

A brief introduction to the prevention and supervision of mobile pollution source in recent years of Beijing

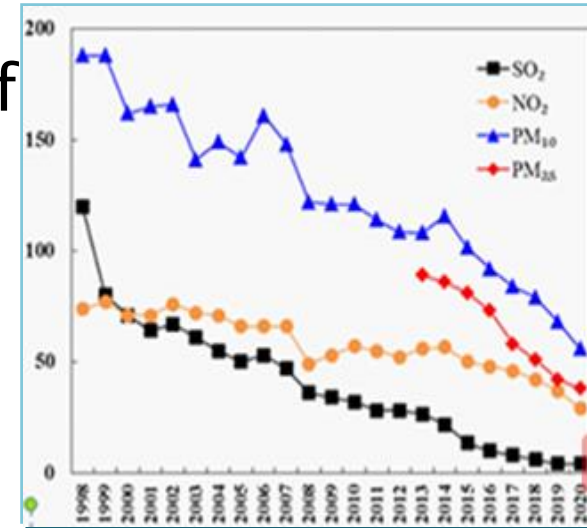
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1. Basic information

In 2020, the average concentration of **PM_{2.5}** in Beijing was **38 $\mu\text{g}/\text{m}^3$** . It was the first time dropped below **30**.

The **NO₂** concentration that closely related to mobile pollution sources was **29 $\mu\text{g}/\text{m}^3$** , that has reached the national standard for two consecutive years.



Palace Museum under blue sky (Photograph credit: Beijing Municipal Environmental Publicity Center)

Beijing reports fine air-quality record in June

Xinhua | Updated: 2021-07-10 17:38

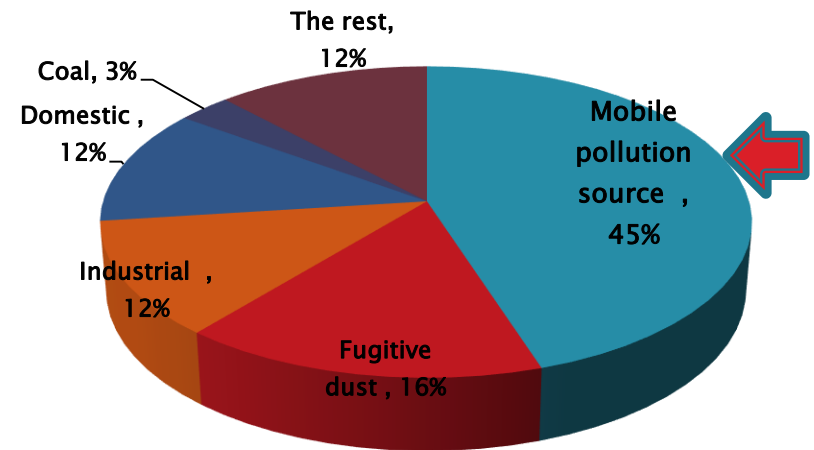
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Although the air quality in Beijing has improved significantly in recent years, the PM_{2.5} concentration still fails to meet national standards. Especially , the **mobile pollution source** accounts for the **largest proportion** of local PM_{2.5} sources, reached **45%**. By the end of May 2021, the number of motor vehicles in Beijing had reached **6.7 million**.

Therefor, the city has regarded the mobile pollution source as the **top priority** in air pollution control, undertake the **vehicle, oil, road** and other links, and had scored positive results.

Sources of PM_{2.5} in Beijing



2. Main measure

(1) Establish a sound legal system

On May 1st of 2021, Beijing enacted “*the Regulations on Pollution Prevention and Control from Motor Vehicles and Non-Road Mobile Machinery*”. There are 51 clauses, contribute to improve the legal system of prevention and control to mobile source pollution.

