

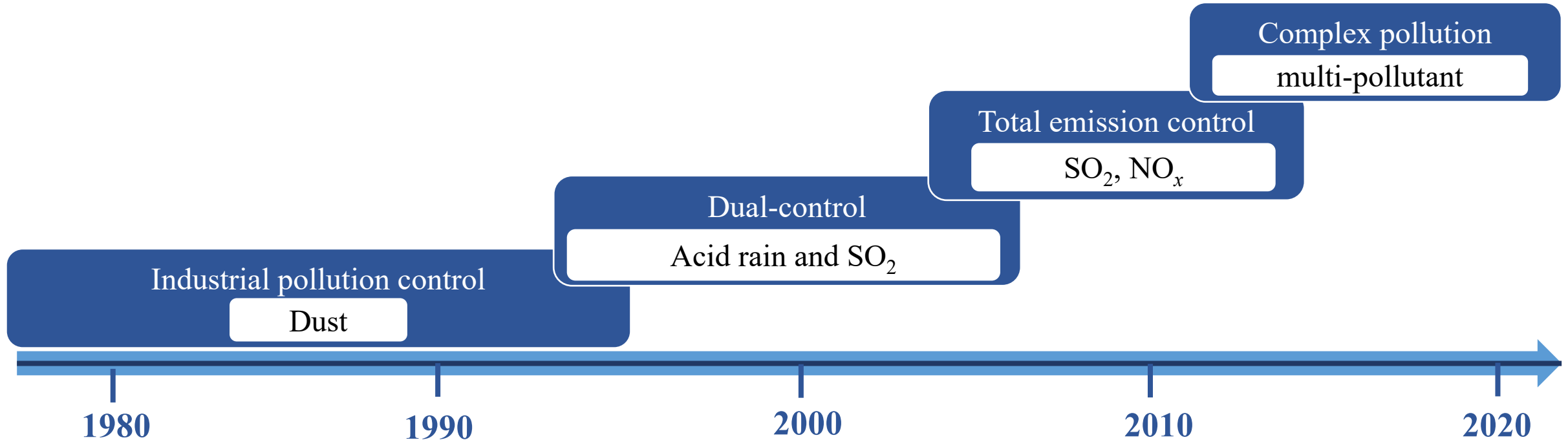
Air Pollution Control in China: Achievements and Next Steps

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Timeline of air pollution control in China

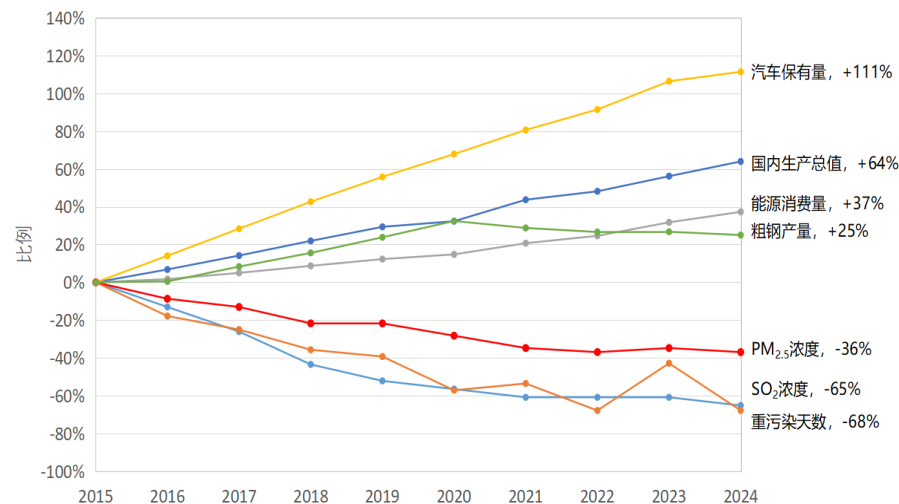


❑ The State Council issues 3 national action plans to fight air pollution since 2013

