Beijing's Clean Air Actions During 2013-2017

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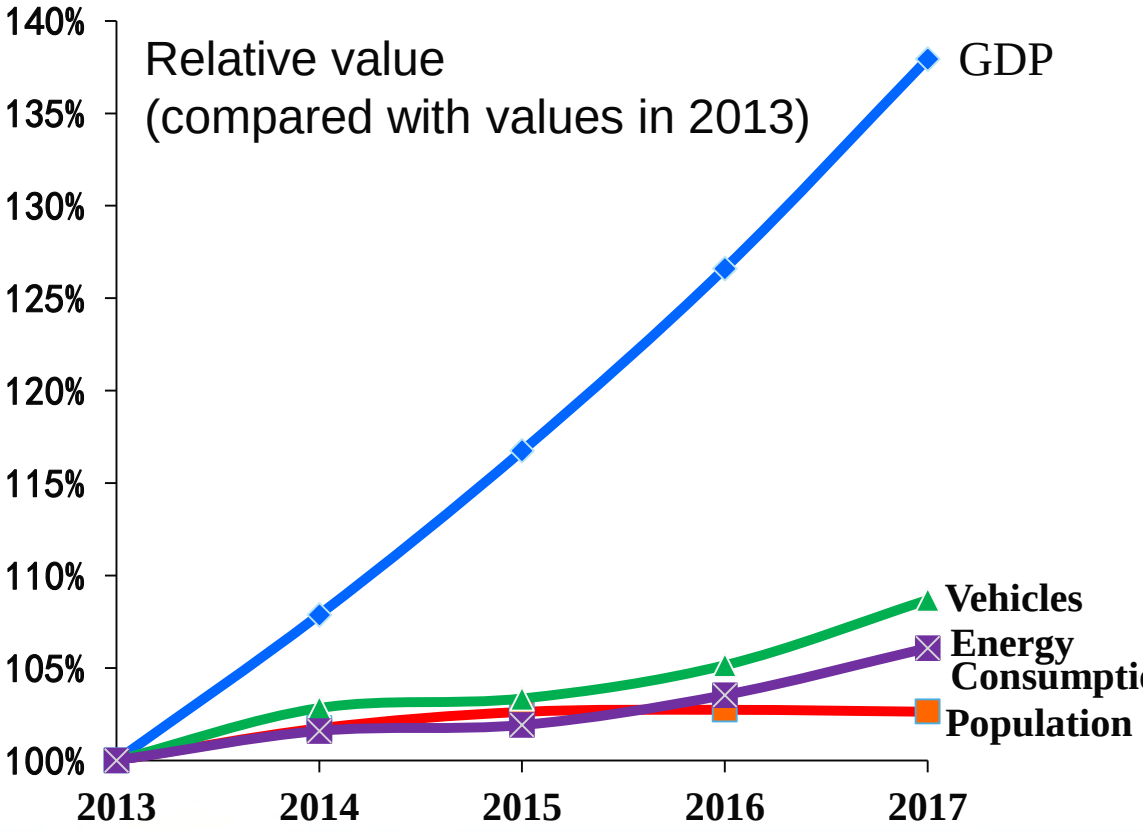
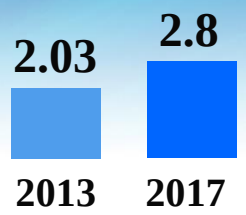
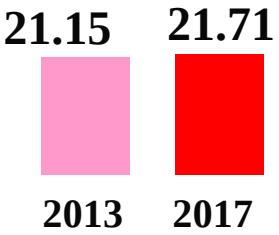
1 Air Quality Improved Significantly

