

# AVERE

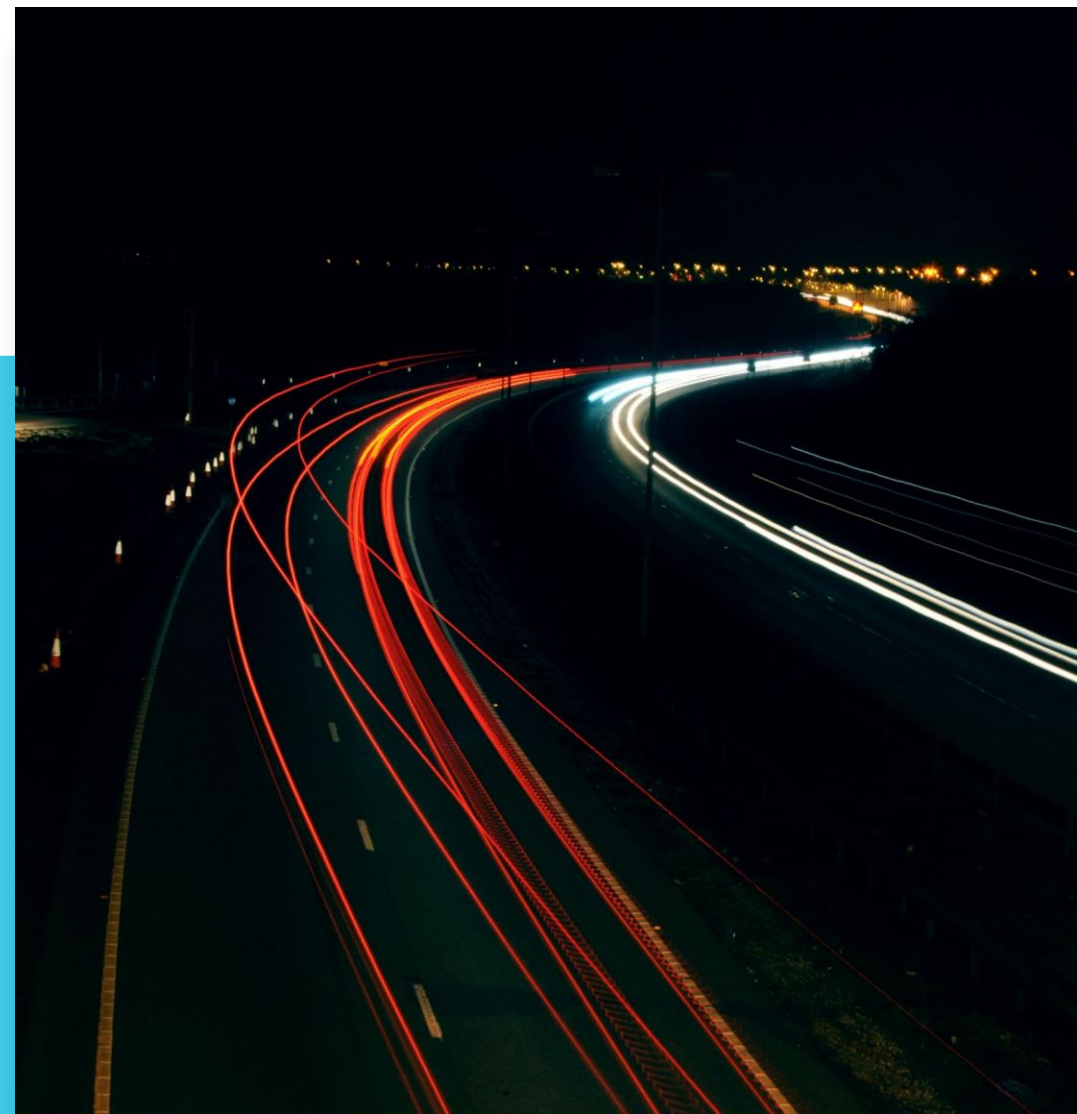
The European Association  
for Electromobility

## THE END of the ICE AGE

European E-mobility Policies and Trends

by **AVERE** **BOLDT**  
The European Association  
for Electromobility

[www.aver.org](http://www.aver.org)



## THE END OF THE ICE AGE

European E-mobility Policies and Trends

April 2022



www.averse.org  
www.boldtpartners.com

# Why this study?



Driven by the irrefutable reality of climate change, the **EU** is passing **policies to facilitate a rapid shift towards zero emission vehicles;**



At the same time, **industry** is passing **increasingly more ambitious targets** of their own;



...while **supply and value chain issues** (raw materials, chips, wire harnesses, but also skills etc.) are constraining output