- ❑ 2013: The Air Pollution Prevention and Control Action Plan
- ❑ 2017: The Three-Year Action Plan for Blue Skies
- ❑ 2020: The Action Plan for Continuous Improvement of Air Quality

Historic achievements in air quality improvement

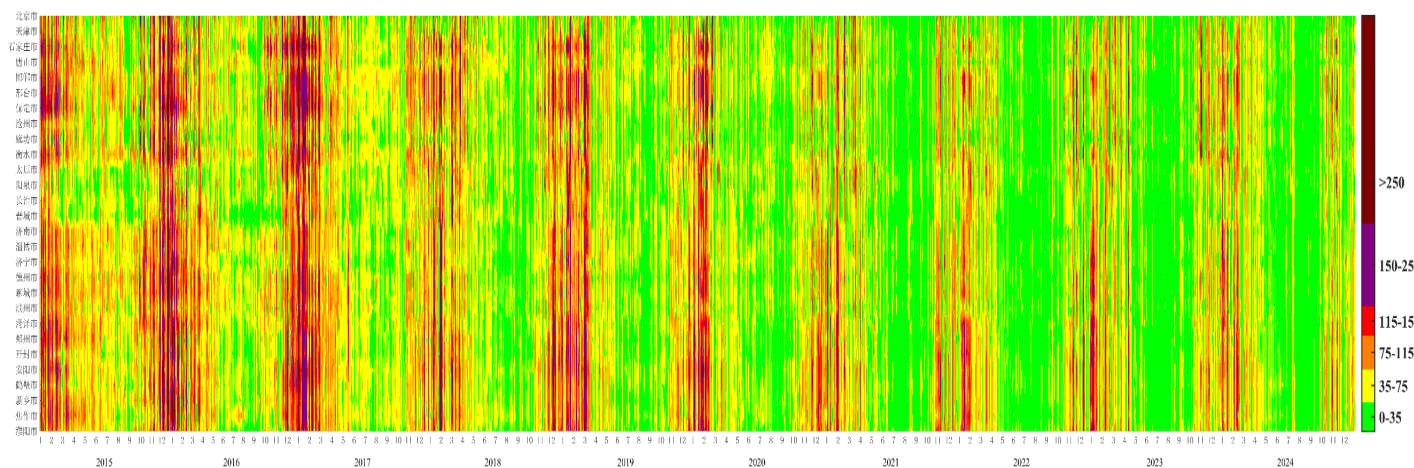
- 2015-2024, national GDP increased by 64%, number of vehicles increased by 111%, while the **PM_{2.5} concentration decreased by 36%**.
- Air quality in key areas has improved significantly, with PM_{2.5} concentrations in BTH and surrounding areas dropping by 47%, **PM_{2.5} concentrations in Beijing dropping by 61%**.



