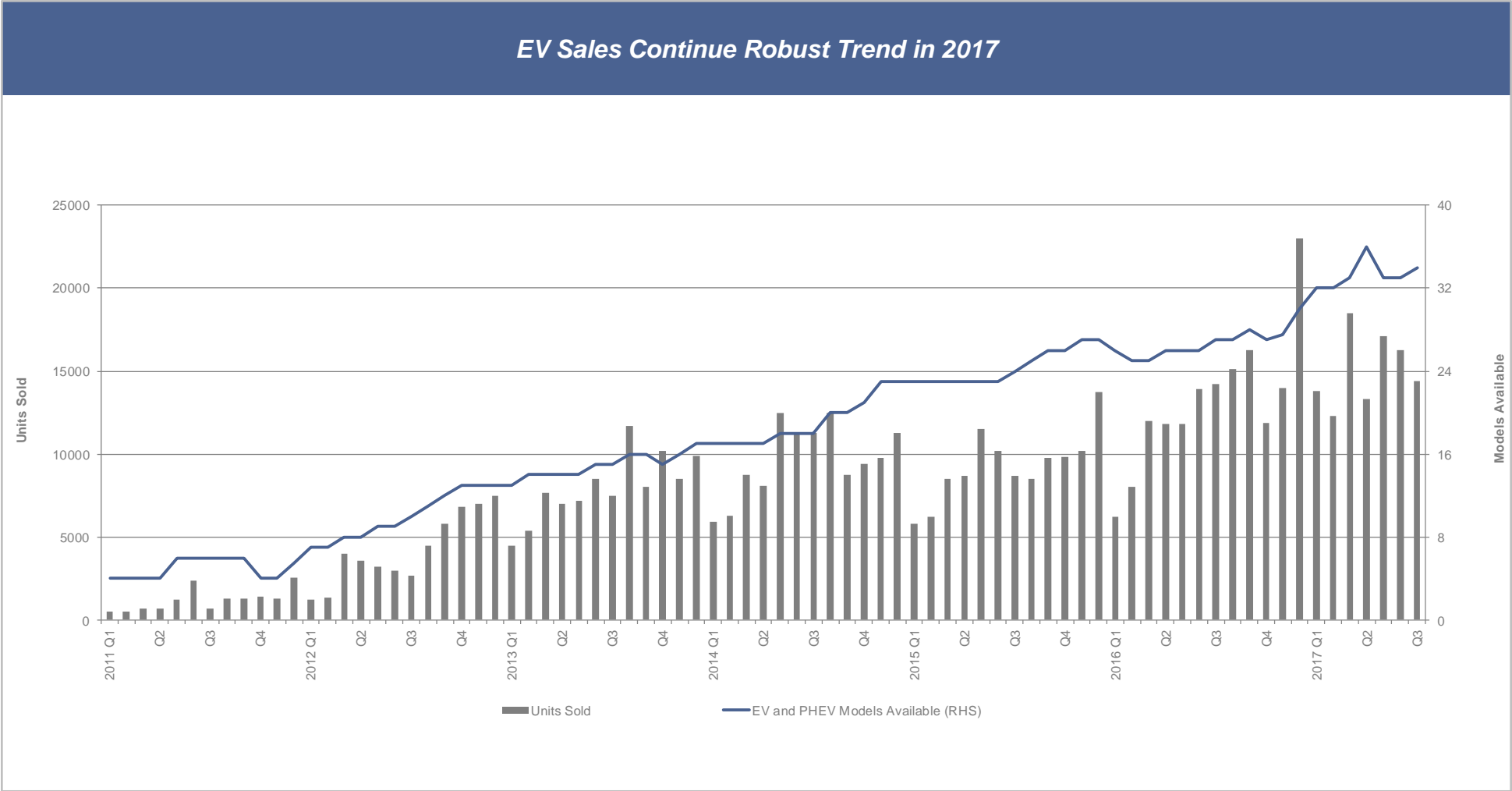
# In combination with the growth of renewables energies, electric mobility is disrupting the energy and infrastructure industry from all perspectives



# Global EV sales - China EV sales had a record August 2017, up a massive 68% on August 2016. By 2040, 54% are expected to be EV sales

