西安节能协会
XECA

西安工业大气污染防控措施和监管

Xi’an Industrial Emissions Control Measures and Enforcement

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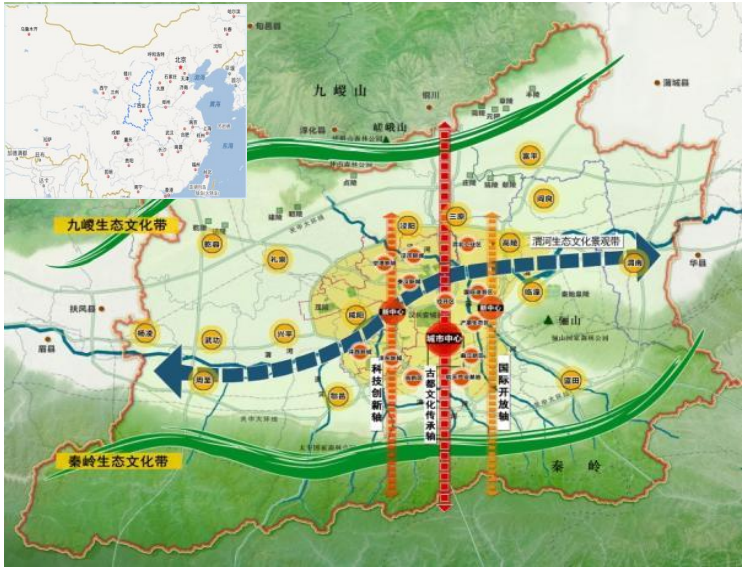
西安概况—城市概况 Xi’an: City Overview

西安，古称“长安”，与雅典、开罗、罗马并称世界四大古都，是古丝绸之路起点，一带一路的重要支点城市。
中国西北部最大的中心城市，中国第九个国家中心城市。
地处关中平原中部，南依秦岭，北跨渭水。

总面积 Total Area	10752平方公里 10752 km2
人口 Population	1200万 12 million
2017年全市生产总值 City’s GDP in 2017	7469.9亿元 746.99 billion RMB

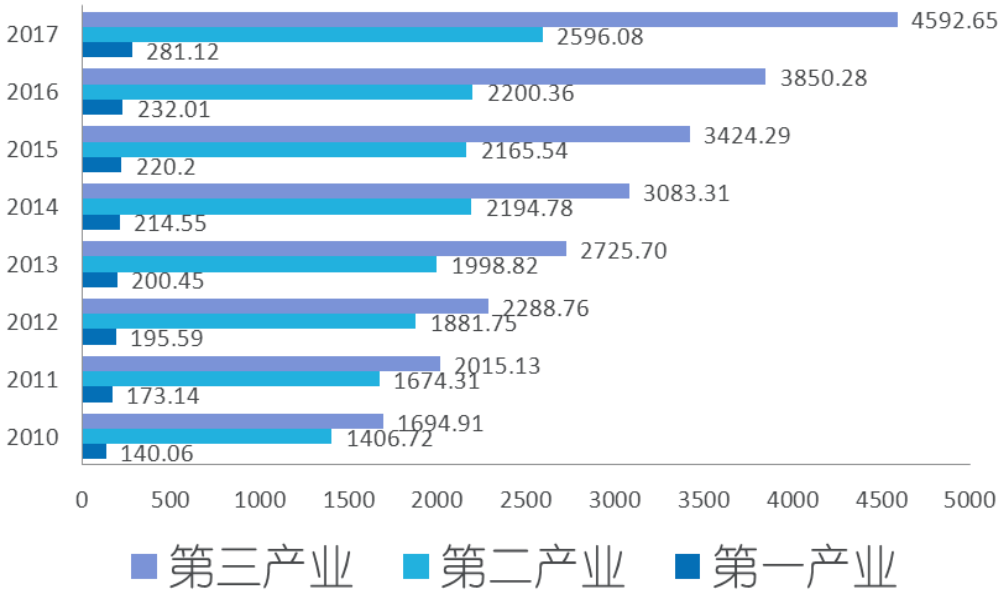


Xi’an, formerly known as “Changan”, is known as one of the four largest ancient capitals of the world, along with Athens, Cairo and Rome. It was the starting point of the ancient Silk Road, and is now a pivotal city along today’s Belt and Road.
Xi’an is the largest major city in Northwest China, and is ninth among all major cities in China.
It is located in the middle of the Guanzhong Plains, south of the Qinling Mountains, and north of the Weishui River.

