

# Introduction of 1<sup>st</sup> Biennial Update Report on Climate Change of China



# Outline

## ▣ Relevant Decision of UNFCCC

## ▣ Contents

- ✓ National Circumstances
- ✓ National GHGs Inventory
- ✓ Mitigation Actions and Their Effects
- ✓ Finance, Technology and Capacity-Building
- ✓ Information on Domestic MRV
- ✓ Other Information



# Relevant Decision of UNFCCC

According to decisions 1/CP.16 adopted at COP 16 in 2010 and 2/CP.17 at COP 17 in 2011, **non-Annex I Parties**, consistent with their capabilities and the level of support provided for reporting, should submit their **first biennial update report** by 2014, containing updates of national greenhouse gas inventories, mitigation actions, needs and support received, and the *Biennial Update Report* should be subject to international consultations and analyses.

# Relevant Decision of UNFCCC

Articles 4 and 12 of the United Nations Framework Convention on Climate Change (UNFCCC), each Party shall submit its national communication. As a non-Annex I party to the Convention.

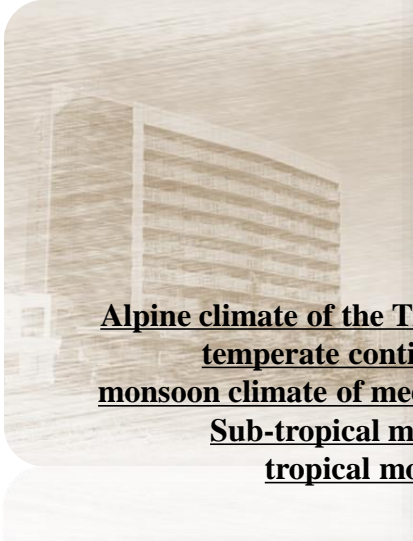
- China's Initial National Communications (INC) on Climate Change in 2004 (1994)
- China's Second National Communications (SNC) on Climate Change in 2012 (2005)
- TNC is ongoing.....

# National Circumstances

## 中国气候类型



- Alpine climate of the Tibetan Plateau 青藏高原高寒气候
- temperate continental climate 温带大陆性气候
- monsoon climate of medium latitudes 温带季风气候
- Sub-tropical monsoon climate 亚热带季风气候
- tropical monsoon climate 热带季风气候



## National Circumstances

### Natural Resources

#### Land Resources

- (1) the land types are complex and diverse;
- (2) the per capita cropland is low;
- (3) land resources are unevenly distributed.

#### Water Resources

Water resources are scarce and unevenly distributed in China.

#### Forest Resources

China's forest resources are relatively insufficient in total amount, low in quality and uneven in regional distribution.

#### Grassland Resources

China is a big country of grassland.

# National Circumstances

## Social Development

### Population

China is the most populous country in the world. By the end of 2014, its total population is 1.368 billion (including 749 million urban and 619 million rural).

### Employment

China's newly employed population has been increasing.

### Education and Medical Care

The gaps still exist in basic public services in China, particularly on education and health care.

### Population in Poverty

The number of rural poor population in China has decreased year by year.

### Environmental Protection

The deterioration of China's ecosystems and environment has not yet been thoroughly reversed.

## National Circumstances

### Economic Development

#### Economic Development Level

China is a developing country with medium economic development level.

#### Economic Structure and Industrial Development

China's economic structure is still experiencing a transition.

#### Income and Consumption Levels

The income growth of urban and rural residents mostly keeps step with the economic growth in China.



## National Circumstances

### National Development Strategies and Targets

the main targets by 2020 proposed by the Chinese government are to:

- ❑ further improve the quality of economic development.
- ❑ further promote coordinated development.
- ❑ generally improve people's well-being.
- ❑ improve eco-environmental quality.

The main objectives and tasks by 2020:

- ❑ **Mitigation.** Relative to 2015, carbon dioxide (CO<sub>2</sub>) emissions per unit of GDP will be reduced by 18% through promoting low carbon development in key sectors including industry, energy, building and transport, and effectively controlling the emissions from power generation, steel, building materials and chemical industry among other key sectors.
- ❑ **Adaptation.** The capacity of key sectors and ecologically vulnerable areas will be strengthened for climate change adaptation. A technical standard system for agricultural adaptation will be preliminarily set up, and efficient utilization coefficient of agricultural irrigation water will be raised to over 0.55.

# National Circumstances

## Coordination Agencies on Climate Change Issues in China

In June 2007, the Chinese government decided to set up

**the National Leading Group on Climate Change, Energy Conservation and Emissions Reduction**

National Leading Group on Climate Change, Energy Conservation and Emissions Reduction

**Ministerial Members:**

- Ministry of Foreign Affairs
- National Development and Reform Commission
- Ministry of Education
- Ministry of Science and Technology
- Ministry of Industry and Information Technology
- Ministry of Civil Affairs
- Ministry of Finance
- Ministry of Land and Resources
- Ministry of Environmental Protection
- Ministry of Housing and Urban-Rural Development
- Ministry of Transport
- Ministry of Water Resources
- Ministry of Agriculture
- Ministry of Commerce
- National Health and Family Planning Commission
- State-owned Assets Supervision and Administration Commission
- State Administration of Taxation
- General Administration of Quality Supervision, Inspection and Quarantine
- National Bureau of Statistics
- State Forestry Administration
- National Government Offices Administration
- Legislative Affairs Office of the State Council
- Chinese Academy of Sciences
- China Meteorological Administration
- National Energy Administration
- State Oceanic Administration

Provincial Leading Group on Climate Change

Departmental members:

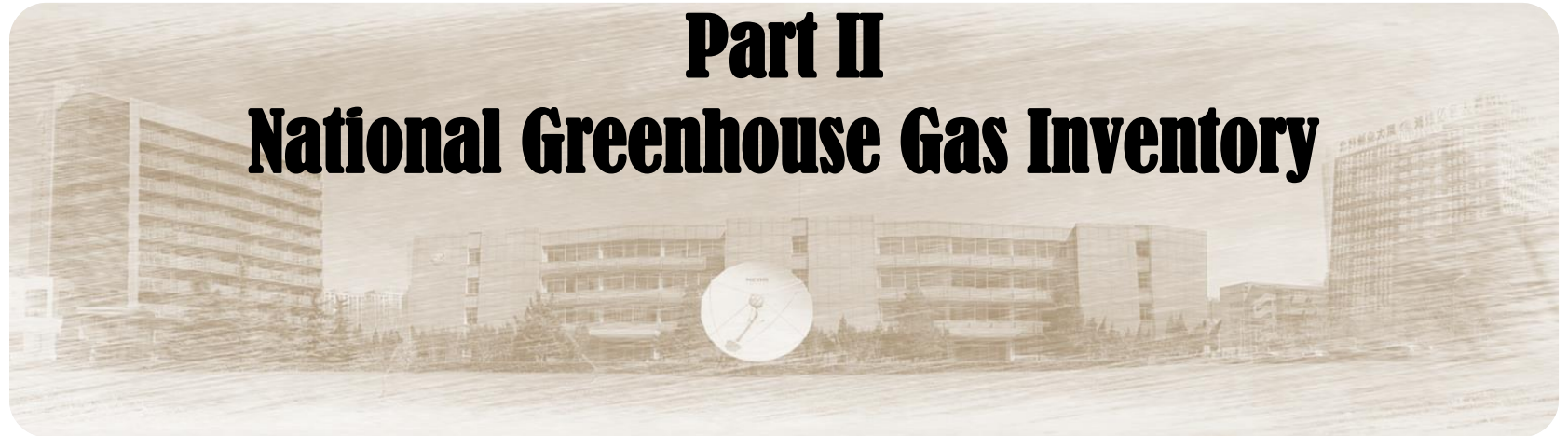
Provincial Development and Reform Commission  
 Provincial Bureau of Finance and others