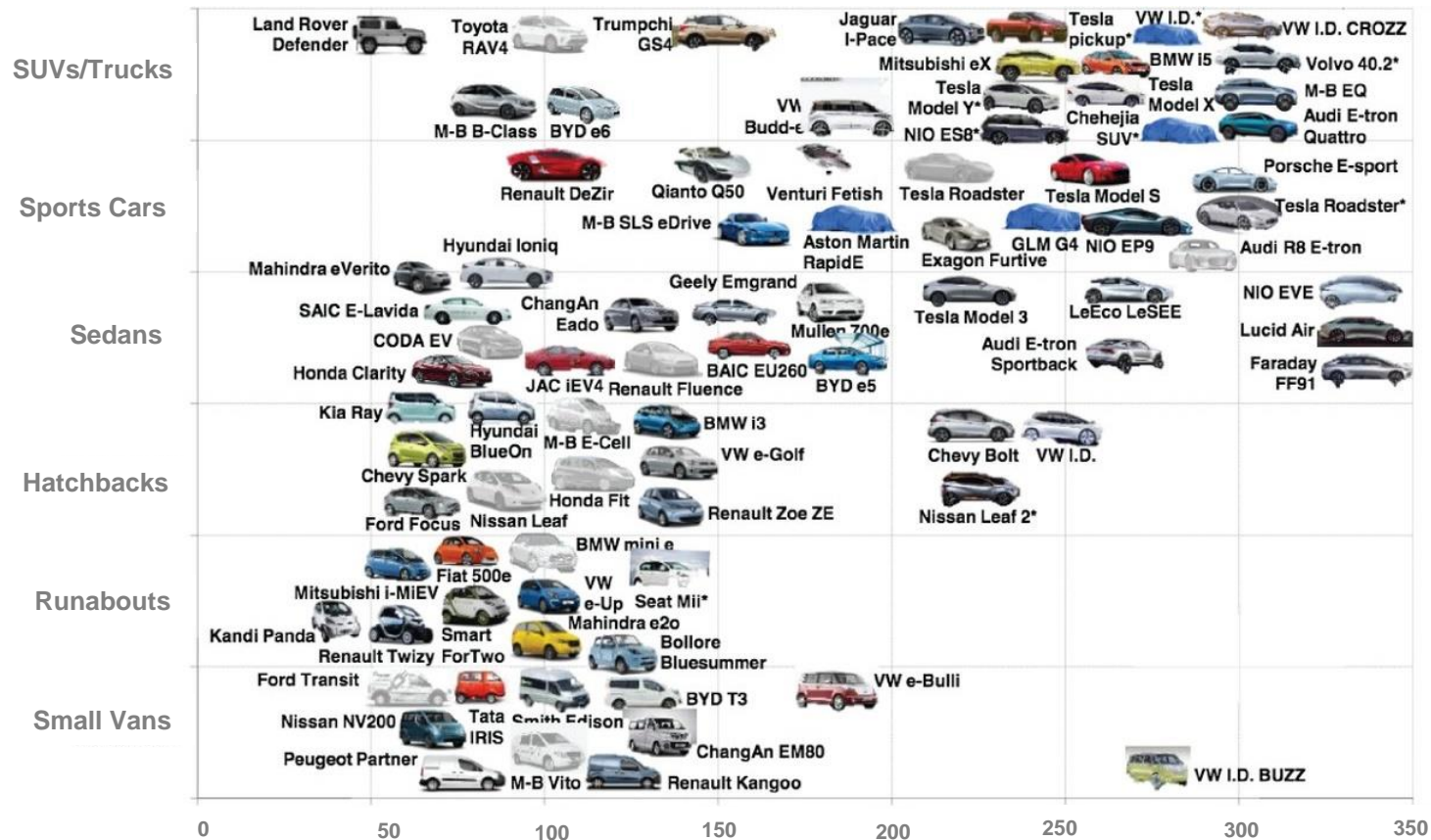


# Since 2010 there is remarkable growth in the EV market and the dynamic will intensify in the coming years by technological improvements



# Manufacturers are pushing the model availabilities aggressively to sustain a market player – EV soon cheaper than traditional cars

EV models by style and range available through 2020



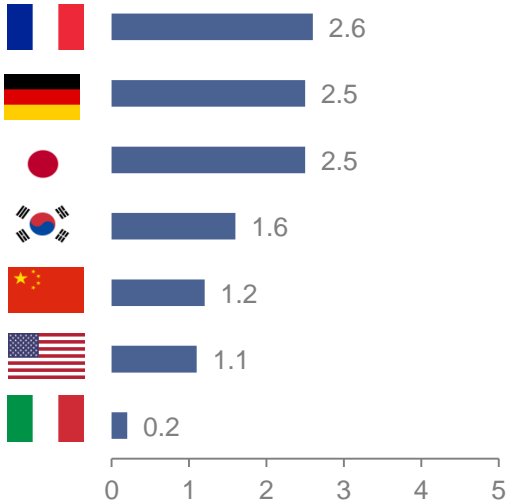
# China will dominate both the market and the industry in the foreseeable future. Having rolled out 350,000 PHEVs and BEVs in 2016

