



China's Oil Market in 2024

A Futures Perspective



上海期货交易所
SHANGHAI FUTURES EXCHANGE

上海国际能源交易中心
SHANGHAI INTERNATIONAL ENERGY EXCHANGE

Steady Market Development 01



Production holding steady at 200m MT/year;
import and processing volume surged in 2023

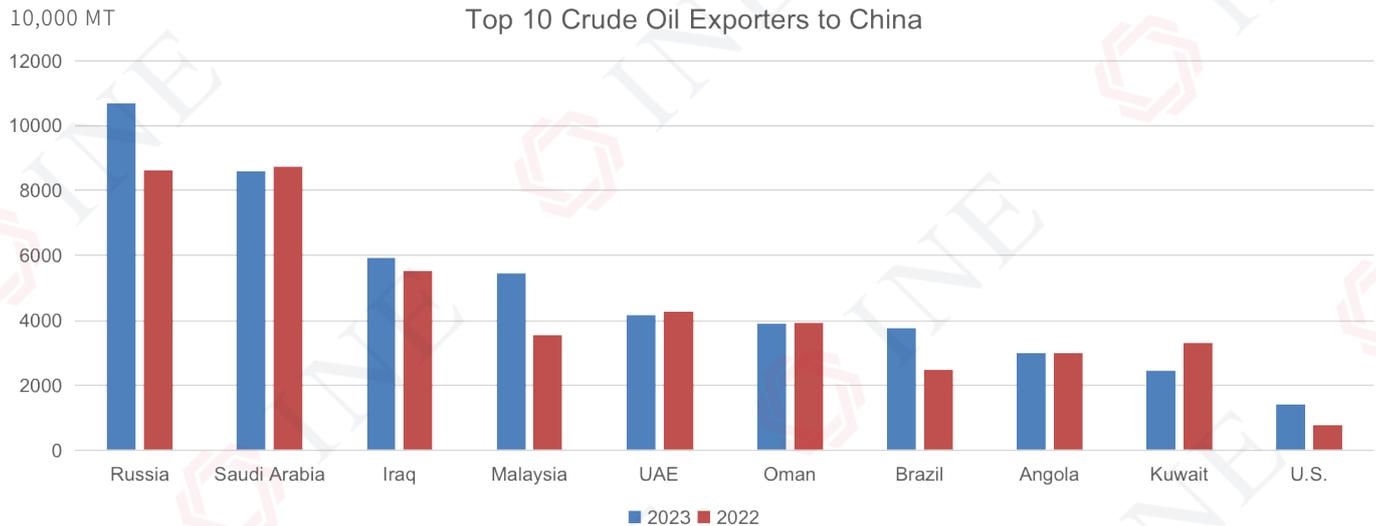


Source: National Bureau of Statistics (NBS); General Administration of Customs (GACC); Wind

In 2023, the crude oil production was 209m MT, the import volume was 564m MT, and the processing volume was 735 m MT.



Import from Middle East plateaued;
import from non-OPEC countries rose significantly



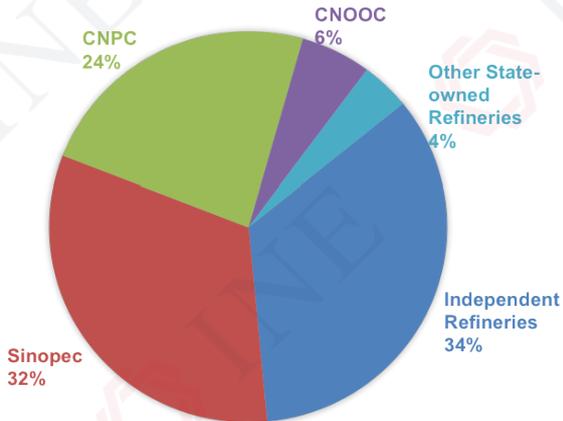
Source: GACC; Wind

Among the top ten crude oil importing countries in China in 2023, the import volume from the Middle East was 251m MT, accounting for 51% of the total.

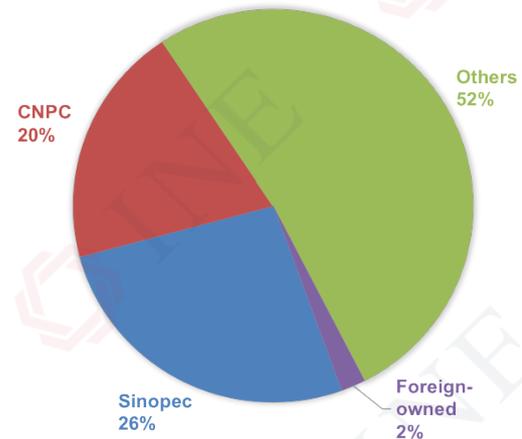


Independent refineries represent 1/3 of refining capacity;
private gas stations account for 1/2 of market's total

Primary Processing Capacity of Domestic Refineries



Domestic Gas Stations



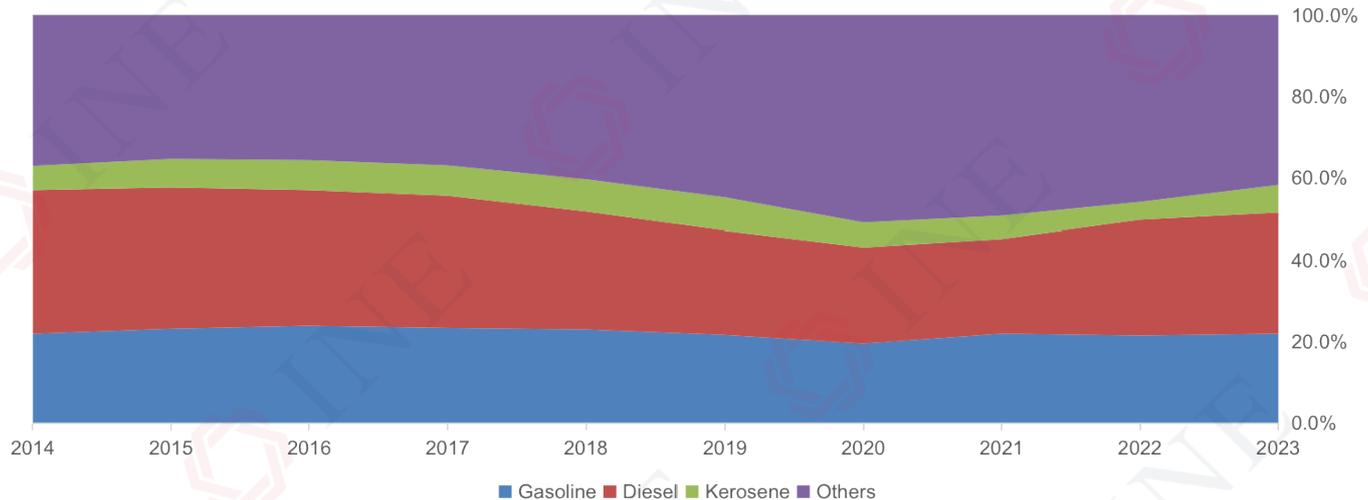
Source: SCI; INE

Domestic refineries have a primary processing capacity of 950m MT; China has 120,000 gas stations.



