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# The Strategic Framework for Low-carbon, Green City Development in China

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# Outline

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**Why Low-carbon City in China?**

**Modes of Low-carbon City Construction in China**

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# China's Low-carbon Transformation

- A question of how to accelerate the process rather than one of whether or not
- China's low-carbon development is not merely in response to global climate change, but also a necessity for low-carbon green growth
- China has announced operational targets to achieve low-carbon growth and transformation
  - carbon intensity reduces 40%-45% by 2020 from 2005 level
  - non-fossil energy consists 15% of primary energy consumption by 2020
  - forest carbon sink target
- Low-carbon Targets in the 12$^{th}$ five year plan:
  - Energy intensity reduces 16%
  - Carbon intensity reduces 17%
  - Non-fossil energy consists 11.4% in 2015 (7.8% in 2009)
  - Forest coverage rate reaches 21.66%(20.36% in 2010)

# Understanding Low-carbon Economy

**An absolute concept or a relative concept?**

**CASS definition: Low carbon economy refers to a form of economy that features a high carbon productivity, a high level of human development within a certain carbon emission constrains, aiming to realize the global shared vision of reducing GHG emissions**

**A low carbon economy has three key characteristics**

- **low carbon emission**
- **high carbon productivity**
- **phase progression of transition**

**Assessing low carbon economy should consider four key elements**

- **development stage**
- **technological level**
- **consumption patterns**
- **resource endowment**

# Why Low-carbon City in China?

**Rapid urbanization now and in the coming decades**

- 15 ~ 20 million new city population annually, estimated 300+ million before 2050 (50%→75%)
- At cost of huge amount of energy and resource consumption
- Huge infrastructure investment needed
- To avoid long-term carbon lock-in

**Lots of co-benefits (addressing city "sickness")**

- Low transport efficiency/Traffic jams
- Air pollution
- Cities are surrounded by waste
- Return to original essence of city life: better city, better life

**An opportunity to gain advantage of first-mover**

- Not only a popular slogan or a name card
- Bring jobs and investment
- Improve carbon competitiveness

# Background: Urbanization in the 12th FYP

- Addresses urbanization as a central issue, and emphasizes on inclusive growth
- Projected that from 2011 to 2015, the population living in urban areas will continue to grow and is likely to reach 51.5%
- Targets at creating 45 million jobs in urban areas, keeping registered urban unemployment below 5% and boosting domestic consumption
- The government will boost investment in “improving people’s livelihood”

# Challenges for China's Urbanization

**Energy efficiency and CO2 emission restriction**

**Urban land shortage**

**During 11th FY, urban construction land use shortage is about 50%**

**Water resource shortage**

**Most cities are short of water, some lack water**

**Motorization and air pollution**

**Motor vehicles ownership reached 199 million, each year 20 million vehicles add to the total ownership**

**Highly energy-consuming development mode**

**Rapid urbanization stimulate more energy demand**

**Garbage besieged cities**

**Almost 2/3 China's cities are surrounded by mountains of garbage. 1/4 cities have not enough places to dispose the trash**

**Social problems**

**Increasing income gap and urban poverty**

# Modes of Low-carbon City Construction in China

**Low carbon city initiatives by individual municipal governments in China are self-motivated, experimental and fragmented, without a systematic and easily duplicable set of methodologies**

- **Researches by WWF, SPF , EF, SDC**

**Experiment in selected area-- the Shanghai World Expo**

- **Follow low-carbon concept through the whole process from site selection, planning to the design, construction, operation to reduce carbon emissions from the source**

**Start from unique industry-- Baoding new energy industry**

- **Establishes six industrial system including photovoltaic, wind power, electricity saving, electricity storage, power transmission and electric power automation**

**Systematic Planning – Jilin city**

- **Identify the key industry from a number of industries, through which to pull effect to lead the entire industrial system to achieve lwo-carbon transition of the whole city**

