CHINA

INTRODUCTION

For the 30 years from 1979 to 2009, the average annual growth rate of primary energy consumption in China was 5.6%, and the average annual growth rate of Gross Domestic Product (GDP) was 9.9%. The goal of quadrupling GDP was achieved basically with the support of a doubling of energy consumption.

China's government has paid unprecedented attention to energy conservation efforts. According to the economy's basic policy, the resource-saving target was set so that during the period of the 11th Five-year Plan the unit GDP energy consumption would be reduced by about 20%. In order to accomplish the goal of energy conservation, China's government established a series of policy, legal and economic measures. Progress has been made towards achieving the 20% energy intensity reduction target, having achieved reductions of 2.74% in 2006, 5.04% in 2007, 5.20% in 2008 and 3.61% in 2009(revised according to the 2nd national economic survey), for a total reduction of more than 15% so far.

1. GOALS FOR EFFICIENCY IMPROVEMENT

1.1. Overall Energy Efficiency Improvement Goals

China has a long history of pursuing energy efficiency and conservation. Having recognised the threat to energy security, sustainable economic growth, and the environment that is posed by rapid energy demand growth, China has made energy efficiency and conservation its highest priority energy strategy. Since issuing the Medium- and Long-term Plan for Energy Conservation in 2004, several important high-level actions have been taken to put China on a path towards less energy-intensive development. More recently, in the 11th Five-year Plan (2006–10), a 20% reduction in energy consumption per unit of GDP by 2010 from the 2005 level was set as an obligatory target.

1.2. Sectoral Energy Efficiency Improvement Goals

The most important feature of China's strategy to improve energy intensity is the creation of a chain of responsibility that reaches all the way from the economy-wide target down to the shares of the target that must be achieved at the local level. All provinces (along with municipalities and autonomous regions) have specified overall goals. The provincial goals of reduction in local energy consumption per unit of GDP by 2010 from the 2005 level are as follows:

Table 1: Provincial energy efficiency improvement goals in China from 2005 to 2010

Province/City	**Anhui**	**Beijing**	**Chongqin**	**Fujian**	**Gansu**	**Guangdong**	**Guanxi**
Goal	20%	20%	20%	16%	20%	16%	15%
Province/City	**Guizhou**	**Hainan**	**Hebei**	**Henan**	**Helongjiang**	**Hubei**	**Hunan**
Goal	20%	12%	20%	20%	20%	20%	20%
Province/City	**Inner Mongolia**	**Jiangsu**	**Jiangxi**	**Jilin**	**Liaoning**	**Ningxia**	**Qinghai**
Goal	22 %	20%	20%	22%	20%	20%	17%
Province/City	**Shaanxi**	**Shandong**	**Shanghai**	**Shanxi**	**Sichuan**	**Tianjin**	**Xinjiang**
Goal	20%	22%	20%	22%	20%	20%	20%
Province/City	**Xizang**	**Yunnan**	**Zhejiang**				
Goal	n/a	17%	20%				

Source: State Council document, 2006, No. 94

According to the opinion of the Ministry of Housing and Urban Rural Development (MOHURD, formerly the Ministry of Construction) on the implementation of 'State Council's decision on strengthening energy conservation' in September 2006, an energy savings goal of 110 million tonnes of coal equivalent (tce) (77 million tonnes of oil equivalent (Mtoe)) in building energy consumption from 2005 to 2010 has been issued.

1.3. Action Plans for Promoting Energy Efficiency

A comprehensive work plan of energy conservation and emission reduction was issued in June 2007 to promote energy efficiency in China.

a) Objectives

The plan aims to stress the importance of leadership and coordination mechanisms for energy conservation and emission reduction, define the goals and tasks of energy conservation and emission reduction, clarify responsibilities and to propose general requirements.

b) Applicable sectors

It contains a comprehensive set of measures that cover all sectors, such as industry (including agriculture), transport, residential, commercial, power, government, etc.