西安概况—产业结构 Xi’an: Industrial Structure

“十二五”以来，三个产业比由2010年的4.3：43.4：52.3调整为2017年的**3.8**：**34.7**：**61.5**，服务业支撑作用日益凸显。**第二产业占生产总值的比重不到35%**。

Since the 12th Five-Year Plan, the ratio of Xi’an’s three main industries has shifted from 4.3:43.4:52.3 in 2010 to **3.8:34.7:61.5** in 2017. The supporting role of the service industry has become increasingly prominent. **The proportion of secondary industry to GDP is less than 35%.**

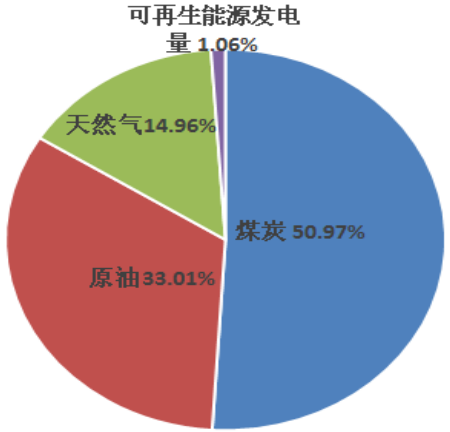


西安市产业结构（亿人民币）

Industrial structure of Xi'an (hundred million RMB)

西安概况—能源结构 Xi’an: Energy Mix

西安市是典型的能源输入型城市，全市94%的能源均从外部调入。2016年，煤炭占全市一次能源消费总量的50.97%；原油占33.01%；天然气占14.96%；可再生能源发电量占1.06%。**西安市煤炭消费的峰值出现在2013年**，为1530万吨实物量，2016 年西安全社会煤炭消费总量为 1350.08 万吨.



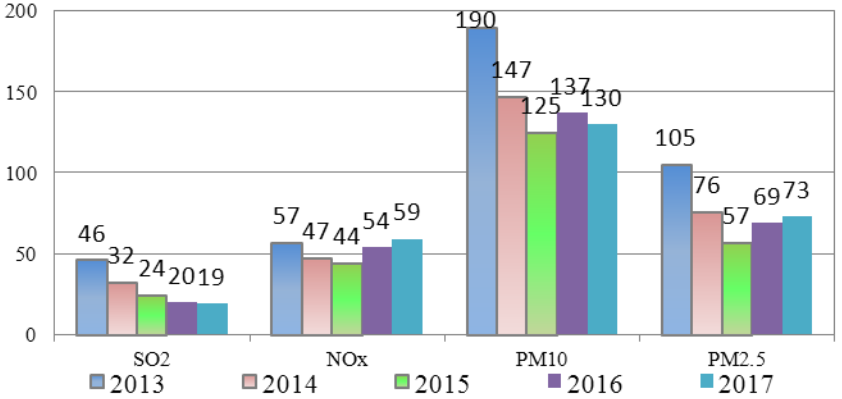
2016年西安市一次能源消费组成
The composition of primary energy consumption in Xi'an in 2016

Xi'an is a typical energy-importing city. 94% of the city's energy is transferred from the outside. In 2016, coal accounted for 50.97% of the city's total primary energy consumption; crude oil accounted for 33.01%; natural gas accounted for 14.96; and renewable energy generation accounted for 1.06%. **Coal consumption peaked in Xi'an in 2013,** amounting to 15.3 million tons. In 2016, total coal consumption in Xi'an was 13.508 million tons.