Gasoline maintains a steady share in crude oil products, with diesel and kerosene shares increasing in 2023

Yield of Domestic Refined Oil Products, 2014-2023

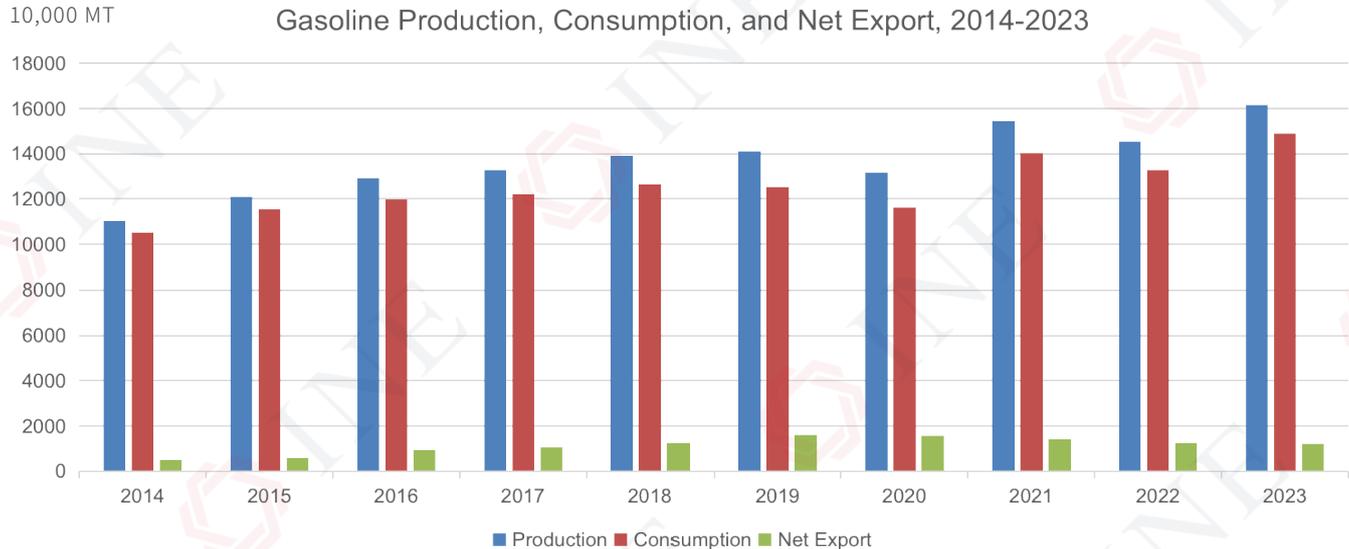


Source: NBS; Wind

In 2023, among downstream crude oil products, gasoline, diesel and kerosene accounted for 22%, 30%, and 7% of the total respectively.



Gasoline production surpassed 160m MT in 2023; domestic consumption set a new record

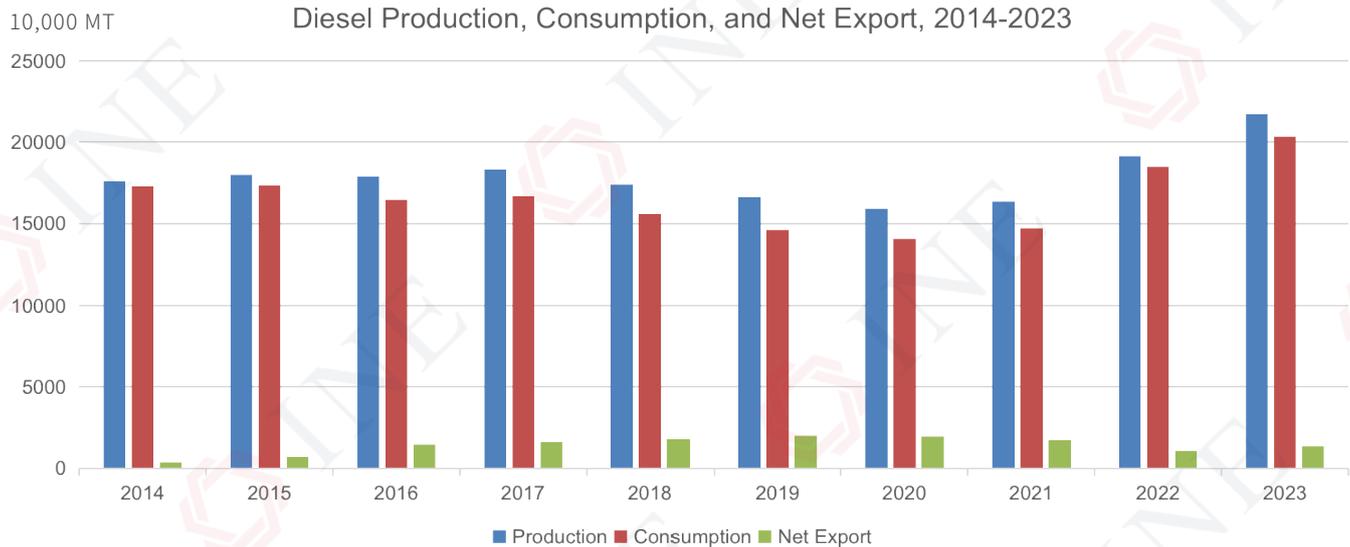


Source: NBS; GACC; Wind

In 2023, gasoline production reached 161m MT, apparent consumption reached 149 m MT, and net export reached 12.28 m MT.



