

Electric Vehicle Market Outlook

The 6th Korea, China, and Japan EV Business
Forum, IEVEXPO Jeju

Dr. Ali Izadi

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BloombergNEF

BNEF coverage

Strategies for a cleaner, more competitive future

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Commodities



Gas & LNG



Power



Oil



Carbon & offsets



Coal



Metals



Chemicals



Agriculture

Sector transitions

Clean power



Solar



Wind



Storage



Advanced nuclear



Power systems & networks

Advanced transport



Electric vehicles



New mobility services & tech



Commercial transport



Aviation & shipping



Renewable fuels

Buildings & industry



Low-carbon heating & cooling



Circular economy



Green steel & aluminum



Sustainable plastics & chemicals



Low-carbon cement

Sustainable agriculture



Sustainable proteins & fats



Green agrochemicals



Sustainable intensification



Carbon-smart farming



Biodiversity markets & finance

Cross-cutting technologies



Industrial digitalization



Hydrogen



Bioenergy



Carbon capture, utilization, storage & removal (CCUSR)



Energy efficiency

Sustainability



Corporate carbon & climate action



Regulation & reporting



Sustainable finance & ESG



Financial institution transition



Climate risk

Technology & innovation

Forecasts & scenarios

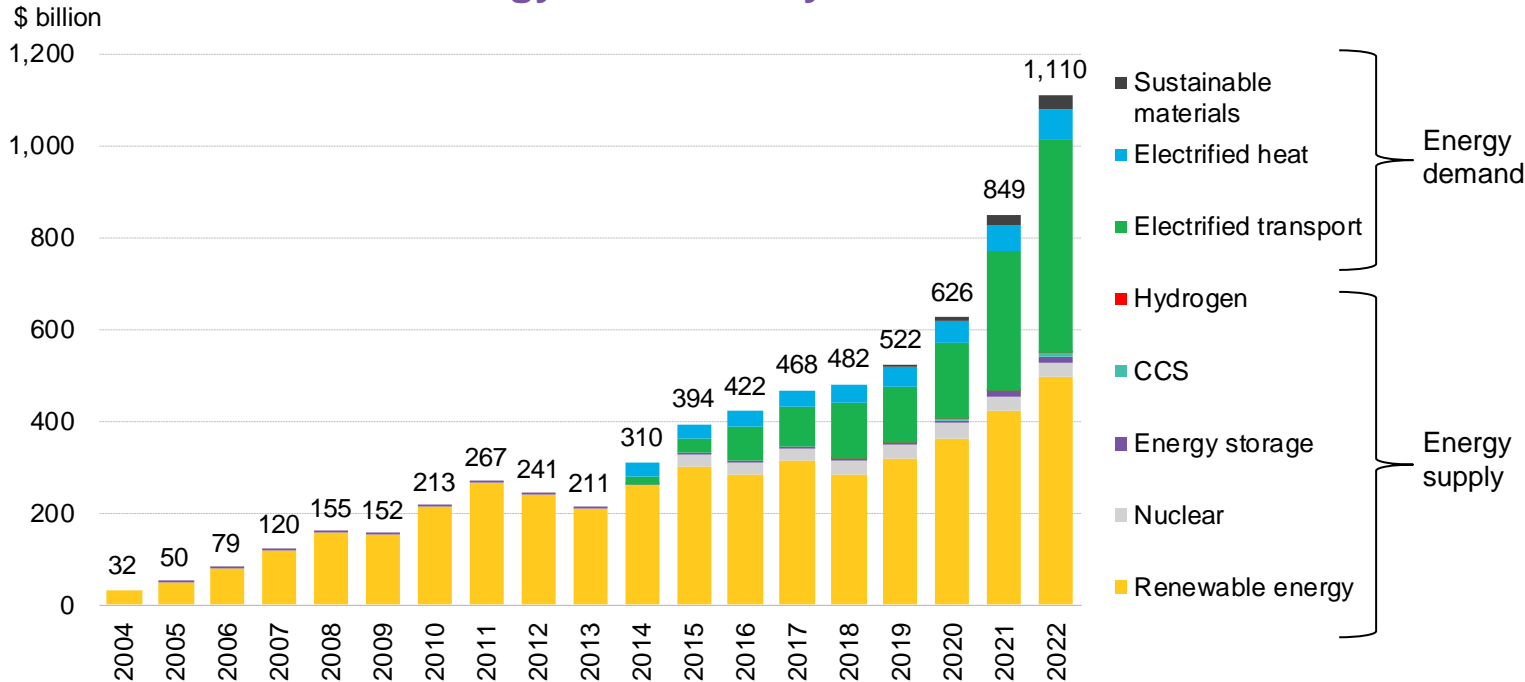
Countries & policy

Finance & economics

Consumers

The pandemic, war and inflation have not derailed the energy transition

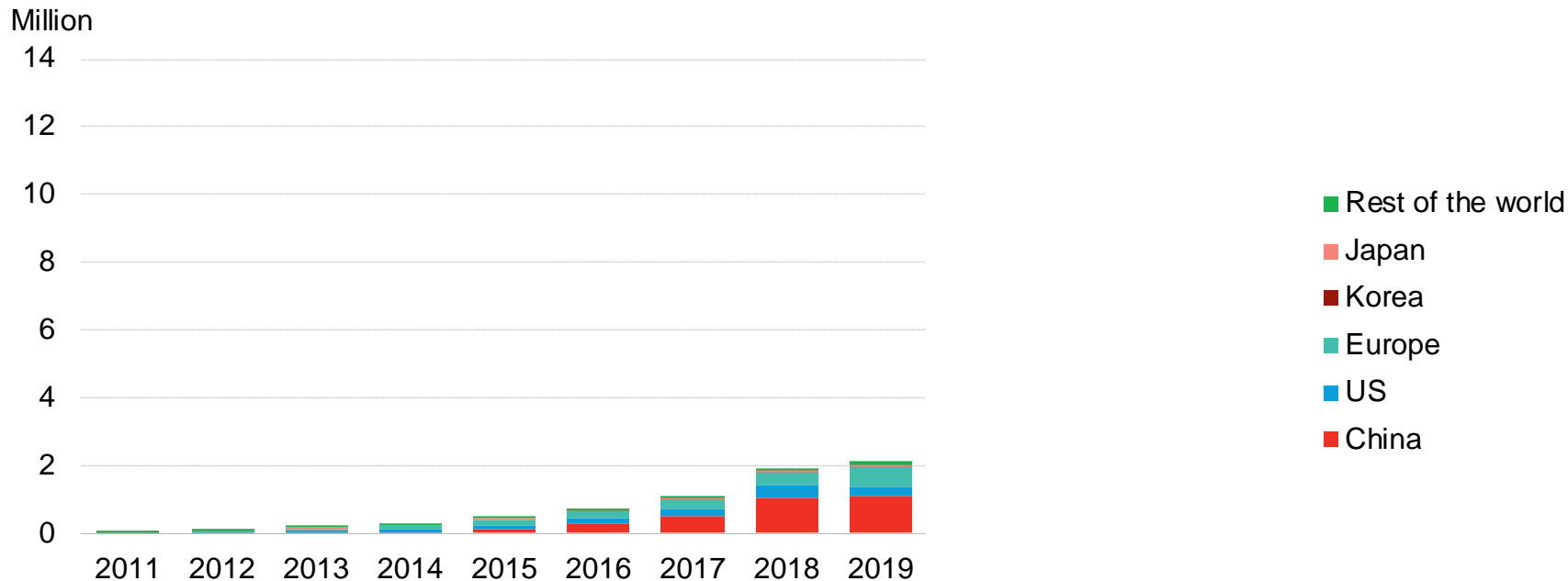
Global investment in energy transition by sector



Source: BloombergNEF. Note: start-years differ by sector but all sectors are present from 2019 onwards; see Appendix for more detail. Nuclear figures start in 2015.

In 2017, passenger EV sales exceeded one million for the first time, then reached two million in 2019

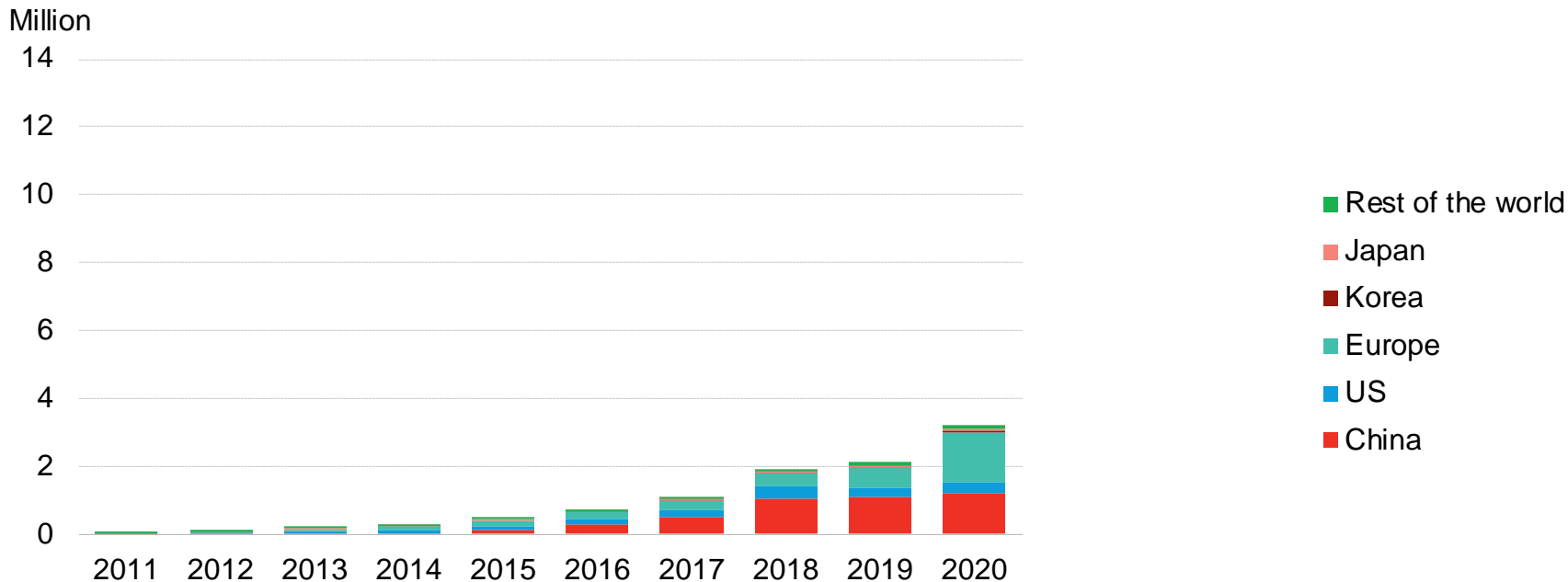
Annual passenger EV sales by region



Source: BloombergNEF, Marklines. Note: EVs include battery-electric and plug-in hybrid electric vehicles.