Leading Group Office is located at Provincial Development and Reform Commission

The Leading Group Office is located at NDRC

# Part II

## National Greenhouse Gas Inventory



## Institutional Arrangements for the Preparation of the Inventory

| Organization  | Role  |
|---|---|
| NDRC  | overall coordination  |
| NCSC  | greenhouse gas inventory for energy<br>national greenhouse gas inventory database |
| Tsinghua University   | greenhouse gas inventory for industrial processes                                 |
| Institute of Environment and Sustainable<br>Development in Agriculture, Chinese Academy<br>of Agricultural Sciences | greenhouse gas inventory for agriculture<br>(livestock)                           |
| Institute of Atmospheric Physics, Chinese<br>Academy of Sciences  | greenhouse gas inventory for agriculture<br>(croplands)                           |
| Institute of Forest Ecology, Environment and Pr<br>otection, Chinese Academy of Forestry                            | greenhouse gas inventory for land-use change and<br>forestry                      |
| Chinese Research Academy of Environmental<br>Sciences   | greenhouse gas inventory for waste  |

# Scope and Methodologies

Table 2-2 Methodologies used for the National Greenhouse Gas Inventory of 2012

| Source/Sink Categories                            | CO <sub>2</sub> |                 | CH <sub>4</sub> |                 | N <sub>2</sub> O |                 |
|---|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|
|   | method          | emission factor | method          | emission factor | method           | emission factor |
| Energy industries (1A1)                           | T2              | CS              | T1              | D               | T1               | D               |
| Manufacturing industries and construction (1A2)   | T2              | CS              | T1              | D               | T1               | D               |
| Transport (1A3)                                   | T2              | CS              | T1, T3          | D, CS           | T1, T3           | D, CS           |
| Other sectors (1A4)                               | T2              | CS              | T1              | D               | T1               | D               |
| Other (1A5)                                       | T2              | CS              | T1, T2          | D, CS           | T1               | D               |
| Fugitive emissions from solid fuel (1B1)          |                 |                 | T1, T2          | D, CS           |                  |                 |
| Fugitive emissions from oil and natural gas (1B2) |                 |                 | T1, T3          | D, CS           |                  |                 |
| Mineral products (2A)                             | T1, T2          | D, CS           |                 |                 |                  |                 |
| Chemical industry (2B)                            | T1, T2          | D, CS           |                 |                 | T3               | CS              |
| Metal production (2C)                             | T1, T2          | D, CS           | T1              | D               |                  |                 |

|   |    |    |        |       |        |       |
|---|----|----|--------|-------|--------|-------|
| Enteric fermentation (4A)                             |    |    | T1, T2 | D, CS |        |       |
| Manure management (4B)                                |    |    | T1, T2 | D, CS | T1, T2 | D, CS |
| Rice cultivation (4C)                                 |    |    | T3     | CS    |        |       |
| Agricultural soils (4D)                               |    |    |        |       | T1, T2 | D, CS |
| Field burning of agricultural residues (4F)           |    |    | T1     | D     | T1     | D     |
| Changes in forest and other woody biomass stocks (5A) | T2 | CS |        |       |        |       |
| Forest and grassland conversion (5B)                  | T2 | CS | T1     | D     | T1     | D     |
| Solid waste disposal on land (6A)                     |    |    | T1, T2 | D, CS | T1     | D     |
| Waste-water handling (6B)                             |    |    | T1, T2 | D, CS | T1, T2 | D, CS |
| Waste incineration (6C)                               | T2 | CS | T1     | D     | T1     | D     |

Note: The methodological codes T1, T2 and T3 represent Tier 1, Tier 2 and Tier 3 methods respectively; the emission factor code CS represents the country-specific emission factor in China, D represents the defaulted IPCC emission factor. Their parallel appearance shows that the sub-items use different Tier methods or emission factor data sources. Other (1A5) includes CH<sub>4</sub> and N<sub>2</sub>O emissions from biomass, CO<sub>2</sub> emissions from non-energy use, and others.