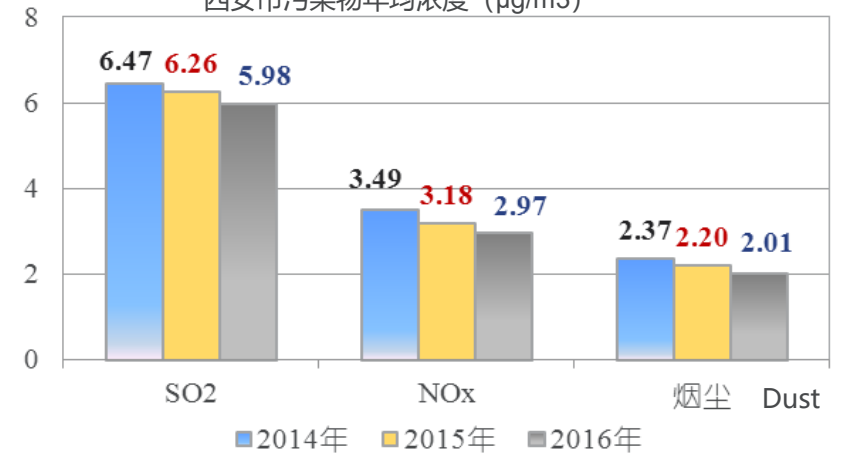
西安概况—空气质量 Xi'an: Air Quality

2017年，优良天数比例为49.3%，同比下降3.2个百分点，主要污染物为细颗粒物（PM2.5），年平均浓度为73微克/立方米，同比上升2.8%；PM10浓度为130微克/立方米，同比下降5.1%；**但NOx、PM10和PM2.5年均浓度依然不达标，大气质量持续恶劣。**

In 2017, the proportion of days with good air quality was 49.3%, down by 3.2 percentage points from the previous year. The main pollutant was PM2.5, with an average annual concentration of 73 μg/m3, up by 2.8%. The PM10 concentration was 130 μg/m3, a decrease of 5.1%. **However, the annual average concentrations of NOx, PM10 and PM2.5 in Xi'an are still not up to standard, and the air quality continues to be poor.**



西安市污染物年均浓度（μg/m3）

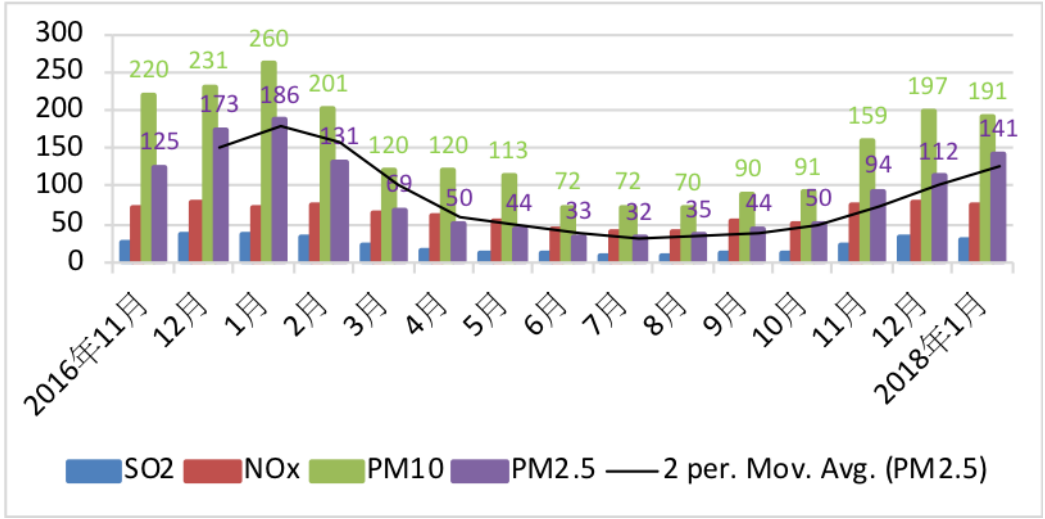


西安市规模以上工业污染物排放量（万吨）

The pollutant emissions by large scale industries in Xi'an (10,000 tons)

