



中华人民共和国生态环境部

Ministry of Ecology and Environment of the People's Republic of China



中国大气污染治理成效与下一步计划

Air Pollution Control in China: Achievements and Next Steps

生态环境部大气环境司

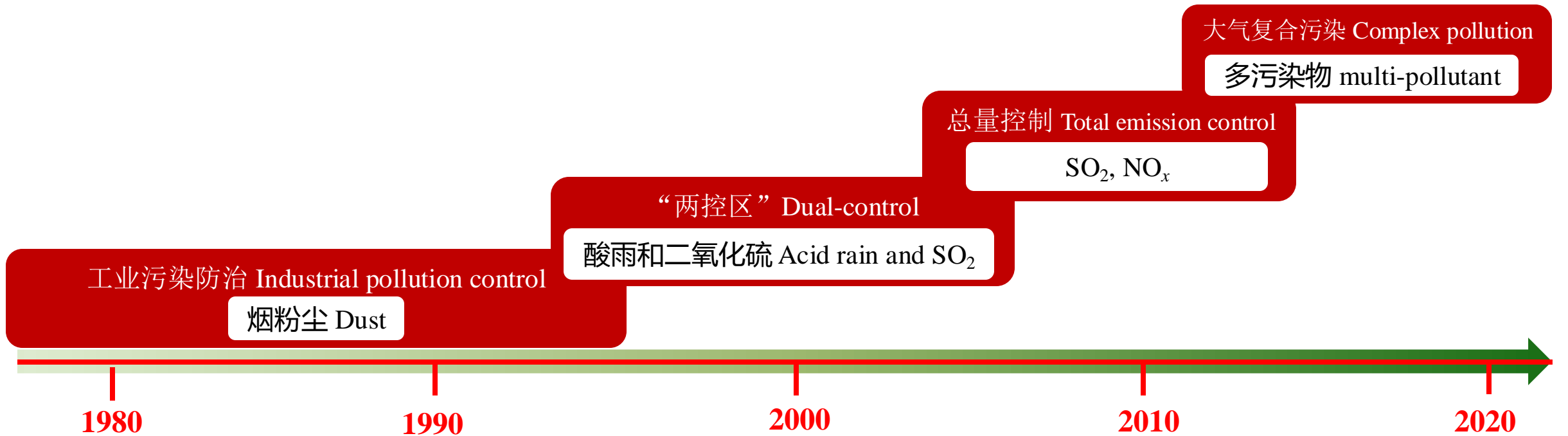
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2025年3月，菲律宾马尼拉

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中国大气污染治理历程 Timeline of air pollution control in China



- 2013年起，国家以生态文明思想为指引推进大气污染防治工作，先后实施3期行动计划
- The State Council issues 3 national action plans to fight air pollution since 2013
 - 2013: 大气污染防治行动计划 The Air Pollution Prevention and Control Action Plan
 - 2017: 打赢蓝天保卫战三年行动计划 The Three-Year Action Plan for Blue Skies
 - 2020: 空气质量持续改善行动计划 The Action Plan for Continuous Improvement of Air Quality