## Data Sources

**National Greenhouse Gas Inventory of 2012**

## National Greenhouse Gas Inventory of 2012

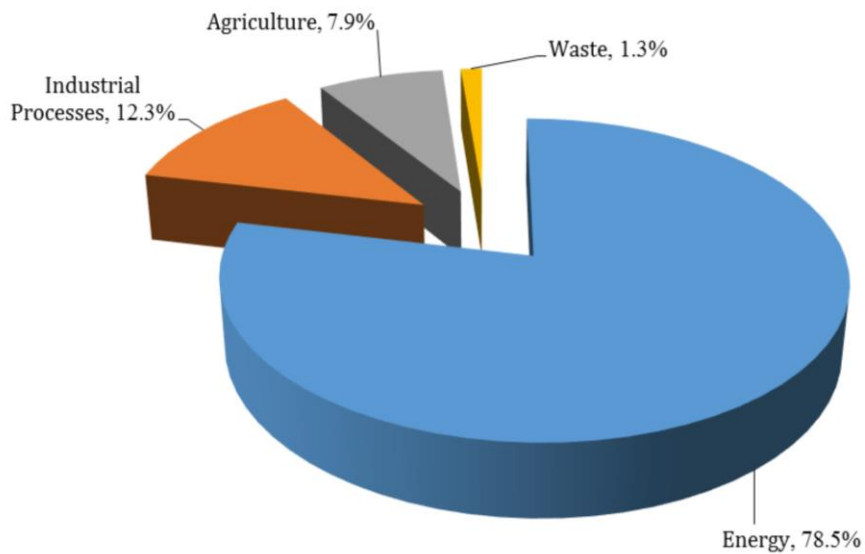
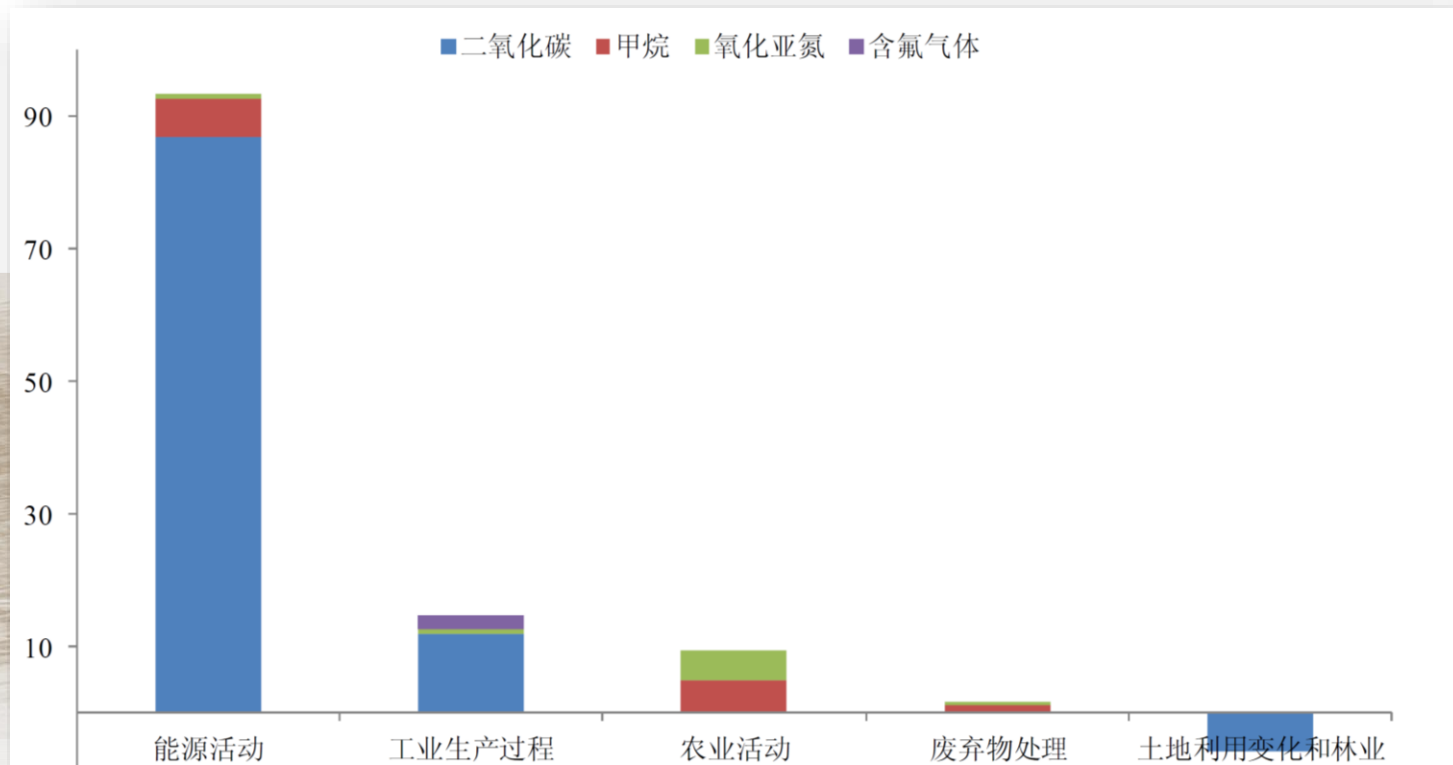


Figure 2-1 GHG Emissions by sector in China in 2012



## National Greenhouse Gas Inventory of 2012



# Quality Assurance and Quality Control

**Information on Inventories in Previous Submissions**

Table 2-12 GHG Inventory of China in 1994 (100 Mt of CO<sub>2</sub> eq)

|                              | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | HFCs | PFCs | SF <sub>6</sub> | Total |
|------------------------------|-----------------|-----------------|------------------|------|------|-----------------|-------|
| Energy                       | 27.95           | 1.97            | 0.15             |      |      |                 | 30.08 |
| Industrial processes         | 2.78            | NE              | 0.05             | NE   | NE   | NE              | 2.83  |
| Agriculture                  |                 | 3.61            | 2.44             |      |      |                 | 6.05  |
| Waste                        | NE              | 1.62            | NE               |      |      |                 | 1.62  |
| Land-use change and forestry | -4.07           | NE              | NE               |      |      |                 | -4.07 |
| Total (excluding LUCF)       | 30.73           | 7.20            | 2.64             | NE   | NE   | NE              | 40.57 |
| Total (including LUCF)       | 26.66           | 7.20            | 2.64             | NE   | NE   | NE              | 36.50 |

Note: Shaded cells do not require entries. NE (Not Estimated) stands for existing emissions and removals which have not been estimated. Due to rounding, the aggregation of various items may have a slight difference with the total.

Table 2-13 China's GHG emissions by gas in 1994

| GHGs             | Excluding LUCF              |           | Including LUCF              |           |
|------------------|-----------------------------|-----------|-----------------------------|-----------|
|                  | CO <sub>2</sub> eq (100 Mt) | Share (%) | CO <sub>2</sub> eq (100 Mt) | Share (%) |
| CO <sub>2</sub>  | 30.73                       | 75.8      | 26.66                       | 73.1      |
| CH <sub>4</sub>  | 7.20                        | 17.7      | 7.20                        | 19.7      |
| N <sub>2</sub> O | 2.64                        | 6.5       | 2.64                        | 7.2       |
| Total            | 40.57                       |           | 36.50                       |           |

Table 2-14 China's Greenhouse Gas Inventory of 2005 (100 Mt CO<sub>2</sub> eq)

|                              | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | HFCs | PFCs | SF <sub>6</sub> | Total |
|------------------------------|-----------------|-----------------|------------------|------|------|-----------------|-------|
| Energy                       | 54.04           | 3.24            | 0.40             |      |      |                 | 57.69 |
| Industrial processes         | 5.69            | NE              | 0.34             | 1.49 | 0.06 | 0.10            | 7.68  |
| Agriculture                  |                 | 5.29            | 2.91             |      |      |                 | 8.20  |
| Waste                        | 0.03            | 0.80            | 0.28             |      |      |                 | 1.11  |
| Land-use change and forestry | -4.22           | 0.01            | 0.00             |      |      |                 | -4.21 |
| Total (excluding LUCF)       | 59.76           | 9.33            | 3.94             | 1.49 | 0.06 | 0.10            | 74.67 |
| Total (including LUCF)       | 55.54           | 9.33            | 3.94             | 1.49 | 0.06 | 0.10            | 70.46 |

Note: Shaded cells do not require entries. 0.00 indicates that the value is less than 0.005. NE (Not Estimated) stands for existing emissions and removals which have not been estimated. Due to rounding, the aggregation of various items may have a slight difference with the total.