Diesel production exceeded 210m MT in 2023; domestic consumption hit a record high



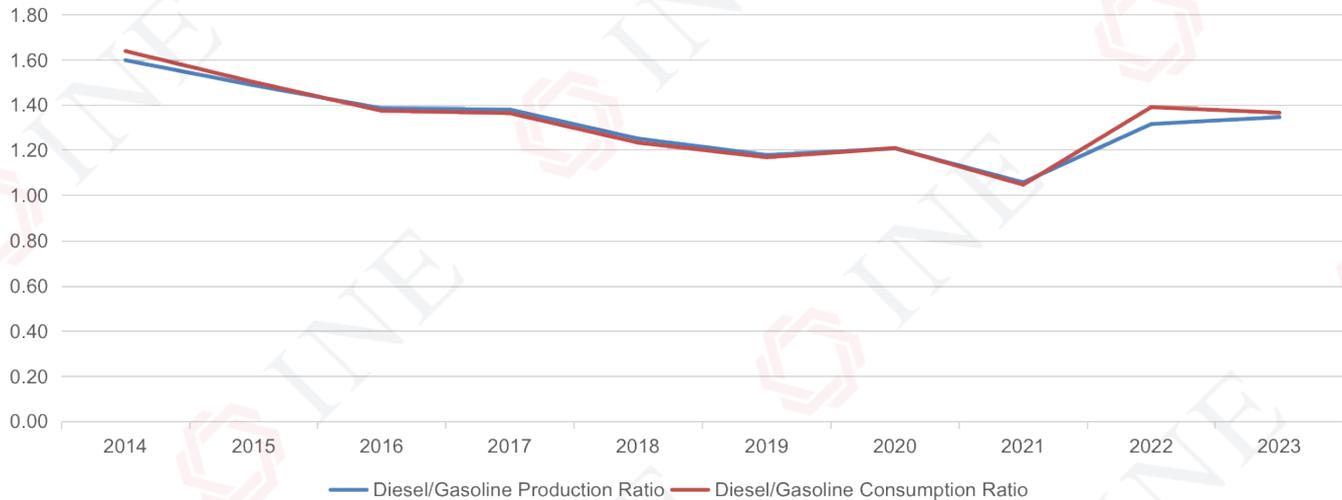
Source: NBS; GACC; Wind

In 2023, diesel production reached 217m MT, apparent consumption reached 204m MT, and net export reached 13.77m MT.



Diesel-to-gasoline ratio approached 1:1 at the lowest point in 2021, but rebounded more recently

Diesel/Gasoline Ratio in Domestic Refined Oil Market

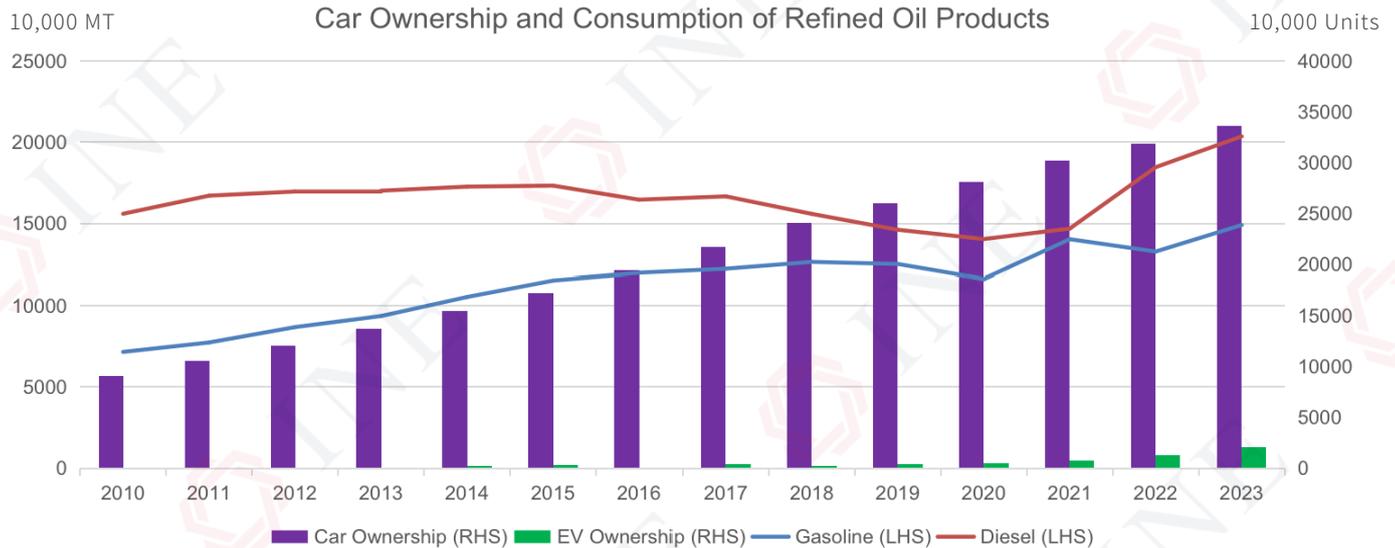


Source: NBS; GACC; Wind

In 2023, the diesel to gasoline production ratio was 1.35, and the diesel to gasoline consumption ratio was 1.37.



