

CHINA

INTRODUCTION

Energy is a major strategic issue for China, especially as the economy moves toward its goals of modernization and common prosperity for its people. Since China adopted the policy of reform in the late 1970s, its energy industry has made significant advances. However, China is in the ongoing process of industrialization and urbanization, which brings high economic growth accompanied by high-energy consumption.

To alleviate the unsustainable demand for energy consumption, China's State Council issued The 12th Five-Year Development Plan for the Energy Saving and Environmental Protection Industry (Guofa [2012] No. 19). According to this plan, the energy intensity (TCE/GDP) of China will be reduced by approximately 16% in 2015 compared to 2010. Furthermore, it is anticipated that the annual growth rate of output for the energy saving and environmental protection industry will remain at 15% or above until 2015. By then, the output value is expected to reach RMB 4.5 trillion (approximately USD 730 billion).

1. GOALS FOR EFFICIENCY IMPROVEMENT

1.1. Overall Energy Efficiency Improvement Goals

In the outline of the 12th Five-Year Plan (2011–2015) for National Economic and Social Development, the State Council stipulated that non-fossil energy will increase to 11.4% of total primary energy consumption by 2015, energy consumption per unit of GDP will drop by 16% from 2010, and CO₂ emissions per unit of GDP will decrease by 17% from 2010.

1.2. Local 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 from the economy-wide target down to the target that must be achieved at the local level. The domestic energy intensity target is 16%, while each province (along with municipalities and autonomous regions) has a specific overall target. The provincial goals of reduction in local energy consumption per unit of GDP by 2015 (from the 2011 level) are as follows:

Table 1: Provincial energy efficiency improvement goals of the 12th Five-Year Plan (2011–2015) of China

Province/City	Anhui	Beijing	Chongqing	Fujian	Gansu	Guangdong	Guanxi
Goal	16%	17%	16%	16%	15%	18%	15%
Province/City	Guizhou	Hainan	Hebei	Henan	Heilongjiang	Hubei	Hunan
Goal	15%	10%	17%	16%	16%	16%	16%
Province/City	Inner Mongolia	Jiangsu	Jiangxi	Jilin	Liaoning	Ningxia	Qinghai
Goal	15%	18%	16%	16%	17%	15%	10%
Province/City	Shaanxi	Shandong	Shanghai	Shanxi	Sichuan	Tianjin	Xinjiang
Goal	16%	17%	18%	16%	16%	18%	10%
Province/City	Xizang	Yunnan	Zhejiang				
Goal	10%	15%	18%				

Source: State Council document, 2011, No. 26

1.3. Sectoral Energy Efficiency Improvement Goals

Sectoral targets have been allocated with specific units for different industries to be achieved by 2015 (see Table 1), thus leading to the overall industrial energy intensity target of a 21% decrease compared to 2010.

Table 1: Sectoral energy intensity (efficiency) targets in the 12th Five-Year Plan

Index	Work unit	2010	2015	Variation/rate of change
Industrial				
Industrial energy consumption per unit area	%			[-21%]
Power-supply coal consumption	Grams of SC ¹ per kWh	333	325	-8
Power plant auxiliary-power consumption rate	%	6.33	6.2	-0.13
Comprehensive line loss rate	%	6.53	6.3	-0.23
Comprehensive energy consumption	Kg of SC per ton	605	580	-25
Aluminum-integrated AC power consumption	KWh per tonne	14013	13300	-713
Copper smelting energy consumption	Kg of SC per ton	350	300	-50
Crude oil processing energy consumption	Kg of SC per ton	99	86	-13
Ethylene production energy consumption	Kg of SC per ton	886	857	-29
Ammonia production energy consumption	Kg of SC per ton	1402	1350	-52
Caustic soda (ion-exchange membrane) energy consumption	Kg of SC per tonne	351	330	-21
Cement clinker energy consumption	Kg of SC per tonne	115	112	-3
Energy consumption per glass	Weight kg SC per box	17	15	-2
Paper and paperboard energy consumption	Kg of SC per ton	680	530	-150
Pulp energy consumption	Kg of SC per ton	450	370	-80
Ceramics energy consumption	Kg of SC per ton	1190	1110	-80
Building				
Renovation of existing residential buildings in heating areas in the northern region	Million square meters	1.8	5.8	4
Town new green building standard rate	%	1	15	14
Traffic and transport				
Railway transport comprehensive energy consumption per workload	Ton of SC per million ton/km	5.01	4.76	[-5%]
Energy consumption of commercial vehicles unit of transport turnover	Kg of SC per hundred ton/km	7.9	7.5	[-5%]
Ships in energy consumption per unit volume of transport	Kg of SC thousand ton/km	6.99	6.29	[-10%]
Energy consumption of aviation transport turnover	Kg of SC /KMS	0.450	0.428	[-5%]
Public institutions				
Public energy consumption per unit area	Kg of SC per square meter	23.9	21	[-12%]
Public institutions energy consumption	Kg of SC per person	447.4	380	[15%]