**Low-carbon pilot and demonstration by government**

- **The successful experiences will be summarized and promoted**

# Low-carbon Pilot Provinces and Cities

**Notification released by NDRC in August 2010**

**Five provinces include Guangdong, Shannxi, Yunnan, Hubei and Liaoning**

**Eight cities include Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Baoding, Guiyang and Nanchang**

**Piloting tasks:**

- **compiling of low-carbon development plans (integrated local into 12th FYP),**
- **making relevant green development policies**
- **accelerating establishment of industry system featuring low carbon emissions**
- **Establishing statistical and managing mechanism of GHGs**
- **advocating of green lifestyles and consumption**

# Pilot Low-carbon Transport System

**Initiated by Ministry of Transportation in Feburary 2011**

**10 cities: Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang, Baoding, Wuhan and Wuxi**

**Piloting tasks:**

- **Establishing low carbon transport infrastructure**
- **Application and dissemination of low carbon equipment**
- **Optimizing transport organization mode and operation approach**
- **Constructing smart traffic engineering**
- **Perfecting transport related public information service**
- **Establishing and perfecting transport carbon emission management system**

# Comprehensive Demonstration on Financial Policies of Energy-saving and Pollution Reduction

**Initiated by NDRC and Ministry of Finance in June 2011**

**8 pilot cities: Beijing, Shenzhen, Chongqing, Hangzhou, Changsha, Guiyang, Jilin and Xinyu (in Jiangxi Province)**

**Piloting tasks focus on:**

- **industrial de-carbonization to increase efforts to adjust industrial structure**
- **clean transport to transform urban transport system**
- **building greening to promote energy-saving in building sectors**
- **intensification to speed up service industry**
- **main pollutants reduction to improve urban environmental quality**
- **enlarging scale of renewable energy to optimize urban energy consumption mix**

# National Comprehensive Implementing Programmes in 12th FYP

- **Accelerating to establish and complete GHGs statistical and accounting system**
- **Carrying out overall low carbon pilot and demonstration**
  - **Pilot low carbon provinces and cities, industrial parks, communities, commerce, products, marine living carbon sequestration**
  - **Demonstration engineering of industrial process GHGs control, CCUS technologies, saving and substitute engineering of high carbon emission products**
- **Establishing carbon emission trading scheme step by step**
  - **Setting overall working plan**
  - **Establish voluntary emission reduction trading scheme**
  - **Carrying out pilot carbon emission right trading**
  - **Strengthening technology supporting system on carbon emission trading**
- **Vigorously advancing low carbon actions in whole society**
  - **Public institutions, enterprises, public awareness**
- **International cooperation**
  - **Low-carbon technology and experiences, south-south cooperation**

# PDCA for Low Carbon, Green City Development

**Plan**

- **Formulating low-carbon development plan with long-term vision and short-term target**
- **Detailed implementing action plan in key areas (plan and management, economy, buildings and transportation)**
- **Decision-making mechanism (public participation, government efficiency)**

**Do**

- **Establish low-carbon economy leading group with mayor or party's secretary as leader, set up low-carbon office to coordinate relevant issues**
- **Formulate supporting policies for low-carbon green growth**
- **Set up industrial system with low-carbon emission**
- **Build a statistical and management system for GHG emission**
- **Advocate the low-carbon living and consumption mode**
- **Pilot and demonstration**
- **Integrate low-carbon targets into local 12$^{th}$ FYP**

**Check**

- **MRV and performance evaluation**

**Act:**

- **Standardize solution**

# Conclusion

**Low-carbon economy is both a theoretical issue and a practice issue, which requires theoretical guidance also requires practical solutions**

**China’s low-carbon city is now at an exploring stage from theoretical system building to planning and construction practice**

**Low-carbon city development planning should go ahead in advance, through pilot and demonstration to accumulate experience and promotion is a conventional approach for decision-making in China**

**Establishment of energy and carbon emissions monitoring, statistics and evaluation system is a basic work for the city's low-carbon, green city development**


Thank You!