Car ownership rose steadily

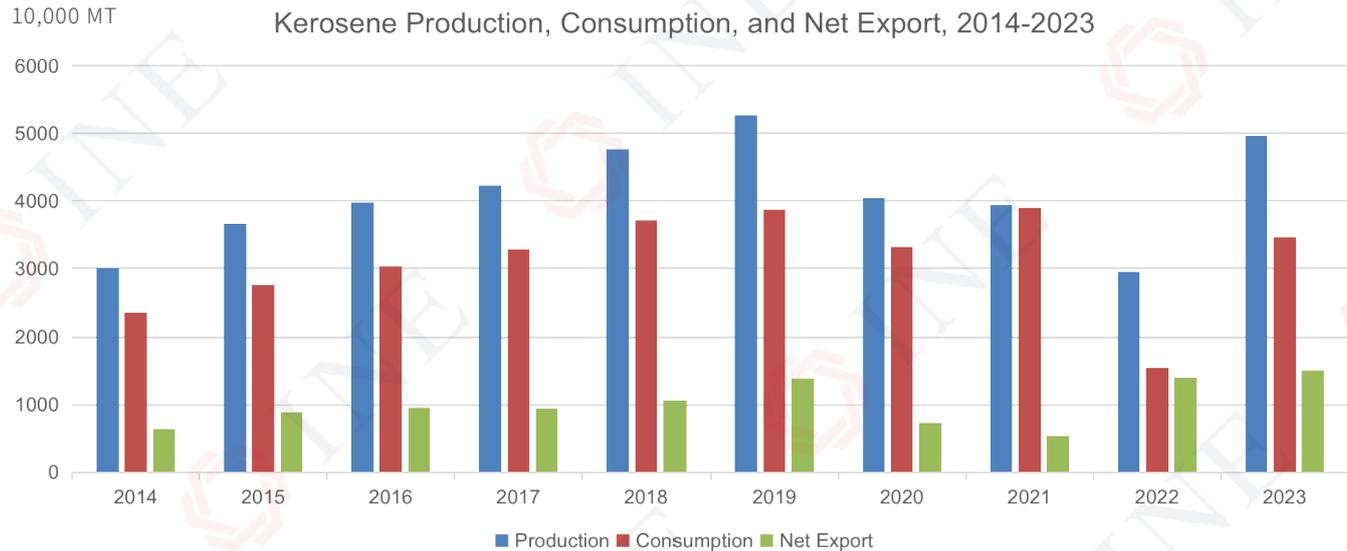


Source: NBS; Ministry of Public Security (MPS); Wind

In 2023, the domestic automobile ownership reached 336 million, including 20.41 million new energy vehicles.



Aviation kerosene (jet fuel) production and consumption continued to recover in 2023, with net export surpassing 15m MT

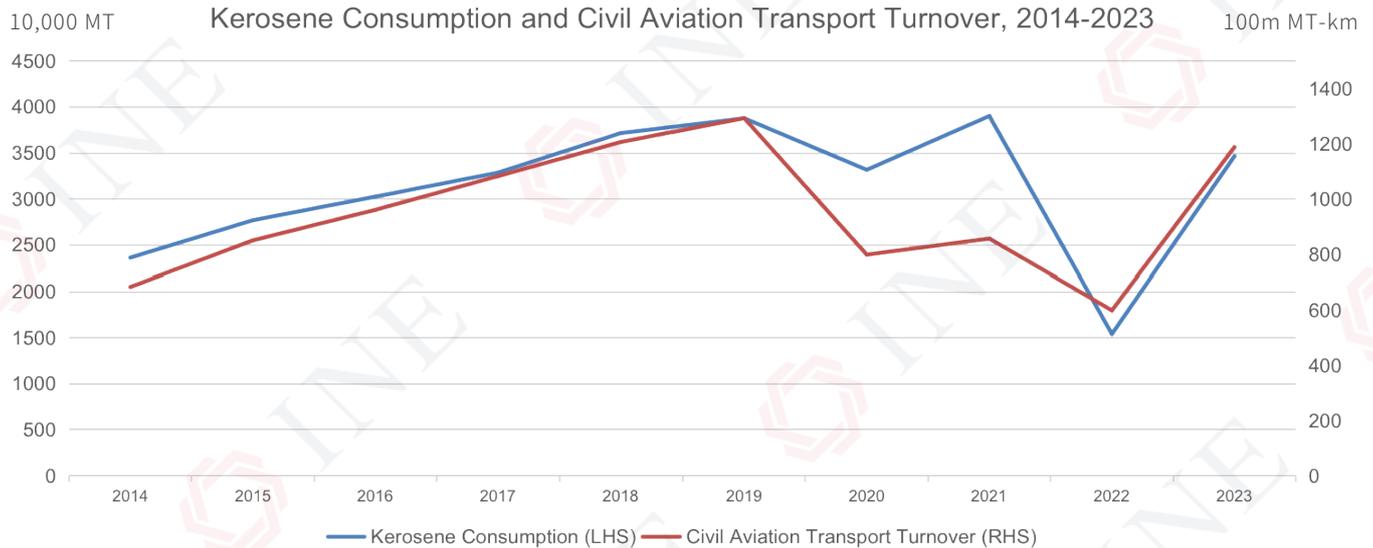


Source: NBS; GACC; Wind

In 2023, the production of kerosene was 49.68 m MT, the apparent consumption was 34.66 m MT, and the net export was 15.02 m MT.



China's 2023 air traffic recovered to 2019 levels



Source: NBS; Civil Aviation Administration; Wind

In 2023, the turnover of civil aviation reached 118.8 billion ton-kilometers.