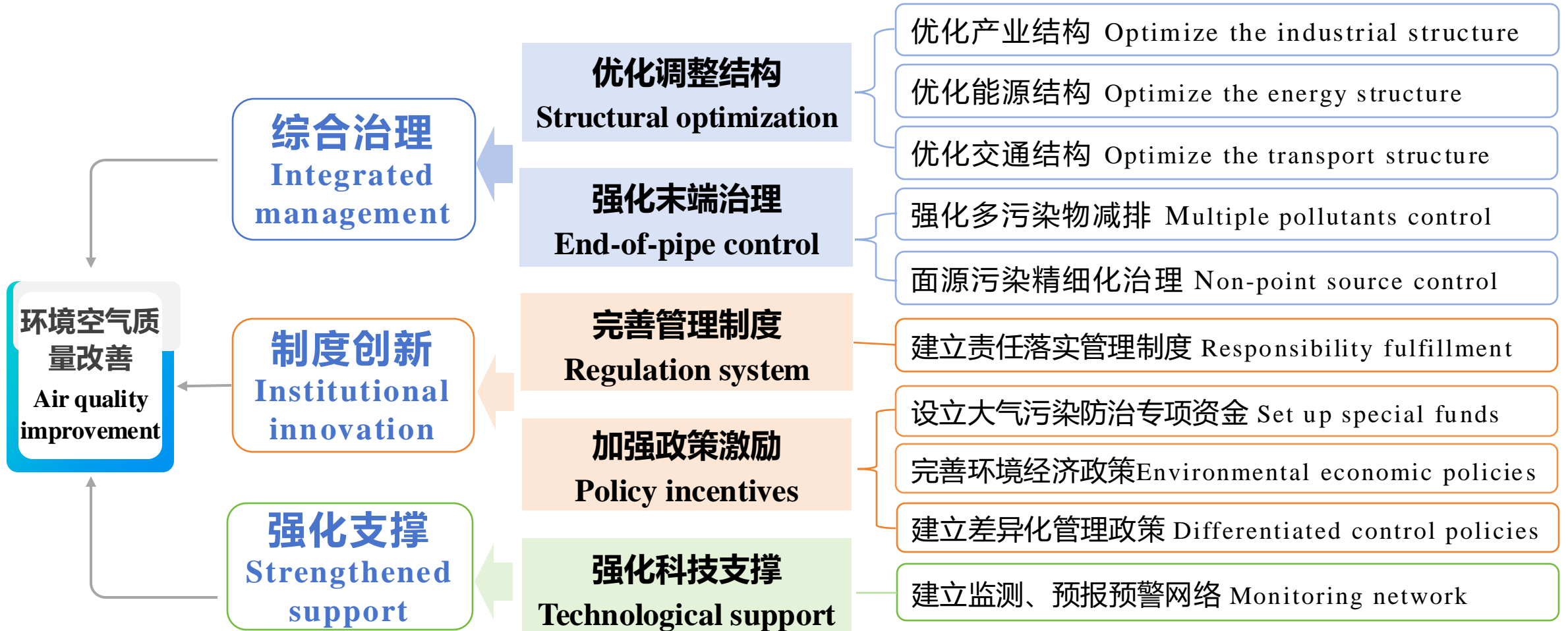


将大气污染防治纳入社会经济发展全局



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

- 多措并举，推动环境空气质量持续改善，取得了一系列标志性成果
- Through multiple measures, we have promoted the continuous improvement of ambient air quality