Table 2-15 China's GHG emissions by gas in 2005

| GHGs              | Excluding LUCF              |           | Including LUCF              |           |
|-------------------|-----------------------------|-----------|-----------------------------|-----------|
|                   | CO <sub>2</sub> eq (100 Mt) | Share (%) | CO <sub>2</sub> eq (100 Mt) | Share (%) |
| CO <sub>2</sub>   | 59.76                       | 80.0      | 55.54                       | 78.8      |
| CH <sub>4</sub>   | 9.33                        | 12.5      | 9.33                        | 13.3      |
| N <sub>2</sub> O  | 3.94                        | 5.3       | 3.94                        | 5.6       |
| Fluorinated gases | 1.65                        | 2.2       | 1.65                        | 2.3       |
| Total             | 74.67                       |           | 70.46                       |           |

# Part III

## Mitigation Actions and Their Effects

# Targets and Actions for GHG Emission Control

## ① Targets and Tasks for GHG Emission Control in the 12<sup>th</sup> FYP Period

**“China will endeavor to lower its carbon dioxide emissions per unit of GDP by 40-45% by 2020 compared to the 2005 level, increase the share of non-fossil fuels in primary energy consumption to around 15% by 2020 and increase forest coverage by 40 million hectares and forest stock volume by 1.3 billion cubic meters by 2020 from the 2005 levels”.**

**China's NAMAs**

## ② GHG Emission Control Actions and their Effects in the 12<sup>th</sup> FYP Period

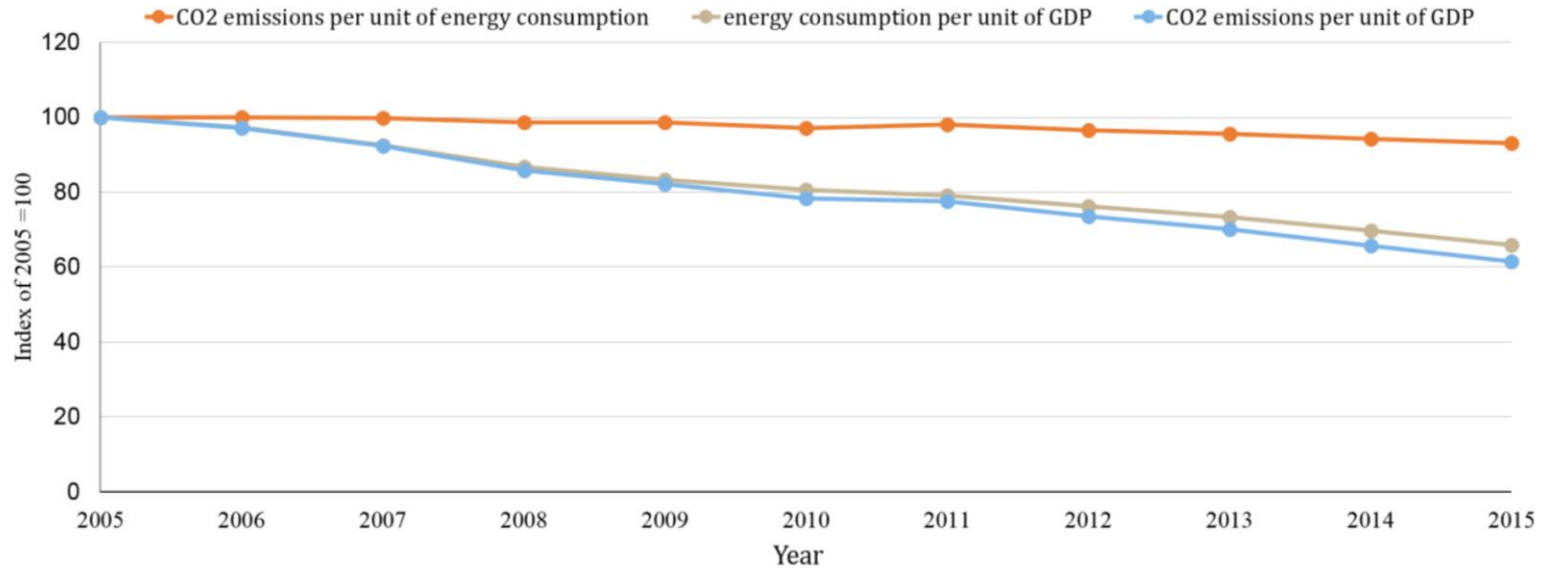


Figure 3-1 Changes in Major Indicators for Low-Carbon Energy and Economic Transition

### ③ Targets and Tasks for GHG Emission Control in the 13<sup>th</sup> FYP Period

*The Outline of the 13th Five-Year Plan for National Economic and Social Development:*

- ❑ To lower the CO<sub>2</sub> emission per unit of GDP by 18% against the 2015 level by 2020.
- ❑ The CO<sub>2</sub> emission per unit of industrial added value will drop 22% by 2020.
- ❑ Strive to increase the forestry carbon sink and reduce the forestry emissions so that by 2020 the forest area will increase by 40 million hectares from the 2005 level, forest coverage to 23% or above.
- ❑ Carry out low-carbon pilots of various types in depth and implement demonstration projects for near-zero carbon emission zones.
- ❑ Spread the use of low-carbon technologies and products, update the carbon emission standard system
- ❑ Push for the establishment of a unified national carbon emission trading market.
- ❑ Non-CO<sub>2</sub> GHG emissions will be effectively controlled



# Energy Conservation and Efficiency Improvement

**Table 3-1 Changes in Energy Consumption per Unit of GDP and Total Energy Saved 2011-2015**

| Year | Total Energy Consumption (Mtce) | Energy Consumption per Unit of GDP (tce/RMB 10 thousand yuan) | Energy Consumption Per Unit of GDP Reduction Rate (%) | Annual Amount of Energy Saved (Mtce) |
|------|---------------------------------|---|---|--------------------------------------|
| 2010 | 3606.48                         | 0.87  | --  | --                                   |
| 2011 | 3870.43                         | 0.86  | -2.03   | 80.08                                |
| 2012 | 4021.38                         | 0.82  | -3.67   | 153.14                               |
| 2013 | 4169.13                         | 0.79  | -3.79   | 164.25                               |
| 2014 | 4258.06                         | 0.75  | -4.81   | 215.20                               |
| 2015 | 4300.00                         | 0.71  | -5.55   | 252.53                               |

Note: Annual Amount of Energy Saved = (Energy Consumption per Unit of GDP for Previous Year- Energy Consumption per Unit of GDP for Current Year) × GDP of Current Year.

Total Energy Consumption and Energy Consumption per Unit of GDP figures are quoted from the *China Statistical Yearbook 2016*; all others are obtained from calculation.

GDP at 2010 Constant Prices.