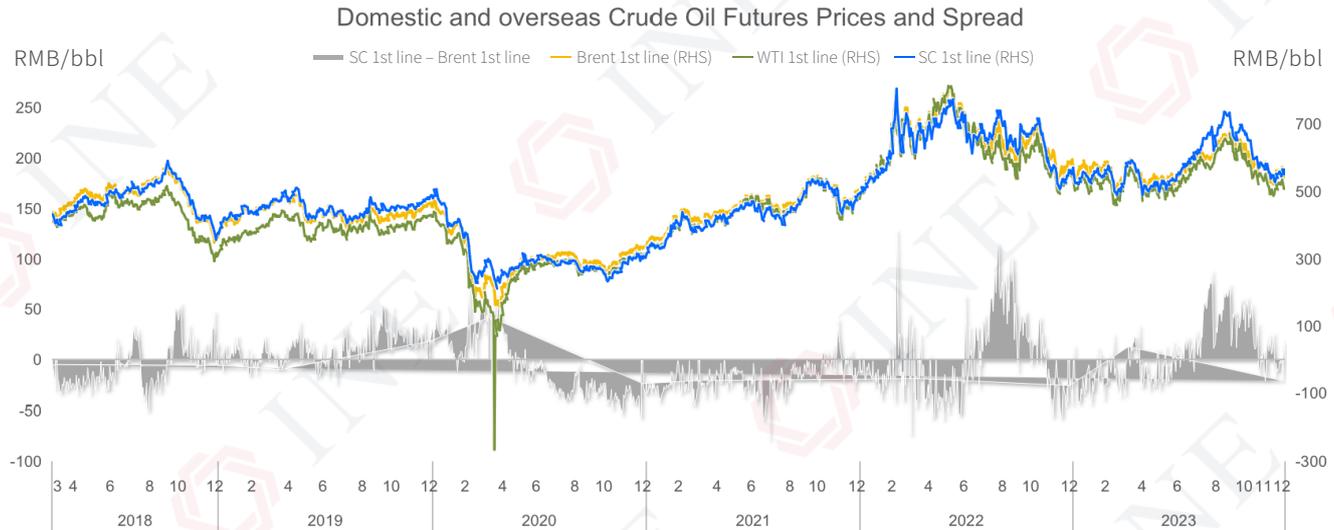
上海期货交易所
SHANGHAI FUTURES EXCHANGE

上海国际能源交易中心
SHANGHAI INTERNATIONAL ENERGY EXCHANGE

Expanding Applications of SC Crude Oil Futures Prices 02



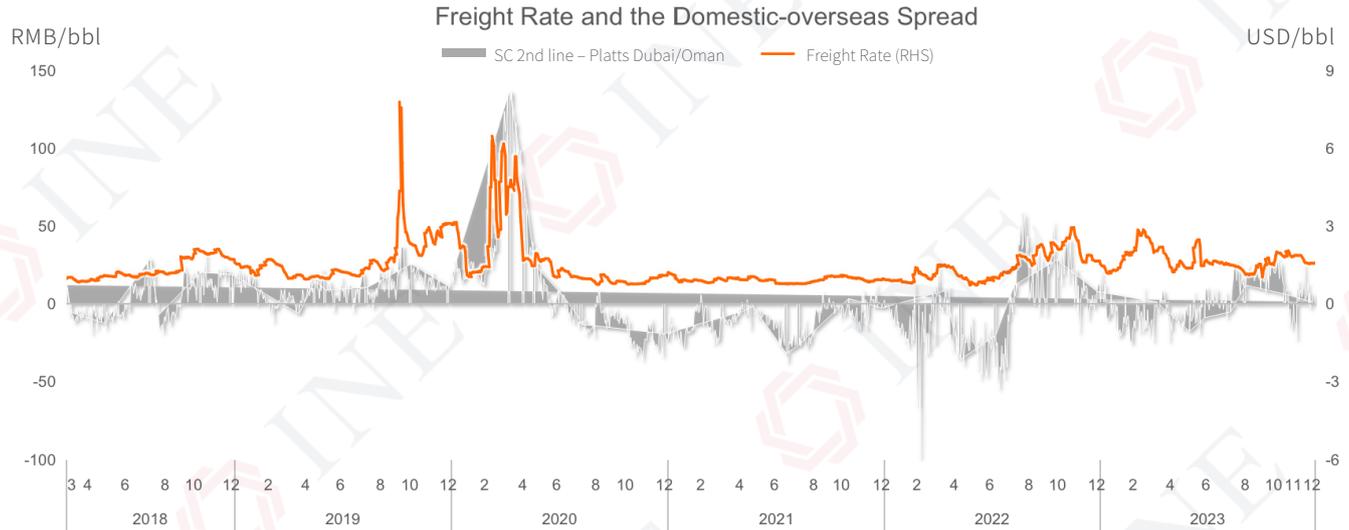
Shanghai crude oil futures (SC) prices strongly correlate with overseas prices and reflect changes in the regional spot market



Source: Reuters; INE



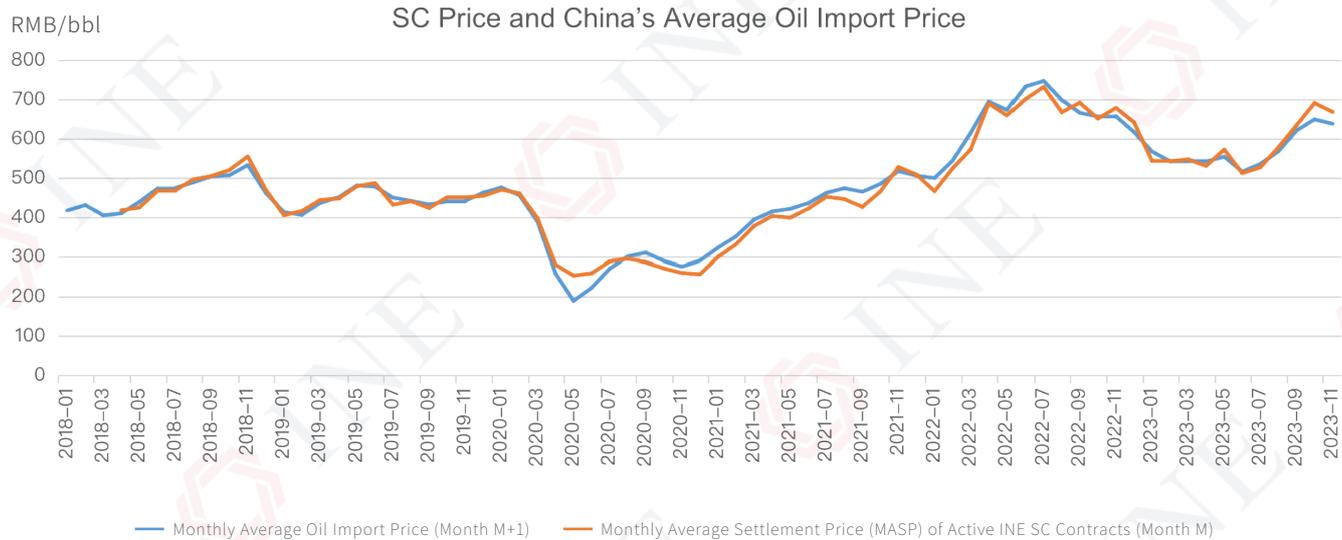
SC prices mostly capture the Middle East-Asia Pacific freight rate



Source: Reuters; INE



Monthly average SC price closely shadow the average crude oil import price of China



Source: GACC; INE; Wind



High correlation between the daily SC price and the refined oil wholesale price in China

SC Price v. Wholesale Price of Refined Oil in China



Source: NBS; INE; Wind



High correlation between the 10-day average SC price and the refined oil retail price in China

