April 24, 2025
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Testimony Before the U.S.-China Economic and Security Review Commission
Hearing on "China's Domestic Energy Challenges and Growing Influence over International Energy Markets"

China's Oil Demand, Imports and Supply Security

Members of the Commission, thank you for inviting me to testify. In my remarks, I will address three issues: China's slowing oil demand, changes to China's oil imports, and developments in recent years that probably have enhanced the country's oil supply security.

China's Slowing Oil Demand

China's demand for oil, long an important driver of global oil demand, is decelerating. Between 2003 and 2023, China accounted for more than 50 percent of the growth in world oil demand, with an average annual growth rate of 5.8 percent and an average annual increase of 542,000 barrels per day (bpd).[1] However, the country's demand for oil increased by less in 2024, with industry estimates of the growth rate ranging from ranging from -1.6 percent to 2 percent and the volume ranging from -242,000 bpd to 320,000 bpd. These sources expect slower growth to continue in 2025 (See Table 1).

Table 1: Estimates of China's Oil Demand in 2024 and 2025

	IEA	OPEC	CNPC	Sinopec
2024				
Demand (million bpd)	16.62	16.68	15.19	15.02
Demand growth (bpd)	150,000	320,000	10,000	-242,000
Growth rate (%)	1	2	0	-2
2025				
Demand (million) bpd)	16.78	16.95	15.36	15.46
Demand growth (bpd)	160,000	270,000	171,000	443,000
Growth rate (%)	1	2	1	3

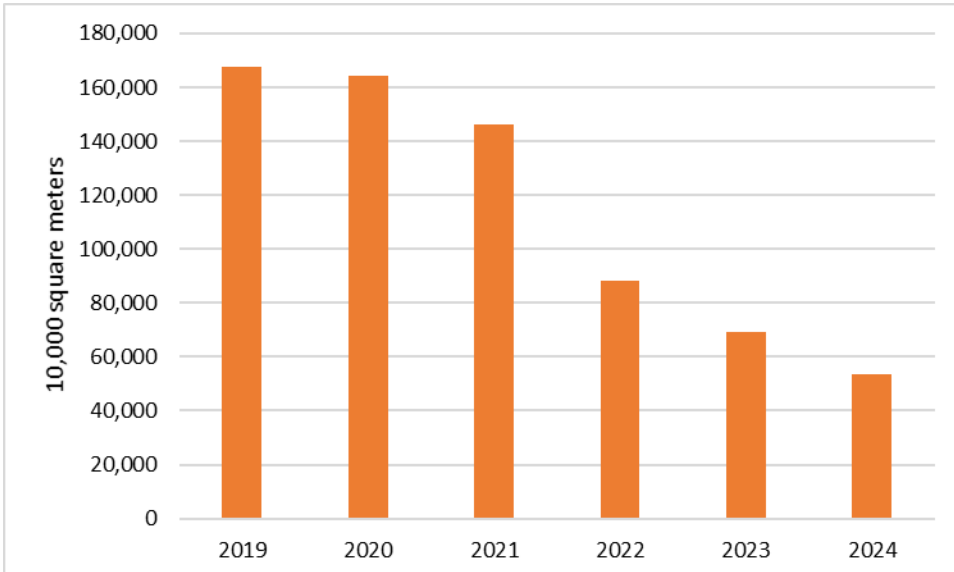
Sources: International Energy Agency, OPEC, China National Petroleum Corporation, Sinopec[2]

China's oil demand is growing more slowly because of increasing sales of new energy vehicles (NEVs) (a category that includes battery-electric vehicles, plug-in hybrids, and fuel-cell electric vehicles), a property sector slump, the growing popularity of LNG trucks, and the buildout of China's high-speed rail network.

NEVs are reducing China's demand for gasoline. According to China National Petroleum Corporation's Economics and Technology Research Institute (CNPC), in 2024, NEVs displaced 28 million tons of gasoline in China, contributing to an estimated 3.1 percent decrease in gasoline consumption.[3] Sinopec, China's largest refiner, expects NEVs to reduce China's gasoline consumption by 2.4 percent in 2025.[4]

China's property sector slump and the deployment of trucks powered by liquefied natural gas (LNG) are weakening China's demand for diesel. The floor space of new home starts in China decreased by more than 68 percent between 2019 and 2024 (see Figure 1). This almost certainly had a negative impact on diesel demand because diesel is used to fuel construction equipment and transport construction materials.[5] The increased use of LNG trucks in 2024 also took a bite out of diesel demand. According to CNPC, the distances driven by LNG trucks increased by more than 50 percent in 2024, displacing 25 million tons of diesel and contributing to an estimated 4.8 percent decline in diesel consumption.[6] Sinopec expects LNG trucks to reduce China's diesel consumption by 5.5 percent in 2025.[7]