西安概况—空气质量 Xi'an: Air Quality

右图是西安市15个月四种大气污染物的月平均浓度，可以看出，四种主要污染物浓度数值随季节呈现出的变化特征为：**冬季最高，夏季最低，春季和秋季居中。四种污染物最高月浓度出现在供暖需求最大的12月和1月。**



西安市15个月四种大气污染物平均浓度（μg/m3）

The above chart shows the monthly average concentrations of four major pollutants in Xi'an for the past 15 months. The concentrations of the four major pollutants vary with seasons: **it is highest in winter, and lowest in summer. The highest monthly concentrations of the four pollutants occurred in December and January, when there is the largest demand for heating.**

主要非电行业工业排放源 Major Emissions Sources from Non-Power Industries

八个主要行业：钢铁、**火电**、水泥、煤炭、造纸、印染、污水处理厂、垃圾焚烧厂

There are eight major industries: steel, **thermal power**, cement, coal, paper, textiles, sewage treatment, and waste incineration

西安市2018年重点监控排污单位共143家，其中水环境73家，大气环境16家，土壤环境54家。

莲湖区	西安西联供热有限公司
灞桥区	大唐陕西发电有限公司灞桥热电厂
未央区	西安市热力总公司太华供热公司
雁塔区	陕西明德集中供热有限责任公司
雁塔区	西安雁东供热有限公司
临潼区	西安标准工业股份有限公司
蓝田县	陕西博强家具有限公司
蓝田县	西安蓝田尧柏水泥有限公司
周至县	陕西金集贤实业有限公司
鄠邑区	大唐西安鄠邑热电有限责任公司
鄠邑区	西安国维淀粉有限责任公司
高新区	比亚迪汽车有限公司
高新区	三星（中国）半导体有限公司
高新区	西安高新区热力有限公司（西户路热源厂）
经济开发区	陕西重型汽车有限公司
经济开发区	西安市城北供热有限责任公司

西安市2018年16家重点涉气排污单位

In 2018, there were 143 key entities being closely monitored for pollution in Xi'an, including 73 entities subject to water pollution oversight,16 entities subject to air pollution oversight, and 54 enterprises subject to ground pollution oversight.

主要减排措施及成效 Emission Reduction Measures and Results

完善的制度保障及实施体系 Refined System to Safeguard Implementation Success

《西安市“铁腕治霾·保卫蓝天”三年行动方案(2018—2020年)》

Three year action plan of “Controlling Pollution With an Iron Fist - Defending the Blue Sky” in Xi'an (2018 - 2020)

《西安市2018年“铁腕治霾·保卫蓝天”“1+2+22”组合方案(办法)》

Xi'an 2018 ”Controlling Pollution With an Iron Fist - Defending the Blue Sky”“1+2+22" combination scheme (approach)

产业结构调整和清洁能源替代（保障）专项方案、煤炭削减专项方案、高耗能高排放企业搬迁（关停）专项方案、“散乱污”企业整治专项方案、重点行业工业企业错峰生产（停产限产）专项方案、锅炉改造专项方案、工业堆场扬尘污染防治专项方案.....

《西安市铁腕治霾财政奖补办法》

Xi’an’s “Controlling Pollution With an Iron Fist” financial award supplement

燃煤锅炉拆改、电厂燃煤锅炉超低排放改造、燃气锅炉低氮燃烧改造、工业企业有机废气污染治理、散煤治理等领域全方位补贴

All-round subsidies in the fields of coal-fired boiler demolition and renovation, ultra-low emission renovation of coal-fired boiler in power plant, low-nitrogen combustion renovation of gas-fired boilers, organic waste gas pollution control in industrial enterprises, dispersed coal control, etc.