## ① Strengthening Performance Assessment of Energy Conservation Targets

**Table 3-2 Accountability Assessment Results and Total Energy-Saving Statistics of Top 10,000 Initiative 2012-2014<sup>1</sup>**

| Year | Number of Enterprises Assessed | Percentage of Outperformed Targets (%) | Percentage of Duly Fulfilled Targets (%) | Percentage of Almost Fulfilled Targets (%) | Percentage of Unfulfilled Targets (%) | Total Energy Saved (Mtce) |
|------|--------------------------------|--|--|--|---------------------------------------|---------------------------|
| 2012 | 14,542                         | 25.90                                  | 50.40                                    | 14.30                                      | 9.50                                  | 170                       |
| 2013 | 14,119                         | 28.15                                  | 50.41                                    | 13.00                                      | 8.44                                  | 249                       |
| 2014 | 13,328                         | 30.96                                  | 51.13                                    | 10.80                                      | 7.11                                  | 309                       |

Note: Total Energy Saved = Sum of Annual Amount of Energy Saved.

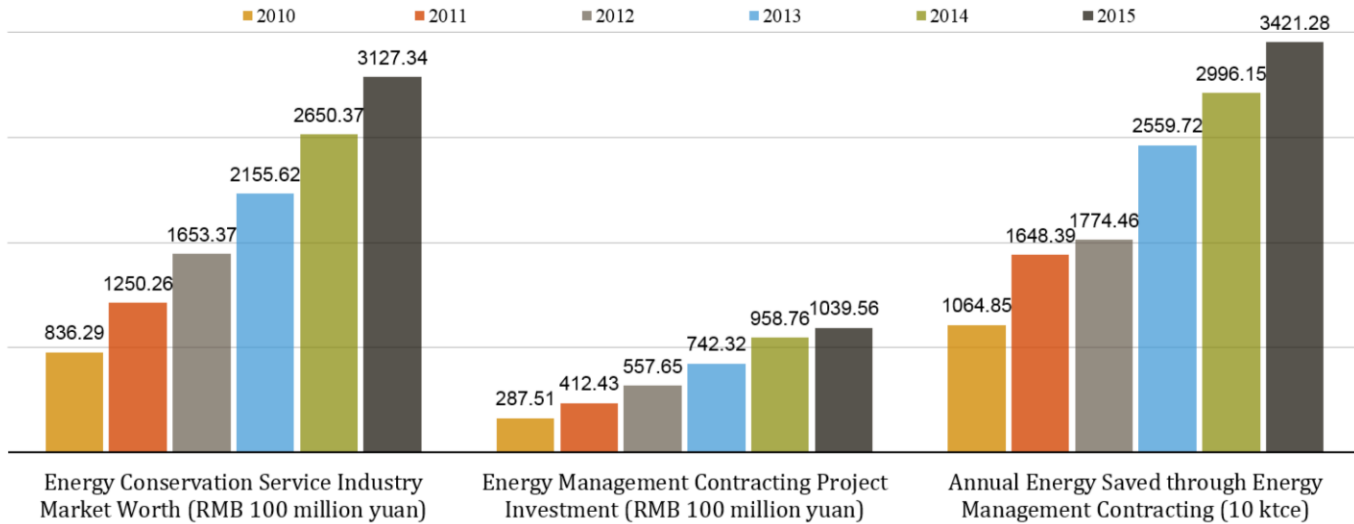
## ② Adjusting and Optimizing the Industrial Structure

**Table 3-3 Fulfillment of the 2011-2014 Targets for Phasing Out Backward Production Capacity**

| Sectors (Unit)                               | 2011-15 Targets | 2011 Fulfillment | 2012 Fulfillment | 2013 Fulfillment | 2014 Fulfillment | 2011-2014 Fulfillment |
|--|-----------------|------------------|------------------|------------------|------------------|-----------------------|
| Iron Production (Mt)                         | 48              | 31.92            | 10.78            | 6.18             | 28.23            | 77.11                 |
| Steel Production(Mt)                         | 48              | 28.46            | 9.37             | 8.84             | 31.13            | 77.8                  |
| Coke (Mt)                                    | 42              | 20.06            | 24.93            | 24               | 18.53            | 87.52                 |
| Carbide (Mt)                                 | 3.8             | 1.52             | 1.32             | 1.18             | 1.94             | 5.96                  |
| Ferroalloy (Mt)                              | 7.4             | 2.13             | 3.26             | 2.1              | 2.62             | 10.11                 |
| Electrolytic Aluminum (Mt)                   | 0.9             | 0.64             | 0.27             | 0.27             | 0.51             | 1.69                  |
| Copper Production (Mt)                       | 0.8             | 0.42             | 0.76             | 0.86             | 0.76             | 2.8                   |
| Lead Production (Mt)                         | 1.3             | 0.66             | 1.34             | 0.96             | 0.36             | 3.32                  |
| Zinc Production (Mt)                         | 0.65            | 0.34             | 0.33             | 0.19             | /                | 0.86                  |
| Cement (Mt)                                  | 370             | 154.97           | 258.29           | 105.78           | 87.73            | 606.77                |
| Flat Glass (million weight)                  | 90              | 30.41            | 58.56            | 28               | 37.6             | 154.57                |
| Paper Production (Mt)                        | 15              | 8.31             | 10.57            | 8.31             | 5.47             | 32.66                 |
| Alcohol (Mt)                                 | 1               | 0.49             | 0.73             | 0.34             | /                | 1.56                  |
| Monosodium Glutamate                         | 0.18            | 0.08             | 0.14             | 0.29             | /                | 0.51                  |
| Citrus Acid (Mt)                             | 0.05            | 0.04             | 0.07             | 0.07             | /                | 0.18                  |
| Leather Production (million standard pieces) | 11.00           | 4.88             | 11.85            | 9.16             | 6.22             | 32.11                 |
| Dyeing (billion meters)                      | 5.58            | 1.9              | 3.3              | 3.2              | 2.1              | 10.5                  |
| Chemical Fiber (Mt)                          | 0.59            | 0.37             | 0.26             | 0.55             | 0.11             | 1.29                  |
| Lead Rechargeable Battery (GVA)              | 7.46            | /                | 29.71            | 28.4             | 30.2             | 88.31                 |
| Power Generation (GW)                        | /               | 7.84             | 5.51             | 5.44             | 4.86             | 23.65                 |
| Coal (Mt)                                    | /               | 48.7             | 43.55            | 145.78           | 235.28           | 473.31                |

Data Source: MIIT Notice Regarding Targets for Phasing Out Backward Production Capacity of Key Industrial Sectors in the 12<sup>th</sup> FYP Period; MIIT information bulletin on the fulfillment of the backward production capacity out-phasing targets for 2011, 2012, 2013 and 2014.