## E-Mobility Index – Ranking by indicator

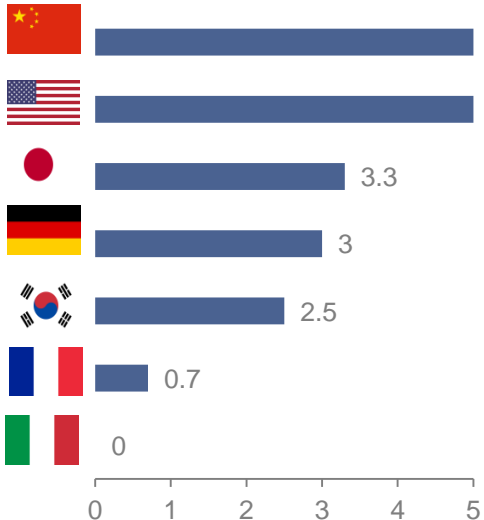
### Overall Ranking

- ① China
- ② USA
- ③ Germany

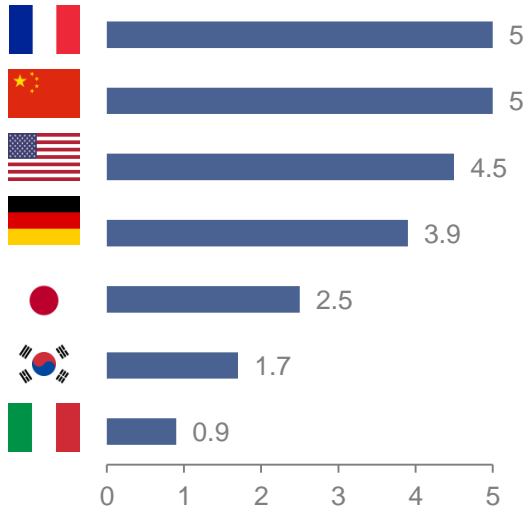
### Technology Index



### Industry Index



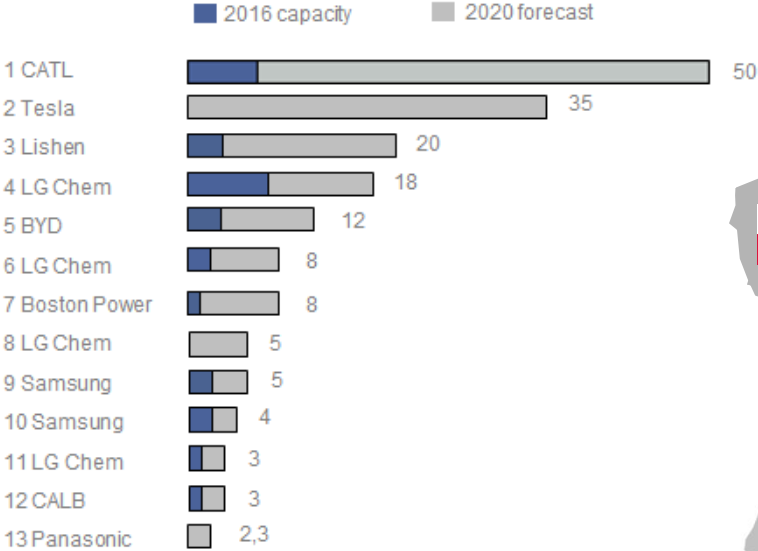
### Market



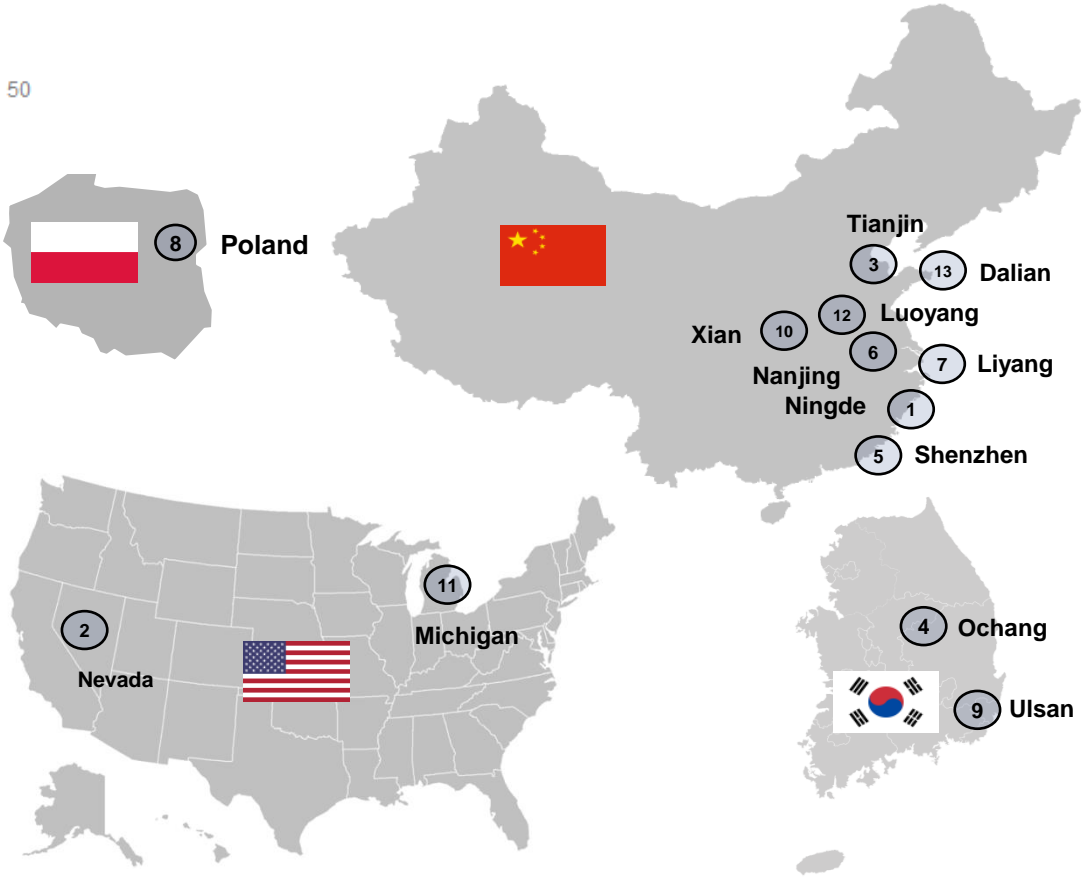
# The production capacity of big lithium ion batteries doubled last year