主要减排措施及成效 Emission Reduction Measures and Results

具体措施 Specific measures

（一）全力推进产业结构和能源结构调整　Fully promote the restructuring of the industrial and energy sectors

1. 禁止新建、扩建燃煤发电、燃煤热电联产和燃煤集中供热项目，禁止新建、扩建和改建石油、化工、煤化工、水泥、焦化项目。2018 年 6月 1 日起，全市石油化工、焦化、水泥、陶瓷、保温材料、防水材料等行业企业限制 50%产能，2020 年全部搬迁或关停。

Halt all the building or expanding of coal-fired power generation, coal-fired cogeneration, and coal-fired central heating projects. Additionally, the construction, expansion, and reconstruction of petroleum, petrochemical, coal chemical, cement and coking projects would be prohibited. From June 1, 2018, enterprises in the petrochemical industry, coking industry, cement industry, ceramics industry, thermal insulation materials, waterproof materials and other industries will be restricted by 50% of their production capacity, and will be relocated or shut down by 2020.

2. 加快推进能源结构调整。制定能源结构改革方案。 提速清洁能源供应和煤改洁工作进度。2018 年完成新气源启用、燃煤热源厂清洁化改造，启动第三气源项目；严控煤炭消费总量，规上工业以燃料煤削减为主，到 2020 年，基本建成“无煤化”城市。

Speed up the restructuring of the energy sector and formulate a plan for reform, to include progress towards a clean energy supply and cleaner coal. In 2018, a new gas source will be opened, coal-fired heating plants will be renovated for higher emissions standards, and a third gas source project will be developed. The total consumption of coal will be strictly controlled, with a focus on reducing coal used for fuel. By 2020, the "coal-free" city will be built.

主要减排措施及成效 Emission Reduction Measures and Results

具体措施 Specific measures

3. 完成燃煤锅炉“清零”: 2018 年 10 月底前，除热电联产锅炉外，全市所有燃煤锅炉、燃煤设施和工业煤气发生炉、热风炉、导热油炉全部拆除或实行清洁能源改造。

Complete the removal of the coal-fired boilers: By the end of October 2018, all coal-fired boilers, coal-fired facilities, industrial gas producers, hot-blast stoves and heat-conducting oil stoves in the city will be dismantled or reformed to produce cleaner energy, with the exception of cogeneration boilers.

4. 加快推进清洁供暖: 制定清洁取暖实施方案。2018 年 5月 1 日起，新增供暖全部使用天然气、电、可再生能源供暖（包括地热供暖、 生物质能清洁供暖、 太阳能供暖、 工业余热供暖等） 。

Accelerate the development of clean heating: Develop a clean heating implementation plan. From May 1, 2018, all the new heating will use natural gas, electricity, and/or renewable energy (including geothermal heating, biomass energy clean heating, solar heating, industrial waste heat heating, etc.).

主要减排措施及成效 Emission Reduction Measures and Results

具体措施Specific Measures

5. 开展燃气锅炉改造。2019 年底前，全市所有燃气锅炉全面完成低氮燃烧改造并达到排放标准要求，其中 2018 年不少于60%，生产经营类天然气锅炉全部完成。改造后的燃气锅炉氮氧化物排放浓度不高于 80 毫克/立方米。

Carry out gas boiler renovation: Before the end of 2019, all gas-fired boilers in the city will have completed the low-nitrogen combustion retrofitting, and will meet emissions standards. 60% of these will be completed within 2018, and all production and operation of natural gas boilers will be completed. The NOx emission concentration from the retrofitted gas boilers should not be higher than 80 mg/m3.

6. 建设高污染燃料禁燃区。完成已划定的高污染燃料禁燃区建设，禁燃区内禁止销售、燃用高污染燃料，禁止新建、扩建燃用高污染燃料的设施。根据大气环境质量改善要求，逐步扩大高污染燃料禁燃区范围。

Development of a high pollution/fuel free zone: The development of an area free of high-polluting fuels will be completed, prohibiting the sale and burning of highly polluting fuels in the no-burn zone, and prohibiting the construction and expansion of facilities that use highly polluting fuels. In keeping with requirements for improving air quality, the scope of the fuel-free zone will be gradually expanded.

