

Energy Conservation Practices in China

Shaoshan (Kevin) Xu

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Energy Conservation Practices in China

- * Mr. Cai Zhihua introduced China's energy conservation policies and the system structure yesterday, and now I want to share China's specific practices in the past 30 years, especially in the latest 5 years, on several **POINT**s with you.

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Ten Key Energy-Conservation Projects

- * In 2006, *Notice of Printing and Circulation of Implementation Opinions about Ten Key Energy-Conservation Projects* was jointly issued by ten ministries.

Document issued by:

National Development and Reform Commission (NDRC)

Ministry of Science and Technology

Ministry of Finance

Ministry of Construction

General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ)

State Environmental Protection Administration (SEPA)

Government Offices Administration of the State Council

Government Offices Administration Directly under the CPC Central Committee

Ten Key Energy-Conservation Projects

- * The goal is to improve energy efficiency and promote energy conservation through technologies.
- * Enterprises shall be taken as the main body for implementation, the structure shall be vigorously adjusted and optimized, the progress of energy conservation technology shall be quickened and propelled, the strict management system and effective incentive mechanism shall be established, the guiding strength of the government funds shall be increased, the basic function of the market for allocating resources shall be fully exerted, and the consciousness of the market bodies for energy resources conservation shall be mobilized, to form the stable and reliable energy conservation capability as soon as possible.
- * Targets: It is expected that an energy-conservation capacity of 240 million tce will be created after ten key energy-conservation projects are implemented from 2006 to 2010.

Ten Key Energy-Conservation Projects

▶ **Coal-Fired Industrial Boiler (Kiln) Reconstruction Project**

▶ **Regional Combined Heat and Power Project**

▶ **Residual Heat and Pressure Utilization Project**

▶ **Petroleum Conservation and Substitution Project**

▶ **Motor System Energy Conservation Project**

▶ **Energy System Optimization Project**

▶ **Building Energy Conservation Project**

▶ **Green Lighting Project**

▶ **Government Institution Energy Conservation Project**

▶ **Energy Conservation Monitoring and Technical Service System Construction Project**

Ten Key Energy-Conservation Projects

- * Each project is comprised of four parts:
- * (1) Status quo and problems
- * (2) Main contents
- * (3) Supporting measures
- * (4) Organization and implementation
 - * ☐ Organizational units
 - * ☐ Implementation bodies
 - * ☐ Participating units

Ten Key Energy-Conservation Projects (Example)

Motor System Energy Conservation Project(sample)

- (I) Status quo and problems: the efficiency of motors and the driven equipments is low, and the equipments, such as motors, wind generators and pumps, are obsolete and out-of-date...; the system matching is irrational...; and the system adjustment method is out-of-date...
- (II) Main contents
1. Renewal and elimination of low-efficient motors and high energy-consuming devices: to promote efficient energy-saving motors, rare-earth permanent magnet motors, efficient wind generators, pumps and compressors, and efficient transmission systems...
 2. Improvement of the motor system efficiency: to promote the advanced technologies for motor speed control, such as frequency-conversion speed regulation, permanent-magnetism speed regulation, etc...
 3. Control of the driven equipments and device reconstruction: to reconstruct the traditional mechanical transmission mode through the advanced transmission mode of power and electronic technologies...
 4. Optimization of operation and control of motor systems...
 5. Key reconstruction fields: electric power: to reconstruct wind generator and pump systems through frequency-conversion and permanent-magnetism speed regulation and computer control, especially the thermoelectric generating unit of more than 0.2 million kW; metallurgy:...

Ten Key Energy-Conservation Projects (Example)

Motor System Energy Conservation Project

(III) Supporting measures

- 1. The motor system reconstruction mainly focuses on the self-reconstruction of the enterprises, supplemented with the methods such as government guiding, equipment leasing, energy management contract, etc...**
- 2. To development and issue the related standards and policies...**
- 3. To improve the design of the motor system, and organize to compile and implement the design specifications and standards for motor system optimization configuration.**
- 4. To perform training to the related personnel.**

(IV) Organization and implementation

- * Organizational units / Implementation bodies / Participating units**

Launch Energy-conserving campaign among 1000 Enterprises

- * In April, 2006, *Notice of Printing and Circulation of launching energy-conserving campaign among 1000 Enterprises* was jointly issued by ministries.