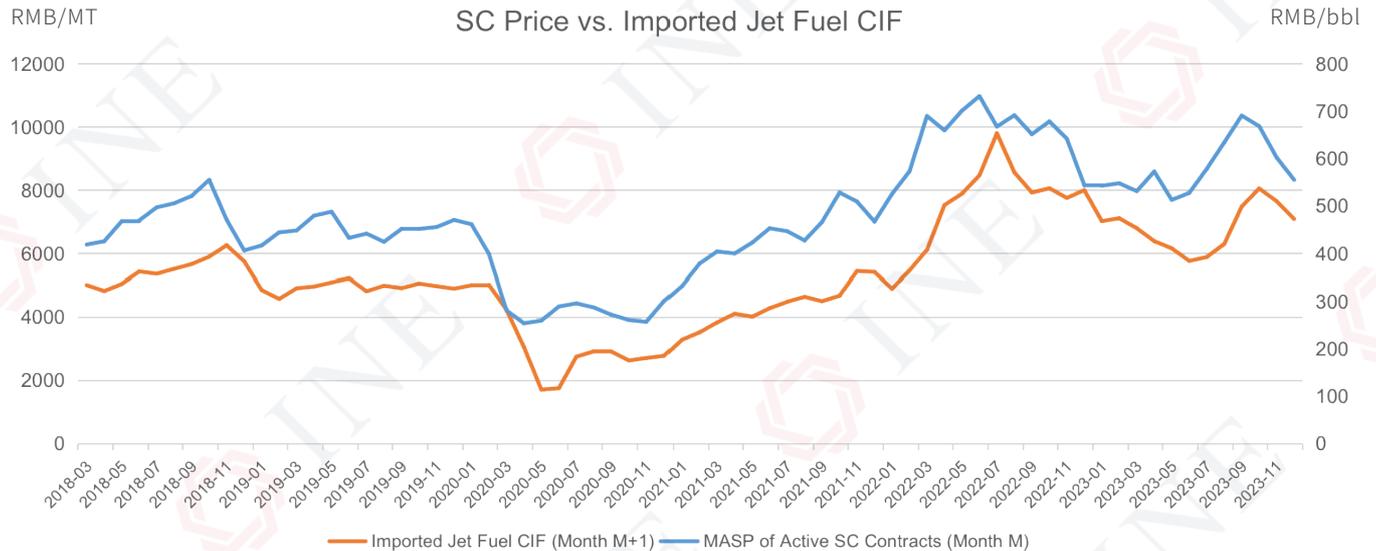
SC Price v. Retail Price of Refined Oil in China



Source: NBS; INE; Wind



SC monthly average price is a good indication of the domestic jet fuel price



Source: NBS; INE; Wind



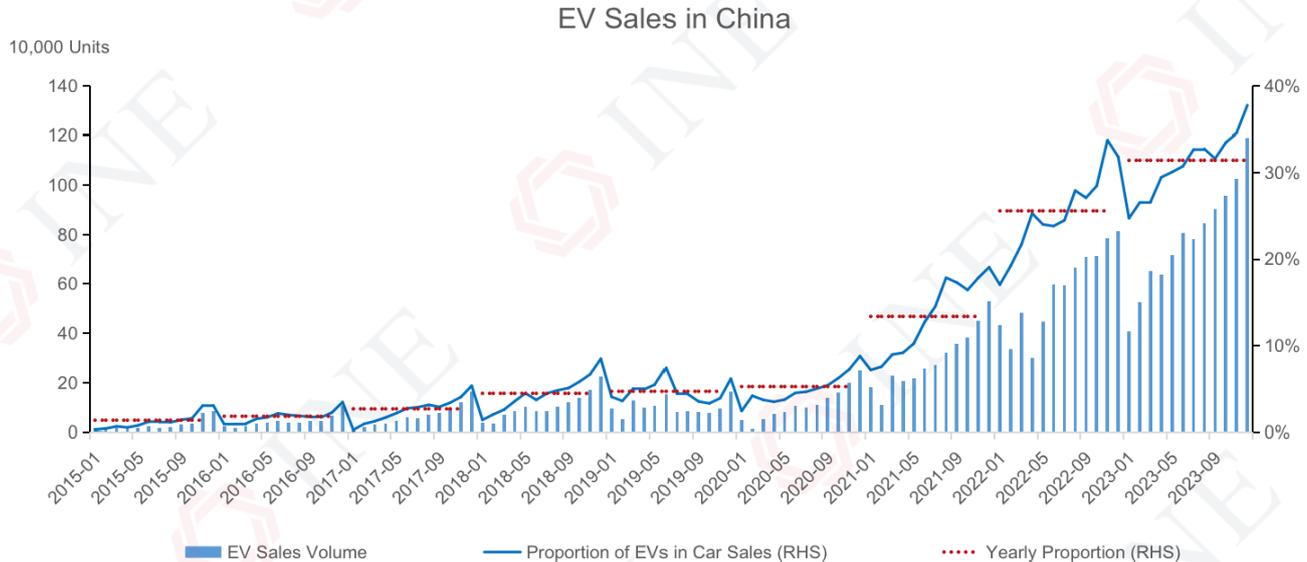
上海期货交易所
SHANGHAI FUTURES EXCHANGE

上海国际能源交易中心
SHANGHAI INTERNATIONAL ENERGY EXCHANGE

Facing A Challenge Rapidly Growing EV Market 03



Domestic EV market took off in 2021;
EVs account for over 30% of car sales in 2023



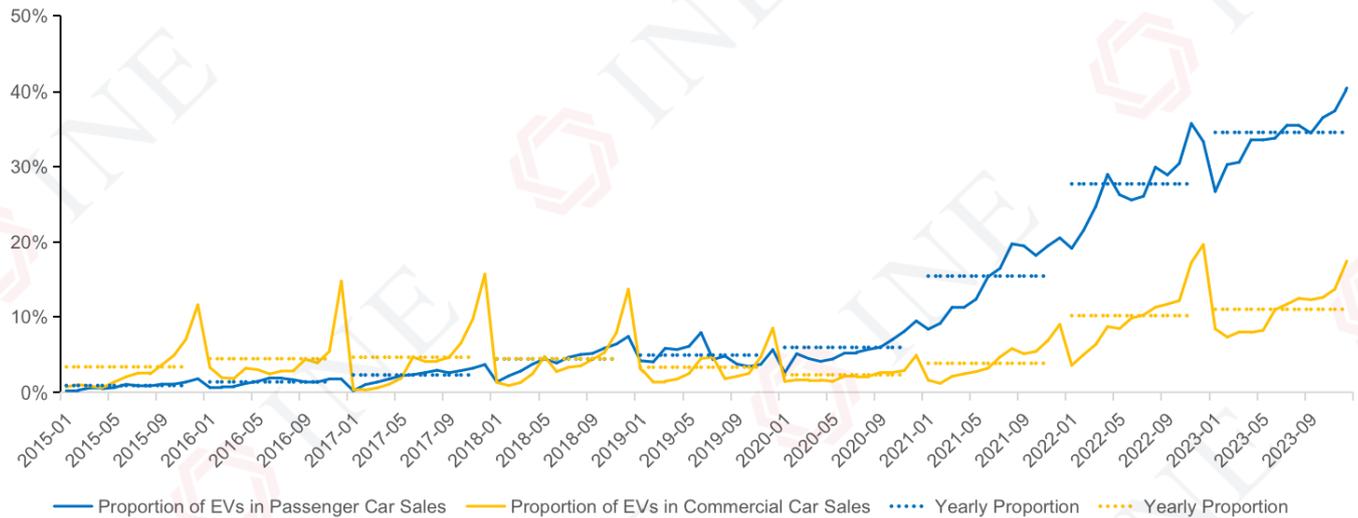
Source: China Association of Automobile Manufacturers (CAAM); Wind; INE

In 2023, the sales of EVs accounted for 31.4% of the total market, with December accounting for 37.7%.