Terminal equipment energy efficiency				
Coal-fired industrial boilers (run)	%	65	70~75	5~10
Three-phase asynchronous Motors (design)	%	90	92~94	2~4
Positive-displacement air compressors input power	KW/(m · min ⁻¹)	10.7	8.5~9.3	-1.4~-2.2
Power transformer losses	KW	Idling: 43 Payload: 170	No load: 30~33 Load: 151~153	-10~-13 -17~-19
Passenger motor vehicle average fuel consumption	Litres per km	8	6.9	-1.1
Room air conditioners	Energy efficiency rating	3.3	3.5~4.5	0.2~1.2
Refrigerators (energy efficiency index)	%	49	40~46	-3~-9
Residential gas water heater (efficiency)	%	87~90	93~97	3~10

1. Standard coal.

1.4. Action Plans for Promoting Energy Efficiency

A comprehensive plan for energy conservation and emission reduction was issued in September 2011 to promote energy efficiency in China during the 12th Five-Year-Plan period.

a) Objectives

This plan requires reducing energy intensity by 16% in 2015 (compared to 2010), by decreasing the energy consumption to 0.869 tons of standard coal (based on prices in 2005) per RMB 10,000 (approximately USD 1,600) of GDP, thus saving 670 million tce in the 12th Five-Year-Plan period.

b) Applicable sectors

It outlines the direction and major tasks for seven strategically important emerging industries, including environmental protection, information technology, biochemical, high-end equipment manufacturing, new energy, new material, and new-energy automobiles. It also sets major tasks for key industries and lists eight substantial measures to improve the import and export of electromechanical and high-tech products.

c) Outline

The plan helps to promote the strategic restructuring of the economy, push forward the optimization of the industrial structure, and strengthen all aspects of energy utilization management in industrial, building, transport, and public organizations as well as in the fields of urban and rural construction and consumption.

d) Financial resources and budget allocation

The central government arranges energy conservation funds and lends the finances to the provincial and local municipal governments in order to improve their energy conservation investment, thus forming a mechanism of investment with an ongoing effect.

e) Method for monitoring and measuring the effects of action plans

China has established an energy conservation and emission reduction leadership group and assigned energy conservation goals to local governments and major enterprises. Their performance assessments are based on the Energy Conservation and Emission Reduction Statistics and Monitor Evaluation System and Method. Local governments are commended and rewarded if they meet their requirements. However, if the requirements are not met, then a wide range of sanctions may occur, including the following:

- Barred from participation in the annual awards or receiving an honorary title.
- New high energy-consuming projects in these regions cannot be approved.
- Provincial leaders must submit a written report to the State Council and indicate a deadline for correction measures.

Statistics departments at all government levels are required to develop a strong energy statistics system in order to report on local government performance. For the industry, high energy-consuming projects must contract energy managers and provide annual reports on energy efficiency and conservation activities.

A comprehensive evaluation of target realization for provincial governments is carried out every year by the central government, which is helpful for understanding the local energy conservation situation, identifying problems, and promoting energy conservation efforts.

f) Expected results

The expected results include increasing energy conservation efforts based on laws and regulations and introducing administrative measures, economic incentives, capacity-building activities, etc. This is expected to promote the realization of energy conservation goals.

g) Future tasks

China will most likely introduce a further energy-demand reduction goal in the next Five-Year Plan, to be achieved by 2020 (compared to 2015).

1.5. Institutional Structure

The Chinese National People's Congress (NPC), the highest organization of state power in China, produces a Five-Year Plan to guide economic policies in five-year increments. The current Five-Year Plan includes a 16% energy intensity reduction target, which now underlies China's drive for energy efficiency and conservation.

The drafting and implementation of the plan is tasked to the State Council, the administrative organization of the government. In terms of energy efficiency, China's government established the National Leading Group for Climate Change and Energy Conservation and Emission Reduction (NLGCCECER) to coordinate all of the energy conservation activities in China.