Documents issued by:

National Development and Reform Commission (NDRC)

Office of the National Energy Leading Group

National Bureau of Statistics of China

General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ)

State-owned Assets Supervision and Administration Commission of the State Council

Launch Energy-conserving campaign among 1000 Enterprises

- * Objectives: to strengthen the energy conservation management of the key energy-consuming enterprises, promote rational energy utilization, and improve energy utilization efficiency.
- * Objects: the Top-1000 Enterprises mean up-scale enterprises with independent accounting in nine key energy-consuming industries, including iron and steel, nonferrous metal, coal, electric power, petroleum and petroleum chemistry, chemical engineering, building materials, textile and paper-making, the integrated energy consumption of which for each reached 0.18 million tons of coal equivalent(tce) or more in 2004, and 1008 enterprises are determined in all.
- * Targets: to realize energy conservation of about 100 million tons of coal equivalent(tce).

Government Procurement of Energy-Saving Products

- * The implementation of energy-saving product certification system was established in *Energy Conservation Law of the People's Republic of China*, issued on January 1, 1998; and *Regulations on Energy-Saving Product Certification of the People's Republic of China* was also issued in October of the same year.
- * *Implementation Opinions on Government Procurement of Energy-Saving Products* was jointly issued by the Ministry of Finance and National Development and Reform Commission on December 17, 2004.
- * *Circular on Establishing the Compulsory Government Procurement System for Energy-Saving Products* was issued by the Office of the State Council on July 30, 2007.

Government Procurement of Energy-Saving Products

- * *Government Procurement List on Energy-Saving Products* has been renewed for seven times till now.
- * The first batch was issued on December 17, 2004, covering 1526 models of products from 86 enterprises, 8 categories involved, including air-conditioning, refrigerator, fluorescent lamp (double-ended fluorescent lamp for general lighting, and self-ballasted fluorescent lamp for general lighting), television set, computer, printer, toilet bowl and faucet.
- * The sixth batch of *Government Procurement List on Energy-Saving Products* was issued on July 31, 2009, 34 categories involved, including 18654 models from 543 enterprises; wherein 9 categories are compulsory procurement products.
- * According to the statistics, the expenditure on energy-saving products for government procurement in 2008 occupied more than 70% of the total amount of for the similar products.

The Project of encouraging people to buy and use Energy-Saving Products

- * The Project of encouraging people to buy and use Energy-Saving Products is jointly organized and implemented by the Ministry of Finance and National Development and Reform Commission which was launched on May 18, 2009, adopting financial subsidy to quicken the promotion of efficient energy-saving products;
- * The efficient energy-saving products with wide range and large amount, high energy consumption and significant energy conservation potential are subsumed into the promotion coverage supported by financial subsidy in China;
- * 10 kinds of products shall be promoted, including air-conditioner, refrigerator, washing machine, flat-panel TV, microwave oven, rice cooker, electromagnetism stove, water heater, computer monitor and motor.

The Project of encouraging people to buy and use Energy-Saving Products

- * Promote domestic demand: the consumption demand of RMB 400 to 500 billion will be promoted each year;
- * Promote energy conservation and emission reduction: it is estimated that electric power of 75 billion kWh can be saved, equivalent to the power of 15 million-kilowatt level coal-fired power plants, with the emission of carbon dioxide reduced by 75 million tons.

Efficient Lighting Project

- * Efficient Lighting Project was implemented since 1996 in China.
- * Efficient Lighting Project was one of the ten major energy conservation projects organized and implemented by the government during the “11th Five-Year Plan”, which focuses on the promotion of efficient energy-saving lighting system and rare-earth tri-chromatic fluorescent lamps in public facilities, hotels, commercial buildings, office buildings, stadiums and gymnasiums and residential buildings, and the automatic reform to the production lines of efficient lighting electrical products. As planned, during the “11th Five-Year Plan”, 150 million efficient lighting products were promoted through state financial subsidy, and electric power of 29 billion kWh were saved.