## Costs are expected to continue to erode with China in the driver seat

Manufacturing capacities of lithium ion batteries in 2017 amount to 103 GWh and are expected to triple by 2020

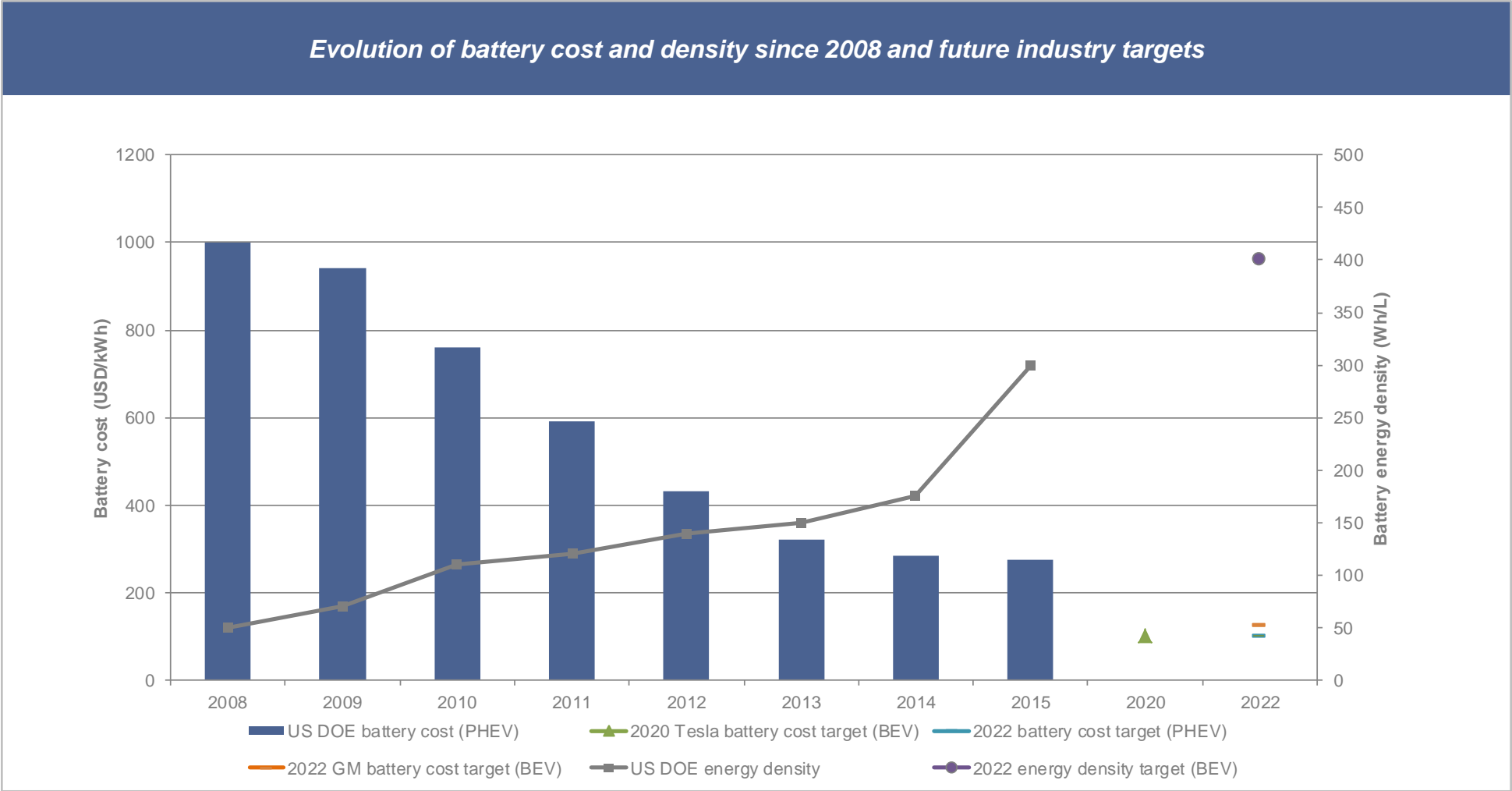


Top 5 Markets in 2040	
China	343 GW
U.S.	200 GW
India	127 GW
Japan	62GW
Germany	30 GW