Passenger EVs have outpaced commercial EVs in sales growth

Sales of Passenger and Commercial EVs

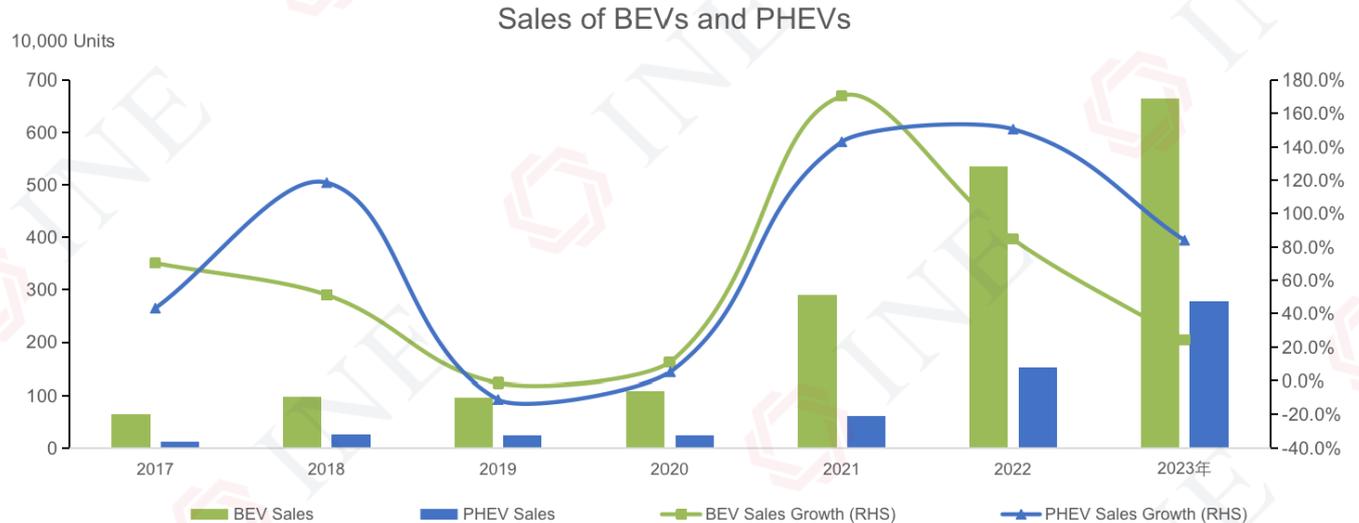


Source: CAAM; Wind; INE

In 2023, the sales of passenger EVs accounted for 34.6% of the total, and the sales of commercial EVs accounted for 11.1% of the total.



PHEVs grow faster than BEVs in China

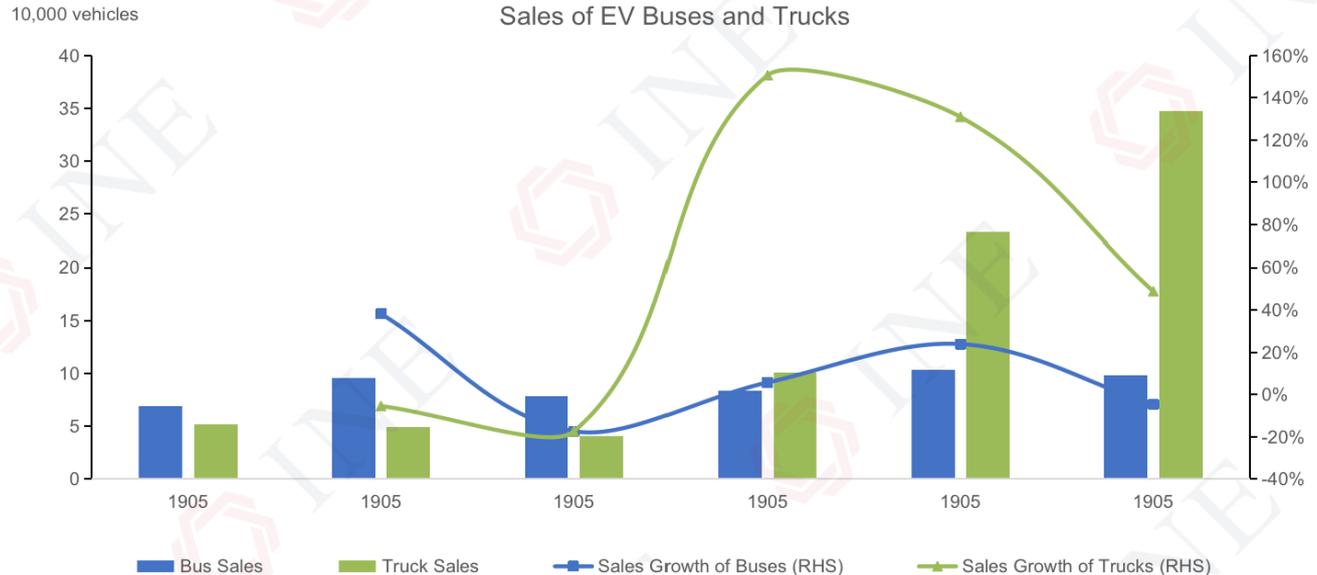


Source: CAAM; Wind; INE

In 2023, the sales growth rate of PHEVs was 83.9%, and the sales growth rate of BEVs was 24.3%.