Capital legislators pitch tighter auto emission rules

By XIN WEN | China Daily | Updated: 2020-01-15 08:49

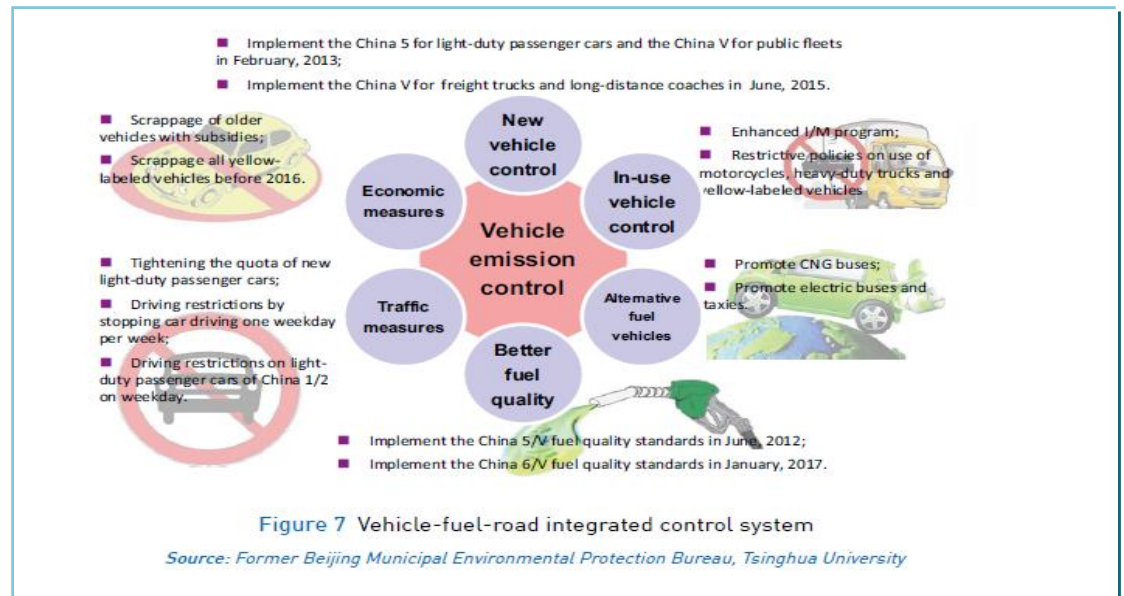


Cars run on the New Shougang Bridge in Beijing, Sept 29, 2019. [Photo/Xinhua]

Beijing is considering further restrictions on automobile emissions and strengthening inspections of vehicles to further curb environmental pollution, a top official of the capital's legislative body said on Tuesday.

A draft regulation was submitted to the Beijing Municipal People's Congress on Tuesday, and a decision is expected on Friday.

Vehicle exhaust is the main source of polluting PM2.5 particles-small particles that



(2) Supervision of new vehicles

- Since Jan.1st 2020, Beijing has fully implemented the National`s **Phase 6B** emission standard for light and heavy vehicles.
- Strictly carry out law enforcement and supervision of new vehicles in order that they meet the emission standards. A number of enterprises have been punished.



- In 2020, department of ecology and environment in Beijing, Tianjin and Hebei had enacted “*Collaborative Mechanism of Sampling and Inspection of New vehicles in Beijing, Tianjin and Hebei (Trial)*”
- The department of ecology and environment in three provinces(cities) regularly held **joint meeting**. Inform new vehicle sampling inspection plan on the basis of **ownership**, **annual inspection data**, etc.
- Carry out **joint law enforcement inspection** for target models.



(3) Supervision of in-used vehicles

A. intensify law enforcement of on-road and entry inspections

- Focus on **heavy diesel vehicles**, comprehensive take steps to **on-road**, **nighttime** and **entry inspections**, aim to **38 main entrances** of Beijing and **36 key roads** in the city. Carry out law enforcement 24 hours.
- From 2018 to May 2021, More than **2 million heavy-duty diesel vehicles** are inspected every year, over **800 thousand** vehicles were found to exceed the standard.