Figure 1: Floor Space of New Home Construction Starts in China



Source: National Bureau of Statistics of China[8]

The use of public transportation is also curbing China's oil demand. The continued buildout of China's high-speed rail network, an increase in the number of miles traveled by long-distance rail passengers, and greater use of urban subway systems likely reduced China's demand for oil last year by 1.5%, according to the International Energy Agency (IEA).[9]

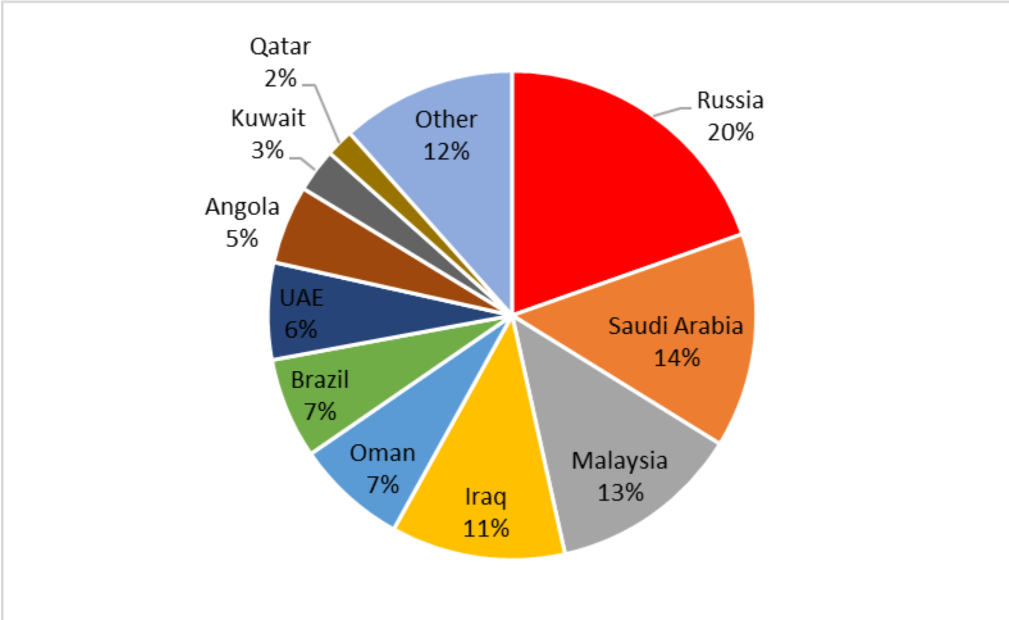
The IEA estimates that NEVs, LNG trucks and the development of China's high-speed rail network and subways systems has avoided oil demand growth of 1.2 million bpd since 2019.[10]

With China's consumption of gasoline and diesel in decline, petrochemicals are now the primary driver of China's oil demand growth.[11] Private and state-owned refineries looking for ways to thrive in a China where road transportation consumes less oil are pivoting to the production of high-end chemicals, including those used in green technologies such as solar panels and lithium ion batteries.[12] This shift advances other goals of the central government, including reducing China's dependence on imports of higher-end chemicals, lessening overcapacity in lower-end chemicals, and investing in high technologies – which use high-end chemicals – to drive economic growth.[13]

Changes to China's Oil Imports

In 2024, China imported 11.1 million barrels per day of crude oil, accounting for 74 percent of the country's apparent oil consumption.[14] China's five largest crude oil suppliers provided two-thirds of China's crude oil imports. The five countries are Russia, Saudi Arabia, Malaysia, Iraq and Oman (See Figure 2).

Figure 2: China's Crude Oil Suppliers in 2024



Source: General Administration of Customs of China

China imports oil by land and by sea. Last year, roughly 90 percent of China's crude oil imports were seaborne. The remainder arrived overland from Russia, Kazakhstan and Mongolia. Russia accounted for almost 95 percent of China's overland oil imports last year, delivering oil to China via pipelines from Russia and Kazakhstan.[15]

China's crude oil imports have experienced a number of changes over the past decade:

Crude oil subject to US and western sanctions probably accounted for more than one-fifth of China's oil imports in 2024. This includes 1.4 million bpd from Iran, 268,000 bpd from Venezuela, and 821,000 bpd of Russian oil shipped on sanctioned tankers.[16] The main buyers of these crudes in China are independent refineries known as "teapots", which are concentrated in Shandong province. The teapots, which operate on thin margins and are highly opportunistic crude buyers, are motivated by the discounts on sanctioned crudes.[17]