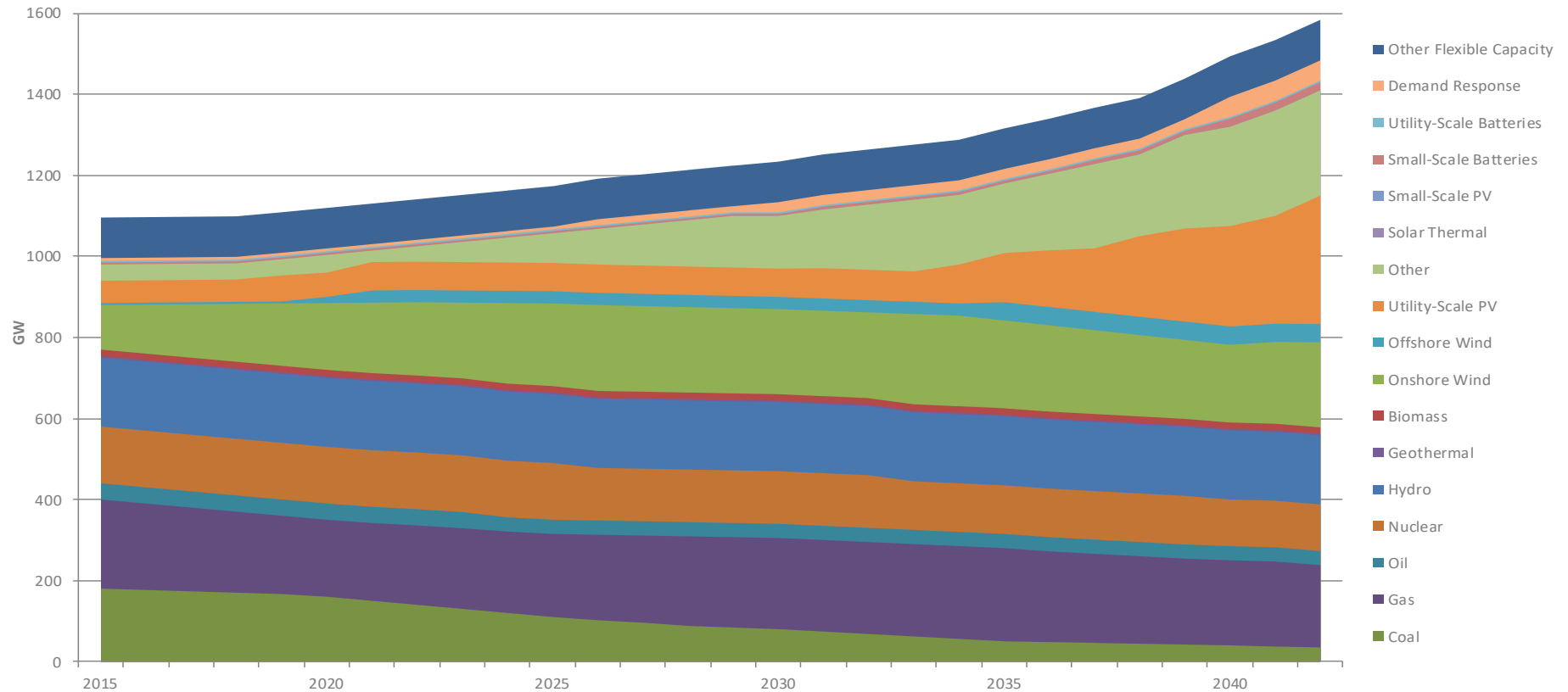


# Falling prices and increasing density is set to reinforce the renewable energy growth - batteries are enablers for intermittent renewable energies