Economy development



Improved air quality



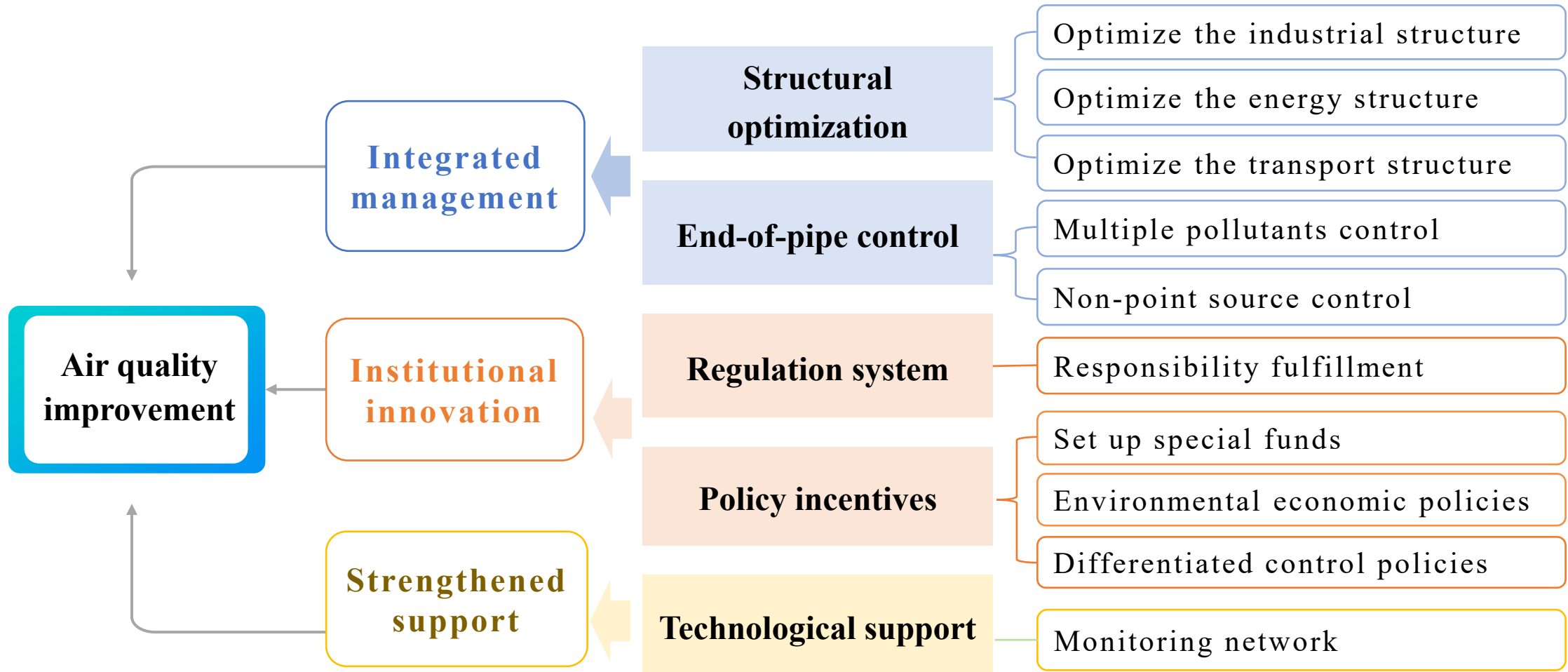
PM_{2.5} concentration in "2+26" cities from 2015 to 2024



Minister HUANG demonstrate change of filter for PM_{2.5}

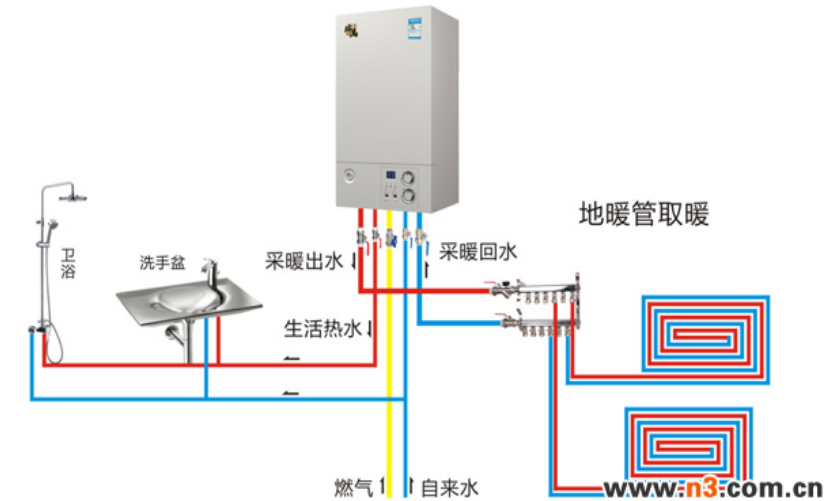
air pollution control into the comprehensive consideration of socio-economic development

➤ Through multiple measures, we have promoted the continuous improvement of ambient air quality