c) Outline

The plan focuses on promotion of industrial structural adjustment and elimination of outdated production through a series of policies. It also launched actions such as 'ten key energy conservation projects' and the '1000-enterprises implementation plan of energy conservation action' to promote the progress of energy conservation technology and to transform energy conservation projects. Furthermore, it aims to increase fund support and promote energy conservation through economic instruments and so on. This plan was issued in June 2007, consisting of 45 measure packages.

d) Financial resources and budget allocation

The central government arranges energy conservation funds and lends the provincial and local municipal governments finance to improve their energy conservation investment, forming a mechanism of investment with a persistent effect. In 2008, the central government arranged CNY15.6 billion for supporting energy conservation and in 2008 the number reached CNY19.7 billion, 26.6% higher than the previous year.

e) Method for monitoring and measuring effects of action plans

China has set up an energy conservation and emission reduction leadership group chaired by Premier Wen Jiabao. The Chinese Government assigned energy conservation goals to local governments and major enterprises, as a 'one-vote veto' assessment for their performance. The assessment was based on the 'Energy Conservation and Emission Reduction Statistics and Monitor Evaluation System and Method', and the evaluation results provide important insights for government officials and enterprise leaders. The local government will be commended and rewarded if their assessment level for the completion is met or surpassed. Conversely, local governments whose assessment level is an incomplete grade cannot participate in the annual awards or receive an honorary title and so on. New high energy consuming projects in these regions cannot be approved. Provincial leaders must make a written report to the State Council and indicate a deadline for correction measures. The National Development and Reform Commission is responsible for monitoring and reporting such cases.

Statistics departments at all government levels are to develop an improved energy statistics system. Key energy-consuming entities must contract energy managers and provide annual reports on EE&C activities.

A comprehensive evaluation of target realisation for provincial governments is carried out every year by the central government, which is helpful to understand the local energy conservation situation, identify problems and promote energy conservation efforts.

f) Expected results

The expected results include establishing the energy conservation supervision agency, increasing energy conservation efforts based on laws and regulations, and introducing administrative measures, economic incentives, capacity building, and so on. This is expected to promote the realisation of energy conservation goals.

g) Future tasks

China will likely introduce a goal for further reduction in energy consumption per unit of GDP by 2015 compared to 2010.

1.4. Institutional Structure

The Chinese National People's Congress (NPC) is the highest organisation of state power in China. The outline of the 11th Five-year Plan was approved at the 10th NPC and with it the 20% reduction target that now underlies China's drive for energy efficiency and conservation. But, the actual drafting and implementation of the 11th Five-year Plan for economic and social development is tasked to the administrative organisation of the government, the State Council. In June 2007, China's government set up a 'National leading group for climate change and energy conservation and emission reduction', which is responsible for all coordinating work for energy conservation in China. The National Development and Reform Commission (NDRC) undertake the daily work of leading group's general office, which means the NDRC plays a crucial role in both the design and the execution of policies on energy efficiency and conservation. The Resource Conservation and Environmental Protection Department of NDRC is an organisation specialising in day-to-day efforts for energy efficiency improvement.

a) Name of organisation

Resource Conservation and Environmental Protection Department of National Development and Reform Commission (NDRC)

b) Status of organisation

Policymaker

c) Roles and responsibilities

The NDRC, formerly the State Planning Commission and State Development Planning Commission, is a macroeconomic management agency under the State Council in China, which has broad administrative and planning control over the Chinese economy. The functions of the NDRC are to study and formulate policies for economic and social development, maintain the balance of economic development, and guide the restructuring of China's economic system. The NDRC has 28 functional departments, bureaus, and offices with an authorised staff of 890 civil servants.

