

## **Wuhan Carbon Peaking Action Plan 2017-2022**

To accelerate the city's green and low-carbon development and promote the city's carbon emission to peak by 2022, this action plan is formulated based on "Wuhan's 13<sup>th</sup> Five-Year Plan on National Economic and Social Development".

### **I. Objective**

Further implement the spirit of 19<sup>th</sup> National Congress of the Communist Party of China, keep promoting the eco-civilization, carry out the concept of creative, coordinative, green, open and shared development, so as to take low-carbon development as the main support for the construction of modern, international and environmental Wuhan. By 2022, the whole city's carbon emissions will peak, and carbon emissions from industry (not include energy industry), buildings, transportation, energy sectors and all 14 districts of the city will be controlled, then basically build a low-carbon-oriented industrial structure, energy system, building system and transportation system, and form a "Wuhan Model" of low-carbon production and lifestyle with a demonstration effect, put Wuhan as a top runner in China's low-carbon development.

### **II. Main Tasks**

#### **1. Implement Low-carbon Industrial Project**

1) Accelerate the development of high-tech industries. Promote the construction of "Made in China 2025" pilot demonstration cities, by 2022, the output value of information technology, life and health, and intelligence manufacturing will reach to 800, 400, 400 billion RMB respectively, the output value of above-mentioned new strategic industries will account for more than 70% of high-tech industries.

2) Further develop modern service industry. Increase the following four production-based service industries: modern logistic service, finance, software and information technology, business exhibition service, consolidate the following four lifestyle-based service industries: modern business and trade, tourism, real estate, public service, further promote the following five new style service industries: technology service, creative industry, engineering design, car service, new industry with new style. By 2022, the added-value of service sector will

reach to 1200 billion RMB, accounting for more than 56% of the city's GDP.

3) Improve the de-carbonization level of agriculture. Promote models of agricultural planting and breeding style and clean agriculture. Improve the application level of "Two styles" agricultural production technologies. By 2022, the use of fertilizer and pesticide will reduce 1-2% annually, the comprehensive utilization of crop straw reach more than 95%, the comprehensive utilization of large-scale livestock manure reach more than 85%, and the rural household rate with clean energy will reach more than 80%.

4) Accelerate upgrade of traditional industries. Fully forbid new construction of heavy-polluted programs in sectors such as steel, cement, flat glass, coking and non-ferrous metals. Except for the ongoing projects, strictly prohibit new construction of heavy-polluted chemical industrial parks within 1km range of Wuhan section along the Yantze River and Han River. Strength energy-efficiency supervision on key energy-intensive entities, promote industries to reach their energy efficiency standards, strictly implement energy consumption standards on high energy-consuming products. Promote the implementation of ladder and differential electricity price in steel and cement industries. Support industries to implement energy-saving renovation of industrial boiler and kiln, energy-saving of motor system, recovery and utilization of residual heat and pressure, cogeneration, recovery and utilization of industrial by-product gas, construction of enterprise energy control center and other energy efficiency upgrading projects.

## **2. Implement Energy Low-carbon Project**

1) Reasonably control the total energy consumption. Insist on prioritizing energy conservation, improve energy efficiency, and ensure to achieve goals of energy efficiency and carbon emissions reduction from provincial government.

2) Prioritize the development of non-fossil fuel. Develop wind and solar power programs, and establish Hubei Longyuan Huangpi Liujiashan wind farm and state-grid Huangpi Wushan wind farm. Develop a series of solar power programs, and make the installed capacity of solar power reach more than 250,000 kW. Promote large-scale utilization of biomass and landfill, build 10-15 new large and medium biogas projects, more than 150 small biogas projects, so the city's total volume of biogas projects will reach more than 100,000 m<sup>3</sup>.

3) Increase the use ratio of natural gas. By 2022, The city will build more than 700 kilometers of high-pressure pipelines, 3200 kilometers of medium pressure pipelines and more than 270 natural gas stations of all kinds. Try best to complete Baihushan large liquefied natural gas reserve base by the end of 2020. Encourage the development of urban gas heating, guide and support the production of industrial enterprises using natural gas pipeline or liquefied natural gas, promote the implementation of coal (oil)-to-gas shift in the boilers outside of the city's third-line circle, encourage the development of natural gas peak-load dispatching power stations, and vigorously develop natural gas distributed energy.