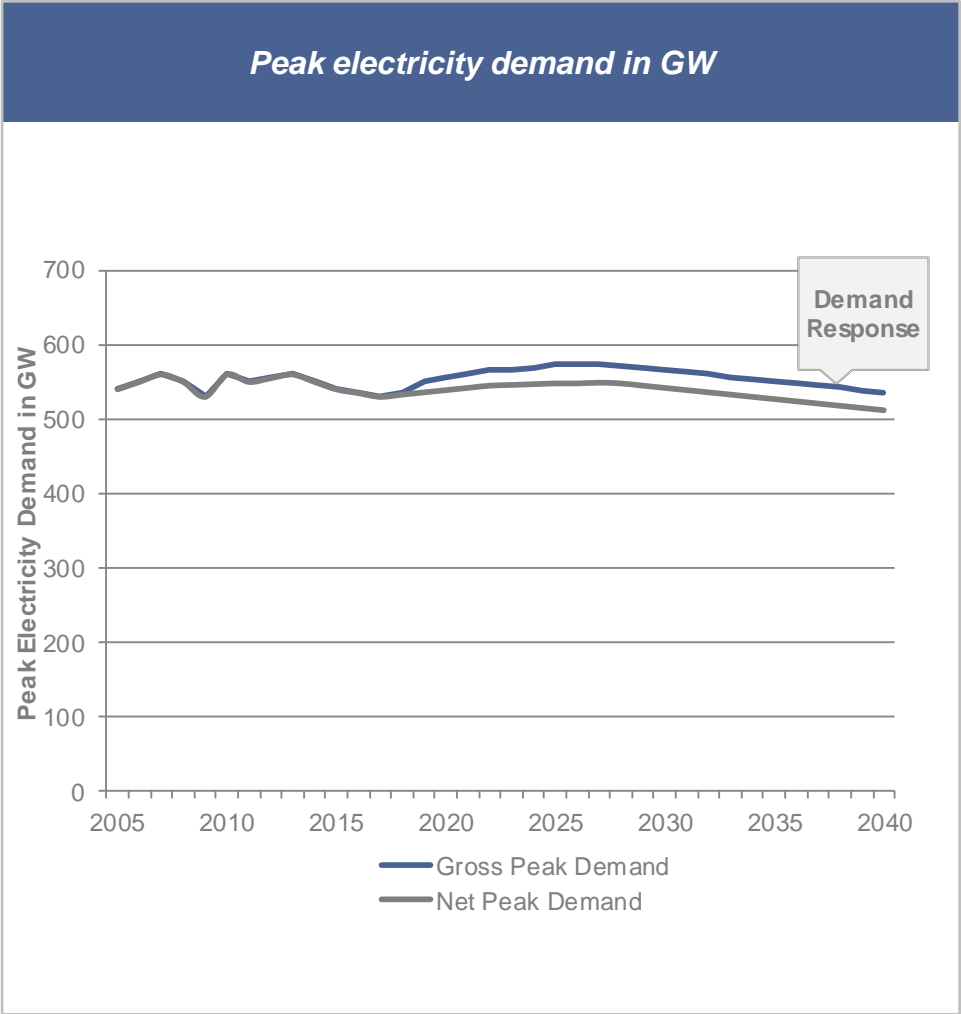
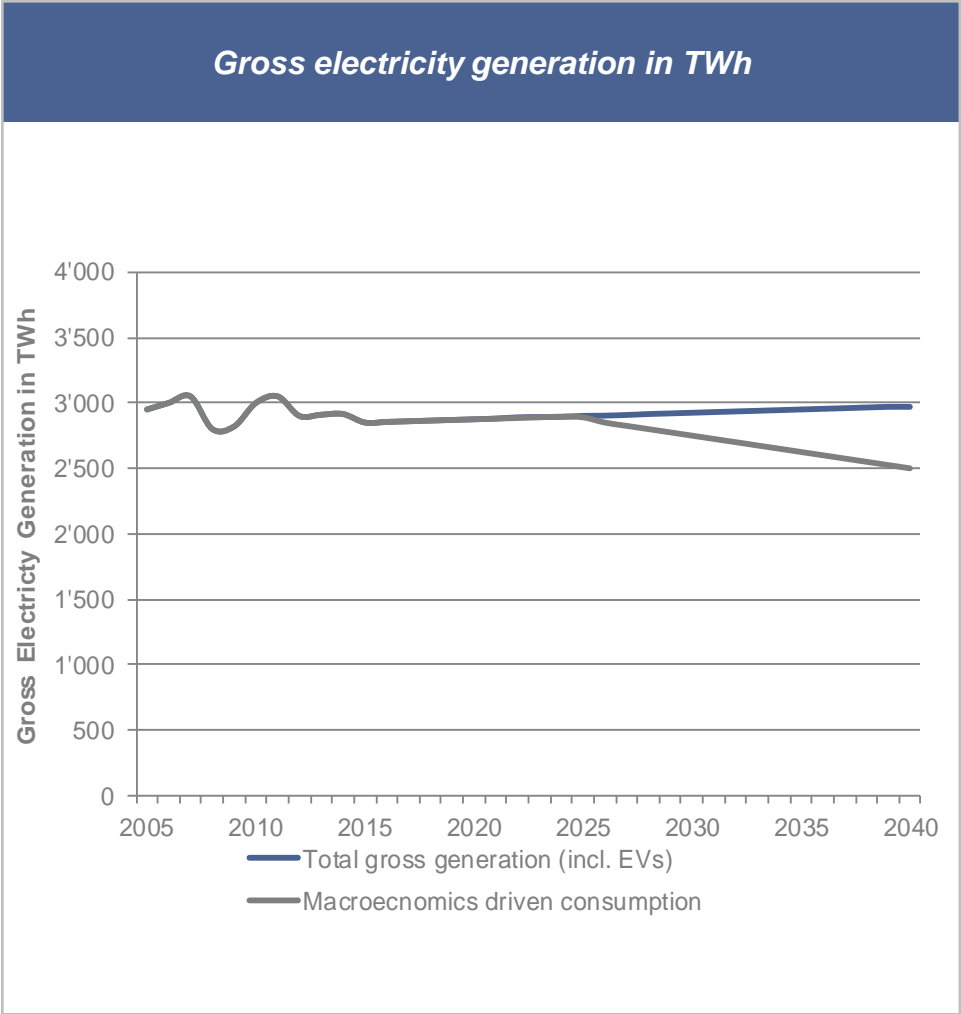