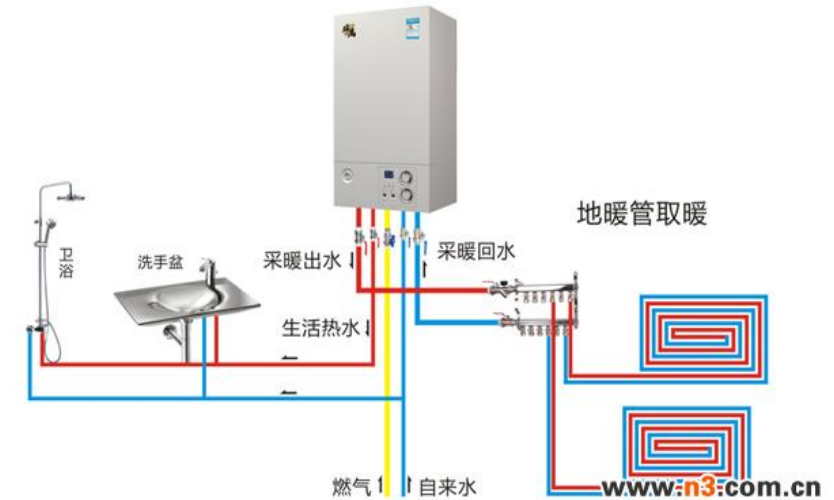


1. 以能源清洁化利用为重点，大力减少燃煤排放

1. Focus on clean energy utilization, reducing coal consumption



- 与2013年相比，2023年能源消费总量**增长36.4%**，但煤炭占比**由67%下降到55.3%**
- Compared with 2013, national total energy consumption in 2023 increased by 36.4%, but **the proportion of coal dropped from 67% to 55.3%**
- **清洁能源成为能源消费增量主力：2013-2022年，中国清洁能源消费增量占能源消费增量的60.5%**
- 2013-2022, **clean energy accounted for 60.5% of China's incremental energy consumption**
- **全国燃煤锅炉由2013年50余万台下降到不足10万台，减少煤炭消耗4亿多吨**
- 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**
- **持续开展北方地区秋冬季清洁取暖，完成散煤清洁替代4100万户，减少煤炭使用约8000万吨**
- 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.**



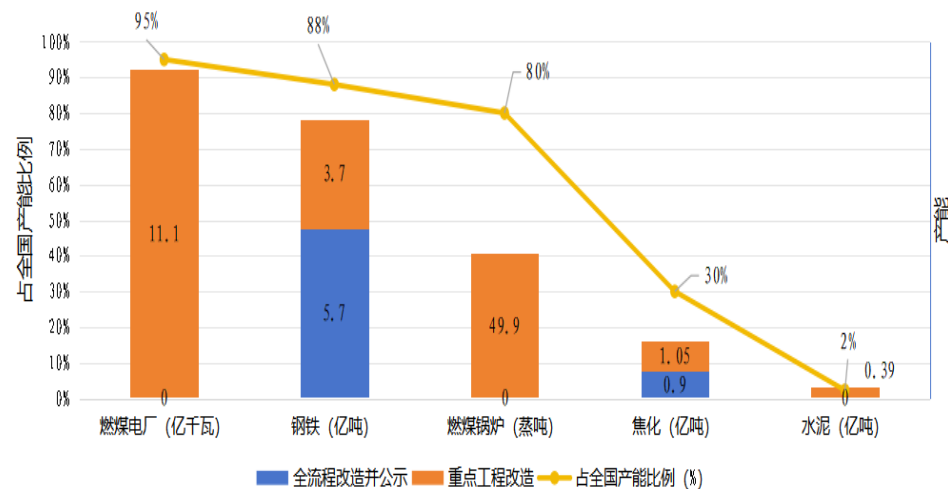


2. 推进产业提升和末端治理，大力减少工业排放



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

- 2013年以来，累计淘汰落后产能**钢铁3亿吨、水泥4亿吨、煤炭10亿吨，1.4亿吨地条钢清零**
- 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.
- **全国11.1亿千瓦、95%的煤电机组完成超低排放改造，建成世界最大的清洁煤电体系**
- 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.**
- **稳步推进钢铁、焦化、水泥行业及燃煤锅炉超低排放改造，全国5.7亿吨粗钢产能完成全流程超低排放改造**
- 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.**



重点行业超低排放改造进展

Ultra-low emission renovation in key industry



花园式工厂
A garden-style factory



首家超低排放改造燃煤电厂
The first coal-fired power plant meeting ultra-low emission standards



3. 推动油品和车辆清洁化，大力减少机动车排放



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

- **车辆排放标准：连续实施国四至国六排放标准，氮氧化物排放控制达到世界先进水平**
- **Vehicle emission standards: China IV to China VI emission standards have been implemented, and NOx emission control has reached the world's leading level**
- **油品质量标准：全面实施国六汽柴油标准，结束了我国油品质量标准长期落后于排放标准的状况**
- **Fuel quality standards: The full implementation of the National VI gasoline and diesel standards**
- **汽车电动化步伐明显加快：2024年，中国新能源汽车销量占全球70%，连续十年世界第一；新能源重卡销量同比增长140%，排名全球第一**
- **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**