Background: rapid and healthy economical social development

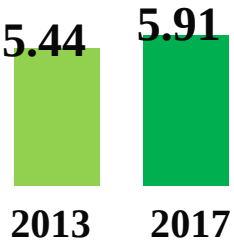




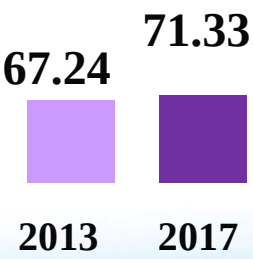
GDP
(trillion Yuan)
37.9% increase



Population
(million)
2.6% increase



Vehicles
(million)
8.7%increase

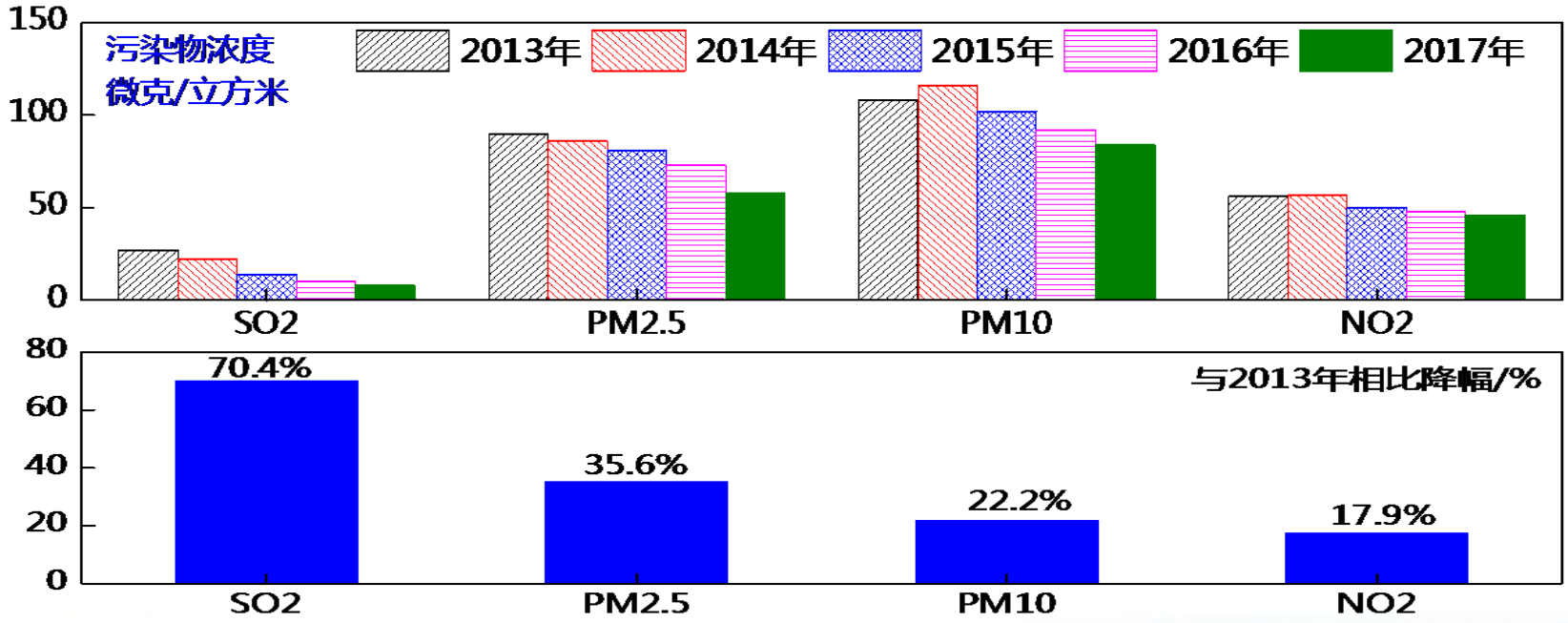


Energy Consumption
(million tons of coal
6% increase

1 Air Quality Improved Significantly

In 2017, the annual average concentration of SO_2, NO_2 , PM_{10} and $PM_{2.5}$ reduced to was 8, 46, 84 and 58 μg/m^3 respectively, reduced by 70.4%, 17.9%, 22.2% and 34.8% compared with 2013.

Specially, the annual average concentration of SO_2 in 2017 approached the average level in European cities.



2. Major Measures

Coal-fired Emission Control

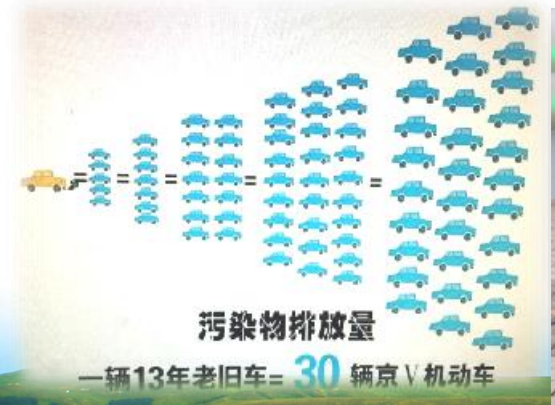
Annual coal consumption has dropped from 22.7 million to below 5 million tons, while the proportion of clean and high-qualified energy share increased to more than 90%.

- **4 gas-fired thermal power centers are built to replace 4 coal-fired thermal power plants.**
- **"Coal-to-clean energy conversion" conducted in 1829 villages.**
- **A total of 39,000 tons vapor capacity coal boilers converted clean energy**
- **27,000 small coal-fired furnaces were eliminated.**
- **Low-nitrogen combustion technology applied in a total of 34,000 tons vapor capacity gas-fired boilers.**

2. Major Measures

Vehicle Emission Control and Fuel Quality

- **Strict control over increase of vehicle fleet, enforced the China V Emission Standards on new vehicles, applied the Stage Five of China Fuel Quality Standards equal to Euro 5 gasoline Standards;**
- **2,167,000 old polluting yellow-labeled vehicles were eliminated, new energy vehicle fleet grow to 200,000, and 51,000 taxies adopted three-way catalytic converter retrofitting ;**
- **High-emission vehicles and non-road machineries are regulated tightly. Low emission zone was indentified, heavy-duty diesel vehicles below the China III Emission Standard are banned within the Sixth-Ring Road.**
- **By promoting rail-based public transportation, green transportation accounts 72.1% in total trips models in 2017.**



2. Major Measures

Industries Emission Control

- Implementation of the Catalog for the Banning and Restricting Setting New Industrial Plants and process;
- the Catalog for Eliminating and Adjusting Polluting Industrial Process, 1992 old polluting factories were closed or relocated, and 11,000 small, poorly managed polluting enterprises are renovated.
- Technical retrofitting in petrochemical industries achieved 57,000 tons VOCs emission reduction.