The Resource Conservation and Environmental Protection Department of the NDRC is specifically responsible for energy conservation. It aims to promote the strategy of sustainable development and undertake comprehensive coordination of energy conservation and emission reduction; it also organises the formulation and coordinates the implementation of plans and policy measures for recycling economy, energy and resource conservation and comprehensive utilisation, etc.

d) Covered sectors

All sectors of the economy are covered

e) Established date

The Resource Conservation and Environmental Protection Department of the NDRC was established in 2003

f) **Number of staff members**

There are currently about 45 staff members in the agency

1.5. Information Dissemination, Awareness-raising and Capacity-building

a) Information collection and dissemination

A wide range of information is readily available to Chinese energy consumers. For example, China established a dependent and authoritative non-profit Energy Conservation Information Dissemination Centre, which was replaced by the National Energy Conservation Centre following an organisational adjustment in 2009. The centre made use of market mechanisms to bring China's energy conservation information dissemination in line with international practices, and transform the mechanism from management to service to serve the whole society. A number of dissemination activities were adopted including meetings, media, exhibitions, websites, and so on. In addition, there are more than 20 journals related to the energy conservation field in China to improve information dissemination.

b) Awareness-raising

China has organised economy-wide actions for energy conservation and emission reduction through 17 government departments, covering nine special actions. China's government also runs its 'energy conservation awareness week' every year, carried out 'energy conservation and emission reduction, actions by all people' through CCTV and a series of awareness activities, enhanced the public consciousness about energy conservation and environmental issues. At present, energy conservation and emission reduction have already become hot topics that have the attention of society collectively.

c) Capacity-building

The government of China organises energy management training in key energy-consuming enterprises, such as for energy auditing, energy planning, energy measurement and statistics, and so on. China has developed a series of energy conservation standards, strengthening the standard basis. Energy consumption statistics and indicators are more accurate than before, and enterprises are improving their energy consumption measuring devices. All of these efforts have made the foundation of energy conversation more solid.

1.6. Research and Development in Energy Efficiency and Conservation

The energy conservation technology policy of China has been the specific policy for energy efficiency research and development and demonstration in the economy, which was the responsibility of the Ministry of Science and Technology. Through progress in energy conservation technology, the policy aims to promote the building of a conservation-oriented industrial structure, product structure and consumption structure, and provide a basic guide for the development of a long-term plan and annual plans for various localities and industries in regard to technological innovation and scientific research in the field of energy conservation.

There are a number of programs that encourage research and development in energy efficiency, such as the 'State Key Basic Research Program', 'National Science and Technology Support Program', the 'High-tech Development Projects', and so on. There are a number of major energy conservation technology and emission reduction projects underway to overcome a number of key common problems. China's government has arranged more than USD 10 billion to support hundreds of research projects and topics concerning energy conservation, new energy, recycling, clean production, pollution control, climate change technology development, demonstration and extension during the period of the 11th Five-year Plan. China increased support for research on energy conservation, emission reduction, and climate change, and achieved important results.

2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

2.1. Government laws, decrees, acts

a) Name

Energy Conservation Law of the People's Republic of China

b) Purpose

The law was designed to promote overall social energy conservation and improve energy efficiency and environmental protection. It also mandates the comprehensive and sustainable development of the economic society.

c) Applicable sectors

The law applies to all sectors, including industry, transport, residential, commercial, power, government, etc.

d) Outline

The 'Energy Conservation Law of the People's Republic of China' was enacted in 1997 and amended in 2007. On 1 April 2008, the newly revised 'Energy Conservation Law of the People's Republic of China' formally went into effect. It improved the basic system of energy conservation and established basic system requirements for energy conservation management. It also reflected the organic combination of the market and the government; focused on using the market mechanism while strengthening government regulation; and paid attention to the use of the economic instruments and market economy rules, through taxation, pricing, credit, government procurement policies to encourage and guide energy conservation. The new 'energy conservation law' added content about construction, transportation and public energy conservation.

e) Financial resources and budget allocation

No information available

f) Expected results

The energy conservation and emission reduction targets of the 11th Five-year Plan, from a legal standpoint, were expected to be completed on time. Also, the Law is conducive to long-term development.

2.2. Regulatory Measures

China has special regulatory provisions concerning the government sector. The 'Energy conservation regulations for state-funded institutions' are designed to promote energy conservation by public institutions in China, focusing on improved energy efficiency. Public institutions can play an exemplary role in energy conservation. The document calls for state-funded institutions to show leadership by taking an active role in energy management and implementing technically feasible and economically reasonable measures to reduce consumption. Enforcement responsibilities are given to the Government Offices Administration (GOA) at all levels of government down to the county level.