### ③ Implementing Key Energy-Conservation Projects



**Figure 3-2 Development of Energy Conservation Service Industry and Energy Management Contracting in China 2010-2015<sup>1</sup>**

**④ Improving Economic Incentive Policies for Energy Conservation**

**❑ Pricing Policies.**

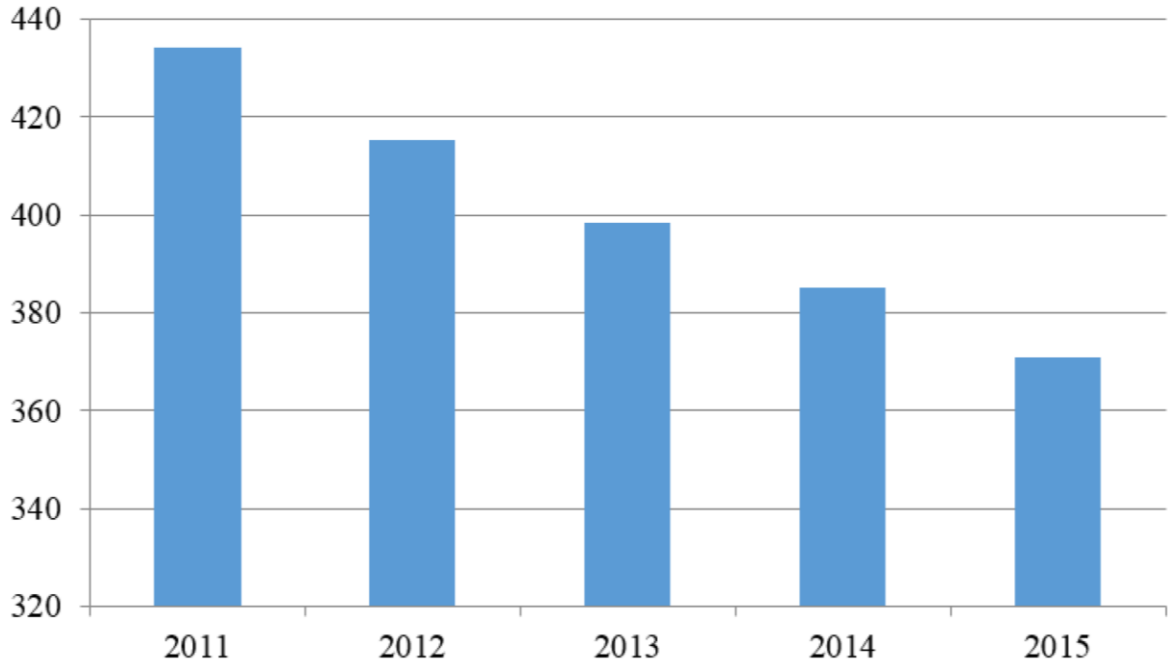
**❑ Tax and Credit Policies.**

**⑤ Improving Energy Efficiency Standards and Labeling**

**⑥ Promoting Energy Conservation Technologies and Products**

**⑦ Enhancing Energy Efficiency of Buildings**

**⑧ Promoting Transport Energy Conservation**



**Figure 3-3 Changes of Overall Energy Consumption Per Capita in National Public Institution 2011-2015 (kg tce per capita)**

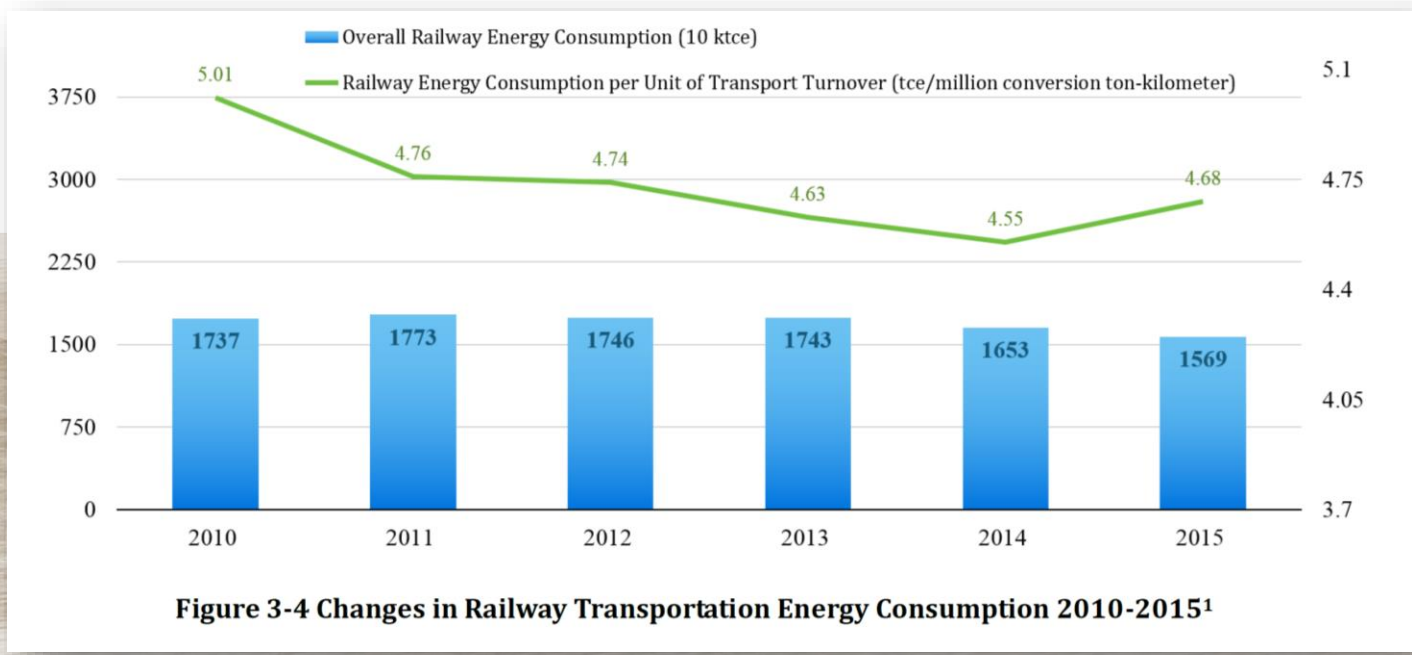


Figure 3-4 Changes in Railway Transportation Energy Consumption 2010-2015<sup>1</sup>



