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# **Global and China Heavy Truck Industry Report, 2021-2027**

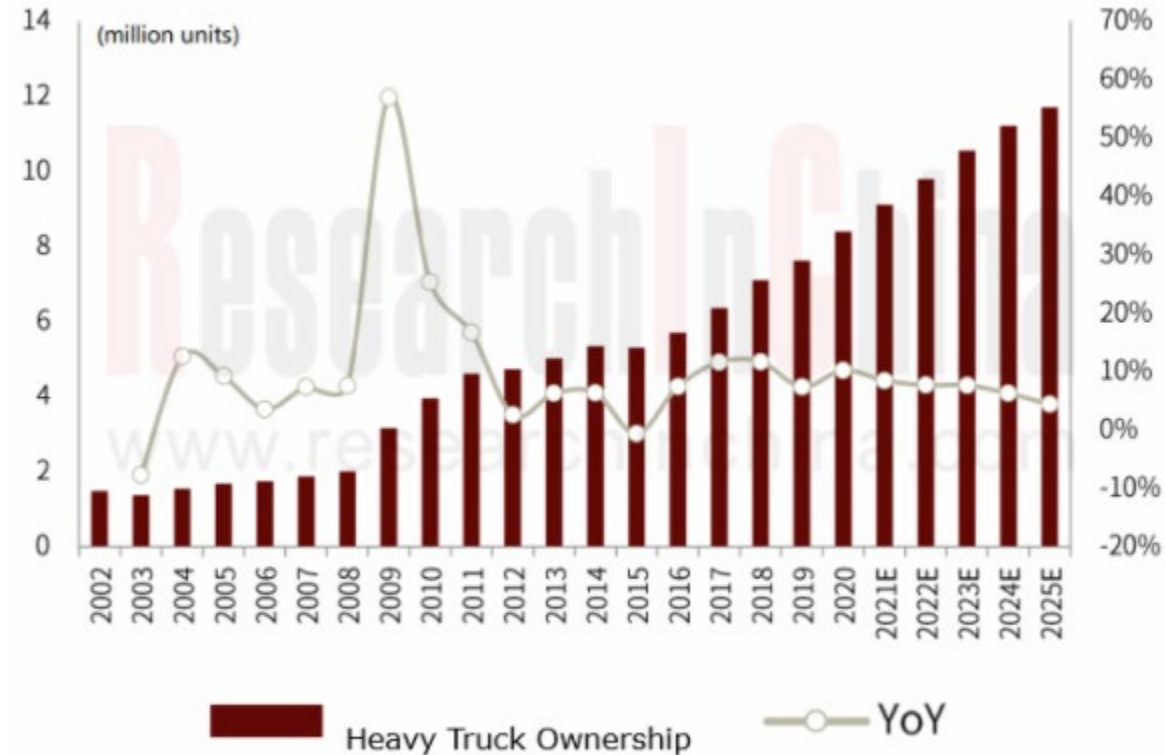
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# China's Heavy Truck Sales

From 2016 to 2020, China's heavy truck sales surged from 728,000 units to 1,617,000 units, hitting new records for the consecutive four years. In 2021, a combination of factors such as sluggish freight market and demand overdraft led to an annualized 14.1% slump in the heavy truck sales to 1.39 million units, a figure projected to be around 1.2 million in 2022. It is conceivable that China's heavy truck ownership will reach 11.7 million units in 2025.

- First, the stagnating freight market and the increasing unbalance between supply and demand have brought about slowing demand for heavy trucks since April 2021, and plus a range of other factors like transport overcapacity, falling freight rates, and insufficient construction of infrastructure projects, led to less-than-expected orders from heavy truck end users.
- Second, the “crazy growth” of heavy truck market in 2020 overdrew part of demand in 2021. The full implementation of China Phase VI Emission Standards kicked companies into high gear to produce China V models from early 2021, and dealers across the country also went all out to stock up, which moved up the release time of the end demand and caused the plummeting demand for heavy trucks in the second half of 2021.
- Third, users' doubts about the reliability and fuel adaptability of China VI heavy trucks with high price and high use cost slashed the rigid demand. The successive issuance of policies for controlling China V diesel vehicles in some regions made it hard to digest the China V vehicle inventory.