柴油车排放颗粒物大幅降低
Large decrease in PM emission from diesel trucks



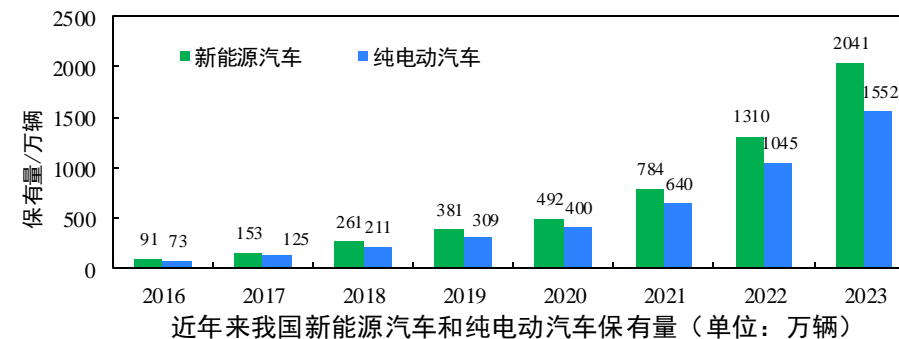
国六排放标准获联合国环境规划署“2018年度气候与清洁空气奖”
UN Climate & clean air award



柴油国I至国VI油样
Diesel sample from China I to VI



汽油国I至国VI油样
Gasoline sample from China I to VI





4. 源头减量和强化监管同向发力，大力减少面源排放

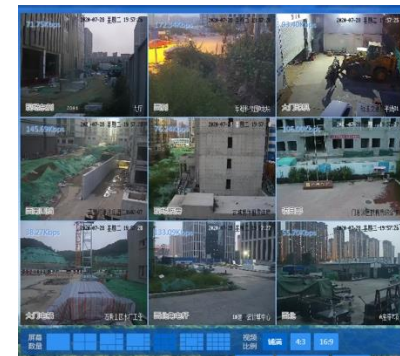


4. Promote source reduction and regulation to reduce non-point source emissions

- **建设高清视频监控、统一施工扬尘监管排平台、乡镇监测站点等，压实各方责任，提升城市精细化管理水平，清洁度明显上升**



统一施工扬尘监管平台
Unified platform for construction dust regulation



施工工地“气膜”降尘
“Air dome” for dust reduction



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

- **秸秆综合利用水平稳步提升：以秸秆禁烧倒逼综合利用，2021年全国秸秆综合利用率达88.1%，较2015年增长8个百分点，农用为主、多元利用的格局初步建立**

- **Improve comprehensive utilization of straw:** the national straw utilization rate reached 88.1% in 2021