# Optimizing Energy Mix



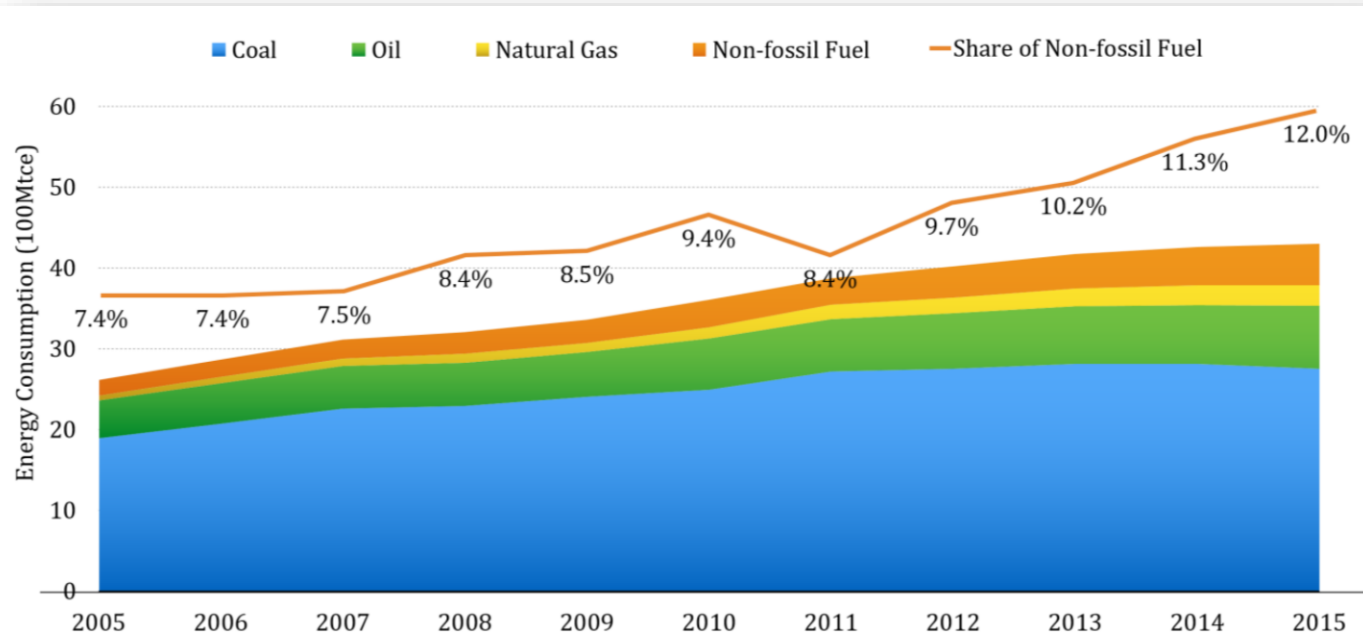


Figure 3-5 China's Energy Consumption Mix

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- ① **Strict Control of Total Coal Consumption**
  - ② **Sped-up Development of Clean Energy including Natural Gas**
  - ③ **Promoting Non-Fossil Fuels Development**

Table 3-5 Non-Fossil Fuels Installed Capacity and Power Generation<sup>1</sup>

|                                     | Unit | 2005   | 2010   | 2014    | 2015    |
|-------------------------------------|------|--------|--------|---------|---------|
| <b>1. Installed Capacity (IC)</b>   |      |        |        |         |         |
| Hydropower (incl. Pumped Storage)   | GW   | 117.39 | 216.06 | 304.86  | 319.54  |
| Wind Power (on-grid)                | GW   | 1.27   | 31.31  | 96.57   | 130.75  |
| Solar Power (on-grid)               | MW   | 70     | 860    | 24860   | 42180   |
| Biomass Power (on-grid)             | GW   | 2      | 5.5    | 9.81    | 10.3    |
| Geothermal & Ocean Current Power    | MW   | 25     | 28     | 30      | 30      |
| <b>Renewable Energy TOTAL</b>       | GW   | 120.76 | 253.76 | 436.13  | 502.80  |
| Nuclear Power                       | GW   | 6.85   | 10.82  | 20.08   | 27.17   |
| <b>Non-Fossil Fuels TOTAL</b>       | GW   | 127.61 | 264.58 | 456.21  | 529.97  |
| <b>2. Power Generation (PG)</b>     |      |        |        |         |         |
| Hydropower (incl. Pumped Storage)   | TWh  | 396.4  | 686.7  | 1060.1  | 1112.7  |
| Wind Power (on-grid)                | TWh  | 1.6    | 49     | 159.8   | 185.6   |
| Solar Power (on-grid)               | GWh  | 0      | 500    | 23500   | 39500   |
| Biomass Power (on-grid)             | TWh  | 5.2    | 24.8   | 46.1    | 52.0    |
| Geothermal & Ocean Current Power    | GWh  | 100    | 150    | 150     | 150     |
| <b>Renewable Energy TOTAL</b>       | TWh  | 403.3  | 761.15 | 1289.65 | 1389.95 |
| Nuclear Power                       | TWh  | 53.1   | 74.7   | 133.2   | 171.4   |
| <b>Non-Fossil Fuels TOTAL</b>       | TWh  | 456.4  | 835.85 | 1422.85 | 1561.35 |
| <b>3. Share of Non-Fossil Fuels</b> |      |        |        |         |         |
| National Total Installed Capacity   | GW   | 517.18 | 966.41 | 1370.18 | 1525.27 |
| National Total Power Generation     | TWh  | 2497.5 | 4227.8 | 5680.1  | 5739.9  |
| Non-Fossil Fuel Contribution/IC     | %    | 24.7   | 27.4   | 33.2    | 34.7    |
| Non-Fossil Fuel Contribution/PG     | %    | 18.3   | 19.8   | 25.0    | 27.2    |

# Control of GHG Emissions from Non-Energy Activities

- ① Control of GHG Emissions from Industrial Processes
- ② Control of GHG Emissions from Agriculture
- ③ Control of GHG Emissions from Waste Sector

# Increasing Carbon Sinks



- ① **Acceleration of Afforestation and Greening**
- ② **Implementation of Forest Tending and Management**
- ③ **Enhancement of Forest Disaster Control**
- ④ **Development of Marine Blue Carbon Sinks**



# Piloting and Demonstration of Low-Carbon Development



- ① **Launching Pilots of Low-Carbon Provinces and Cities**
- ② **Advancing Local Carbon Emission Trading Pilots**
- ③ **Launching Low-Carbon Industrial Parks and Community Pilots**
- ④ **Advancing Other Low-Carbon Piloting and Demonstration Projects**



# International Market Mechanism (CDM)

# Part IV

## Finance, Technology and Capacity-Building Needs and Support Received

## **Finance Needed and Support Received for Addressing Climate Change**

- **Domestic Financial Input**
- **International Financial Support Received**
- **Financial Needs in Future**

## **Technology Needs for Addressing Climate Change**

- **Domestic Policies and Actions**
- **International Cooperation and Progress**
- **List of Technologies Needed**

## **Capacity Building Needs for Addressing Climate Change**

- **Domestic Policies and Actions**
- **International Cooperation and Progress**
- **List of Capacity Building Needs**

