

# THE RISE OF EVS

A SPECIAL SUPPLEMENT BY  
**The Daily Star**  
 DHAKA MONDAY APRIL 8, 2024  
 CHAITRA 25, 1430 BS

S7

This strategic push for international expansion can be attributed to a few factors. Firstly, Chinese automakers lagged behind other countries in producing traditional gasoline-powered vehicles. However, they recognised the potential of EVs early on and invested heavily in battery production and EV development.

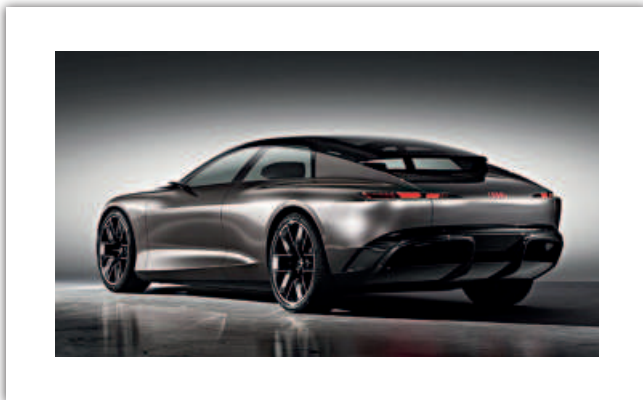
Secondly, the Chinese government actively supports EV adoption to reduce air pollution and dependence on oil imports. This translates to a resilient domestic EV market even amidst a broader economic slowdown. Finally, the "Made in China 2025" industrial strategy sets a goal for China's two largest EV manufacturers to generate 10% of their sales abroad by 2025. This ambitious target is driving a surge in international expansion efforts.

## The battle for the electric truck market heats up

2024 will witness a fierce competition for dominance in the nascent electric truck market. Advancements in battery technology have finally made viable electric trucks a reality, boasting impressive range and towing capabilities. This has spurred major automakers to enter the fray with their offerings.

Tesla will finally begin mass production of its highly anticipated Cybertruck in 2024. Its angular design, powerful tri-motor drivetrain, and substantial towing capacity have captured the imagination of auto enthusiasts. However, the Cybertruck will face stiff competition from established players like Ford with its updated F-150 Lightning models, GM's Chevrolet Silverado boasting a 450-mile range, and GMC's Sierra pickup.

Ram is not backing down either, introducing a new electric pickup with a standard 168-kilowatt hour battery



pack offering a 350-mile range, with the option to upgrade to a class-leading 500-mile range.

## Battery swapping as a potential game changer

One of the major hurdles to widespread EV adoption is the limited availability of charging infrastructure, particularly in non-urban areas. While there are ongoing efforts to expand traditional charging networks, battery swapping stations are emerging as a potential solution to bridge the gap.

This technology allows drivers to quickly replace depleted battery packs with fully charged ones, significantly reducing charging times. China's Nio has been at the forefront of battery swapping, establishing a network of over 2,000 stations across China and venturing into Europe with plans to expand further in 2024.

Recognising the potential of this technology, established automakers like BMW and Mercedes-Benz are collaborating to install a network of at least 1,000 battery swapping stations in China. Stellantis, another major player, has partnered with US-based Ample to introduce battery swapping for its Fiat 500e models in a pilot program scheduled to begin in Madrid, Spain, in 2024.

The widespread adoption of battery swapping, along with bi-directional battery charging that allows EVs to power homes or buildings, could significantly enhance the convenience and practicality of electric vehicles.

## Shifting tides in battery chemistry

Battery swapping could also play a role in mitigating a short-term decline in driving range caused by a shift in battery chemistry. Most EVs currently use lithium-ion



batteries with a cathode made of nickel-based materials like NMC or NCA. While these offer higher energy density and longer range, concerns about volatile market prices and the environmental impact of sourcing the necessary metals are prompting a search for alternatives.

Lithium-iron-phosphate (LFP) batteries are regaining popularity due to their stability and lower reliance on critical materials. Additionally, companies are actively developing technologies for silicon anode, solid-state lithium-ion, and sodium-ion batteries. These advancements promise more stable chemistries with reduced reliance on nickel, cobalt, and graphite.

For instance, SK On Company, a South Korean battery manufacturer, is developing solid-state electrolytes with plans for mass production by 2028. Similarly, Toyota is collaborating with Idemitsu Kosan to establish a supply chain for solid-state electrolytes in the coming years.