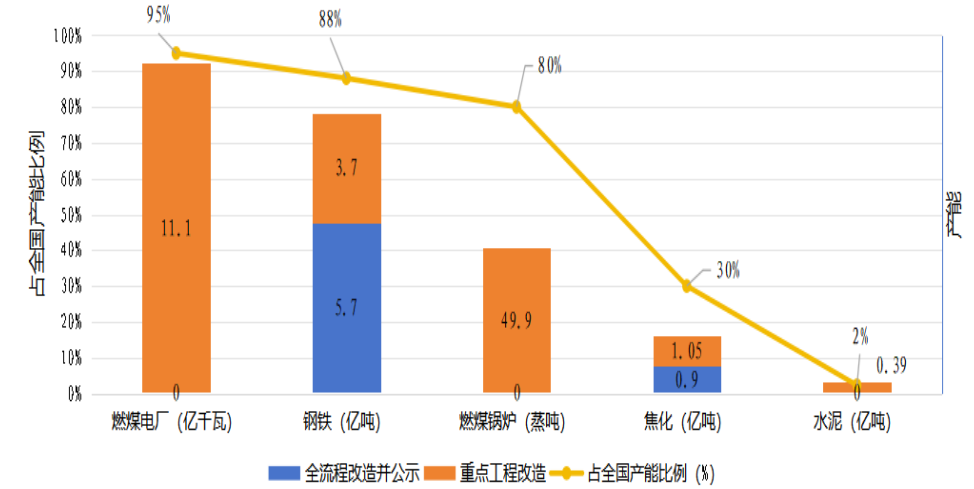
1. Focus on clean energy utilization, reducing coal consumption

- Compared with 2013, national total energy consumption in 2023 increased by 36.4%, but **the proportion of coal dropped from 67% to 55.3%.**
- 2013-2022, clean energy accounted for **60.5%** of China's incremental energy consumption.
- The number of coal-fired boilers dropped from about 500,000 in 2013 to less than 100,000 nationwide, **reducing coal consumption by more than 400 million tons.**
- Clean heating has been carried out in northern areas, with 41M households completed the substitution of coal by gas or electricity, **reducing coal consumption by ~ 80M tons.**



2. Promote technology upgrade and end-of-pipe control to reduce industry emissions

- Since 2013, the outdated capacity of **300M tons of steel, 400M tons of cement and 1 billion tons of coal have been eliminated**, and 140M tons of illegal steel have been cleared.
- Nationwide, 1.11billion kilowatts and 95% of coal power units have completed ultra-low emission renovation, **building the world's largest clean coal power system.**
- Steady progress has been made in the ultra-low emission renovation of the iron and steel, coking and cement industries and boilers. Nationwide, **570M tons of crude steel production capacity** has completed the ultra-low emission transformation of the entire process.