# Part V

## Information on Domestic MRV

# Overview

**Table 5-1 List of China's Climate Change-Related MRV Policy Documents**

| Issued in | Issued by              | Document Name  |
|-----------|------------------------|--|
| Mar. 2011 | General Office of NDRC | <i>Notice on Releasing the Guidelines for Preparation of Provincial GHG Inventory (Trial)</i>  |
| Jun. 2012 | NDRC                   | <i>Interim Measures for Managing Voluntary GHG Emission Reduction Trading</i>  |
| May 2013  | NDRC; NBS              | <i>Opinions on Strengthening Climate Change Statistics</i>   |
| Oct. 2013 | General Office of NDRC | <i>Notice on Issuing GHG Emission Accounting Methods and Reporting Guidelines for Enterprises of the First Ten Industries Involved (Trial)</i>   |
| Nov. 2013 | NBS; NDRC              | <i>Notice on Launching Climate Change Statistical Operations</i>   |
| Jan. 2014 | NBS                    | <i>Work Scheme for Statistical Operations Related to Addressing Climate Change</i>   |
| Jan. 2014 | NDRC                   | <i>Notice on the Preparation of GHG Emission Reports of Key Enterprises (Institutions)</i>   |
| Aug. 2014 | NDRC                   | <i>Measures of Accountability Assessment with Regard to Fulfillment of the CO<sub>2</sub> Emission per Unit of GDP Control Targets</i>           |
| Dec. 2014 | General Office of NDRC | <i>Notice on Issuing GHG Emission Accounting Methods and Reporting Guidelines for Enterprises of the Second Four Industries Involved (Trial)</i> |
| Jan. 2015 | General Office of NDRC | <i>Notice on Launching Provincial GHG Inventory Preparation for the Next Stage</i>   |
| Jul. 2015 | General Office of NDRC | <i>Notice on Issuing GHG Emission Accounting Methods and Reporting Guidelines for Enterprises of the Third Ten Industries Involved (Trial)</i>   |

**Table 5-2 A Snapshot of China's Climate Change-Related MRV System**

|                             | <b>National</b>   | <b>Local</b>   | <b>Enterprise</b>   |
|-----------------------------|---|--|---|
| Basic Statistics            | GHG emission statistical system and sector-specific parameter survey system   | GHG emission basic statistical system  | Energy consumption and GHG emission accounting system   |
|                             | Climate change statistical indicator system and sectoral statistical reporting system   | Climate change statistical indicator system and statistical reporting system   | GHG emission monitoring plan  |
|                             | Working mechanism such as establishing the leading group on climate change statistics   | Working mechanism with regard to job specification, accountability, etc.   |   |
| Reporting and Verification  | Preparation and reporting of the GHG inventories on regular basis; and CO <sub>2</sub> emission accounting on yearly basis.                         | Preparation and reporting of the GHG inventories on regular basis  | GHG emission reporting on yearly basis for key enterprises  |
|                             | Data management system for GHG Inventories  | Guidelines on the preparation of the GHG Inventories   | Guidelines on GHG emission accounting and reporting for key enterprises   |
|                             | Direct reporting platform for key enterprises   | On-line reporting system for key enterprises   |   |
| Assessment and Verification | Assessment on fulfillment of the yearly and overall carbon intensity reduction targets  | Provincial GHG Inventory Data Quality Assessment and Review system   | GHG emission verification for key enterprises; verification on and certification of voluntary GHG emission reductions |
|                             | Measures of accountability assessment with regard to the fulfillment of the CO <sub>2</sub> emission per unit of GDP reduction targets              | The measure of accountability assessment with regard to the prefectural governments' fulfillment of the carbon intensity reduction targets |   |
|                             | Indicator system for the accountability assessment with regard to the fulfillment of the CO <sub>2</sub> emission per unit of GDP reduction targets |  |   |



# Statistical Indicators and Basic Statistical System

- **Basic Statistical System for GHG Emission**
- **Statistical Indicator System for Addressing Climate Change**
- **Statistical Mechanism for Addressing Climate Change**

# GHG Emission Accounting and Reporting System

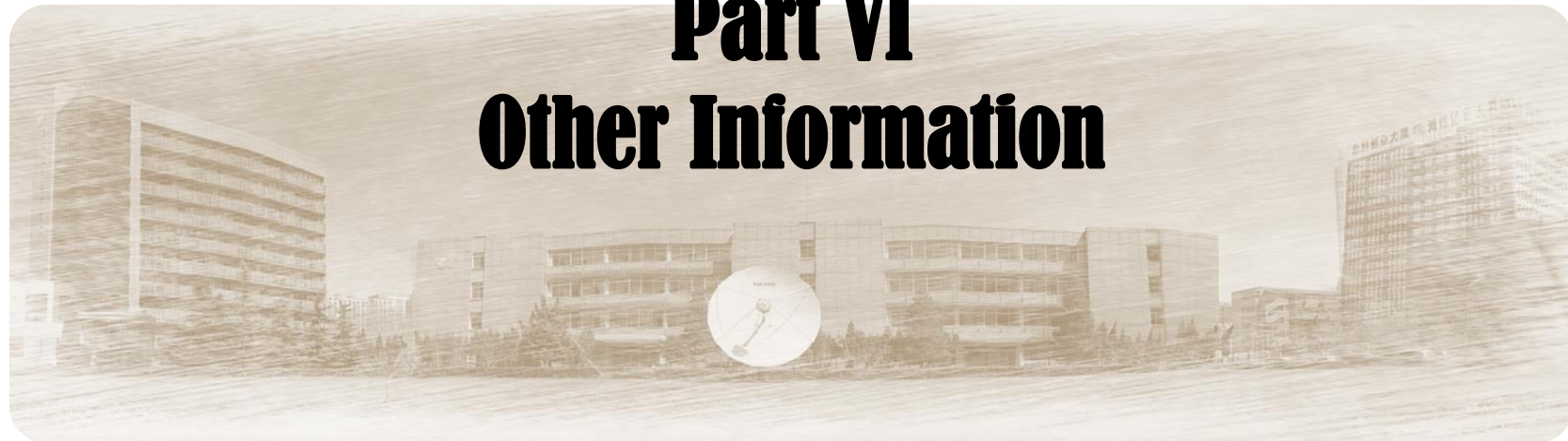
- **Preparation of the National GHG Inventory and CO2 Emission Accounting System**
- **Local GHG Inventory Guidelines and Preparation**
- **GHG Emission Accounting and Reporting of Enterprises in Key Industries**

# GHG Emission Control Target-Based Performance and Assessment

- **Assessment of Provincial Government's Carbon Intensity Target-Based Accountability**
- **Assessment and Joint Review of Provincial GHG Inventory Quality**
- **GHG Emission Verification for Key Enterprises and Certification for Voluntary Emission Reduction Projects**

# Part VI

## Other Information



- **Climate System Observation**
- **Advances in Climate Change Research**
- **Climate Change Adaptation**
- **Education, Outreach and Public Awareness**
- **International Exchanges and Cooperation**
- **South-South Cooperation**



Figure 6-2 Brochures on IPCC AR5



Figure 6-3 Earth Hour Campaign (Left: Bird's Nest; Right: Shanghai Oriental Pearl TV Tower)

# **Part VII**

## **Basic Information of Hong Kong SAR on Addressing Climate Change**



# **Part VIII**

## **Basic Information of Macao SAR on Addressing Climate Change**

# Thanks for attentation