Global EV Outlook 2024

Technical Webinar, 26 April
The Clean Energy Ministerial’s Electric Vehicles Initiative

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Global EV Outlook 2024
Moving towards increased affordability
Electric car sales
Over the first quarter of 2024, electric cars sales grew by one-quarter relative to the same period in the previous year. Sales were up in all major markets, although sales dropped in Europe in March.
2024 is set to be another record year for electric car sales

In 2023, 18% of cars sold were electric, led by China, Europe and the United States. Growth is expected to continue – in China, around 45% of all cars sold in 2024 could be electric.
A new electric car industry is emerging

Chinese companies provide more than half of global electric car sales, compared with just 10% for conventional cars.
Sales in emerging markets and developing economies are growing quickly across major EMDEs, supported by policy. Local champions are emerging in India and Viet Nam, while Chinese carmakers expand elsewhere.
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Second-hand electric car markets are growing

On aggregate, global second-hand electric car sales in the major EV markets were roughly equal to new electric car sales in the United States in 2023.

*Based on data from six European countries: France, Germany, Italy, Spain, the Netherlands and the United Kingdom
Used vehicle flows may have important implications for EV adoption

African countries represent around 40% of used vehicle imports according to the United Nations Environment Programme.
Charging
Roll-out of public charging is critical to enable mass EV adoption.

In advanced economies, the stock of EVs has outpaced growth in public charging infrastructure. China’s public charging eco-system is poised for further EV growth.
Affordability
Electric cars are getting larger; battery chemistries are diversifying

In 2023, SUVs and large models accounted for 55% of global electric car sales. In China, the share of LFP batteries in electric car sales reached 60%.
Falling battery prices and market competition improve affordability

Electric car affordability is influenced by **battery size and price**, and the intensity of **market competition**. In China, the average SUV price **fell 25%** despite increasing battery size and price.
Price parity of EVs is getting closer

Last year in China more than 60% of the EVs sold were cheaper than their average ICE equivalent. Outside of China, electric cars remain more expensive than ICE in most cases.
In Asia, electric 2Ws are cheaper to own than ICE models

Even without subsidies the TCO of electric 2Ws is lower than that of their gasoline-fueled counterparts.
Outlook
The electric car fleet is set to grow quickly

By 2030, under current policy settings, electric cars represent more than 30% of the China’s car fleet and around one-fifth of the car stock in the European Union and United States.
Electrification goes beyond cars

Two-/three-wheelers are expected to remain the most electrified vehicle segment.
Truck electrification ramps up but reaches <5% stock share in 2030 under stated policies.
Grid integration
Daytime charging of HDVs can support solar PV integration

Impact of different electric truck charging cases on daily power demand in the United States in the Announced Pledges Scenario, 2035

Up to almost 50% of the daily charging needs of heavy-duty trucks are met during daylight hours in the cases that include fast daytime charging.
HDVs would not contribute significantly to evening peak demand

Heavy-duty trucks account for under 0.6% of peak evening power demand by 2035 in the APS in these regions.

Smart charging, anticipatory planning, batteries, and other measures will be key to manage local challenges.
Batteries
Battery demand for EVs is set to grow four-and-a-half to 2030

Electric cars are set to remain the main source of demand, but demand for e-trucks and stationary storage grows rapidly.
In the major EV markets, battery manufacturing announcements, if realised fully, would be sufficient to meet government ambitions in 2030 with domestic production.
Lifecycle analysis
EVs already significantly outperform ICEs in terms of emissions

Global average medium-car lifecycle emissions by powertrain in STEPS, 2023

EVs can pay back the additional emissions associated with battery production in around 2 years, while grid decarbonisation over the vehicle lifetime boosts emissions savings by over 25%
Battery chemistry impacts lifecycle emissions

LFP battery lifecycle emissions are about one-third lower than those for NMC811. The decarbonization of different chemistries require focusing on different parts of the supply chain.
Battery recycling capacity set to increase 3-fold by 2030

Recycling capacity diversifies from today to 2023, with Chinese share decreasing from over 80% to 70%. Recycling capacity could be 3 times higher than supply in 2030, but retired EV batteries grow rapidly in the 2030s.
Recommendations
Key recommendations for policymakers

1. Maintain and adapt support for electric cars
2. Promote adoption in emerging and developing economies
3. Enable the heavy-duty market
4. Expand EV infrastructure and smart grids
5. Ensure secure, resilient and sustainable EV supply chains