Ultra-low emission renovation in key industry



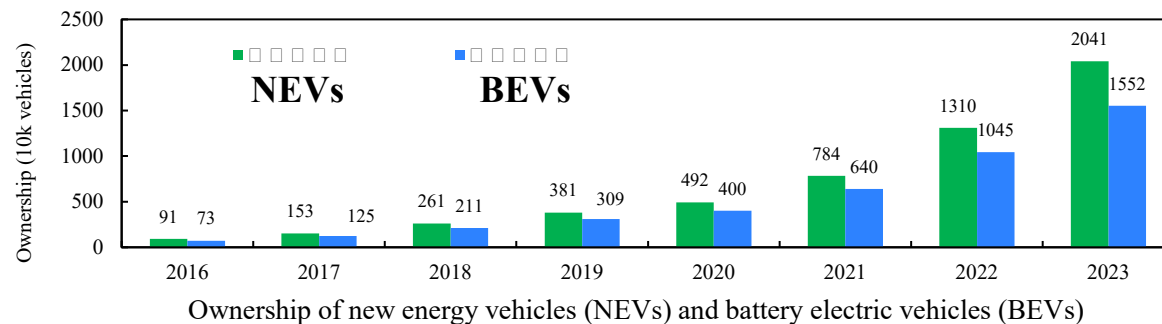
A garden-style factory



The first coal-fired power plant meeting ultra-low emission standards

3. Promote cleaner fuels and vehicles to significantly reduce transportation emissions

- **Vehicle emission standards:** China IV to China VI emission standards have been implemented, and **NO_x emission control has reached the world's leading level.**
- **Fuel quality standards:** The full implementation of the **National VI** gasoline and diesel standards.
- **Accelerated vehicle electrification:** sales of new energy vehicles (NEVs) in China account for **70% of global NEV sales**; sales of new energy heavy-duty trucks **surged by 140%** year-on-year, rank 1 globally.



Large decrease in PM emission from diesel trucks



UN Climate & clean air award



Diesel sample from China I to VI



Gasoline sample from China I to VI

4. Promote source reduction and regulation to reduce non-point source emissions

- Construct **high-definition video systems**, establish **a unified platform** for construction dust regulation, and set up monitoring stations in townships.



Unified platform for construction dust regulation



“Air dome” for dust reduction

- **Improve comprehensive utilization of straw:** the national straw utilization rate reached 88.1% in 2021. A pattern of primarily agricultural use of crop residues, supplemented by diversified utilization, has been initially established.



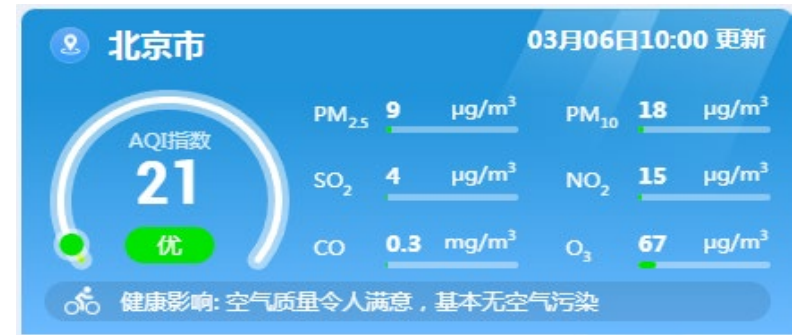
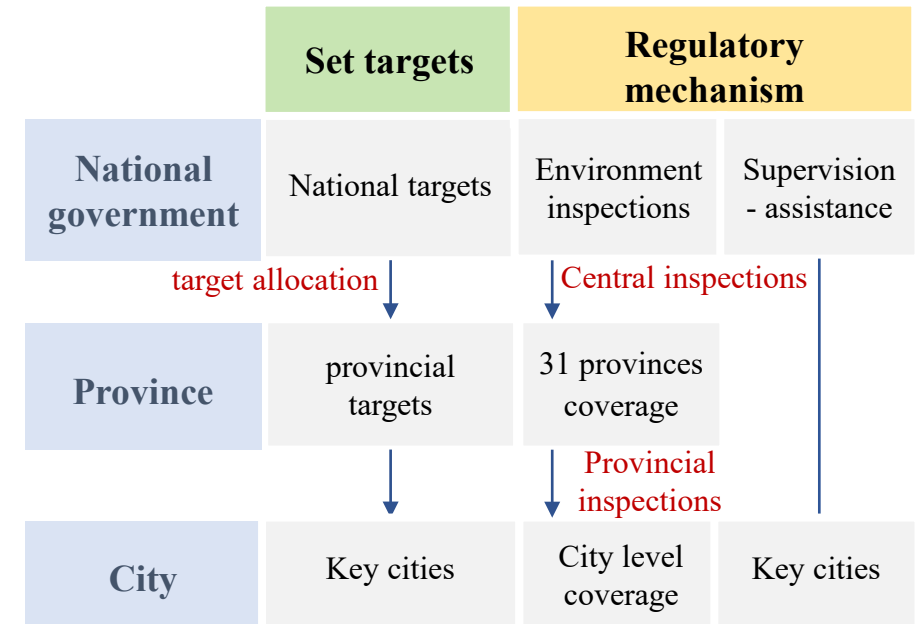
Remote monitoring system for straw burning