Efficient Lighting Project

- * Electric power of 59 billion kWh was saved in all during the Efficient Lighting Project from 1996 to 2005;
- * Financial subsidy of RMB 280 million was allocated from 2008 to the end of the January of 2009, with 62 million energy-saving lamps promoted, electric power of 3.2 billion kWh saved each year and the emission of carbon dioxide and sulfur dioxide reduced by 3.2 million tons and 32,000 tons respectively;
- * Energy-saving lamps of 100 million to 120 million are planned to promote in 2009;
- * The cooperative project of Phasing out Incandescent Lamps and Speeding up the Promotion of Energy-Saving Lamps jointly designed by NDRC, UNDP and GEF, with the implementation period from 2009 to 2012. The overall effect of the project is to realize the power conservation of 160 billion to 216 billion kWh, and carbon dioxide emission reduction of 175 million to 237 million tons in 10 years after the project is ended.

EEL, Energy-Saving Product Certification and International Mutual Recognition

- * *Measures for the Administration of Energy Efficiency Labels* was issued by National Development and Reform Commission, General Administration of Quality Supervision, Inspection and Quarantine and National Certification and Accreditation Administration of PRC in August 2004.
- * Adopted mode: “Enterprise’s self-statement + Filing + Social supervision”
- * Energy efficiency is categorized into 1 to 5 grades.
- * Five batches, a total 20 kinds of products have been issued till now.
- * Filing has been implemented to about 1,300 enterprises and 60,000 models.



EEL, Energy-Saving Product Certification and International Mutual Recognition

Automatic rice cooker	AC electric fan
Volume air compressor	AC contactor
Computer monitor	Photocopy
Electric storing water heater	Photocopier
Multi-connected air-conditioner	Household electromagnetism stove
Variable-speed room air-conditioner	Household gas instantaneous water heater and gas heating and water heater
Water chilling unit	Small and medium-sized three-phase asynchronous motor
High pressure sodium lamp	Self-ballasted fluorescent lamps
Self-conditioned air-conditioner	Electric washing machine
Room air-conditioner	Household refrigerator

EEL, Energy-saving Product Certification and International Mutual Recognition

- * Energy-saving product certification was performed since 1998.
- * China Quality Certification Center is now responsible for the implementation.
- * Certification mode: Product inspection + Factory inspection + Supervision after certification
- * Energy-saving product certification: products of more than 50 kinds in household appliance, office, machinery, lighting, electric power, new energy and building energy conservation.



EEL, Energy-Saving Product Certification and International Mutual Recognition

China's Energy-Saving Product Certification Mark



- * The “Great Wall” stands for China;
- * The distorted Chinese character “saving”(节) represents resources saving;
- * The c-shaped outline stands for China;
- * The e-shaped outline stands for efficient;
- * The color of sky blue means blue sky, environment protection and bright future.

enhancing public awareness on and fostering a social atmosphere of Energy Conservation

- * National Energy Conservation Promotion Week: the promotion week was determined in the 6th energy conservation working meeting of the State Council in 1990, and was held in November each year since 1991 while later was held in June instead since 2004.
- * *Public Action Plan on Energy Conservation and Emission Reduction* was issued on August 28, 2007.

Public Action Plan on Energy Conservation and Emission Reduction

- * Themes of Energy Conservation Promotion Week over the years
- * “Promote the Use of Energy-Saving Products and Expand the Consumption Demand” in 2009
- * “Save Energy according to Laws, and Perform Public Action” in 2008
- * “Energy Conservation and Emission Reduction, Scientific Development” in 2007
- * “Energy Conservation Starts From Me” in 2006
- * “Mobilize People to Build up Energy-Saving Society” in 2005
- * “Save Electricity to Ease Bottleneck Restriction” in 2004
- * “Energy Conservation and Building a Well-off Society in an All-round Way” in 2003
- * “Save Energy according to Laws and Maintain Sustainable Development” in 2002
- * “Energy Conservation, Sustainable Development” in 2001
- * “Save Energy according to Laws, Perform Saving and Improve Efficiency” in 2000
- * “Save Energy according to Laws, Perform Saving and Improve Efficiency” in 1999
- * “Use Energy according to Laws, Improve Energy Efficiency” in 1998
- * “Use Energy according to Laws, Improve Energy Efficiency” in 1997
- * “Comprehensively Utilize Resources, Promote Transformation of Economic Growth Mode and Sustainable Development” in 1996
- * “Save Energy Resources and Protect the Environment to Benefit Future Generations” the inscription of Jiang Zemin, the State President, in 1991.