## Governments fine-tune incentives

With EVs becoming more mainstream, governments are re-evaluating their incentive programs. The US Inflation Reduction Act, for example, aims to bolster domestic EV production by offering tax credits only for vehicles with battery components sourced from North America. This is intended to reduce reliance on foreign suppliers and strengthen the domestic EV supply chain.

Australia is another example, with some states phasing out purchase incentives for new EVs due to price reductions by manufacturers. However, these funds are being reallocated to expand charging infrastructure, ensuring continued growth in EV adoption.

On the other hand, Thailand has extended its EV subsidies for consumers while reducing their value as the domestic EV market matures. This strategy aims to balance affordability with long-term sustainability. France is taking a unique approach by introducing cash incentives based on the environmental impact of a vehicle's entire life cycle, from raw material sourcing to manufacturing and disposal. This approach encourages the production of EVs with a lower environmental footprint.

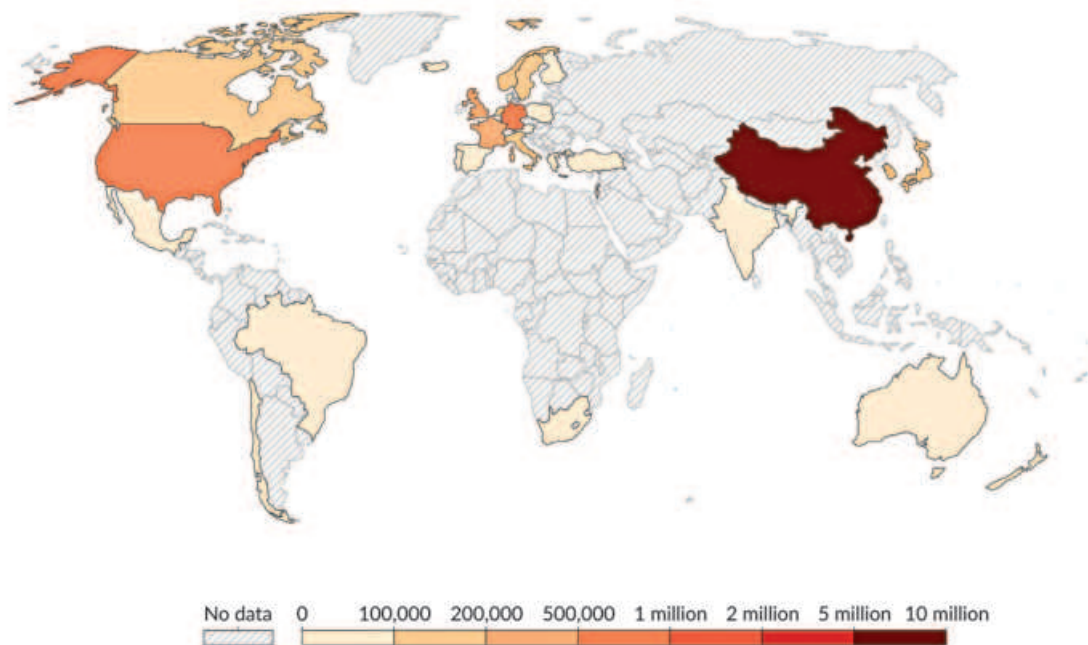
## The road ahead

The year 2024 promises to be a period of significant transformation for the EV market. While growth rates might moderate in the short term, the underlying trend towards electric mobility remains undeniable. New vehicle models, government incentives tailored for a maturing market, and technological advancements in batteries and charging infrastructure will all play a crucial role in accelerating EV adoption and paving the way for a cleaner transportation future.

## Number of new electric cars sold, 2022

Electric cars include fully battery-electric<sup>1</sup> and plug-in hybrids<sup>2</sup>.

Our World in Data



Data source: International Energy Agency, Global EV Outlook 2023.

OurWorldInData.org/energy | CC BY

1. Fully battery-electric: Cars or other vehicles that are powered entirely by an electric motor and battery, instead of an internal combustion engine.  
 2. Plug-in hybrid: Cars or other vehicles that have a rechargeable battery and electric motor, and an internal combustion engine. The battery in plug-in hybrids is smaller and has a shorter range than battery-electric cars, so over longer distances, the car starts running on gasoline once the battery has run out.