4) Increase the use ratio of electricity. Implement "Extra-high-voltage near city, Ultra-high-voltage (UHV) within city" program, promote the construction of 1000 kV UHV AC substation and  $\pm 800$ kV UHVDC converter station projects. Improve the urban and rural 220 kV network, by 2022, build and expand 17 new 220 kV power transmission projects, the new added substation capacity will be 6.41 million kVA, the total capacity will be 20.27 million kVA. Improve the 110 kV electricity dispatching system, by 2022, build and expand 73 new 110 kV power transmission projects, the new added capacity will be 5.85 million kVA, the total capacity will reach 19.43 million kVA. Promote the transformation of urban distribution network, new urban area rural power grid transformation and upgrading project, to the integration of urban and rural power grid transition. Promote the transformation of urban distribution network, the upgrading of new rural power grid transformation in newly built urban area, moving to the integration of urban and rural power grid transition.

5) Strictly control coal consumption. Strengthen the source management, for new projects, do not approve the construction of new coal-fired boilers in principle; for a region that completely has no conditions for the use of clean energy but does need to build new coal-fired boilers because of industrial development, strictly control is required, the new (remodeling, expanded) coal-consuming projects must ensure its coal consumption or part of it will be replaced. Strict implement the city's regulations on high-pollution fuel ban zones. By 2022, the city's total coal consumption will be controlled within 19.5 million tons of standard coal equivalent, and strive to control it within 16 million tons of standard coal equivalent or less.

6) Promote cogeneration. Mainly focus on cogeneration, take natural gas distributed energy stations and industrial waste heat as supplement, also consider ground source heat pump, river water source heat pump and biomass fuel boilers, promote central heating (cold). By 2022, ensure the city's main city and the development zone have both the production and living supporting heating, meet the industrial production load 4300 tons / hour, heating area 42 million square meters, annual heating  $6.5 \times 10^7$  GJ.

### **3. Implement Life-based Low-carbon Project**

1) Promote low-carbon buildings. Strictly implement energy efficiency design standards of low-energy buildings, ensure the standard implementation rate to be 100%. By 2022, newly built green buildings account for 50% of the newly completed buildings, a total of more than 45 million square meters of green building will be built, create 5 of low-carbon and eco demonstration areas, 10 green building demonstration areas and 50 high-star green building demonstration projects, and a total of 50 million square meters of building area for renewable energy construction will be built; the promotion and application rate of new wall materials reaches 100%, no waste and wastewater discharge for building materials industry. In order to promote the modernization of the construction industry, since 2018, the proportion of modern construction projects in the construction industry to the total area under construction for that year should not be less than 20%, and not less than 5% annually thereafter.

2) Promote low-carbon transportation. Optimize the development of green public transport, and build “city of subway”. By 2020, basically form a rail network system that covers “three towns” and accesses “new city”, the total mileage of rail transit will reach 400 km, the rail transit will account for more than 50% of public transport passenger traffic. Construct an integrated public transportation system with the national railway hub as the node, the urban railroad as the backbone, the routine public transportation as the basis and the ferry as the supplement and the slow traffic linked up. By 2022, public transport accounted for more than 60% of motorized travel, and increase bus lanes in a timely manner. Promote the construction of shared transportation, improve the smart car dispatching system for public transport and passenger taxis, and the maritime administration information system of port and shipping. Accelerate the promotion of clean energy transport demonstration projects, implement "new energy bus replacement project", and give priority to the use of clean energy in port handling machinery and transportation equipment. By 2022, the city will promote 40,000 new energy

vehicles and build more than 150 centralized charging stations and over 70,000 charging posts.

3) Promote low-carbon public institutions. Promote paperless office and online office, and reduce the use of disposable office supplies. Promote a streamlined and efficient conference organization mode and continue to improve the teleconferencing system. Carry out "low carbon office week" activities. Comprehensively promote the low-carbon use of official vehicles and phase out "high-pollution and high-emission" official vehicles by the end of 2018. Government agencies and institutions strictly enforce energy saving and environmental protection policies for the government procurement, and gradually increase the proportion of low-carbon products in government procurement.

4) Promote low-carbon lifestyle. Launch "low-carboner+" action plan, construct "carbon wallet" low-carboner platform, and guide customers to choose low-carbon products. Strengthen the certification of energy-saving, environmental-friendly products. Promote the source of domestic waste classification, and improve the comprehensive utilization of garbage facilities. Support and guide the sharing of economic development, innovate the sharing of economic development patterns and fields. Carry out college low-carbon promotional activities, and regularly organize college students' participation in low-carbon practices.

#### **4. Implement Ecological Carbon Reduction Project**

1) Optimize the urban ecological pattern. Taking the mountain range and water system as backbone, Wuhan will form a green structure of "one centre, two axes and five rings, six wedges and multiple corridors, one network with multiple points", bringing a green space structure of "green mountains as natural defense, green wedges for wind, blue sky and clear water as a network and big and small pearls embedded the river city". By 2022, the forest coverage rate is expected to reach over 14.05%, and the green coverage rate of the built-up area to reach over 41%.