Despite the pandemic, passenger EV sales grew to over 3 million in 2020

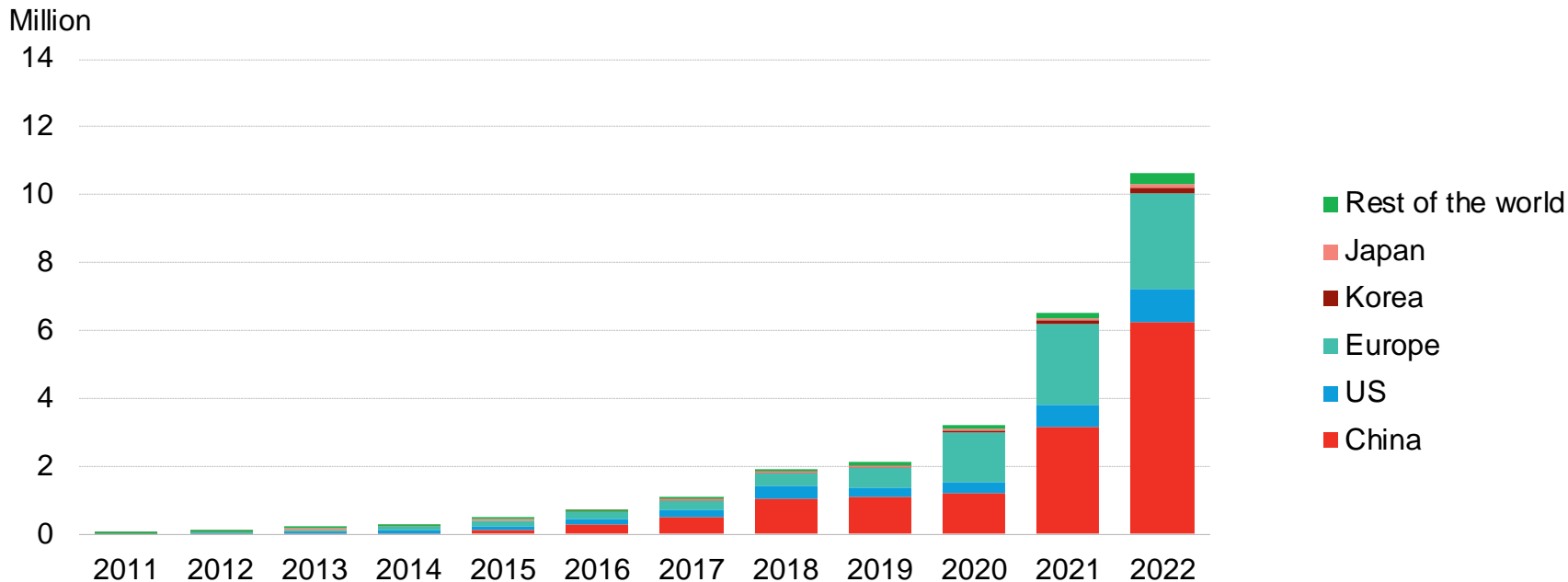
Annual passenger EV sales by region



Source: BloombergNEF, Marklines. Note: EVs include battery-electric and plug-in hybrid electric vehicles.

Passenger EV sales exceeded 10 million in 2022

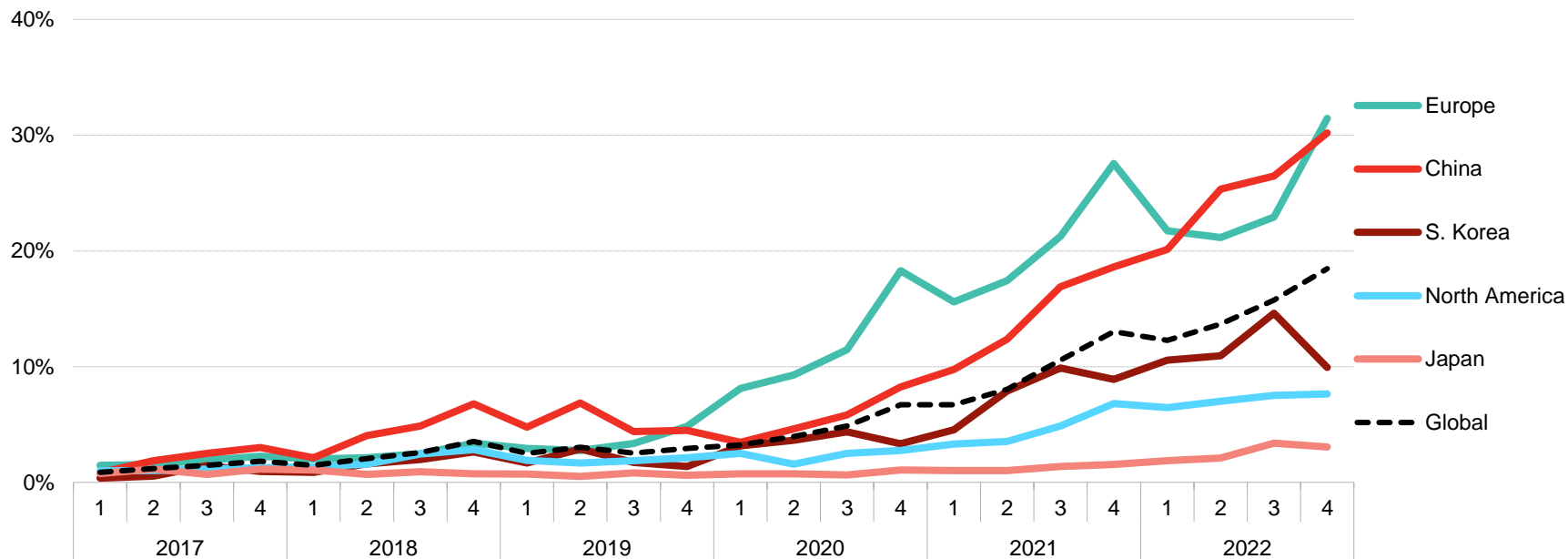
Annual passenger EV sales by region



Source: BloombergNEF, Marklines. Note: EVs include battery-electric and plug-in hybrid electric vehicles.

China and Europe have led passenger EV adoption

EV share of new passenger vehicles sales

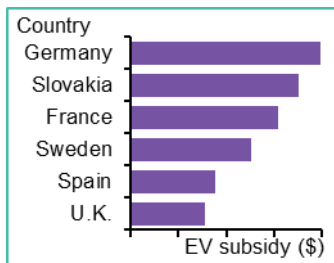


Source: BloombergNEF, Marklines, vehicle registration agencies, JATO

EV growth is set to continue. Why?