**Aim: to take stock of the transition to EVs and its pace from an industry point of view**

# Where we stand today: policy

## “Fit for 55”

Majority of new cars sold ICE vehicles



100% ZEV sales by 2035

Accelerating, but fragmented charging infrastructure buildup



Binding minimum national targets, end to “chicken and egg” issue and to range anxiety

Fossil fuel dependency



Green electricity driving EU transport

**DISCUSSION PAPER**

**WINNING THE EU'S EFFICIENCY BATTLES**

**Why full and direct electrification is the only  
viable pathway to zero-emissions road transport**

Energy Efficiency - Health Efficiency - Economic and Employment Efficiency



# Why full electrification is the way forward



Continued use of fossil fuel « **transitional** » **solutions** will  
**set the EU up for climate failure**



**Energy efficiency:** electromobility makes ideal use of  
available energy

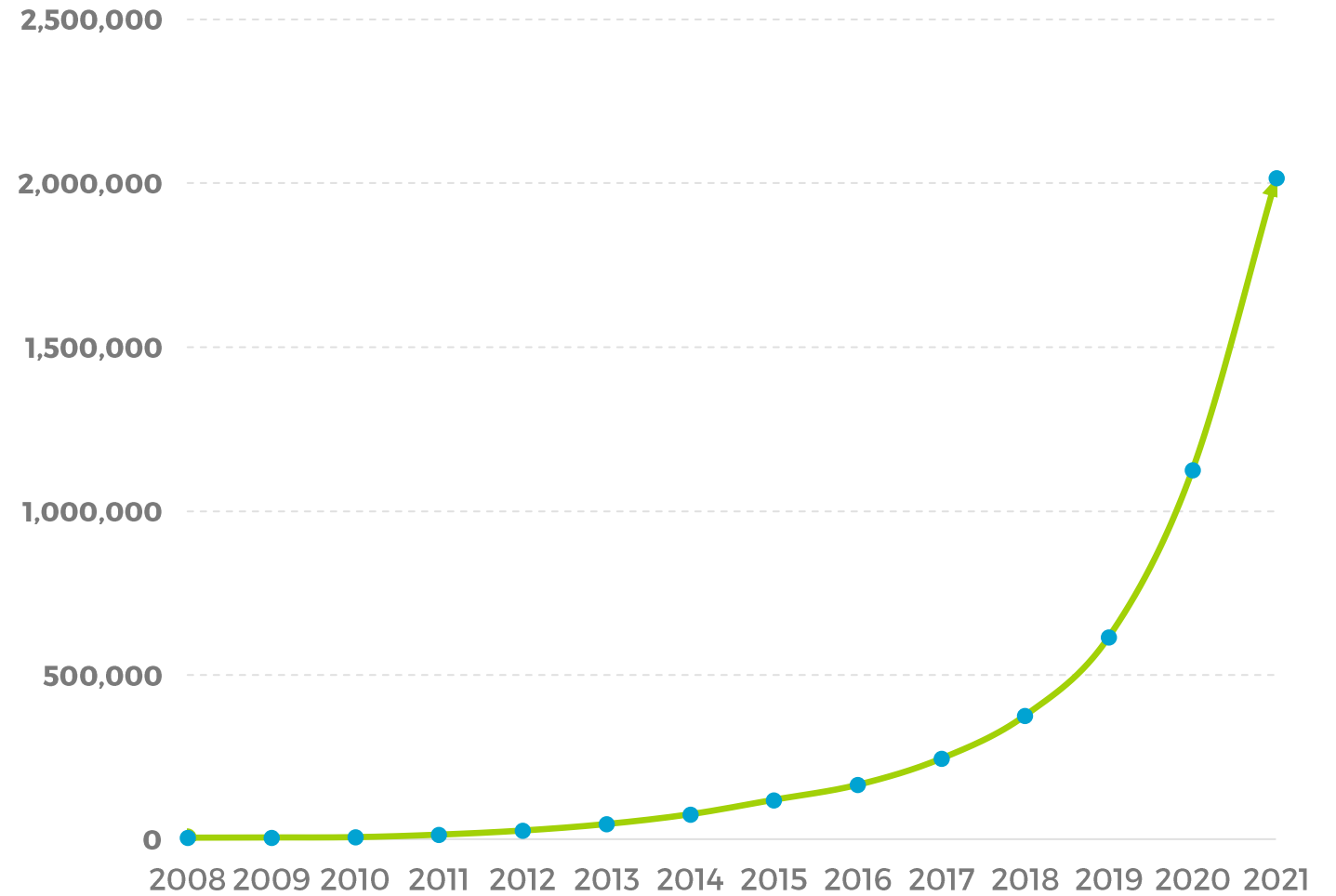


E-mobility tackles **key environmental and health issues**  
beyond climate change