秸秆禁烧远程监控系统
Remote monitoring system for straw burning



秸秆综合利用
Comprehensive utilization of straw

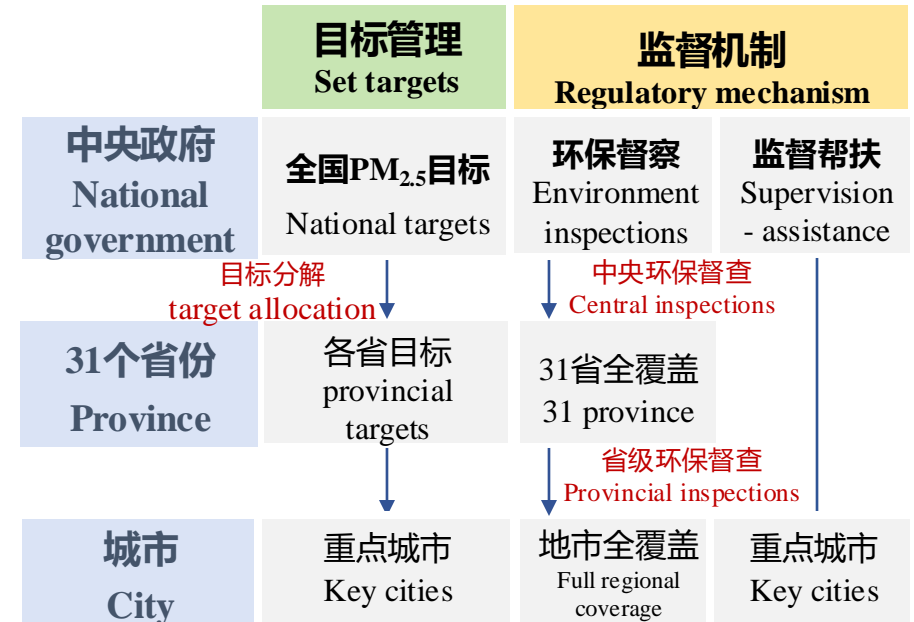


5. 构建中国特色管理制度，调动各级政府积极性

5. Mobilize the enthusiasm of governments at all levels



- 将环境空气质量改善目标自上而下分解到各省(区、市)，并对目标完成情况进行考核
- Air quality targets are **allocated top-down** to each province
- **中央生态环境保护督察覆盖31个省(区、市)，省级环保督查覆盖所有地市**
- **Central environmental protection inspections cover 31 provinces, and provincial-level environmental inspections cover all prefecture-level cities**
- **2017年以来，持续组织对重点地区开展大气污染防治监督帮扶，帮助地方发现并推动解决大气污染问题超过43万个**
- **Continuous supervision and assistance for air pollution control in key regions have help local government address over 430,000 air pollution issues**
- **实时向公众提供空气质量监测信息**
- **Real-time air quality monitoring information is provided to the public**



城市空气质量实时报
Real-time air quality monitoring

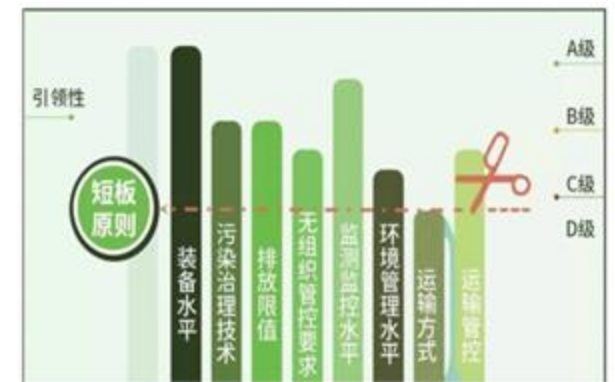
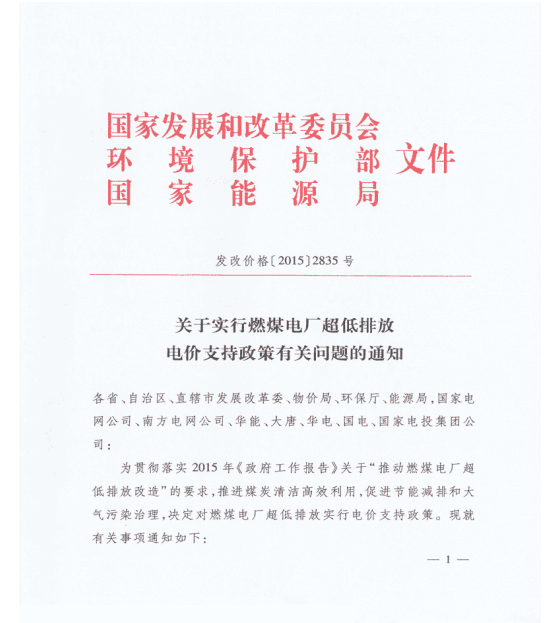


6. 创新多元政策工具，激发企业治污动力



6. Stimulate enterprises' motivation for pollution control

- **设立中央大气污染防治资金**：2013年以来**累计下达2679亿元**；支持各地开展**燃煤污染控制、工业污染治理、清洁取暖改造、能力建设等**
- 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
- **完善环境税、差别电价等重大政策**：**出台燃煤电厂超低排放电价政策**，**指导地方制定钢铁、水泥等行业超低排放差别化的电价、水价**
- Improve major policies such as **environmental taxes** and **differential electricity pricing**
- **绩效分级，实施差异化管理**：**制定39个重点行业的绩效分级及减排措施技术指南**，**共纳入企业约27万家**；**落实环保绩效A级企业重污染天气预警期间不停产、不限产，环保检查“无事不扰”**
- **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