Policy

- EV purchase subsidies



- Fuel economy regulations

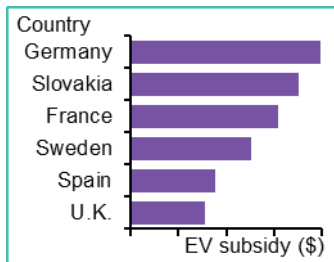


Source: BloombergNEF

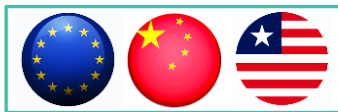
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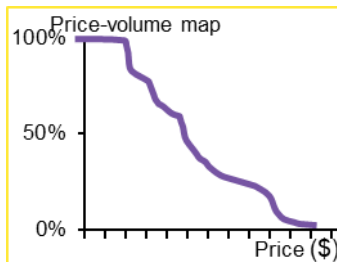
- Fuel economy regulations



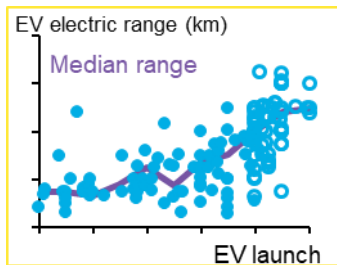
+

Model availability and addressable market

- EV model segments



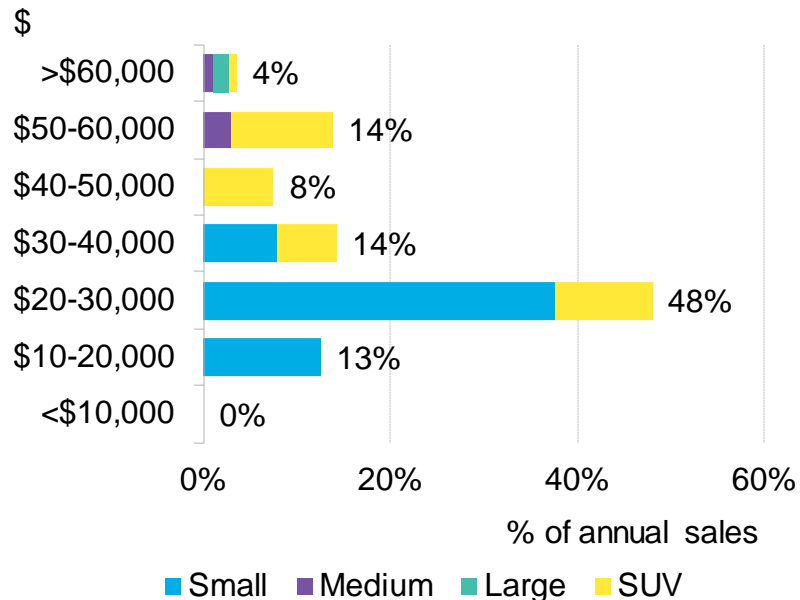
- Improving technology



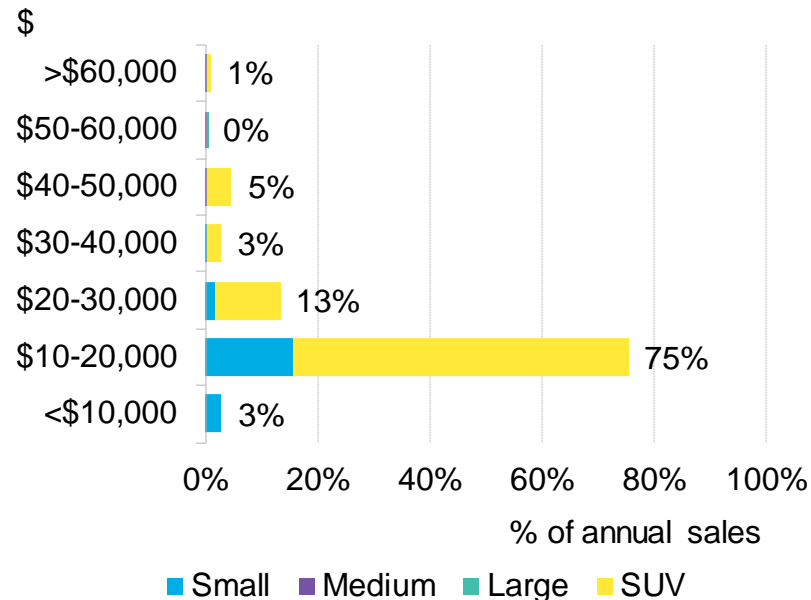
Source: BloombergNEF

EVs in emerging markets need to compete with affordable mass-market vehicles

Passenger vehicle sales distribution by vehicle price in Thailand



Passenger vehicle sales distribution by vehicle price in Indonesia



Source: BloombergNEF, Thailand Department of Land Transport, Gaikindo, Zigwheels. Note: Vehicle sales for the year 2019. Vehicle prices are the average suggested retail price in Bangkok and on-the-road price in Jakarta as of 1Q 2020. SUV also includes multi-purpose vehicles

A flurry of new models from China is changing this dynamic



Wuling Air EV
(\$16,000-20,000)



Ora Good Cat
(\$24,000-38,000
after subsidy)



BYD Atto 3
(\$32,000-36,000
after subsidy)