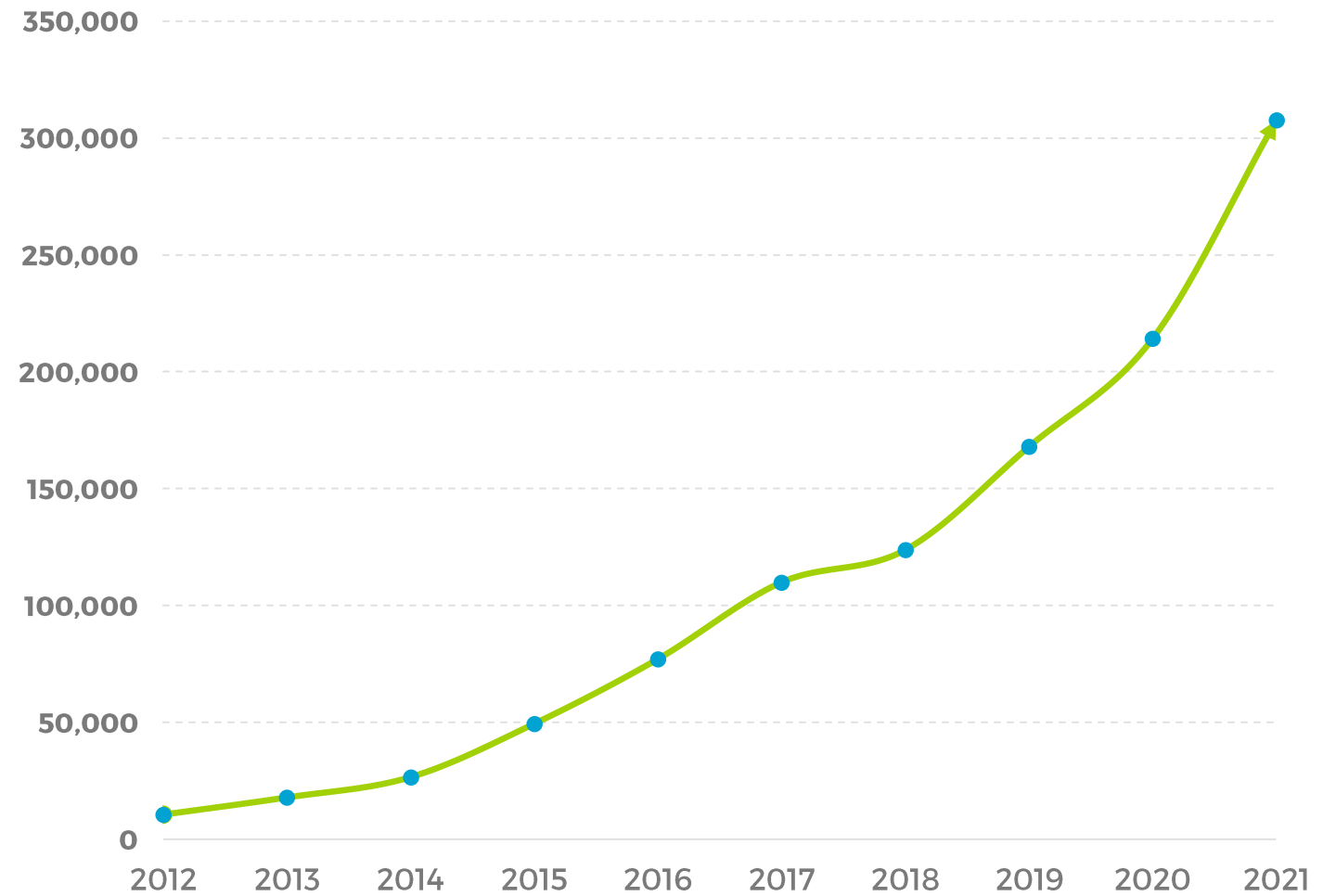
Clear electrification targets will safeguard **EU**  
**competitiveness** and create **jobs**

