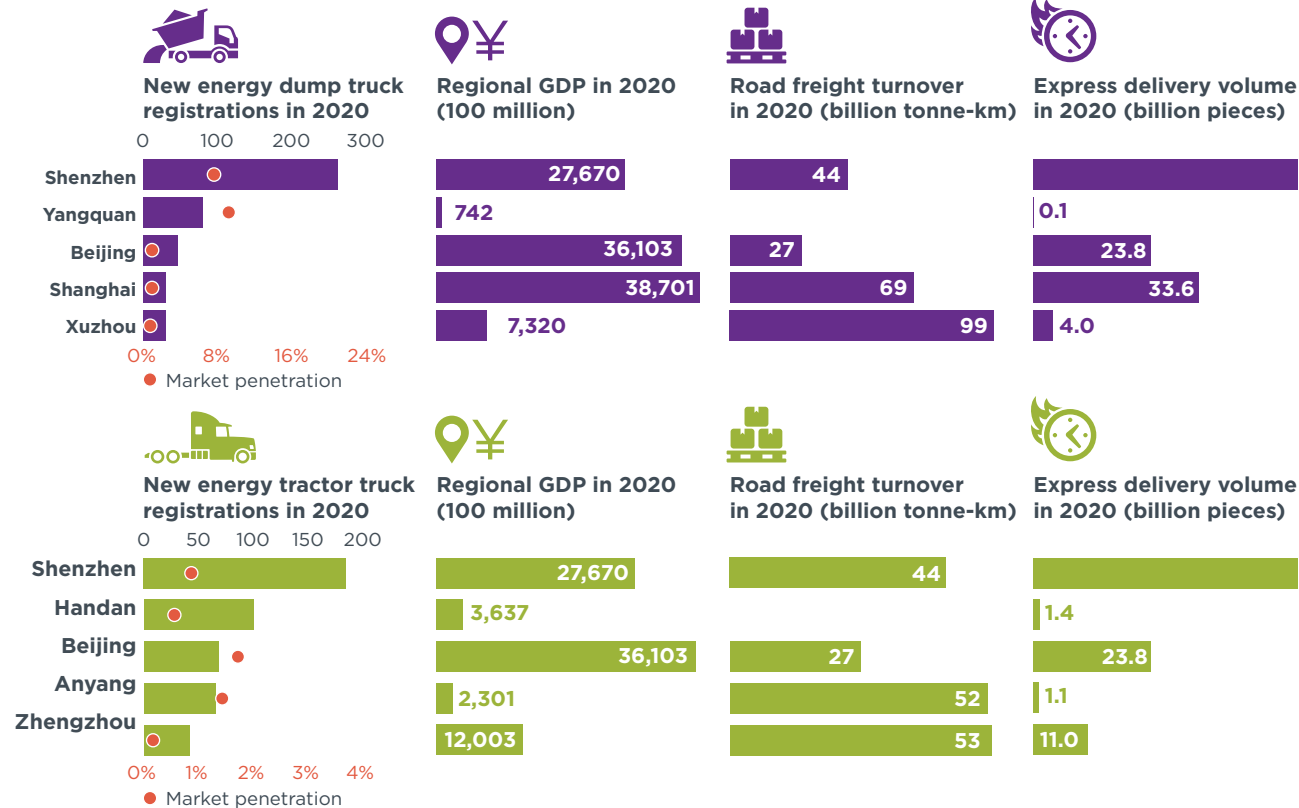


EV CITY PROFILE

LEADING CHINESE CITIES FOR NEW ENERGY HEAVY-DUTY TRUCKS

YIDAN CHU



KEY MARKET FACTS

- » In 2020, China’s market for new energy (NE) heavy-duty trucks was still in its infancy, with only 519 NE dump trucks and 686 NE tractor trucks registered during the year.
- » Five cities—Shenzhen, Beijing, Handan, Anyang, and Yangquan—deployed 73% of all NE dump trucks and NE tractor trucks in the nation. Shenzhen and Yangquan had a remarkable market penetration of NE dump trucks.
- » There is substantial room for heavy-duty truck electrification because there are not enough new energy trucks to handle heavy freight activities in numerous Chinese cities.