绩效分级指标及原则

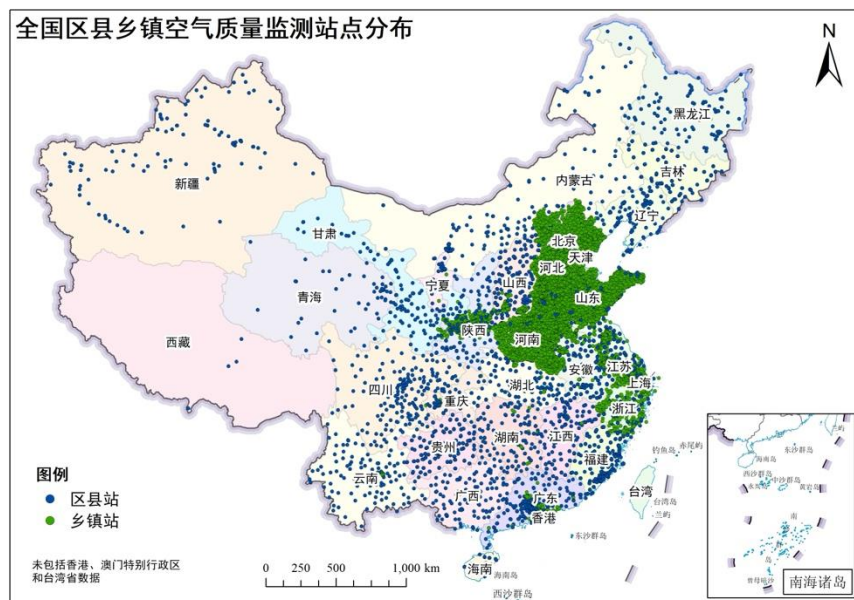
Guidelines for performance grading



7. 不断提升科技支撑能力

7. Strengthen technological support

- 建立健全空气质量监测网络，全国国控监测站点1600多个，各级站点共计1.2万余个，重点地区覆盖至街道和乡镇；开展颗粒物组分和光化学监测
- **Established ambient AQ monitoring network**, covering neighborhoods in key regions; carry out particulate matter composition and photochemical monitoring
- 建成**国家—区域—省—市**空气质量预报预警体系，组织开展大气污染区域联防联控
- 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 analysis and technical assistance