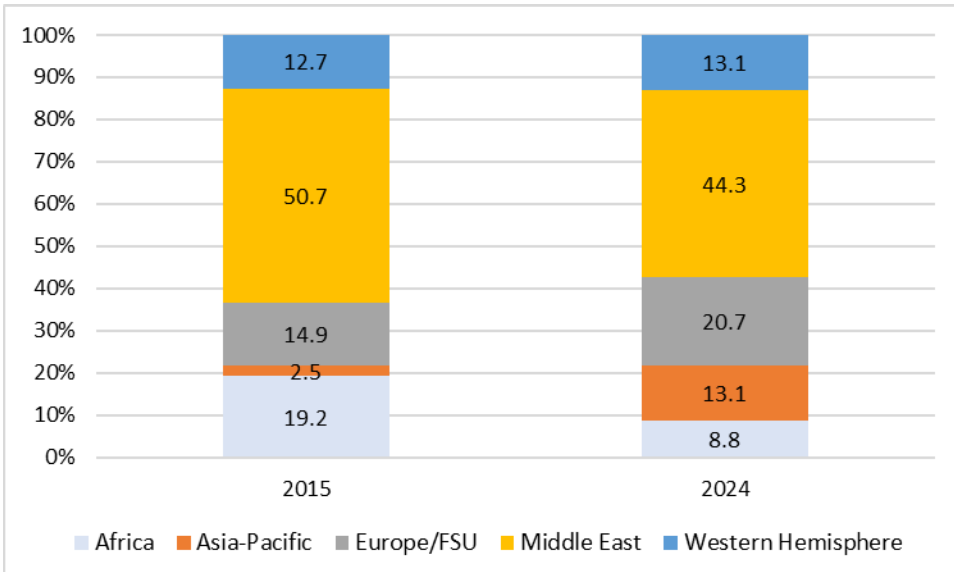
The emergence of Malaysia as China's third largest oil supplier last year almost certainly reflects oil imports from Iran and Venezuela which are rebranded as Malaysian to evade US sanctions. China's imports of crude oil from Malaysia grew from just 5,400 bpd in 2015 to 1.4 million bpd in 2024. However, Malaysia only produced 565,000 bpd last year.[18] The difference is probably due to oil exported from Iran and – to a lesser extent -- Venezuela that is delivered to China via ship-to-ship transfers in the waters off of Malaysia.[19]

Sanctions imposed on Russia by the United States and partner countries have made Russia an even larger supplier of oil to China than it was before Russia began its war in Ukraine because of the discounts available. Russian oil deliveries to China increased from 1.6 million bpd in 2021 to 2.2 million bpd in 2024.[20] As a result, Russia's share of China's crude oil imports last year was nearly 20 percent, the highest level since Saudi Arabia supplied 19.1 percent of China's crude oil imports in 2013.[21]

The increase in China's imports of crudes subject to US and western sanctions probably has contributed to a reduction in Saudi Arabia's oil exports to China. Saudi crude deliveries to China decreased by about 10 percent between 2021 and 2024 (from 1.8 million bpd to 1.6 million bpd). Saudi Arabia's share of China's crude oil imports declined from 17 percent to 14 percent.[22]

Increased oil deliveries from Russia and Malaysia help explain some of the big changes over the past decade in China's reliance on different parts of the world for oil supplies, according to Chinese customs data (See Figure 3).

Figure 3: China's Oil Imports by Region, 2015 and 2024



Source: General Administration of Customs of China

- Russia is responsible for the increase in the Europe and the Former Soviet Union's share of China's crude oil imports from 15 percent to 20 percent.

- The emergence of the waters off the coast of Malaysia as a large hub for ship-to-ship transfers of crude oil originally exported from Iran and Venezuela accounts for the expansion of the Asia-Pacific region's share of China's crude oil imports from 2 percent to 13 percent

- The decline in the Middle East's share of China's crude oil imports from 51 percent to 44 percent is largely due to the fact that China's General Administration of Customs recorded zero shipments from Iran in 2024.

- The increase in the Western Hemisphere's share of China's crude oil imports is primarily due to the growth in Brazil's exports to China, which grew by 164 percent.

- The decline in Africa's importance as a crude oil supplier to China is largely the result of declines in deliveries from Angola, Sudan and South Sudan. All three countries' oil production and exports have fallen over the past decade.[23]

Saudi Arabia and Russia are likely to remain top suppliers to China. Saudi Aramco is investing in petrochemical complexes in China, a move that aligns with China's emphasis on producing less diesel and gasoline and more chemicals as peak oil demand looms.[24] Russia's ability to deliver large volumes of oil to China via pipeline should ensure that it remains one of China's most important oil suppliers given Beijing's longstanding preference for diversifying its oil imports away from the sea lines of communication.