Comprehensive utilization of straw

5. Mobilize the enthusiasm of governments at all levels

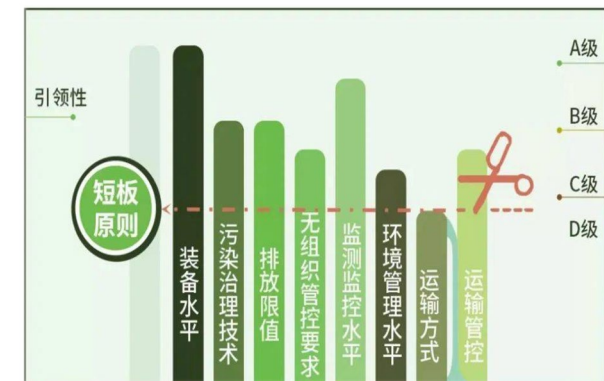
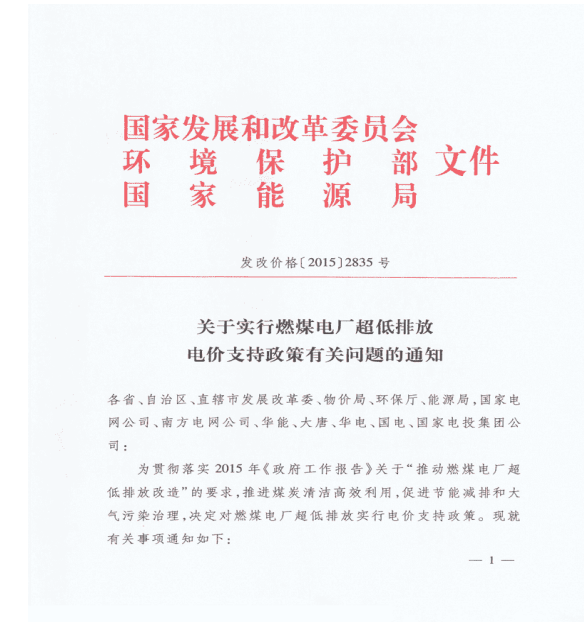
- Allocate **air quality improvement targets** top-down, from the national level to the 31 provinces.
- **Central environmental protection inspections** cover 31 provinces, and provincial-level environmental inspections cover all prefecture-level cities
- Continuous **supervision and assistance for air pollution control** in key regions have help local government address over 430,000 air pollution issues since 2017
- **Real-time air quality monitoring** information is provided to the public



Real-time air quality monitoring

6. Stimulate enterprises' motivation for pollution control

- Establish the **Central Air Pollution Prevention and Control Fund**: A total of **267.9 billion RMB** has been allocated, supporting various regions in implementing policies like coal and industrial pollution control, clean heating, capacity building.
- Improve major policies such as **environmental taxes** and **differential electricity pricing**.
- **Performance grading and differentiated management**: Develop technical guidelines for performance grading and differentiated emission reduction measures for **39 key industries**, covering approximately **270,000 enterprises**.