China's Heavy Truck Ownership, 2002-2025E



Source: Ministry of Public Security; ResearchInChina

# Sales of China VI Tractors May Surge

In 2022, the demand for heavy trucks will show a trend of opening low but going up and the market will enter the phase of stock competition, thanks to the Winter Olympics and economic recovery cycle among other factors. First, the resumption of infrastructure projects will create opportunities for the construction vehicle market; second, the goal of “double carbon” (carbon peaking and carbon neutrality) will spur the new energy vehicle market; third, the end of phase-out of China III diesel vehicles and the restriction on China IV ones will leave the scope for replacement and update; fourth, people's livelihood security and specialized transport will bring opportunities to market segments.

In 2021, China sold a total of 1.39 million heavy trucks, including about 250,000 China VI heavy trucks, or 18% of the total, 4 percentage points higher than in 2020 (14%). In 2021, the first year to implement the China Phase VI Emission Standards, China VI diesel heavy trucks however shared lower than 1/5. In the future, as the restriction on China V and below vehicles become stricter, the sales of China VI heavy trucks will sustain growth, of which the sales of tractors may soar.

In 2018, China finalized China VI standards that will apply to new heavy-duty diesel vehicles nationwide in two stages. The first stage, China VI-a, is largely equivalent to Euro VI and applied to gas engines in July 2019, urban HDVs in July 2020, and all new HDVs in July 2021. The second stage, China VI-b, adds requirements such as anti-tampering monitoring and remote on-board diagnostics data reporting that are expected to enhance real-world emissions compliance. China VI-b will apply to gas engines nationwide starting in January 2021 and all new HDVs in July 2023.

Emission Standards for Heavy-Duty Engines

Standard	Test Cycle	CO	HC	NMHC	CH <sub>4</sub> <sup>a</sup>	NO <sub>x</sub>	PM	Smoke	PN
		g/kWh						1/m	#/kWh
China III	ESC-ELR	2.1	0.66	-	-	5.0	0.10/0.13 <sup>b</sup>	0.8	-
	ETC	5.45	-	0.78	1.6	5.0	0.16/0.21 <sup>a</sup>	-	-
China IV	ESC-ELR	1.5	0.46	-	-	3.5	0.02	0.5	-
	ETC	4.0	-	0.55	1.1	3.5	0.03	-	-
China V	ESC-ELR	1.5	0.46	-	-	2.0	0.02	0.5	-
	ETC	4.0	-	0.55	1.1	2.0	0.03	-	-
China VI	WHSC (compression ignition engine)	1.5	0.13	-	-	0.4	0.1	-	8*10 <sup>11</sup>
	WHTC (compression ignition engine)	4.0	0.16	-	-	0.46	0.1	-	6*10 <sup>11</sup>
	WHTC (spark ignition engine)	4.0	-	0.16	0.5	0.46	0.1	-	6*10 <sup>11</sup>
<sup>a</sup> Natural gas engines only									
<sup>b</sup> For engines with a per cylinder displacement of 3000 rpm									
Note: At the China I/II stage (not shown in this table), the test cycle was ECE R-49, or the Chinese 9-mode.									



# The Intelligent Connected Heavy Trucks will be a Megatrend

Intelligent connected vehicles are taken as one of the key industrial growth drivers in the future, according to the Action Plan for the Development of the Intelligent Connected Vehicle (ICV) Industry, a policy issued by the Ministry of Industry and Information Technology (MIIT) in 2018. The Intelligent Connected Vehicle Technology Roadmap 2.0 released by the National Innovation Center of Intelligent and Connected Vehicles in 2020, indicates that: in 2025, the sales of ICVs at levels of PA (partial automation) and CA (conditional automation) will make up more than 50% of the total. In 2021, the MIIT set up an Intelligent Connected Vehicle Promotion Group to carry out pilot projects of urban and intelligent connected vehicles.