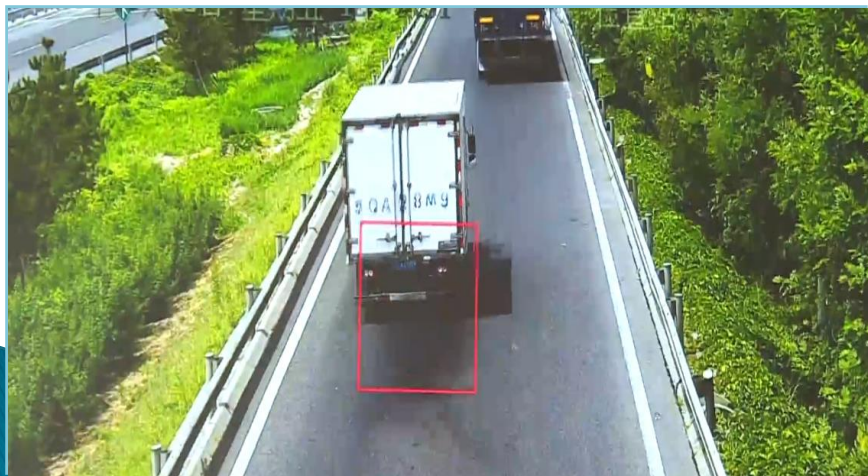


B. Remote sensing detection and black smoke capture to test vehicles exceeding the standard

- Beijing has established **more than 100 sets** of remote sensing detection points for vehicle emissions. Mainly located on **the road of more vehicles**.
- Including **19 diesel vehicle black smoke capture** points, which can be judged through the image of the exhaust **ringelman blackness**.
- Local standards for remote sensing detection of gasoline vehicles have been implemented.



- More than **40 million** pieces of valid data have been detected.
- Vehicles found to exceed the standard by remote sensing detection will be handed over to the public security traffic management department.
- In the first half of 2021 alone, nearly **500 vehicles** have been punished.



C. Strict with the annual inspection

- Strict inspection was carried out on the annual inspection agency by on-site inspection, background network monitoring, analysis of process data, verification of environmental parameters, review of video recordings and other methods , cracking down on illegal activities.
- From the year 2018, **87 agencies** had been punished, the fine was more than **5 million yuan**.



(4) Traffic restriction and old vehicles elimination

A. reinforce eliminating the old vehicles

➤ Since Sep. 2017, implemented a subsidy policy for eliminating out **phase-3 diesel** trucks, and since 2018, more than **90,000** units have been phased out.

➤ From Apr. 2020, implemented a subsidy policy for eliminating out **phase-3 gasoline** vehicles. by the end of May 2021, has eliminated **80,000** units in total.

Capital to ban high-emission vehicles

(China Daily)

Updated: 2015-04-09 07:40:54

Comments Print Mail Large Medium

Beijing will ban gasoline-powered vehicles that fail to meet emission standards starting Jan 1, 2016.

Vehicles will be banned from entering the city's Sixth Ring Road unless they meet the National Emission Standard II, according to the Beijing Environmental Protection Bureau.

Beijing currently imposes the National Emission Standard V for vehicles, similar to the Euro V standard in Europe. The city adopted the National Emission Standard I in 1999 and the National Emission Standard II in 2004. With each new standard, pollutants dropped by 30 percent to 50 percent per vehicle.

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Beijing rolls out plan to root out air pollution

By Li Hongyang | chinadaily.com.cn | Updated: 2021-01-24 12:03

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A view of the Corner Tower at the Palace Museum in Beijing on Sept 3, 2020. [Photo/Xinhua]

Beijing government will fundamentally eliminate days of heavy air pollution by 2025 through gradually banning diesel and promoting new energy vehicles, a draft for a guideline on the city's next five-year plan said on Sunday.

The draft said that the capital will replace vehicles for public use powered by gasoline including buses, sanitation trucks, taxis, postal vehicles, vans and official cars into new energy and ban diesel cars in Dongcheng and Xicheng districts step by step within the next five years.

The government will encourage private gasoline car owners to change into new energy ones and speed up building more hydrogen fueling stations for new vehicles in the capital.

B. Traffic restriction for high emission vehicles

➤ From Feb. 2017, **Phase-1** and **Phase-2 gasoline vehicles** are limited to enter the **Fifth Ring Road** on workdays.

➤ Since Sep. 2017, **Phase-3 heavy diesel vehicles** are not allowed to enter the **Sixth Ring Road**

➤ Since Nov. 2019, **Phase-3 heavy diesel vehicles** are banned all over Beijing

Beijing restricts non-locally registered autos to ease congestion, reduce emission

Xinhua | Updated: 2019-11-02 14:49

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Cars run on the New Shougang Bridge in Beijing, capital of China, Sept 29, 2019. [Photo/Xinhua]

BEIJING - Beijing on Friday implemented a new traffic restriction policy on automobiles with non-local license plates to drive in urban areas, according to the municipal commission of transport.

The policy was adopted to ease traffic pressure and parking problems, and reduce vehicle emissions, the commission said.

Beijing tightens vehicle emission controls against PM 2.5

Updated: 2015-09-02 13:53
(Xinhua)

Comments Print Mail Large Medium Small

BEIJING - Beijing on Monday unveiled a package of measures to curb vehicle emissions over the next five years as part of the capital's increasing efforts to improve air quality in the city.

The package is part of an action plan released by the municipal government, which has pledged to reduce PM 2.5 density by 25 percent or more by 2017.