The 'Energy conservation regulations for state-funded institutions' formally went into effect on 1 October 2008. The state-funded institutions referred to are the government, institutions and organisations that are all or partially state-funded. The regulations include specific requests regarding planning, management, measures, monitoring and protection of energy conservation in public institutions. The head of this state-funded institution has overall responsibility for energy conservation. This law clearly strengthens the guiding role of the energy conservation plan. There are eight basic management systems for the major problems

existing now. Procedures are set forth for conducting energy audits. Specific actions are also prescribed, such as reducing standby consumption of office equipment, utilising natural lighting, and using 'intelligent' elevator controls. The act authorises criticism and/or punishment for noncompliance.

2.2.1. Minimum Energy Performance Standards and Labelling

a) Name

Minimum energy performance standards (MEPS) for high energy consuming products

b) Purpose

The energy efficiency standards are the policy basis for the control of energy consumption from the source.

c) Applicable sectors

Industry

d) Outline

Since 2007, 46 efficiency standards have been set by the Standardization Administration of the People's Republic of China, to support the implement of Energy Conservation Law. Most of the standards formally went into effect on 1 June 2008, including 36 mandatory energy efficiency standards.

There are 22 MEPS for high energy consuming products, which connect with 22 kinds of high energy consuming products in the thermal power, steel, nonferrous metals, building materials and petrochemical industries, setting the energy consumption limitation for the existing producers and potential entrants, as well as pointing out the advanced efficiency levels producers are encouraged to approach.

In addition to the MEPS for high-energy consuming products, China has 11 energy efficiency standards for end-use products in the residential, commercial, and industry sectors. Their purpose is to encourage manufacturers to improve the energy efficiency of products, which would be useful to reduce the energy consumption of end-use products. Their standard numbers are GB20665-2006, GB18613-2006, GB20943-2007, GB19762-2007, GB21454-2008, GB21455-2008, GB21456-2008, GB21518-2008, GB21519-2008, GB21520-2008, and GB21521-2008. They apply to end-use products, such as, room air conditioners, water heaters, household cookers, computer displays, copiers and so on, and they provide energy efficiency limits, grades and results of energy-saving evaluations. These standards are expected to help reduce the energy consumption of end-use products. For example, the average thermal efficiency of gas-burning water heaters would increase 4% to 10% after the implementation of the standard on energy efficiency rating and energy efficiency limit of domestic gas burning instantaneous water heaters and gas burning water heaters, which is expected to result in savings of 560 billion litres of gas and emissions reductions of 305 400 tonnes CO_2 before 2010.

Based on efficiency standards, China uses an 'Energy efficiency labelling management approach' which is designed to enhance the interaction of producers and consumers, and guide consumers to purchase energy-efficient products, while promoting producers to use energy-efficient technologies. It applies to the residential, commercial, and industry sectors. Since the 'Energy efficiency labelling management approach' went into effect on 1 March 2005, China has put out four lists of product catalogues for labelling as of December 2010.

Catalogue No. 1 was implemented on 1 March 2005, and covered refrigerators and room air conditioners. Catalogue No. 2 was implemented on 1 March 2007, which covered washing machines and unit air conditioners. Catalogue No. 3 was implemented on 1 June 2008, and covered fluorescent lights, high-pressure sodium lamps, motors, chillers, domestic gas burning instantaneous water heaters and gas burning water heaters. Catalogue No. 4 was implemented on 1 March 2009, and covered speed-controlled air conditioners, multi-

connected air conditioner units, household cookers, computer displays and copiers. Catalogue No.5 was implemented on 1 March 2010, and covered automatic rice cookers, AC electric fans, AC contactors, and displacement air compressors. Catalogue No.6 was implemented on 1 November 2010, and covered power transformers and ventilators. Catalogue No.7 will be implemented on 1 March 2011, and will cover flat panel displays, and microwave ovens for household and other purposes.