POLICY DRIVERS IN LEADING CITIES

- » The most impactful policies were direct requirements for using clean and new energy vehicles (NEVs) in transportation activities associated with heavy industries in parts of China designated as key regions for air pollution control. These policies were led by the Ministry of Ecology and Environment (MEE) in response to regional air quality concerns.
- » As a result, many cities established NEV targets, in the form of market penetration or the number of vehicles, for different types of freight trucks.
- » Shenzhen provided preferential road access for NE trucks, creating strong incentives for their use.

POLICY ANALYSIS

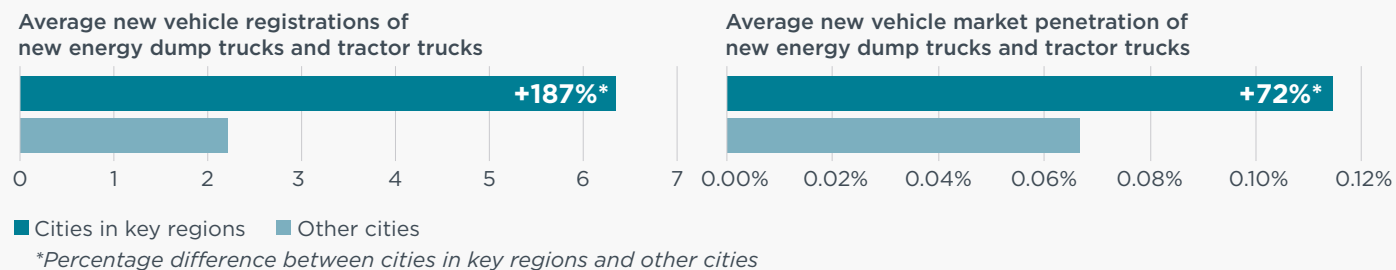
- » Cities in key regions under the scope of MEE's clean air policies had nearly three times the NEV registrations and two times the NEV market penetration as other cities (Figure 1).

TABLE 1
City-level truck actions

City-level truck actions				
City	Key regions	Target		Preferential road access
		Special purpose	Other M & HDV	Other M & HDV
Shenzhen		●	●	●
Beijing	●	●		
Shanghai	●	●	●	
Handan	●	●	●	

FIGURE 1

Differences in new vehicle registrations and market penetration of new energy dump trucks and tractor trucks between cities in key regions and other cities, 2020.



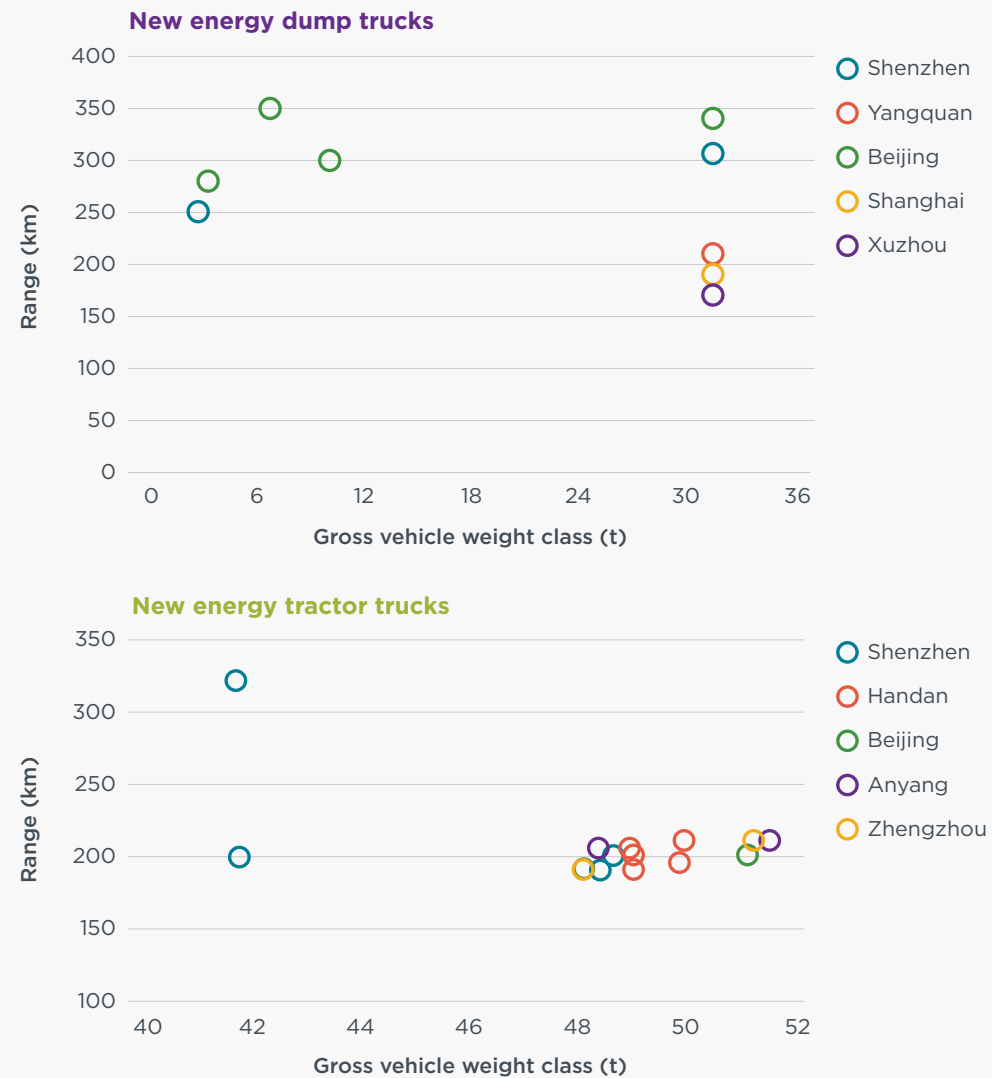
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NEV MODELS