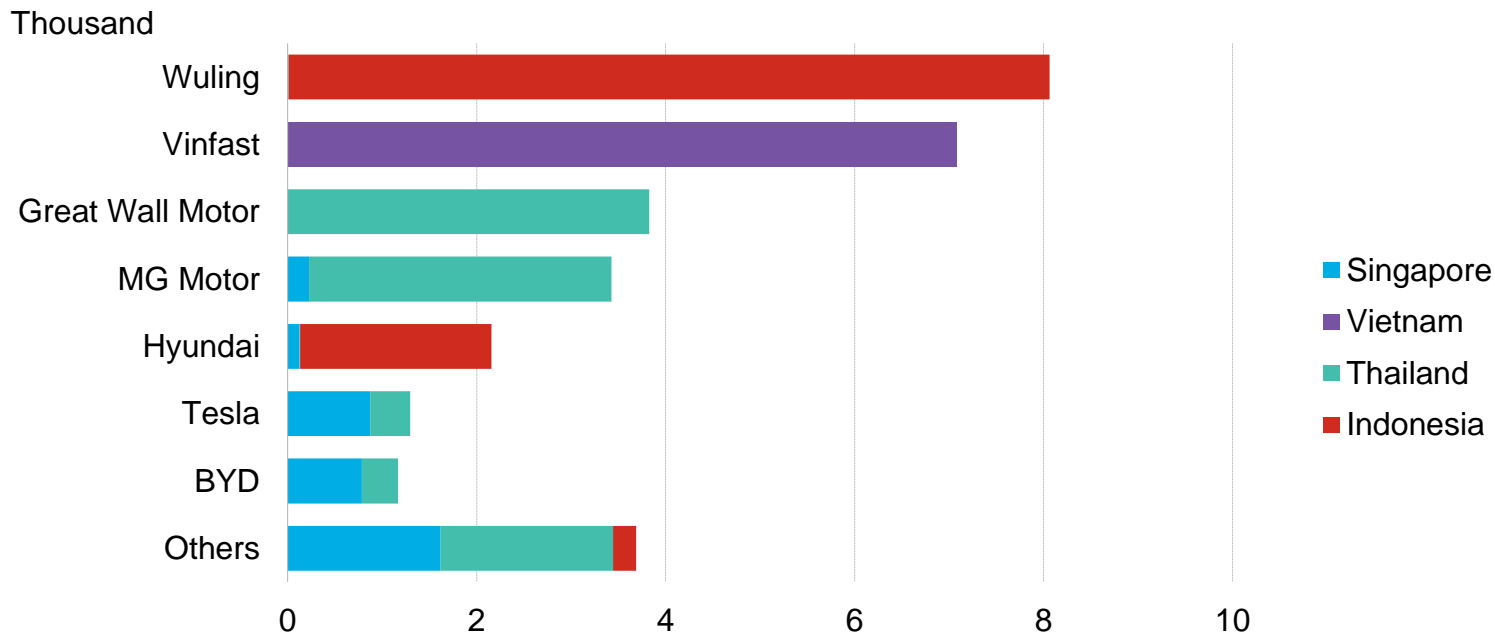


BYD Dolphin
(\$23,500)

Source: www.oto.com, Great Wall Motor, BYD, Imagesource: carandbike.com, Great Wall Motor, Wuling

Chinese brands accounted for over 50% of Southeast Asia battery EV sales in 2022

Battery electric car sales in selected Southeast Asia markets in 2022

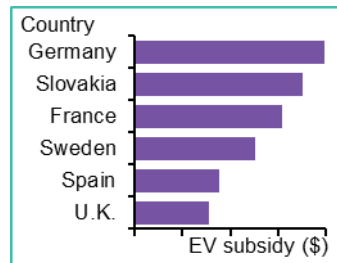


Source: BloombergNEF, Gaikindo, Thailand Land Transport Department, Vinfast.

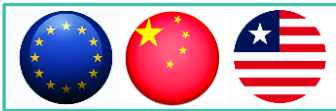
EV growth is set to continue. Why?

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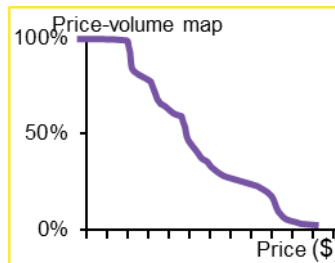


- Fuel economy regulations

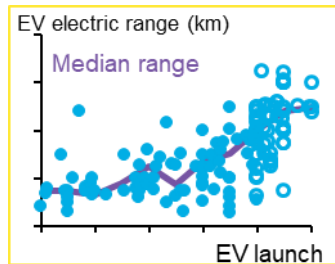


Model availability and addressable market

- EV model segments

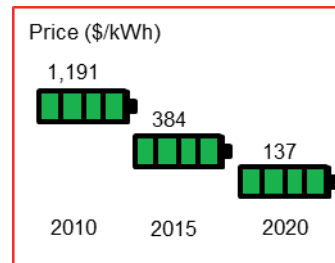


- Improving technology

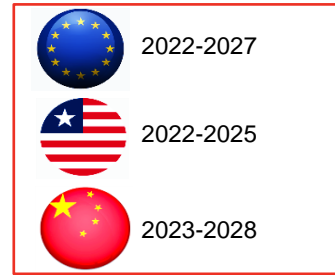


Upfront cost parity

- Battery prices decline



- BEV prices decline



Source: BloombergNEF

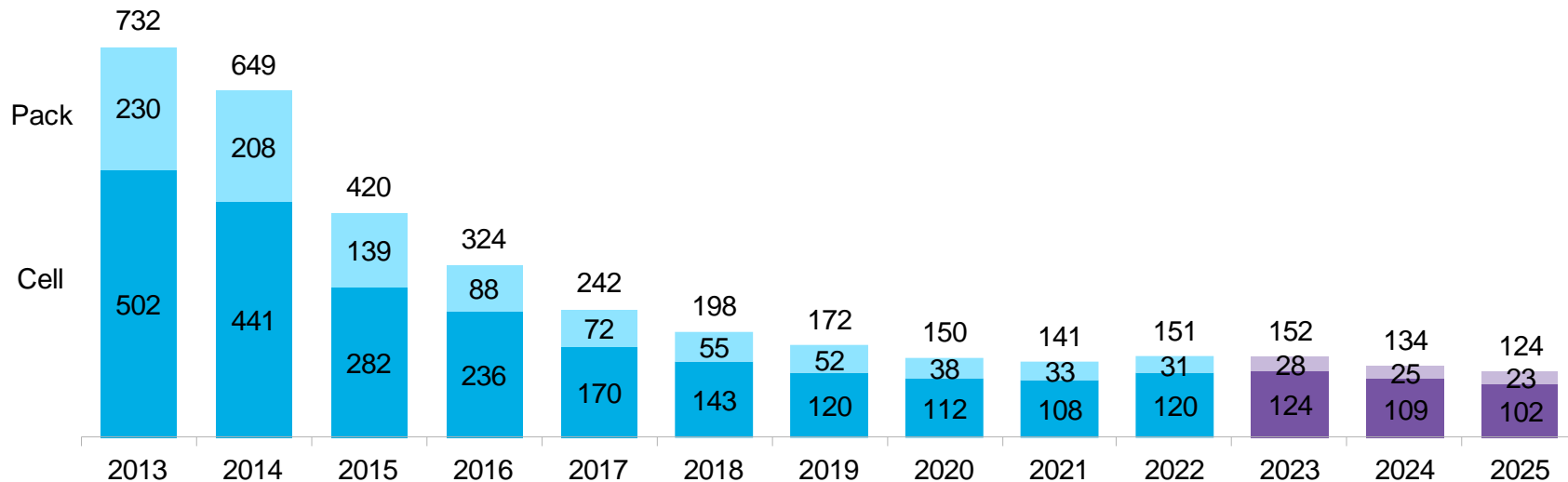
While average EV battery pack prices rose in 2022, we expect prices to revert back to declining