2.2.2. Building Energy Conservation

a) Name

Energy conservation regulations for civil buildings and building energy code

b) Purpose

The regulations aim to strengthen the energy conservation management of civil buildings, improve energy efficiency and reduce energy consumption in civil buildings, including residential units, offices, and so on.

c) Applicable sectors

Residential and commercial

d) Outline

On 1 October 2008, the ‘Energy conservation regulations for civil buildings’ came into force, there are a total of six chapters and 45 terms including general principles, new building energy efficiency, existing building energy efficiency, operation of building energy systems, and legal liability supplements.

The construction administration department has authority for preparing building energy conservation plans at all levels of government down to the county level. Energy consumption standards for civil buildings are called for and governments are required to set aside funds for energy conservation improvements. All actors in the construction process are required to ensure compliance with the energy standards for civil buildings. The regulations also require specific measures in new construction, such as the installation of unit-level heat metering in residential buildings and the use of energy saving lamps. Energy efficiency retrofits are required to be implemented ‘step by step systematically in accordance with actual conditions’. Building owners are required to operate buildings in a manner consistent with energy conservation goals. Penalties for non-compliance are specified.

In the 1980s, the Ministry of Housing and Urban-rural Development (formerly the Ministry of Construction) began to promote energy efficiency in buildings, starting with energy codes/standards for residential buildings in the north area. The building energy codes/standards system has been improved and developed step by step from north to south, from residential to public buildings, and from new buildings to existing buildings.

Up to now, the Ministry of House and Urban-rural Development has issued three energy efficiency design standards for residential buildings and one for public buildings. All four of these standards have two main parts. One is the thermal performance requirements for the building envelope, others are the requirements for HVAC equipment and system efficiency. In addition, the Ministry of Construction has also issued one design standard for efficient lighting system. All of these codes include both mandatory and voluntary items or indexes. The mandatory items or indexes are mainly for energy saving purposes and must be complied with by all the buildings covered. The voluntary items are suggested for upgrading efficiency.

2.2.3. Fuel Efficiency Standards

a) Name

Vehicle fuel economy standards

b) Purpose

To require passenger vehicles and light-duty cargo vehicles to meet efficiency standards which vary according to the vehicle's weight.

c) Applicable sectors

Transport

d) Outline

There are five vehicle fuel economy standards providing fuel consumption limits and test methods for different types of vehicles, in which the standards for three-wheeled vehicles, low-speed trucks, and light commercial vehicles are mandatory. The standard numbers are GB21377-2008, GB21378-2008, GB/T4352-2007, GB/T4353-2007, and GB20997-2007 respectively.

2.3. Voluntary Measures

China has a number of voluntary initiatives for improving energy efficiency, such as the certification of energy-efficient products, energy conservation basic standards, and energy audits that are discussed below.

2.3.1. Certification for Energy-Efficient Products

a) Name

Certification for energy-efficient products

b) Purpose

The certification for energy-efficient products aims to continually aid improvements in energy efficiency and environmental protection and to assist social and economic sustainable development in order to harmonise social values and economic benefits by stimulating technical development in industry, increasing public awareness of resource consumption and environment protection and ultimately increasing the market share of energy-efficient products.

c) Applicable sectors

Industry (including agriculture), transport, residential, commercial, power, and government

d) Outline

Certification for energy-efficient products is a voluntary program aiming to save energy and reduce emissions through stimulating manufacturers to produce more resource efficient products and helping consumers to make more sustainable purchase decisions. In 1998, the Certification Centre for Energy Conservation Products (CCECP) started to run the energy conservation certification program with residential refrigerators. This soon expanded to more than 90 product categories covering appliances, lighting, electronic, office equipment, industrial products, water-saving products, and environmental-friendly products.

e) Financial resources and budget allocation

Primarily from the private sector (enterprises)

f) Expected results

To help encourage consumers to use energy-efficient products as well as encourage the promotion of energy-efficient products and technological progress