主要减排措施及成效 Emission Reduction Measures and Results

具体措施 Specific Measures

7. 推进火电企业转型改造。落实热电联产、以热定电，释放全部供热能力，非采暖季，在保障电网安全稳定运行的前提下，减少或停止发电。鄠邑区国维淀粉厂自备电厂 3 年内停止发电并完成搬迁。

Promote the transformation of coal-fired power plants. This will include installing heat and power cogeneration, using heating needs to determine power production, and ensuring heat capacity is fully utilized. During seasons when heat is not necessary, power generation can be reduced or stopped, so long as a safe and stable power grid is maintained.

8. 推进秸秆等生物质综合利用。 推广固化成型、 生物气化、热解气化、炭化等能源化利用技术，培育龙头企业，示范带动秸秆原料利用的专业化、规模化、产业化发展。确保农作物秸秆综合利用率稳定在 95%以上。

Promote comprehensive utilization of biomass such as crop stalks. Promote energy utilization technologies such as bio-gasification, pyrolysis gasification and carbonization, and cultivate leading enterprises to demonstrate and drive the development of specialized, large-scale and industrial utilization of raw straw materials. The comprehensive utilization rate of crop stalks should be stabilized at over 95%.

主要减排措施及成效 Emission Reduction Measures and Results

具体措施 Specific Measures

（二）大力提升固定源监管水平　Significantly improve the level of immobile source regulation

1. 实行排污许可管理。 全市所有排污企业于 2018 年底前必须实现达标排放；凡超标或超总量排污企业一律停产整治，限期内未完成整治的一律依法予以关停。

Implement pollution permit management. All pollutant emitting enterprises in the city must achieve emissions standards by the end of 2018; all enterprises that exceed the standards or exceed the total amount of pollutant emissions allowed shall be suspended from production and will rectify the error, those that fail to complete rectification within the time limit shall be closed down by law.

2. 深化工业污染源监管。 将所有固定污染源纳入环境监管，对重点工业污染源全面安装烟气在线监控设施。落实环保主体责任，确保污染防治设施正常运行，污染物排放稳定达标。

Enhance the supervision of industrial pollution sources. All immobile pollution sources will be included under this environmental supervision, and online monitoring facilities for flue gas will be fully installed for key industrial pollution sources. Determine entities to be responsible for environmental protection in order to safeguard the normal operations of monitoring facilities and to stabilize emissions.

主要减排措施及成效 Emission Reduction Measures and Results

具体措施 Specific Measures

3. 加强挥发性有机物（VOCs）污染防控。推进石化、化工、工业涂装、包装印刷、家具制造、电子制造、工程机械制造等重点行业挥发性有机物减排；加强 VOCs 监督性监测能力建设，重点企业安装在线监测系统。

Strengthen the prevention and control of volatile organic compounds (VOCs). Promote emission reduction of VOCs in key industries such as petrochemicals, industrial coating, textiles, furniture manufacturing, electronics manufacturing, and construction machinery manufacturing; strengthen the construction of supervisory monitoring capabilities for VOCs, install online monitoring systems for key enterprises.

4. 刚性整治 “散乱污” 企业。明确 “散乱污” 企业界定范围，出台 “散乱污” 企业界定及整治标准，建立整治清单，2018 年 10 月底前全面完成整治任务。建立长效管理机制，坚决防止死灰复燃、异地转移。

Implement strict regulation of small-scale, disorganized, and polluting enterprises. Clarify the scope of these enterprises, define standards for rectification, establish a remediation list, and complete the remediation tasks by the end of October 2018. Establish a long-term management mechanism in order to prevent the resurgence and relocation of this pollution.