# Total number of fully electric passenger cars



Source: EAFO, 2022

# Growth of charging infrastructure

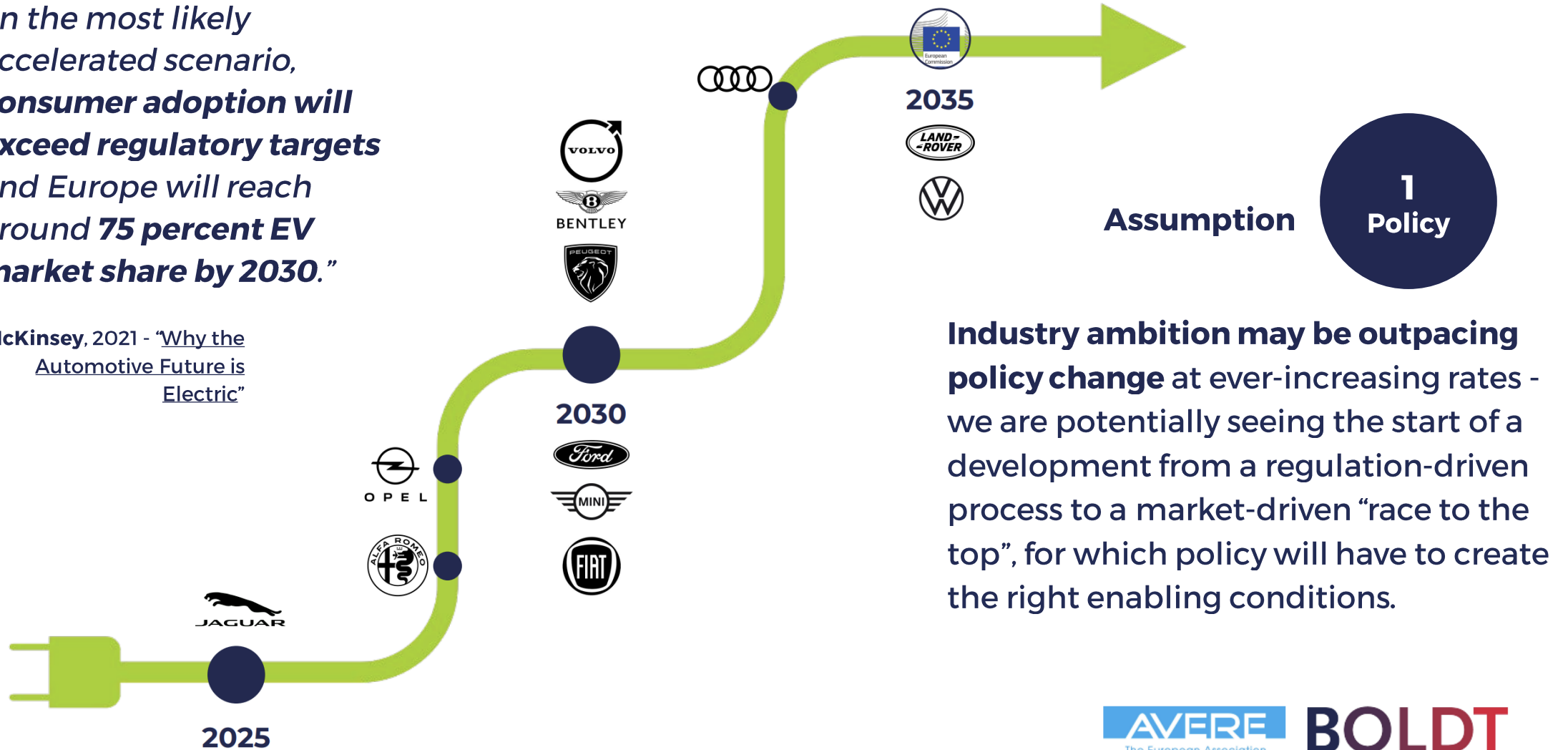


Source: EAFO, 2022

# The end of the ICE age: industry and policy timeline

*“In the most likely accelerated scenario, consumer adoption will exceed regulatory targets and Europe will reach around 75 percent EV market share by 2030.”*

McKinsey, 2021 - [“Why the Automotive Future is Electric”](#)



Assumption

1  
Policy

**Industry ambition may be outpacing policy change** at ever-increasing rates - we are potentially seeing the start of a development from a regulation-driven process to a market-driven “race to the top”, for which policy will have to create the right enabling conditions.