2.3.2. Energy Conservation Basic Standards

a) Name

Energy conservation basic standards

b) Purpose

The energy conservation basic standards cover energy measurement, energy consumption calculation, economic operation and so on, helping to set a technological foundation for energy measurement and unify energy consumption calculation and equipment operating efficiency.

c) Applicable sectors

Industry

d) Outline

Since 2006, there have been eight energy conservation basic standards issued in China, which provided for the management of energy measurement, methods of energy consumption calculation, and economical operation of equipment and energy systems, etc. Their standard numbers are GB/T20901-2007, GB/T20902-2007, GB/T21368-2008, GB/T21367-2008, GB/T17954-2007, GB/T12497-2006, GB/T12723-2008, and GB/T2589-2008.

e) Financial resources and budget allocation

Primarily from the private sector (enterprises)

f) Expected results

To set a technological foundation for energy measurement, unify energy consumption calculation and equipment operating efficiency, and so on

2.3.3. Energy Audits

a) Name

Energy Audits

b) Purpose

Energy audits of enterprises help diagnose the state of energy consumption, identify problems, analyse the energy conservation potential and also make suggestions that could help enterprises improve energy efficiency.

c) Applicable sectors

Industry (including agriculture), transport, residential, commercial, power, government, and so on

d) Outline

Since 2006, 1000 key energy consuming enterprises in China went through the activities of energy audits, the annual comprehensive consumption per unit of which is more than 0.18 million tce. In some provinces, such as Shandong Province, there were more than 1000 enterprises whose annual comprehensive consumption per unit was more than 0.016 million tce. Also, 103 key energy consuming enterprises carried out energy audits.

e) Financial resources and budget allocation

Financial support comes from the government and private sectors.

f) Expected results

The energy audit is an energy management measure that could help enterprises to discover problems and improve their energy efficiency.

2.4. Financial Measures Taken by the Government

2.4.1. Tax Scheme

There are a number of preferential tax policies related to energy conservation in China, such as corporate income tax relief, capital gains tax relief, export tax rebates, refined oil tax, and others. One example is provided below.

a) Name

Energy-efficient or water-saving equipment directory of corporate income tax concessions (2008)

b) Purpose

To reduce corporate income tax for enterprises that purchase and use energy-efficient devices and equipment, thereby guiding and encouraging the promotion of these as well as stimulating technological innovation and energy efficiency improvement.

c) Applicable sectors

Industry (including agriculture), transport, commercial, and power

d) Outline

The 'directory' has been in effect since 1 January 2008. Enterprises that purchased and used the energy-efficient equipment listed in the directory are eligible for preferential tax benefits. Of total investment, 10% is set aside for corporate income tax credits. Corporate tax losses can be carried forward for a maximum of five years.

e) Financial resources and budget allocation

Government-sponsored scheme

f) Expected results

To benefit the promotion of energy-efficient products, stimulate technological innovation, and improve energy efficiency

2.4.2. Low-Interest Loans

a) Name

Low-interest loans for the national debt projects

b) Purpose

To stimulate the flow of social capital to enterprises with less financial resources, so enterprises can get loans at below-market interest rates and improve their borrowing capacity in the credit market. This would increase the inputs of other social funds for energy efficiency improvement projects.

c) Applicable sectors

Industry (including agriculture), transport, residential, commercial, power, and so on

d) Outline

Since 1999, China's government has arranged a certain amount of funds for enterprises to reduce the interest rate on loans for technological upgrading (including energy conservation). This increases the inputs of other social funds for energy efficiency improvement projects. According to preliminary statistics, every USD 1 in funds from the economy's debt can drive USD 10 in social investment, and USD 6 in bank loans. In 2006, the investment for energy efficiency technological transformation of enterprises driven by state funds totalled about USD 10 million.

e) Financial resources and budget allocation

Government-sponsored

f) Expected results

To help stimulate the investment of social funds for energy efficiency improvement projects, and to promote the energy efficiency improvement of enterprises