# Growth of renewables in Europe is set to continue and thermal power plants gone be replaced by renewables in combination with batteries

*BNEF predicts 50% renewables penetration in Europe by 2040*



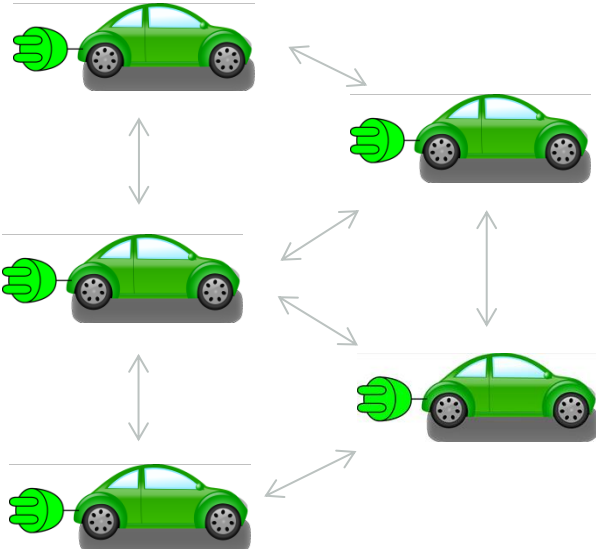
# Additional electricity demand from e-mobility will compensate for a decline in efficiency gains



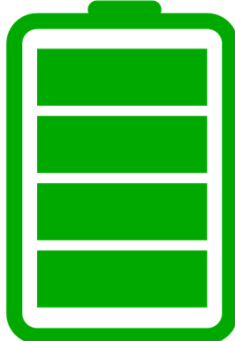
# A fleet of 1 million EV could supply around 7 million households with power for 24 hours with its storage capacity of 10 gigawatts

*Is this how a future “pump” storage will look like?*

1 Million electric vehicles  
(intelligently interconnected)



10 GW  
(power)



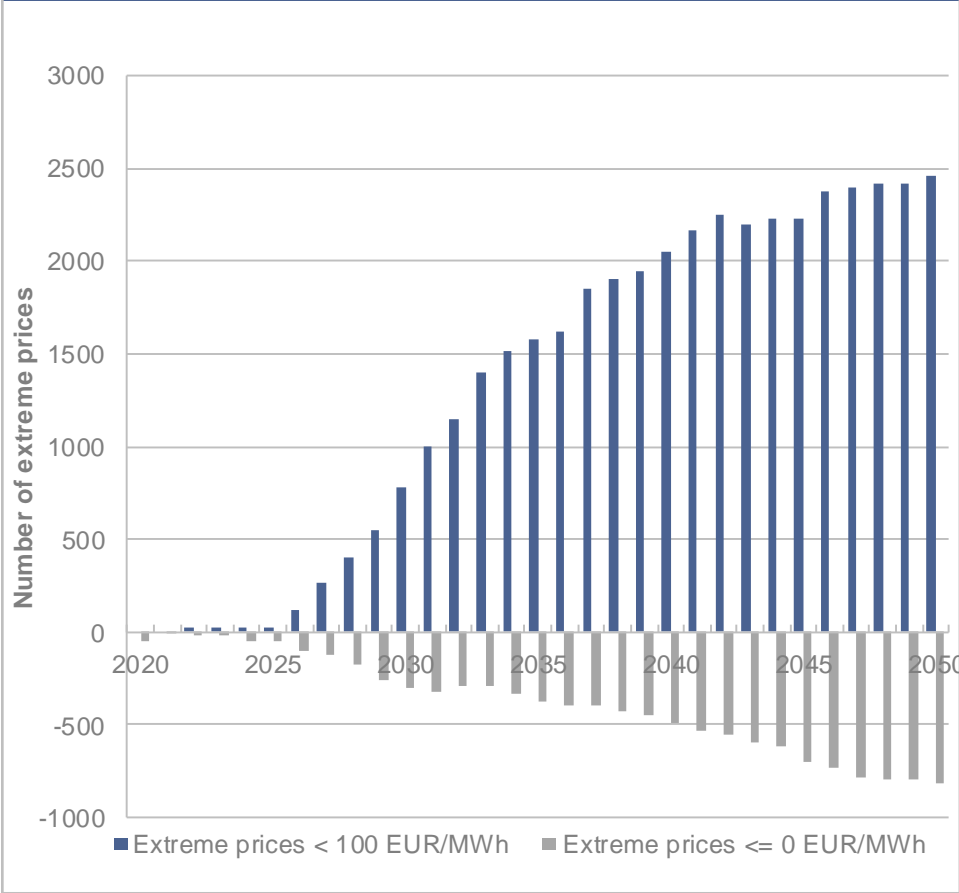
60 GWh  
(capacity)