According to the package, the municipal government will restrict the number of new cars on the road each year from January 2014.

By 2017, the number of vehicles in the city is expected to be no more than six million, according to the package. Statistics from Beijing Traffic Management Bureau show the city had 5.35 million vehicles by the end of July.

By promoting new energy and small displacement vehicles, reducing intensity of vehicle use and strictly enforcing regulations, the government expects to reduce total vehicle fuel consumption by 5 percent or more compared to 2012.

The city's traffic management and environmental protection bureaus will prepare traffic control rules for passenger cars by the end of 2013 which will mainly focus on time and zone restrictions. The rules are aimed to be implemented in 2014.

In addition, vehicles from other cities will be subject to more time and area restrictions from 2014 at the earliest.

The municipal government has also vowed to cover downtown areas with at least 480 km of bus lanes and introduce a public bicycle rental system by 2017 in order to make public transportation 60 percent of total vehicle trips made in the city.

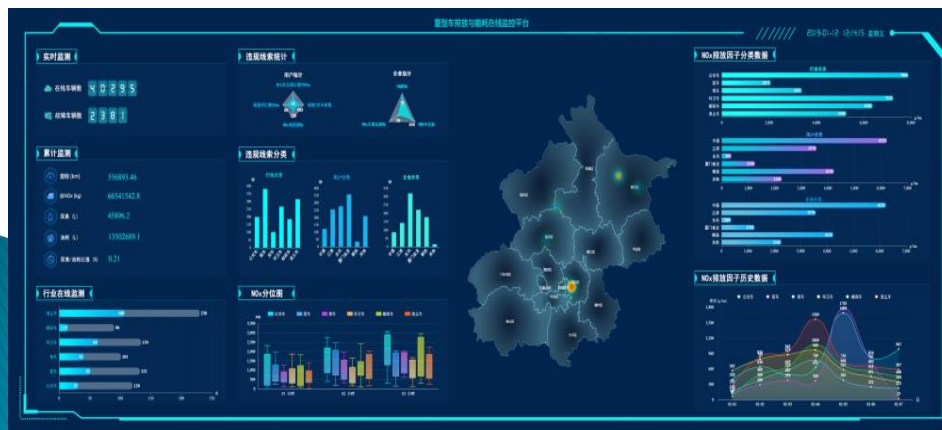
(5) online monitoring for heavy vehicles

Since 2017, we have experimented with remote emission monitoring of heavy diesel vehicles, built a **monitoring platform**, and published the local standards for remote emission monitoring of *Heavy Vehicle Exhaust Pollutants Emission Limits and Measurement Methods (OBD Stage iv and v) (DB11/1475-2017)*, which stipulates the **content and frequency** of remote emission monitoring.

data content	
data item	The data of frequency
Speed	1HZ
atmospheric pressure	1HZ
net engine output torque or actual torque	1HZ
friction torque	1HZ
engine speed	1HZ
engine fuel flow	1HZ
nitrogen oxide sensor output	1HZ
SCR inlet temperature	1HZ
SCR outlet temperature	1HZ
DPF differential pressure	1HZ
air intake	1HZ
reaction agent allowance	1HZ
engine coolant temperature	1HZ
longitude and latitude	1HZ

Since Sep. 2018, all **newly registered heavy-duty diesel vehicles** in Beijing have realized the function of remote emission monitoring, and the data of NOx emission, OBD alarm, urea level and other vehicles have been transmitted to the remote emission monitoring platform of the Bureau in real time.

The remote emission monitoring and management on-board terminal installed for heavy-duty vehicles can collect the data of **NOx emission, OBD alarm, urea level, speed, engine torque, speed, reactant allowance** and so on in real time. The monitoring frequency is **1 Hz**.



Remote emission monitoring can reduce the frequency of manual detection of heavy vehicles and save time.

In addition, it can detect the excessive emission behavior of vehicle pollutants in time and reduce pollutant emissions. So far, over **80,000 heavy vehicles** have been monitored remotely online.



(6) Supervision of gas emissions from the oil product storage and transportation system

- Implemented local standards for gas emissions from gas stations, oil storage warehouses and tank trucks, and led the country in upgrading oil and gas recovery
- From 2017 to 2018, took the lead in implementing online monitoring of oil and gas recovery in gas stations across the country
- All **728 gas stations** selling more than **2,000 tonnes** of petrol a year have been converted



Thank you!