主要减排措施及成效 Emission Reduction Measures and Results

具体措施 Specific Measures

（三）强化重点时段污染防控 Strengthening pollution prevention and control during key periods

1. 全面开展“夏防期”攻坚行动。每年 6 月 1 日至 9 月30 日为“夏防期”，全市涉及石油化工、煤化工、焦化、水泥（含特种水泥，不含粉磨站）限产 50%以上，包装印刷、电子制造、家具制造、表面涂装、医药、农药、制鞋、橡胶制品等行业企业实施错时生产。

Fully implement the “Summer Defense Period” action plan. Every year from June 1 to September 30 is the “Summer Defense Period”, during which the city will limit production of petrochemicals, coal chemicals, coking, and cement (including special cement, not grinding station) by more than 50%. Packaging and printing, electronic manufacturing, furniture manufacturing, surface coating, medicine, pesticides, shoes, rubber products and other industries will be subject to staggered production.

2. 全面实施“冬防期”攻坚行动。每年 11 月 15 日至次年3 月 15 日为“冬防期”；水泥、砖瓦窑、陶瓷、石膏板、保温耐火材料、防水材料等建材行业全部实施停产，水泥粉磨站在重污染天气预警期间实施停产；煤化工、石油化工行业实施部分错峰生产，限产50%左右。

Fully implement the "Winter Defense Period" action plan. Every year from November 15th to March 15th is the “Winter Defense Period,” during which cement, brick, ceramic, gypsum board, thermal insulation refractories, waterproof materials and other building material industries will all close down. Additionally, some coal chemical and petrochemical industries shall implement peak-crossing production, with a production limit of about 50%.

主要减排措施及成效 Emission Reduction Measures and Results

具体措施 Specific Measures

（四）全面实行网格化管理　Full implementation of grid management to control pollution

1. 在全市设立1个一级网格、20个二级网格、219个三级网格、3556个四级网格。制定了《网格化管理奖励办法》；在全市三级网格（街镇级）设置了网格化管理办公室，落实专职网格员1284名。

At the city level, establish a first-level grid, 20 second-level grids, 219 three-level grids, and 3,556 four-level grids to monitor control pollution throughout the city. The “Grid Management Management Incentive Measures” will be formulated and a grid management office set up for the city's three-level grids (street and town level), and 1,284 full-time staff will be hired.

主要减排措施及成效 Emission Reduction Measures and Results

2017年取得的主要成效Major Achievements in 2017

煤炭削减方面：削减散煤233.39万吨。

Coal reduction: reduction of 2.343 million tons of dispersed coal.

燃煤锅炉拆改方面：拆除10蒸吨以下燃煤锅炉1005台；拆除0.5蒸吨以下小燃煤锅炉设施926台；拆除驻军单位燃煤锅炉40台。

Elimination of coal-fired boilers: 1005 coal-fired boilers under 10 steam tons were dismantled; 926 small coal-fired boiler facilities below 0.5 steam tons were removed; 40 coal-fired boilers in the garrison units were demolished.

散乱污企业整治方面：摸排并核定“散乱污”企业2059户，已清理取缔1531户。

Improving small-scale, disorganized, and polluting enterprises: 2,059 enterprises were inspected, of which 1,531 were cleaned up and/or eliminated.

主要减排措施及成效 Emission Reduction Measures and Results

2017年取得的主要成效Major Achievements in 2017

挥发性有机物治理方面：832家汽车维修企业和16家工业企业完成了有机废气深度治理；查封关停企业烤漆房165家。

Management of Volatile Organic Compounds: 832 auto repair companies and 16 industrial enterprises undertook intensive management of organic waste gas; 165 paint booths were closed down.

超低排放改造方面：完成共7台小火电燃煤锅炉超低排放改造，以及 79台燃气锅炉低氮改造。

Ultra low emissions reform: The ultra low emissions retrofitting of 7 small thermal power coal-fired boilers and the low-nitrogen retrofitting of 79 gas-fired boilers was completed.

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THANK YOU

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