Among commercial EVs, trucks far outpaced buses in sales growth



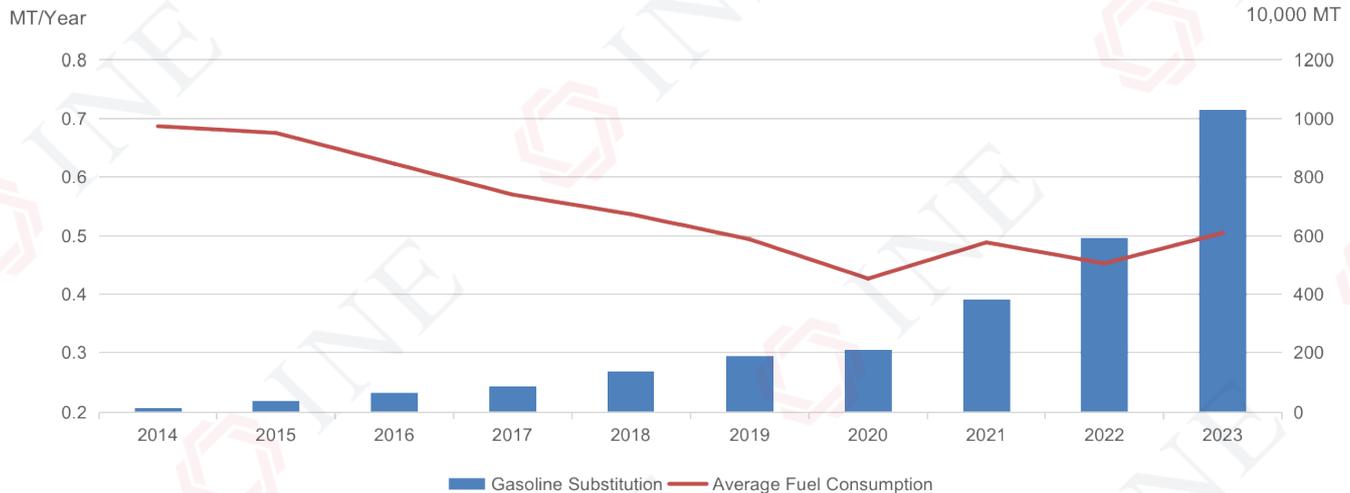
Source: CAAM; Wind; INE

In 2023, among commercial EVs, the sales growth rate of trucks was 48.8%, and the sales growth rate of buses was -4.8%.



Average fuel consumption falls with the wider adoption of EVs, public transport, and new technologies, despite a rebound following the lifting of Covid measures

Estimated Per-Vehicle Fuel Consumption and Gasoline Substitution



Source: MPS; NBS; CAAM; Wind; INE

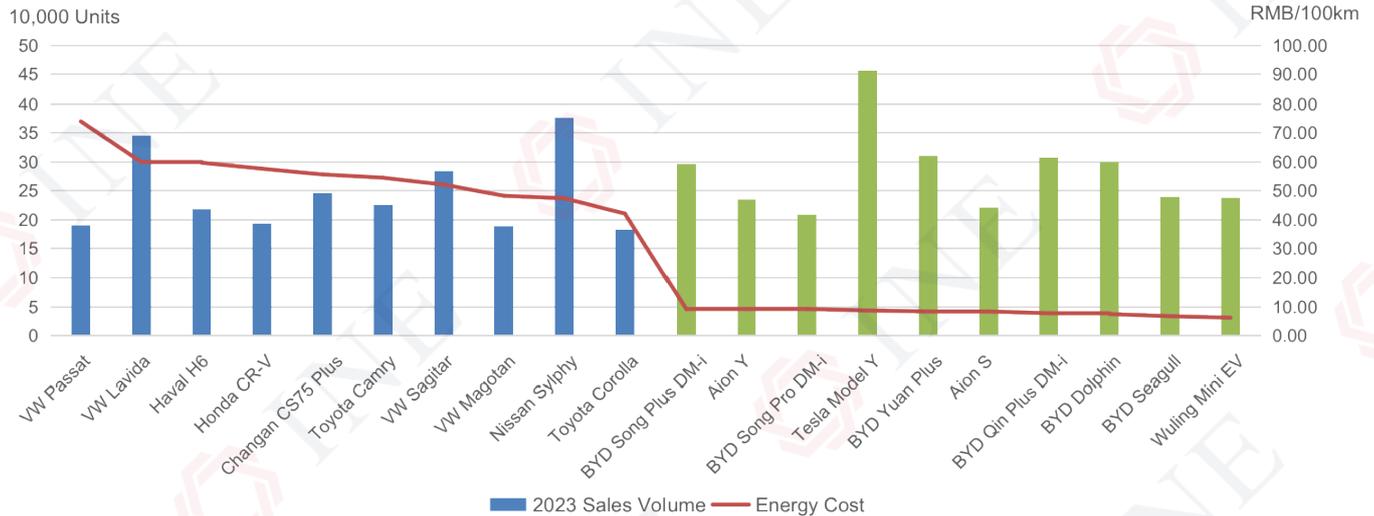
Note: Proportion and ownership of fossil fuel cars are estimated from the car ownership data and the sales figures from the past 15 years.

Estimated result: In 2023, fossil fuel cars consumed approx. 0.5 MT of fuel per vehicle per year. Given there were 20.41m EVs, total gasoline substitution was around 10.31m MT.



EVs have 1/7 of the energy cost of fossil fuel cars

Estimated Energy Cost of Top 20 Best-Selling Cars in 2023



Source: Ministry of Information and Technology; CPCA; INE

Note: For this estimation, the average Shanghai retail price for 92 RON in 2023 is used for the gas price (7.79 yuan/liter); the tier-2, peak-hour residential electricity price in Shanghai is used for the electricity rate (0.667 yuan/kWh). Estimated average energy cost: 55 yuan/100 km for gasoline cars, 8 yuan/100 km for EVs.



Conclusions and Outlook

China's oil market has maintained steady growth and crude oil will remain a critical source of energy in the near future

Shanghai's crude oil futures (SC) serves an effective price discovery function in the domestic crude oil and refined oil markets

China's EV market is taking off, leading to rising substitution of refined oils

SC will contribute to a more robust domestic oil market and China's energy transition



上海期货交易所
SHANGHAI FUTURES EXCHANGE

上海国际能源交易中心
SHANGHAI INTERNATIONAL ENERGY EXCHANGE

Disclaimer

The information contained in this document is compiled and edited by the Shanghai Futures Exchange (SHFE) and Shanghai International Energy Exchange (INE). The copyright of this material is protected by Chinese laws. Any transmission and reproduction shall be done with the written consent of the copyright owner. SHFE/INE does not guarantee that the use and transmission of this material in another jurisdiction is legal. Although we endeavor to provide reliable, accurate and complete information, there cannot be guarantee that such information is accurate or complete.

These materials are general descriptions that are only used for investor education purposes and do not provide any investment suggestions or opinions, and therefore cannot be used as a basis for conducting specific business.

Trading futures and options involves the risk of loss. Carefully consider whether trading is appropriate for you in light of your experience, objectives, financial resources and other relevant circumstances. Those who want to trade INE's products shall meet the eligibility requirements set forth in INE's business rules.



上海期货交易所
SHANGHAI FUTURES EXCHANGE

上海国际能源交易中心
SHANGHAI INTERNATIONAL ENERGY EXCHANGE

ROBUSTNESS | PROACTIVENESS | INTEGRITY | PROFESSIONALISM