China's Oil Supply Security

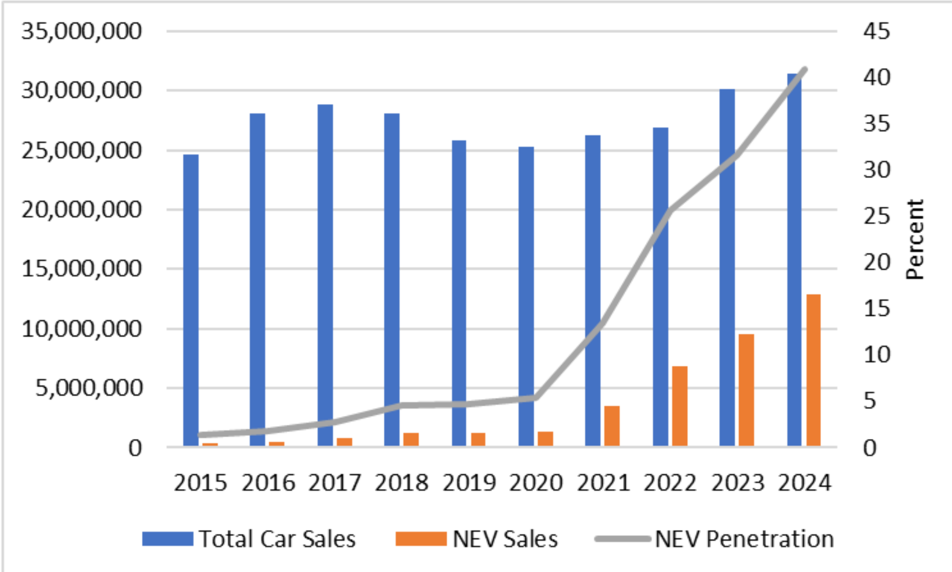
Beijing remains concerned about China's oil supply security because of China's heavy reliance on oil imports in general and seaborne oil imports in particular, as discussed above. China's leader Xi Jinping himself has expressed concern over China's dependence on imported oil in recent years. In 2021, while visiting Shengli oilfield, he indicated that the key to bolstering China's oil supply securities lies in expanding domestic output. He told oil workers that "oil and energy construction is very significant to our country. As a major manufacturing power, China has to secure its energy supply in its own hands."[25] He also said that "solving the core demand for oil and gas is an important task we face."[26]

That said, there several developments over the past decade may lessen Beijing's concerns about China's high level of dependence on imported oil:

Increases in domestic production: In 2024, China produced 213 million tons (4.27 million bpd) of crude oil, virtually equaling the historical peak of 215 million tons (4.32 million bpd) in 2015.[27] After setting that production record, China's oil output fell to 189 million tons (3.8 million bpd) in 2018.[28] This decline appears to have alarmed China's leader Xi Jinping. In July of that year he issued an instruction to "vigorously increase exploration and development efforts to ensure national energy security."[29] China's national oil companies subsequently developed their first-ever seven-year action plans to increase domestic reserves and production for the period 2019-2025.[30] To this end, the companies invested heavily in exploration and production.[31] China's oil output grew by almost 500,000 bpd.[32]

More NEVs on the road: Rapid growth in NEV sales is leading to projections that China's oil demand will peak earlier than expected. The number of NEVs sold in China grew from 331,000 in 2015 to 129 million in 2024, increasing the NEV penetration rate from one percent to 41 percent over the same period (See Figure 4). In the process, China achieved its 2025 NEV penetration target of 20 percent in 2022.[33] A former minister of industry and information technology expects China to hit its 2035 NEV penetration target of more than 50 percent as early as 2025.[34]

Figure 4: China's Increasing New Energy Vehicle Sales



Sources: China Association of Automobile Manufacturers and Ministry of Industry and Information Technology[35]

The rapid deployment of NEVs has prompted China's NOCs to move up their projections of China's peak oil demand date. Sinopec now expects China's oil demand to peak at no more than 16 million bpd.[36] Last year, the company projected oil demand would peak at the same level in 2026-2030.[37] CNPC now says China's oil demand could peak at 15.4 million bpd in 2025.[38] In 2023, the company projected China's oil demand peaking at 15.6 to 16 million bpd by 2030.[39]

Expanding strategic and commercial oil stocks: China's strategic petroleum reserve (SPR) and commercial stocks enhance its oil supply security. The combined volume of strategic and commercial stocks provides China with at least 96 days of crude oil import coverage at the 2024 level. According to Kayrros, a geospatial analytics company, as of March 31, 2025, China held 401 million bpd in above-ground SPR facilities and 668 million bpd in above-ground commercial stocks.[40] China also has five underground SPR facilities with a combined operating capacity of 130 million barrels.[41] If filled to operating capacity, these underground locations provide China with an additional 11.7 days of crude import coverage.

China had room in its SPR and commercial tanks farms for more oil. According to Kayrros, as of March 31, 2025, China had only filled 56% percent of its above-ground strategic and commercial storage facilities. If China were to fill these facilities and the five underground SPR location to capacity, then China would have enough crude oil in storage to cover 183 days of imports at the 2024 level.[42]

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