2) Implement the "Green Skeleton" main project. Wuhan will build the Green Road of Bali East Lake as a model of world-class city lake. Accomplish green landscape with cross axis' green construction and build the world-class city's landscape belt with middle axis around the

Yangtze River area; build the "vertical axis" --- 15.4 km Yangtze River beach park in Kan Jiayi, Liu Tonggan and other areas and the "horizontal axis" --- 5 km Han River beach park in Hanjiang Wan area, extending the "Two Rivers and Four Banks" green bank line to the third ring urban ecological belt. The city will carry out the "Two Rivers and Four Banks" green promotion and Guishan scenic view transformation project, building a green corridor of ChangchunGuan --- Hong shan --- Mount LuoJia. Besides, it will widen the third ring urban ecological belt with over 19 hectares new green area, implement the 50 meters wide public welfare forest belt construction at each side of 146 kilometers of the fourth ring, and promote the demonstration project of green wedge into the city.

3) Implement the "Clear River City, Blooming Flower Town" project. By 2020, Wuhan will increase 120,000 *mu*<sup>1</sup> woodland, and ensure the city's public forest stays around 900,000 *mu*; build 23 new parks and continue to build 7 parks, increasing 810 hectares of green parks. In addition, promote the construction of 200 central parks and implement projects of aerial gardens, flyovers, pedestrian flyovers' special space greening, roof greening, etc.

4) Implement projects of ecological blue network greening and of wetland conservation and restoration. By 2022, complete over 20 lake parks or the construction of lake green land, and build more than 20 kilometers riverside ecological oasis. Promote the ecological protection and restoration of the wetlands, such as the Chen Lake, Shangshe Lake, Zhangdu Lake, Wu Lake and Zao Lake and so on, and create 1 international key wetland and 3 provincial and above level reserves and 2 municipal reserves. Accelerate the construction of the national wetland parks, such as the Houguan Lake in Cai Dian district, Anshan in Jiangxia district, Canglong Island and Dugong Lake in Dongxi Hu district and provincial wetland parks, Suozi Changhe Lake and Tong Lake in Chadian district, Zhuyang Hai in Jiangxia district and Mulan Huaxi in Huangpi district. Boosting the restoration of wetland's ecological function, and build 5 national wetland parks and 4 provincial-level wetland parks.

5) Implement the project of mountain restoration and mountain park construction. Promote ecological restoration of 12 damaged mountain (3980 *mu*) including Mount Lujia in Huangpi district, Mount Heng in Caidian district and Mount Jitou in Qingshan district and build the Mount Tangjia, Mount Guoding, Mount Xiannu, Mount Zhu, Mount Jiangjun and Mount

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<sup>1</sup> 1 *mu* equals to 0.0667 hectare or 1/6 acre

Jitou and other mountain parks.

## **5. Implement the Low-carbon Fundamental Capacity Promotion Project**

1) Conduct a greenhouse gases emission (GHGs) inventories. Wuhan will incorporate the basic statistical indicators of GHGs into the whole city's statistical index system, and establish a statistical system that covers energy activities, industrial production processes, land use change and forestry carbon sinks, waste disposal and so on, and adapts to the requirements of GHGs measurement and government's target assessment. It will achieve the normalization of municipal GHGs inventories development, so as to launch the development of district-level GHGs inventories by the end of 2018.

2) Establish a low-carbon and energy-saving smart management system. By 2022, the low carbon energy saving smart management system will basically cover the main energy-using entities, realizing immediate surveillance, analysis and early warning on these entities' energy consumption and carbon emissions.

3) Develop relevant low-carbon standards. Research and develop local standards on Wuhan key industries and products' greenhouse gas emissions and energy consumption limits. By strengthening its implementation, it will promote enterprise's carbon emission reduction and improve energy efficiency.

## **6. Implement Low-carbon Development Demonstration Project**

1) Implement the Near Zero Carbon Emission demonstration project. Taking the China-France Huhan ecological demonstration city and Huashan ecological new city as a carrier and the low-carbon production, living, and service as the main content, Wuhan will develop a national Near Zero Carbon Emission demonstration project to promote the development of green low carbon industrial ecological chain and form a replicable model project.

2) Implement the "Five-Ten-One Hundred" low-carbon demonstration projects. The city will establish low-carbon pilot units, such as low-carbon enterprise, institution, campus, hospital, etc. and create relevant evaluation criteria, indicator system and incentive mechanism. By 2022, 5 low carbon demonstration districts (parks), 10 low carbon demonstration

communities and more than 100 low carbon demonstration units will be built.