Lithium-ion battery volume-weighted average price survey results and near-term forecast

real 2022 \$/kWh

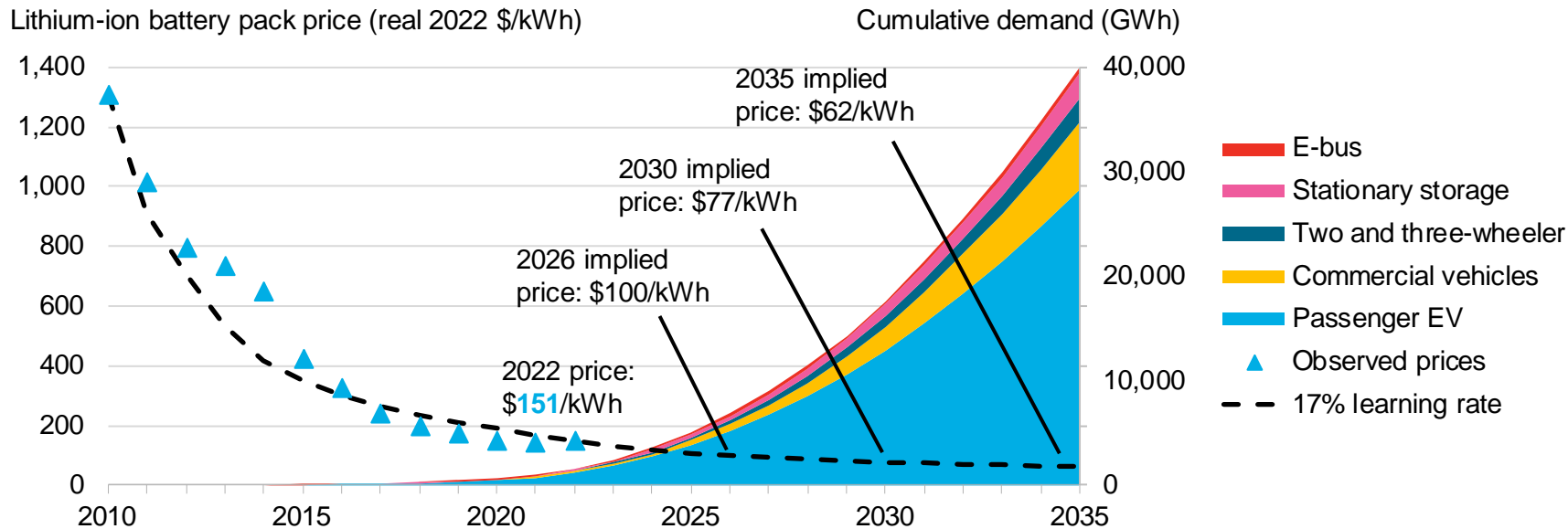
Observed prices

Forecast prices



Source: BloombergNEF. Note: Historical prices have been adjusted using June 2021 to June 2022 inflation rates based on US Consumer Price Index (CPI) index.

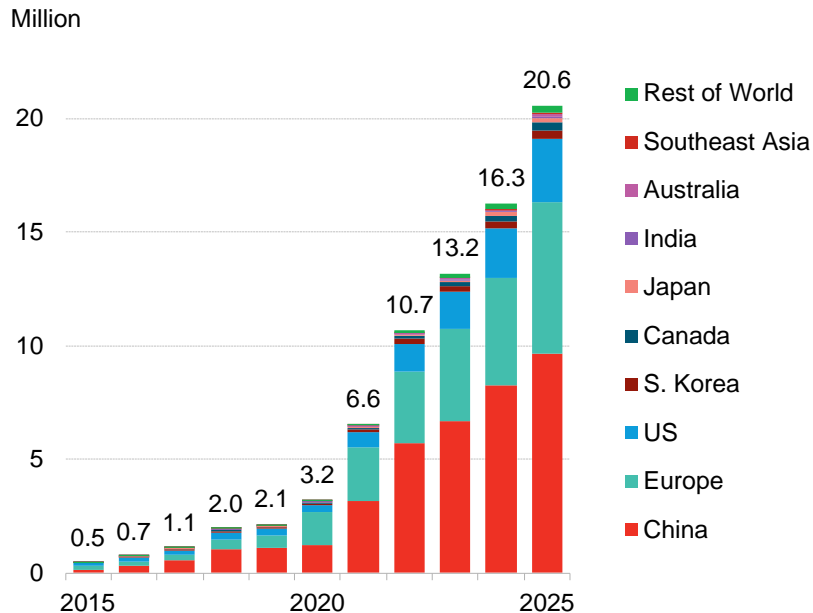
Lithium-ion battery pack price and demand outlook