As shown in Figure 2, NE dump trucks used in these leading city markets were mainly models with a gross vehicle weight (GVW) of about 30 tonnes and average electric ranges of 150 km to 350 km. NE tractor truck models mainly fell into the GVW range of 48 tonnes to 52 tonnes and an electric range of about 200 km.

FIGURE 2

Sales-weighted average electric range by gross vehicle weight class of new energy dump trucks and tractor trucks, 2020.



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CITY CASE STUDIES

BEIJING

- » Aimed to electrify 100% of new additional or replacement vehicles for sanitary, postal, and special-purpose uses in airports and rail stations by 2020.
- » Beijing's Three-Year Plan to Win the Battle Against Air Pollution (a provincial version of China's Three-year National Plan of Blue-Sky Defense), requires a substantial modal shift of bulk product shipments from road to rail and heavy promotion of NEVs.

HANDAN

- » Aimed to have 80% of new additional or replacement postal vehicles, and all new additional or replacement special-purpose vehicles used in airports and rail stations, to be powered by clean energy by 2020.
- » Created low-emission zones for freight trucks in central urban areas; high-emitting trucks (those certified to the China IV emission standard or below) were banned in these zones.
- » In response to these policies, five large steel companies—Hesteel, Hansteel, Yuhua, Xinjin, and Puyang—signed contracts to buy or lease more than 500 NE tractor trucks; these trucks were to be put into operation starting in 2020.

SHENZHEN

- » Subsidies, targets, and road access policies helped lead to more new registrations of NE dump trucks and NE tractor trucks in Shenzhen than in any other city in 2020. The infographic on the right highlights Shenzhen's policy commitments and tools for promoting NE trucks.



DEFINITIONS, ASSUMPTIONS, AND METHODOLOGIES

- » “New energy vehicle” is an umbrella term that encompasses battery electric, plug-in hybrid electric, and hydrogen fuel cell electric vehicles.
- » Key regions in this analysis include the provinces of Hebei, Shanxi, Shanghai, Zhejiang, Jiangsu, Anhui, Shandong, Henan, and Shaanxi, and two cities—Beijing and Tianjin.
- » Special-purpose or utility vehicle refers to a set of functional vehicles, such as refrigerated trucks, post office vehicles, engineering trucks, sanitation vehicles, etc.
- » For more information, please refer to our published report on new energy commercial vehicles in leading cities.¹

¹ Lingzhi Jin and Yidan Chu, “Accelerating New Energy Vehicle Uptake in Chinese Cities: Assessment of New Energy Commercial Vehicle Policies” (Washington, DC: International Council on Clean Transportation, 2023), <https://theicct.org/publication/commercial-nevs-cities-policies-jul23/>.

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