7 Million households  
supplied for 24h

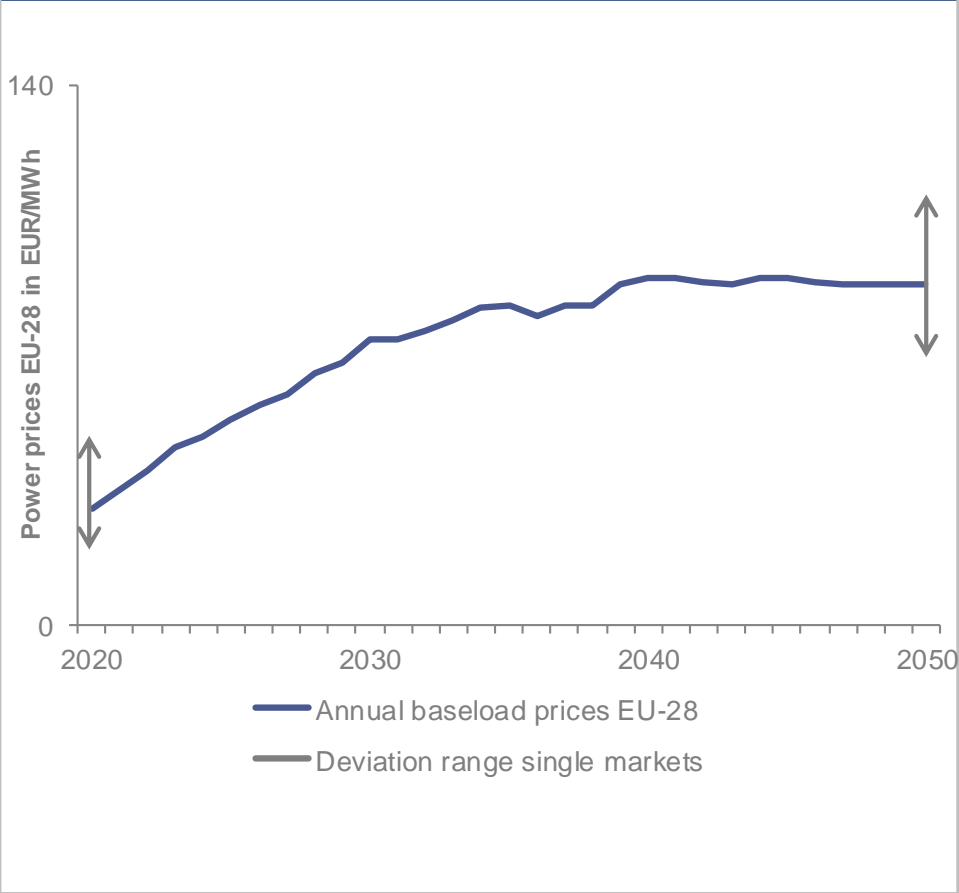


# Therefore, electricity prices and their volatility will increase in the future significantly

*Ectricity price volatility with prices > 100 and <= 0 EUR / MWh*



*Electricity forecast for the EU-28 countries*



# Hans Poser's profile and contact details

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[HansPoser](#)

Hans is one of the founders of Finadvice. He has over 20 years deal experience in continental Europe and has worked on transactions with a total value of >40 bn EUR. Hans' specialist sector experience is utilities where he provides M&A and strategic advice.

Among many other projects, Hans

- analysed European power markets for EDF and the Edison Electric Institute
- helped Veolia acquire and sell various assets, including their largest investment ever
- devised Swisspower's strategy for renewable investments, helped them in their largest acquisition and its financing
- did the valuation for Axpo's acquisition of >3000MW of wind projects

Before Finadvice, Hans was Vice President of the European Utilities Team of UBS Zurich and Project Leader of BCG in Frankfurt. Hans graduated in engineering from TU Berlin and in Business Administration from Toulouse Business School. He speaks German, English and French.

Hans is a member of the advisory council of [Yielco Investments](#) and [Luftmeister GmbH](#).

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