3) Develop low-carbon scientific and technological innovation demonstration. Establish a low-carbon innovative system with government-guided, enterprise-oriented, industry, education and research-connected, enhance research of key technologies in the low-carbon technology field and build a low-carbon scientific research platform. Encourage independent innovation in low-carbon technologies such as carbon capture and storage, and add it to scientific and technological plans as a major scientific and technological innovation project.

## **7. Establish and Improve Low-carbon Institutional Mechanisms**

1) Strengthen the project entry mechanism. Centered on the "double control" of energy conservation control and carbon emission control, strictly regulate the energy and carbon projects' assessment system, and strictly control the construction of high energy consumption and emissions projects. Enhance the supervision and post-supervision on energy assessment.

2) Promote the construction of low-carbon market mechanism. Wuhan will strive to have the national carbon emissions trading registration system settled in Wuhan. The provincial carbon market's allowance allocation not only include the companies that consume more than 10,000 tons of standard coal of 7 industries, but will also seek to expand the scope to those enterprises of 5,000 tons standard coal and more. Develop regional energy rights trading. Support the construction of Wuhan Mineral Exchange, Wuhan will strive to build a platform for urban mineral exchanges based on the central region and radiating the whole country. Accelerate the promotion of contract energy management and contract water-saving management mechanism, promoting the implementation of top runner programs on energy efficiency and water efficiency.

3) Build a green financial system. Explore green financial products such as green credit, green bonds, green insurance, green finance, and green financial instruments as well as policy innovations, and a green financial service system supporting the development of green industry. Encourage green enterprises to raise funds through listing, equity transfer, bond issuance and so on. Establish fund for low-carbon industry guide, and attract social capital, especially venture capital to invest the low-carbon economy and ecological construction, and further expand a more solid trading system that includes carbon credit, carbon capital market,

carbon insurance trading, gradually exploring to establish a domestic leading carbon finance market.

4) Improve fiscal and tax incentive mechanism. Wuhan will implement fiscal and tax policies, arrange related special funds, and support the construction of key projects in energy-saving and emission reduction, capacity building and public communication. Also, it will implement such policies as income tax preferential, value-added tax preferential for comprehensive use of resources, income tax preferential for contract energy management project in those enterprises that use special device in environmental protection, energy and water saving.

5) Improve the energy conservation supervision mechanism. Wuhan will strengthen the energy conservation supervision of those key energy-using units, and jointly enforcement of departments in energy conservation supervision, economy and informationization, environmental protection, urban and rural construction, commerce, industry and commerce, quality supervision and security supervision. Explore the introduction of the fourth party mechanism into the city's carbon trading market to verify the reports issued by the carbon verification agencies and supervise the compliance performance of emission entities.

The city will strengthen the construction of regional energy conservation supervision institutions, by the end of 2020, it will have a full coverage of district energy conservation supervision institutions that can carry out energy conservation supervision work according to the law.

## **8. Strengthen Low-carbon International Cooperation**

Wuhan will deepen the climate cooperation mechanism between China-U.S and China -Europe, continue to hold the China-France Forum on cities' sustainable development, and actively participate in international conferences on climate change to promote international cooperation. Wuhan will make full use of C40 city climate leadership platform to publicize its work on low-carbon development.

### **III. Complementary Measures**

1. Strengthen the leadership. The low-carbon pilot city's leading working group should plan and coordinate the city's carbon peaking work. Each district and related department follows its work responsibilities, and formulates carbon-control friendly policies in investment, finance, taxation, price, trade, technology and so on, try their best in their carbon control work, and ensure each work task has assignment, supervision, implementation and results.

2. Strengthen evaluation and review. The low-carbon pilot city's leading working group evaluates and reports the completion of each department's carbon emission peak operations every two years, and urges the one that lag behind the targets to finish the task by a deadline. At the end of the project (the year of 2022), the group will assess the accomplishments of each department's goals and tasks, taking it as an important part of comprehensive assessment evaluation for all districts, departments, leading bodies and leading cadres.

3. Strengthen policy support. The city and district's finance departments should increase investment, co-ordinate arrangements for special funds for low-carbon development, and guide all kinds of funds to invest in low-carbon and carbon emission reduction projects. Accelerate the integration of the existing special funds for finance, and support such major projects as low-carbon development and demonstration projects of science and technology and industrialization by means of guidance, incentives, rewards or discount loans. Actively strive for the use of foreign governments, international organizations and other bilateral and multilateral funds to carry out low-carbon economy in the field of scientific research and technological development.