Public Action Plan on Energy Conservation and Emission Reduction

* **I. Family and Community**

- * 1. Remold lifestyles and consumption patterns in their families.
- * 2. Build community platform for energy conservation and emission reduction
- * 3. “Simple Life” publicity activity
- * 4. Create the website of “Family and Community Action of Energy Conservation and Emission Reduction”
- * 5. Elect 1000 “Energy Conservation and Environment Protection Family”
- * 6. Establish 500 Sample Communities for “Energy Conservation and Emission Reduction Family Action”

* **II. Young people**

- * 1. Strengthen the education about energy conservation and emission reduction
- * 2. Improve the capacity of energy conservation and emission reduction
- * 3. Strengthen the practices for energy conservation and emission reduction
- * 4. Cultivate the energy conservation and emission reduction culture
- * 5. Develop the volunteers activities for energy conservation and emission reduction
- * 6. Organize and develop the selection and awarding activities regarding energy conservation and emission reduction among youth.

Public Action Plan on Energy Conservation and Emission Reduction

* **III. Enterprises**

- * 1. Enterprise promotion and education activities for energy conservation and emission reduction
- * 2. The activity of “Contribute to Energy Conservation”
- * 3. The action of “Energy Conservation Volunteer Supervisor”
- * 4. Mobilize employees to participate in the enterprise’s energy conservation and emission reduction management
- * 5. The activity of “100 Experts Make a Round Visit to 1000 Enterprises”
- * 6. Develop energy efficiency benchmarking activity
- * 7. Energy conservation and emission reduction example action of central enterprises
- * 8. Select and set up models for energy conservation and emission reduction
- *

* **IV. Schools**

- * 1. Strengthen the basic education of energy conservation and emission reduction
- * 2. Develop theme education activities in schools actively with energy conservation and emission reduction as the content
- * 3. Develop social practices of energy conservation and emission reduction and technological innovation activities
- * 4. Build school culture of energy conservation and emission reduction
- * 5. Popularize the recycling of textbooks

Public Action Plan on Energy Conservation and Emission Reduction

* **V. Barback**

- * 1. Deeply perform the publicity and education
- * 2. Speed up the construction and improvement of conservation-oriented supply support and consumption mode
- * 3. Establish long-term effective management mechanism
- * 4. Better perform conservation work in all fields
- * 5. Promote and apply new energy-saving technology and products actively
- * 6. Organize, develop and establish conservation-oriented models in barback

* **VI. Government agencies and service men**

- * 1. Play the leading role of the government agencies in energy conservation
- * 2. Activity of self-examining and improving the efficiency
- * 3. Initiate the activity of “Signing Agreement by 100 Provincial and Department Leaders ”
- * 4. Take the activity of “Conservation-Oriented Government Agencies”
- * 5. Develop energy shortage experience activities
- * 6. Develop resources recycling activities

Public Action Plan on Energy Conservation and Emission Reduction

- * **VII. scientific and technological circles**

- * 1. Publish quantitative indicator system for the civic energy conservation and emission reduction
- * 2. Organize science and technology publicity activities
- * 3. Promote science and technology education
- * 4. Develop applicable technology for energy conservation and emission reduction
- * 5. Speed up integration, promotion and application of energy conservation and emission reduction achievements
- * 6. Foster technical service system
- * 7. Integrate science and technology demonstration
- * 8. Comprehensive effect evaluation and social supervision

- * **VIII. popular science circles**

- * 1. Hold exhibition tour for science popularization
- * 2. Compile series of promotion material for science popularization
- * 3. Organize science popularization activities for the masses
- * 4. Develop science popularization publicity extensively
- * 5. Science popularization activities of “Saving Olympics”

Public Action Plan on Energy Conservation and Emission Reduction

* **IX. Mass media**

- * 1. Highlight the daily promotion of energy conservation and emission reduction
- * 2. Carry out the large-scale theme publicity activities of “Energy Conservation and Emission Reduction for the Public”
- * 3. Develop selection activities on good news concerning energy conservation and emission reduction
- * 4. Carry out a series of publicity and report activities suitable for different media
- * 5. Promote the publicity activities for energy conservation and emission reduction solidly

Thanks for listening !

Shao-shan (Kevin) Xu Director

Operating and Development Dept.
China Quality Certification Centre (CQC)

TEL: 0086 10 83886686

FAX: 0086 10 83886392

@: xushaoshan@cqc.com.cn