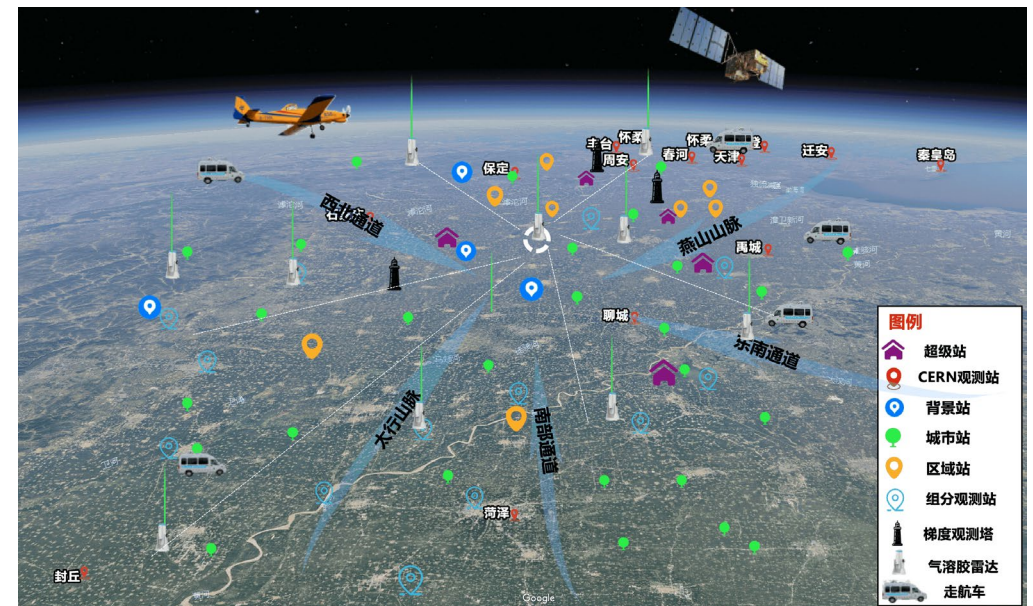
Guidelines for performance grading

7. Strengthen technological support

- **Establish and improve the air quality monitoring network**, with more than 1,600 national control monitoring stations and over 12,000 stations across all levels, extending coverage in key regions down to streets and townships; conduct monitoring of particulate matter components and photochemical processes.
- Built a **national-regional-provincial-municipal air quality forecasting and early warning system**, and organized regional joint prevention and control with full support of scientific and technical assistance.