Source: BloombergNEF

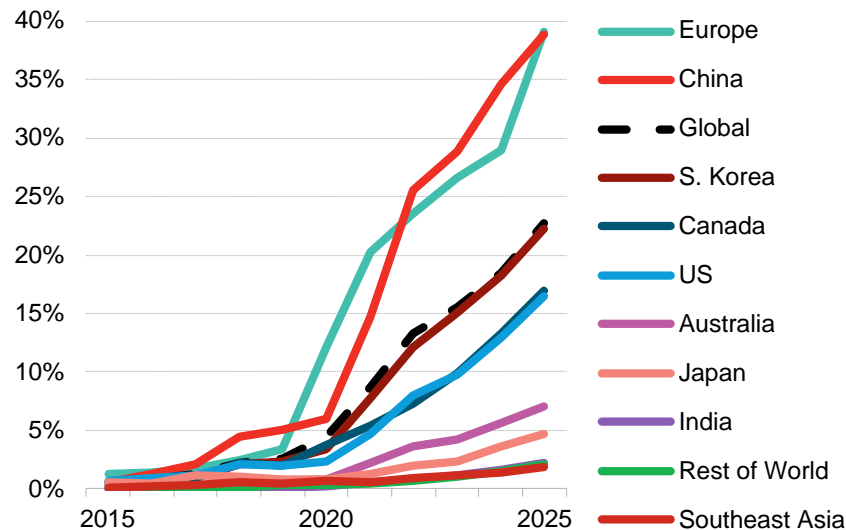
Passenger and commercial EV fleet set to top 80 million by 2025

EV sales by market



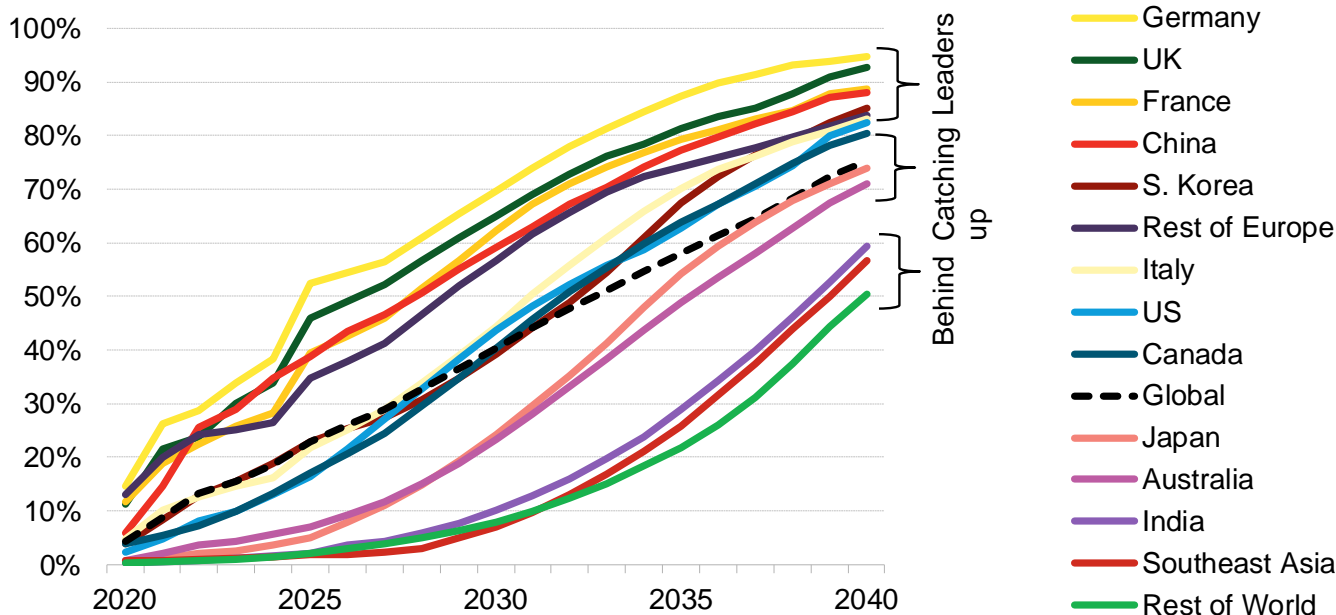
Source: BloombergNEF EVO 2022. Note: Includes BEVs and PHEVs.

EV share of new car sales by market



Hitting net zero means accelerating adoption in lagging countries

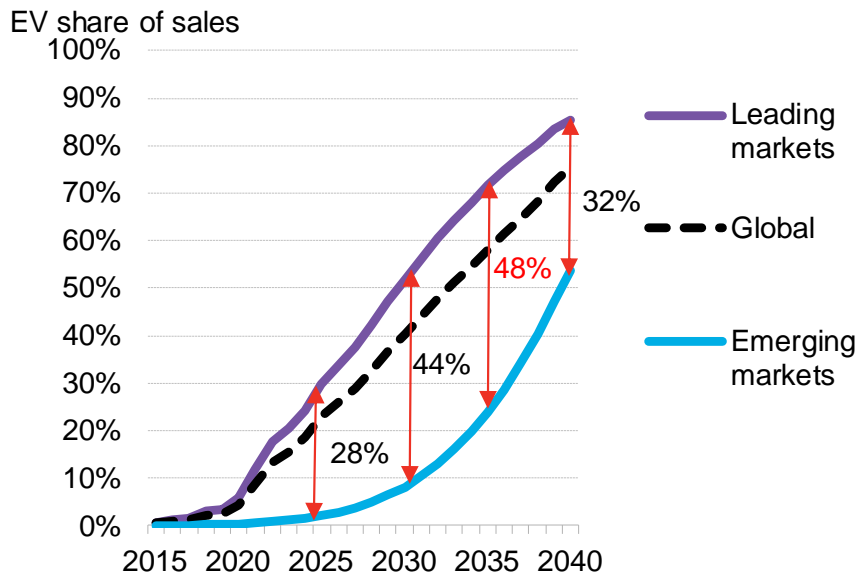
Passenger EV share of sales – Economic Transition Scenario