The proportion of Tertiary industry in GDP reached 82.4%.

2. Major Measures

Reducing Dust Pollution

- **Construction dust, application of new technologies and measures, including tire-washing machine and video monitoring system, improve law enforcement efficiency;**
- **Road dust, 8,000 trucks for construction soil transportation were retrofitted to be tightly closed to reduce leakage during transportation; new and efficient processes were applied in 88% road cleaning operation in the city.**
- **70,000 hectares of land was afforested.**

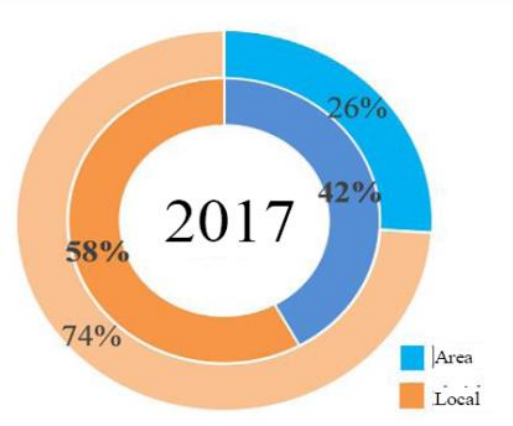
2. Major Measures

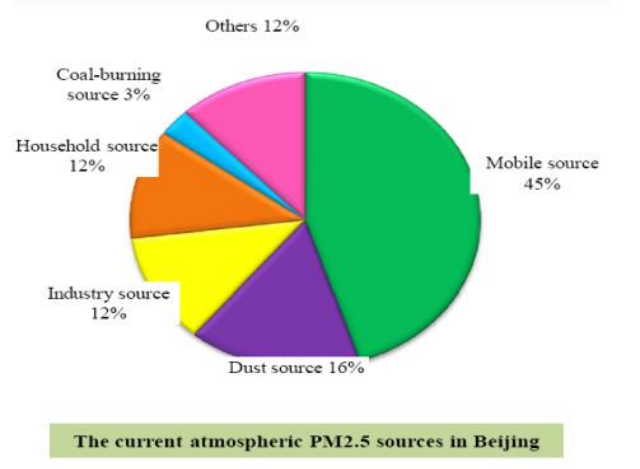
Heavy Pollution Response

- An heavy pollution response system was built within the city government with detailed action plan published since 2013;
- a four-level warning system for heavy pollution episodes was developed: red , orange, yellow and blue, corresponding measures healthy protection and pollution mitigation measures clearly specified;
- Pollution forecast published in advance after regional consultation;
- Great efforts made to supervise implementation of the heavy pollution response action plan;
- Information released in a timely manner to give right guidance for the public.

3. Experience and Lessons Learned

Strong scientific support, including PM2.5 Source Apportionment





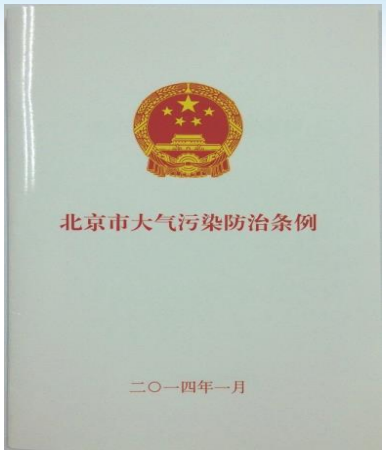
Latest study shows: Beijing local emissions contribute 2/3 of total $PM_{2.5}$ in the air, while **regional transmission accounts for 1/3;**

Local $PM_{2.5}$ sources in Beijing are: $PM_{2.5}$ resulting from mobile sources, **dust source, industrial source, household source, and coal-burning source, they contribute 45%, 16%, 12%, 12%, and 3%**, respectively; $PM_{2.5}$ resulting from agricultural and natural source, etc accounts for about 12%.

3. Experience and Lessons Learned

Laws, Regulations, Standards, & Policies

- Economic incentive policies: 70 categories of economic policies, including subsidies for implementation of pollution control measure, coal to gas or electricity conversion, low NOx emission retrofitting, scrapping old polluting vehicles, etc.
- Laws and regulations: Beijing's Local Air Pollution Prevention and Control Law raised many concrete rules on pollution control requirement and violation.
- 44 local air pollutants emission standards more stringent than national standards, covering boiler, petrochemical, automobile and other.



3. Experience and Lessons Learned

Key: Regional Collaboration

- A regional cooperation mechanism has been set up under the leadership of central government, cover Beijing and the surrounding cities and provinces, with key ministries involved.
- New vehicle emission standard and National Special Emission Limits on Air Pollutant for six important industries and coal-fired boilers; coordination on increases supply of natural gas and high-quality coal to the region.
- Unified actions were taken for heavy pollution episode response, including pollution forecast and announcement.




Thanks!