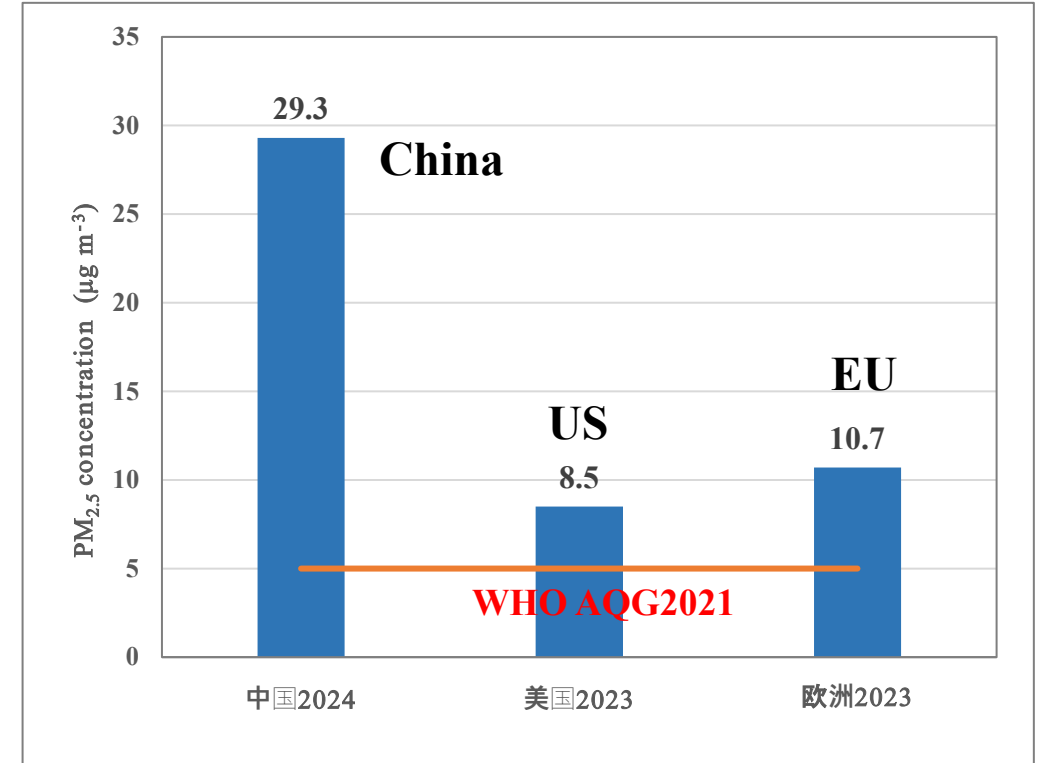
National air quality monitoring network



Regional comprehensive field observation

Main challenge for air quality improvement: PM_{2.5} concentrations remain high

- **A large gap remains compared with international advanced levels:** in 2024, China's PM_{2.5} concentration was **5.9 times the WHO AQG level (5 µg/m³)** and **3–4 times** the current levels in Europe and the United States.
- **Higher PM_{2.5} concentrations in key regions:** PM_{2.5} concentrations in BTH and surrounding area (BTHSA) and Fen-Wei Plain (FWP) are **40% higher than the national average.**



PM_{2.5} concentration in China, US, and EU

Next-step: Synergizing air quality improvement, climate mitigation, and economic development

“Beautiful China”

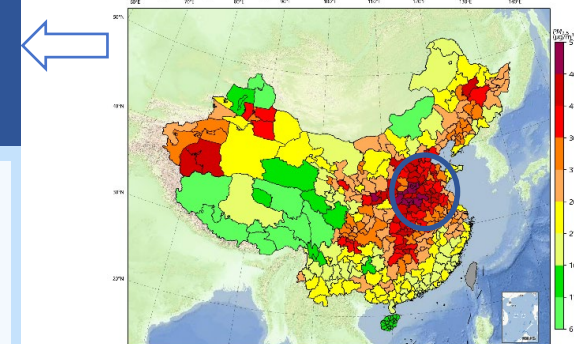
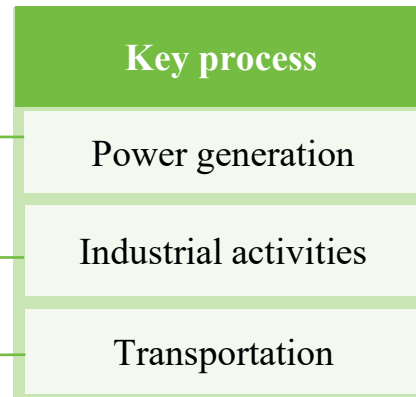
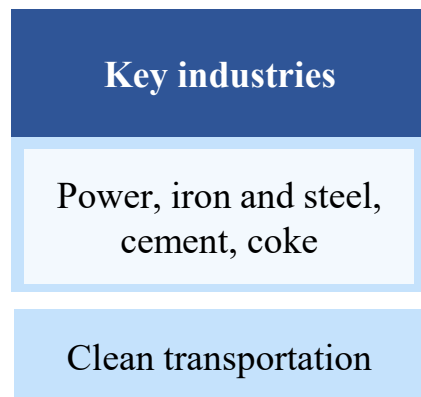
PM_{2.5} concentration reduced to
25 $\mu\text{g m}^{-3}$ by 2035



“Dual Carbon”

Achieving
“Carbon peak” by 2030 and
“Carbon neutrality” by 2060

- Strengthen the synergy between **air quality improvement and climate change mitigation**, and further advance **structural adjustments and cleaner transitions** in industry, energy, and transportation.
- ✓ Focus on key industries: strengthen coordinated control of carbon emissions and air pollutants in sectors such as coal-fired power, steel, cement, and coking.
- ✓ Focus on key regions: clean industry demonstration zones in BTHSA region
- ✓ Focus on key areas: promote zero-emission trucks and machinery, and develop demonstration scenarios for zero-emission transport applications



PM_{2.5} concentration in 2024

Looking Forward to Deeper Cooperation