# Industry timeline / policy timeline: first observations

Not in line	Unclear	Likely in line	Fully in line	
BMW Citroën Honda Mazda Mitsubishi Nissan Seat Toyota ... <b>15 total</b>	Kia Subaru	Daimler Renault Skoda	Audi Ford Jaguar Mini Opel Peugeot Volvo VW ... <b>15 total</b>	<ul style="list-style-type: none"><li>• <b>Clear split in the industry</b> between brands embracing change and brands delaying change</li><li>• <b>Common split of strategies</b> within major groups</li><li>• <b>„Laggards” increasingly switching camps</b></li></ul>

*\*based on December 2021 announcements*



# Supply chain as main limiting factor

*“For batteries used in mobility and energy storage alone, **the EU will need (...) 7-18 times more lithium and 2-5 times more cobalt in 2030, and almost 16-57 times more lithium and 3-15 times more cobalt in 2050.**”*

- Commission Staff Working Document on Strategic Dependencies and Capacities, May 2021

*“The **global semiconductor shortage** could result in **8.1 million fewer cars being built between 2021 and 2023***

*(...)*

*from 2022 to 2029, CAR expects a lack of batteries leading to **18.7 million fewer cars being built.**”*

- Centre Automotive Research, August 2021

Assumption



As industry targets are increasingly brought forward, the most important **growth limiting factors** are in the supporting value chain - e.g. the supply of **raw materials**, of **key components** such as microchips, and of related **manufacturing capacities**.

# Methodology: qualitative interviews

## Topics

- **Market transition** to e-mobility
- Value of **programmes/policies supporting e-mobility** on EU and national level
- **Stumbling blocks** and **supply chain readiness**

## Participants

- **Broad coverage** incl. charging operators, electricity providers and automotive suppliers
- Participating companies have their **headquarters in DE, FR, NL, ES and the U.S.** (with EU HQ)
- **Company size** ranged from SMEs (< 50 employees) to multinational companies with >100.000 employees.



# When will EVs dominate the new vehicles market?

**EVs >50% of new registrations**

- **EU: 2027-2030**
- **Major differences** expected between MS

**EVs >80% of new registrations**

- **EU: 2035** (some 2040)
- CO2 standards anticipated, but expectation that **change will be industry driven** at this point
- Slowing takeup expected in 2030s



# Assessment of EU legislative pace



Assessment **heavily dependent on value chain position** – too slow or very ambitious



**Need for clear targets** emphasised by many respondents



Acknowledgement of **need to strike a balance** between ambition and industry capabilities / reskilling needs / customer acceptance



Need for coherent framework: targets to be **underpinned by effective incentives** and financial support



# Conclusion assumption 1

- **Industry is in full swing** in the transformation towards EVs – some established players are even at their limits
- Process still depends on the set **political goals** and on **governmental support** on EU and national level.
- However, industry players believe that we have passed a **point of no return** and the industry has engaged in a strong competition about electrification.

Assumption



**Industry ambition may be outpacing policy change** at ever-increasing rates - we are potentially seeing the start of a development from a regulation-driven process to a market-driven “race to the top”, for which policy will have to create the right enabling conditions.

# Drivers and bottlenecks for the development of e-mobility

## Drivers

- **EU CO2 standards** (very important driver)
- Targeted **subsidy** regimes
- **Falling prices** for EVs
- **Increasing attractiveness** of e-mobility
- **Charging infrastructure** rollout progressing in key markets

## Bottlenecks

- **Supply chain bottlenecks:**
  - **Semiconductor** shortage (very dominant)
  - **Raw material** shortage (lithium, cobalt...)
  - Lack of key **human resources** in various parts of the supply chain
  - **All industry players in the same transformation**, demanding the same inputs
- Continued need to reinforce **charging infrastructure** and **electricity grids** to avoid future bottlenecks – slow **permitting** is an issue
- **Inconsistent regulation** in EU member states, lack of **standards**

# What could the EU have done better?

## Recurring themes:

- Better **long-term focus**: Setting the current goals earlier to allow for longer transition, better **supply chain preparedness**
- **Stronger harmonisation** of standards
- More **coordination of key enablers** in the EU (batteries, semiconductors, electricity grids...)
- More **end user focus** in subsidies and financing programmes
- More focus on **AFIR** and infrastructure more generally

**National level:** more subsidies, stronger consumer focus, bureaucracy reduction



## Conclusion assumption 2

- **Many key limiting factors indeed in the value chain**, but also in other areas such as charging infrastructure and financing
- Issue: all market participants are undergoing their **transformation at the same time**
- The **EU is being asked to provide a level playing field**, a truly harmonised common market and an end to national differences in standards and incentive systems.

### Assumption



As industry targets are increasingly brought forward, the most important **growth limiting factors** are in the supporting value chain - e.g. the supply of **raw materials**, of **key components** such as microchips, and of related **manufacturing capacities**.



## Conclusion: the EU at a crossover point

We have not yet fully transitioned into an industry-driven dynamic, but the **private sector has started embracing the inevitability of electrification** and engaged in a “race to the top”.

For the first time, **industry and policymakers are moving hand in hand towards a shared goal** of ensuring fully electrified sales over the coming decade.

Policy should continue to set **ambitious targets**, but must crucially also **enable manufacturers to achieve their ambitions**.