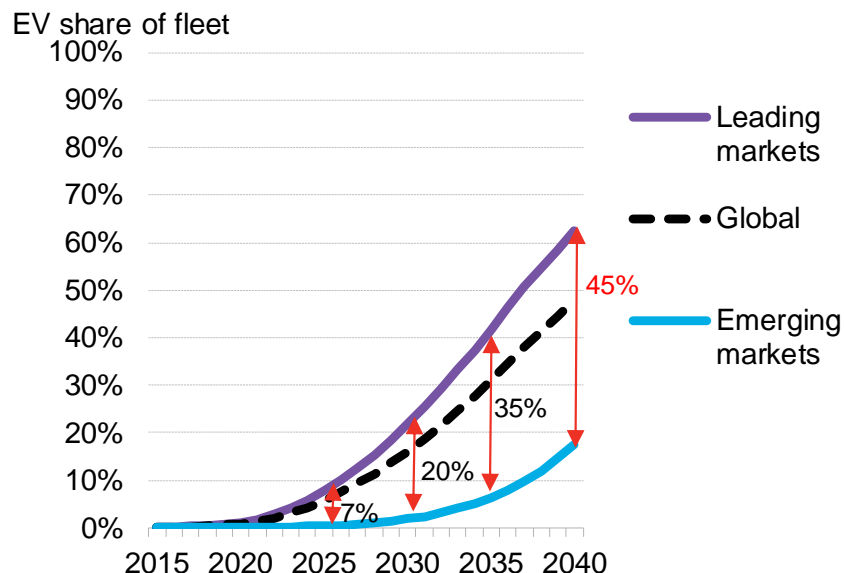
Source: BloombergNEF EVO 2022

ZEV adoption gap between leading and emerging countries is increasing

Passenger EV share of sales – ETS



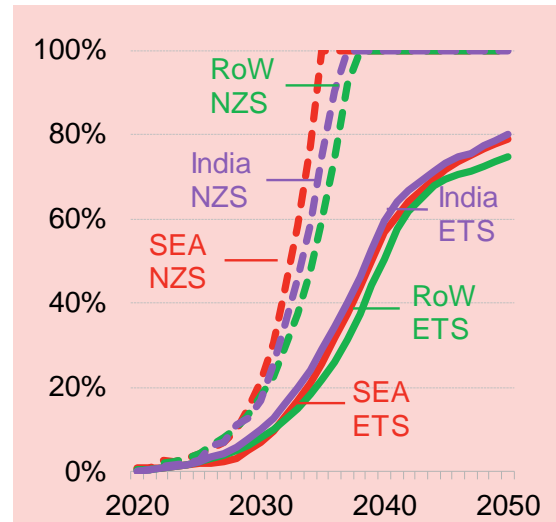
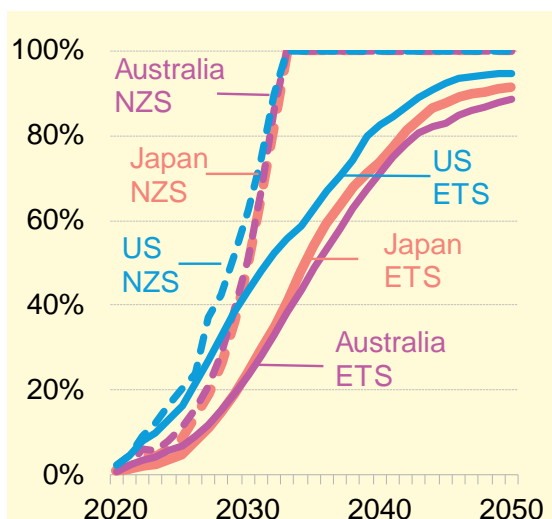
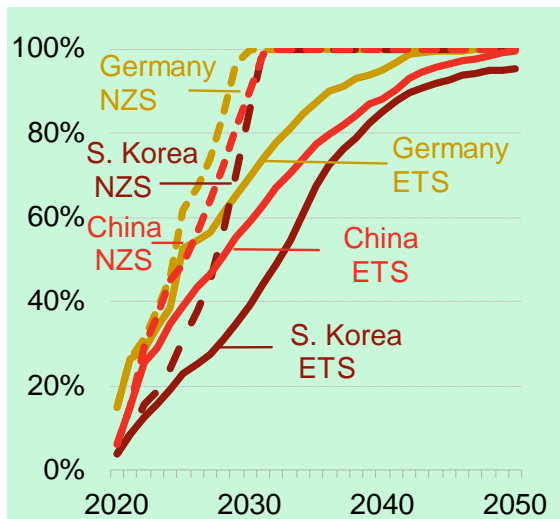
Passenger EV share of fleet – ETS



Source: BloombergNEF EVO 2022. Note: ETS stands for Economic Transition Scenario. Includes battery electric, plug-in hybrid and fuel cell vehicles

The window for net zero by 2050 is still open

EV share of passenger car sales



Almost on track

Positive trajectory

Not on track

ETS

NZS

Source: BloombergNEF EVO 2022

The window for net zero by 2050 is still open

Segment	Current share of road transport CO2 emissions	Current estimated global fleet size	Zero-emission vehicle (ZEV) fleet share in 2050 – Economic Transition Scenario	Level of policy intervention needed to hit Net Zero Scenario (100% ZEV share) by 2050
Two- and three-wheeled vehicles	5%	1.1 billion	Two-wheelers: 74% Three-wheelers: 94%	Almost on track: minor additional measures needed
Municipal buses	1%	3.8 million	84%	Almost on track: minor additional measures needed
Passenger vehicles	53%	1.3 billion	69%	Positive trajectory: moderate additional measures needed
Light commercial vehicles	11%	160 million	75%	Positive trajectory: moderate additional measures needed
Medium + heavy commercial vehicles	30%	80 million	29%	Not on track: strong additional measures needed urgently

Source: BloombergNEF EVO 2022

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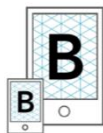
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