2.4.3. Subsidies and Budgetary Measures

2.4.3.1. Supporting Energy Saving Technological Innovation

a) Name

Interim measures for financial incentive funds for energy efficiency technological transformation projects

b) Purpose

To encourage and motivate enterprises to invest in energy conservation technological transformation, to promote the implementation of key energy conservation projects, and to facilitate achievement of the energy conservation goal of the 11th Five-year Plan

c) Applicable sectors

Industry (including agriculture), transport, residential, commercial, power, government, etc.

d) Outline

Financial incentive funds are given to enterprises that would achieve annual energy savings of more than 10 000 tce through energy efficiency technology transformation in the top ten key energy efficiency projects. Energy conservation funds are used as an incentive for the enterprises undertaking the projects, with the amount of funding linked with the amount of energy savings. The standard for funds is based on the energy savings, with CNY 200 per unit tce in the eastern area and RMB250 per unit tce in the western area of China. The interim measures were implemented in August 2007.

e) Financial resources and budget allocation

Government-sponsored

f) Expected results

To ensure the actual energy savings of energy efficiency technological transformation projects, improve efficiency in the use of funds, and stimulate energy efficiency improvement

2.4.3.2. Benefiting the Public through Energy Efficient Products

a) Name

Subsidy to public for energy efficiency products program

b) Purpose

The implementation of the program aims to effectively expand domestic demand in China, especially consumer demand, and promote stable and rapid economic development. It can significantly improve the energy efficiency of end-use products, and promote the energy conservation and emission reduction.

c) Applicable sectors

Residential and commercial

d) Outline

The ‘Subsidy to public for energy efficiency products’ program refers to financial subsidies for energy efficiency products whose energy efficiency level is up to first or second grade, these include; air conditioners, refrigerators, flat-panel TVs, washing machines, etc.. The program has been running since May 2009and as of December 2010 the range of products have covered efficient lighting, efficient air conditioners, energy-saving cars, and high efficiency motors. The standards for subsidies are based on the price gap between energy efficiency products and general products and revised with an update of energy efficiency

standards. For example, after 1 June 2010, the subsidy for high-efficiency air conditioners has been set at CNY 200–250 per set for grade 1, and CNY 150–200 per set for grade 2. Air conditioners were the first product subsidised.

e) Financial resources and budget allocation

Government-sponsored

f) Expected results

The implementation of the program is expected to increase demand by USD 60-75 billion each year. It would increase market share of energy efficient products 10-20 percentage points, to 30%, and may save more than 75 billion kWh of electricity each year, in addition to the emission reduction of 75 million tonnes CO_2.

2.4.4. Other Incentives

a) Name

Energy performance contracting

b) Purpose

To support energy performance contracting projects and promote the development of the energy service industry Applicable sectors.

c) Outline

Energy Performance Contracting is a market-based service mechanism, that reduces the financial and technical risk for users which in turn increases energy users' enthusiasm to promote energy-efficiency. In 2010, The Chinese government decided to accelerate the implementation of energy performance contracting, and actively develop the energy services industry through the following measures, a) bring contracts that include energy performance contracting projects into a range of both the central budget for investment and special funds for energy saving-to provide financial subsidies or incentives; b) implement preferential taxation policies, for example, energy service companies'(referred as EMCOs) taxable income obtained from energy performance contracting is temporarily exempt from sales tax; c) improve the accounting system related to the energy performance contracting; d) encourage banks and other financial institutions to create innovative credit products that broaden the range of collateral and simplify application and approval procedures for EMCOs. According to the Interim Measures for Funding Financial Incentives for Projects, jointly issued by the Ministry of Finance and NDRC on 3 June 2010, the project whose energy saving is 10,000 tce in less than 100 tce (industry project 10,000 tce in less than 500 tce), as well as more than 70% of its investment is from EMCOs and the measures to share the energy efficiency is contracted, could receive rewards not less than CNY 300 per tce incentives after audited by the government.