国家空气质量监测站点
National air quality monitoring network



区域综合观测示意图
Regional comprehensive field observation

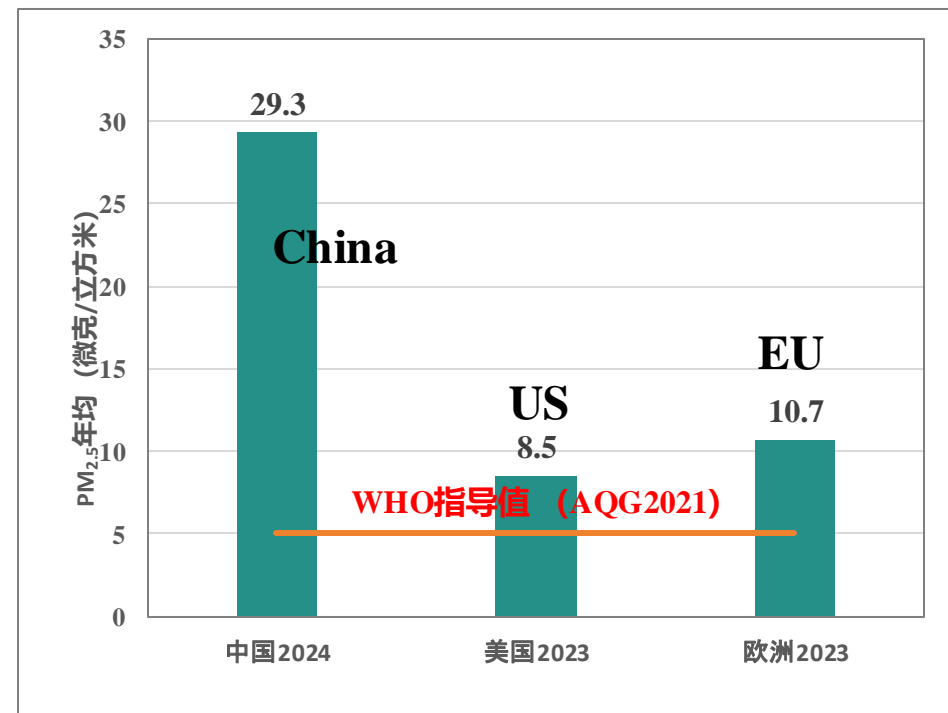


空气质量持续改善的主要挑战：PM_{2.5}浓度水平依然处于高位



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

- **与国际先进水平差距仍然很大**：2024年，中国PM_{2.5}浓度是WHO准则值（5微克/立方米）的5.9倍，是欧美当前水平的3~4倍
- **PM_{2.5} conc. in China is 5.9 times WHO AQG level, and ~3 times that in Europe.**
- **重点区域污染突出**：京津冀及周边地区和汾渭平原PM_{2.5}平均浓度是全国平均浓度的**1.4倍左右**
- Higher PM_{2.5} concentrations in key regions. BTH and surrounding area and Fen-Wei River Plain are **40% higher than the national average.**



我国PM_{2.5}浓度与欧美比较

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



下一步工作重心：大气、气候、发展的协同



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

美丽蓝天目标 "Beautiful China"

2035年PM_{2.5}下降至25 μg/m³

PM_{2.5} concentration reduced to

25 μg/m³ by 2035



双碳目标 "Dual Carbon"

2030年“碳达峰”、2060年“碳中和”

Achieving "Carbon peak" by 2030 and "Carbon neutrality" by 2060

➤ **强化空气质量改善与气候变化应对协同，纵深推进产业、能源、运输结构调整及清洁化**

➤ **Strengthen the synergy between air quality improvement and climate change mitigation**

• **聚焦重点行业：强化火电、钢铁、水泥、焦化等重点行业碳污协同管控**

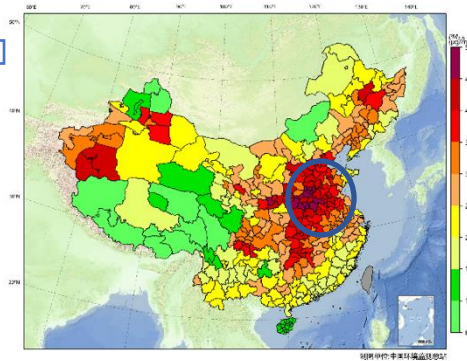
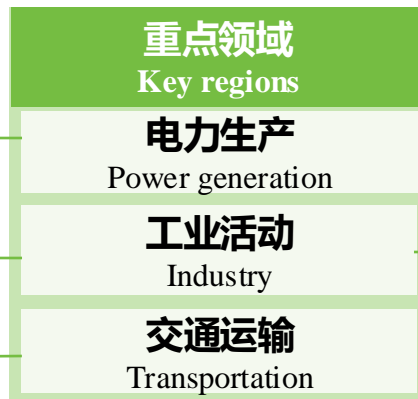
• **Focus on key industries: power, iron and steel, cement, coke**

• **聚焦重点区域：推动京津冀及周边地区建设清洁产业示范区**

• **Focus on key regions: clean industry demonstration zones in BTHSA region**

• **聚焦重点领域：推广零排放货车和机械，构建零排放运输应用场景示范，推动运输结构清洁化**

• **Focus on key areas: promote zero-emission trucks and machinery**



2024年PM_{2.5}浓度
PM_{2.5} concentration in 2024



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期待加强交流与合作!

**Looking Forward to Our
Continued Cooperation**