Intelligent transportation has been as important as a national strategy, and the intelligent connected heavy trucks have also become a development trend, so to speak. In August 2018, Beijing announced a regulation: China V and above diesel heavy trucks registered in Beijing must be connected to Beijing Municipal Ecology and Environment Bureau before December 31, 2021. National strategies and transportation policies will favor the wider adoption of intelligent connected heavy trucks which may be a new sales driver in 2022.

According to incomplete statistics, several autonomous heavy truck solution providers at home and abroad have closed a total of at least 16 funding rounds in the most recent year (August 2020 to August 2021). Examples include PlusAI and Inceptio Technology, two Chinese firms which have raised over USD800 million in all in their recent several funding rounds.

## Financing of Autonomous Heavy Truck Solution Providers, Aug. 2020-Aug. 2021

Time	Provider	Round	Amount
Aug. 2020	CiDi	A++	RMB100+ mln
Oct. 2020	Einride	-	USD10 mln
Oct. 2020	Pony.ai	C	USD400+ mln
Nov. 2020	TuSimple	E	USD350 mln
Nov. 2020	PlusAI	C	USD100 mln
Nov. 2020	Inceptio Technology	Equity financing	USD120 mln
Jan. 2021	CiDi	B	RMB400 mln
Feb. 2021	PlusAI	D	USD200 mln
Feb. 2021	Pony.ai	C+	USD100 mln
Mar. 2021	PlusAI	D+	USD220 mln
Apr. 2021	CiDi	B+	USD300 mln
May 2021	Einride	B	USD110 mln
May 2021	Hong Jing Drive	A	Nearly RMB100 mln
Jun. 2021	Kodiak Robotics	B	Unreleased
Jun. 2021	Waymo	-	RMB2.5 bn
Aug. 2021	Inceptio Technology	Round B equity financing	USD270 mln

Source: ResearchInChina

# The Sales of New Energy Heavy Trucks May Enjoy a Big Growth Spurt

As China works towards the “double carbon” goal, energy saving and emission reduction will be the main theme of the future industrial development. In the first eleven months of 2021, the sales of new energy heavy trucks totaled 7,442 units, a like-on-like spurt of 222.4%, gathering momentum. Wherein, 6,840 units, or 91.91% of the total new energy heavy truck sales were electric heavy trucks, up by 201% compared with the same period of the previous year. It can be seen that electric heavy trucks were the major contributor to the rapid growth of new energy heavy trucks in 2021.

Noticeably, in late December, the Ministry of Finance released a notice on another 30% reduction in new energy vehicle purchase subsidies and confirmed that the new energy vehicle purchase subsidy policy will be terminated on December 31, 2022, that is, vehicles registered and licensed after December 31, 2022 will not be subsidized. This regulation may trigger a big upsurge in sales of new energy heavy trucks in 2022, especially port logistics and urban special vehicles.

**Global and China Heavy Truck Industry Report, 2021-2027** highlights the following:

- China heavy truck industry (definition and classification, development trends, technology, industry standards, etc.);
- China heavy truck market size (ownership, production, sales, import and export, competitive landscape, etc.);
- Market segments (the market size of complete and incomplete heavy trucks and semi-tractors, competitive landscape, development trends, etc.);
- Relevant industry chain (industry chain, upstream raw materials, downstream investment and real estate development, etc.);
- 15 heavy truck companies including FAW Jiefang, Dongfeng Group, Sinotruk, Foton Motor, Shaanxi Automobile Group, JAC, Hualing Automobile, Qingling Motors, Dayun Automobile, Beiben Truck, SAIC Iveco Hongyan, Tri-ring Special Vehicle, XCMG Automobile, Feidie Automobile and Hanma Technology Group (profile, operation, revenue structure, heavy truck business, development strategy, etc.).

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