2.5. Energy Pricing

The pricing mechanism for coal, crude oil, and natural gas in China has been largely market-oriented, while the electricity price is controlled by the government according to an electricity pricing management system. Under the implementation of a fuel tax policy, the new refined oil pricing mechanism is clear, which is indirectly controlled by the international market. The government is working to provide a stronger signal for energy conservation through energy prices. The primary mechanism to drive improvements in energy efficiency in China is placing a price on electricity, such as different electricity prices, peak-valley prices, time-sharing of the prices, and so on. Different electricity pricing policies are implemented to limit the industrial development of high energy-consuming, high-pollution, and outdated process equipment - i.e. to implement a normal price to encourage development of allowable enterprises and to implement higher prices for restricted or outdated enterprises. This policy

can promote industrial adjustment and stimulate the energy efficiency technological transformation in energy-consuming enterprises through the price leverage.

Furthermore, price incentives have been introduced to encourage electricity production from biomass energy, wind energy, solar energy, and so on. Provisional measures on urban heating price control were issued to promote payment for unit of heat, rather than fixed or no-fee services, in the centralised heating system.

2.6. Other Efforts for Energy Efficiency Improvements

2.6.1. Cooperation through Bilateral, Regional and Multilateral Schemes

China's government cooperates with other economies through bilateral, regional and multilateral schemes for energy efficiency improvements, such as the United States, Japan, Korea, the European Union and so on. At present, China has established bilateral cooperation mechanisms with 36 economies and regions, and is involved in multilateral energy cooperation mechanisms in 22 international organisations and international conferences.

For example, in June 2008, China and the United States held the fourth strategic economic dialogue in Washington, and signed the 'Decade Cooperation Framework Agreement in Energy and Environment'. Energy efficiency is under the cooperation framework of the six priority areas of cooperation. In November 2009, during the United States of America, President Obama's visit to China, the China National Development and Reform Commission, the U.S. Department of State and the U.S. Department of Energy made an agreement on the Decade Action Plan for Energy Efficiency. An important part of the plan is that both sides will jointly hold a China-US Energy Efficiency Forum once a year, alternately in the two countries, to exchange experience and best practices on energy efficiency of buildings , communities, industry, end-use products , as well as an energy saving services market. In addition, the two sides will also cooperate on the areas of building codes, labeling and rating systems, industrial energy efficiency audits and benchmarking, energy efficiency product identification and promotion, energy efficiency technology trade and investment.

2.6.2. Cooperation with Non-Government Organisations

China's government cooperates with non-government organisations to stimulate energy efficiency improvements as appropriate.

For example, WWF China, which is the first international conservation organisation invited to work in China, has about four energy efficiency improvement programs: 1) Low Carbon City Initiative in China—LCCI will explore low carbon development models in different cities, working to improve energy efficiency in the industry, building and transportation sectors. It is also addressing the development of renewable energy and ensures that other cities in China can learn from successful experiences and replicate them; 2) Business engagement; 3) Climate change post-Kyoto negotiations; and 4) '20 ways to 20%'.

2.6.3. Other Cooperation/Efforts for Energy Efficiency Improvement

China has other cooperative arrangements with international organisations for energy efficiency improvement in addition to APEC, such as the Asian Development Bank, the World Bank and so on.

For example, 'the World Bank and the Global Environment Facility China Energy Conservation Project' is a significant international cooperation project since 1997, which is jointly organised and implemented by China's government (NDRC), the World Bank and the Global Environment Facility(GEF)in the areas of energy conservation and greenhouse gases emission mitigation. The project was implemented to build a model of EMCOs and an

'energy management contract' mechanism based on the market economy system in China, setting up the support for EMCOs and technical institutions technically and financially.

The Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labeling (BRESL) project is another international co-operation project, which is sponsored by the United Nations Development Programme (UNDP) and the GEF. China is the lead economy on the BRESL project with the Executing Agency being NDRC. The BRESL project is aimed at rapidly accelerating the adoption and implementation of energy standards and labels (ES&L) program in Asia, which also will facilitate harmonization of test procedures, standards and labels among developing countries in Asia.

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