The National Development and Reform Commission (NDRC) undertakes the daily work of the NLGCCECER and plays a crucial role in the design and execution of policies on energy efficiency and conservation. The Resource Conservation and Environmental Protection Department of the NDRC is responsible for day-to-day efforts in energy efficiency. In addition, energy saving and emission reduction are still crucial tasks of other departments in the Chinese Government.

a) Names, roles of ministries/administrations

Name of organisation	Roles of organization
National Development and Reform Commission	Overall work and coordination
Ministry of Industry and Information Technology	Energy conservation and efficiency in the industrial and information sectors
Ministry of Transport	Energy conservation and efficiency in the transport system
Ministry of Housing and Urban Rural Construction	Energy conservation and efficiency in building
National Government Offices Administration	Energy conservation and efficiency in public institutes
The Ministry of Agriculture	Energy conservation and efficiency in the agriculture sector

The National Energy Bureau	Energy conservation and efficiency in energy supply systems
Ministry of Finance	Finance and tax measures related to energy conservation and efficiency
Ministry of Science and Technology	R&D of energy conservation and efficiency technology
Administration of Quality Supervision, Inspection and Quarantine (Standardization Administration of China, Certification and Accreditation Administration)	Energy efficiency standards, labels, certifications, accreditation, and monitoring, verification, and enforcement
National Bureau of Statistics of the People's Republic of China	Energy statistics

b) Status of organization

Policymaker and supervisor.

c) Number of staff members

Currently, there are approximately 15 staff members in the key agency of the department above who are directly in charge of energy conservation and emission reduction projects. There are significantly more staff members once all of the departments and the regional governments are included.

1.6. Information Dissemination, Awareness-Raising, and Capacity-Building

a) Information collection and dissemination

The National Energy Conservation Center was established in 2009 as a dependent and authoritative non-profit organization, replacing the Energy Conservation Information Dissemination Center. The center makes use of market mechanisms to bring China's energy conservation information and dissemination in line with international practices. A number of dissemination activities were adopted, including meetings, media, exhibitions, and websites. In addition, there are more than 20 journals related to the energy conservation field in China.

b) Awareness raising

China has organized 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" once a year, promotes its "Energy Conservation and Emission Reduction: Actions by All People" campaign through CCTV, and conducts other awareness activities to enhance public consciousness about energy conservation and environmental issues. Presently, energy conservation and emission reduction are common topics discussed in the public domain.

c) Capacity building

The government of China organizes energy management training in major energy-consuming enterprises, such as energy auditing, energy planning, energy measurement and statistics, etc. Energy consumption statistics and indicators are more accurate than ever, and enterprises are improving their energy consumption measuring devices. All of these efforts have made the foundation of energy conservation more solid.

1.7. Research and Development in Energy Efficiency and Conservation

The Ministry of Science and Technology is in charge of promoting energy efficiency research and development and demonstrations (RD&D). Programs that encourage RD&D in energy efficiency have been established, including the State Key Basic Research Program, the National Science and Technology Support Program, and the High-Tech Development Projects. There are a number of major energy conservation technology and emission reduction projects underway. During the 12th Five-Year-Plan period, the government has arranged more than

USD 10 billion to support hundreds of research projects in energy efficiency, new energy, recycling, clean production, pollution control, and climate change.

2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

2.1. Government Laws, Decrees, and 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 industrial, transport, residential, commercial, power, government, etc.

d) Outline

The Energy Conservation Law of the People's Republic of China, enacted in 1997, includes the following objectives:

- Promote energy conservation.
- Improve energy efficiency and productivity.
- Bolster economic performance.
- Protect the environment.
- Strengthen domestic socio-economic development.
- Satisfy the requirements of people's livelihood.

The law aims to achieve this by improving the basic system of energy conservation and establishing requirements for energy conservation management. It also aims to combine market and government strengths by using market mechanisms, while strengthening government regulation. In addition, it uses economic instruments, such as taxation, pricing, credit, and government procurement policies, to encourage and guide energy conservation. The Energy Conservation Law was revised on April 1, 2008. The 2008 Energy Conservation Law defined energy conservation as a "long-term strategy" for China, and it provided a list of major energy consuming industries, gave clearer guidelines on energy conservation in construction, and introduced transport and public energy conservation measures.

2.2. Regulatory Measures

The Interim Measures for the Assessment and Examination of Energy Efficiency of Fixed-Assets Investment Projects, published by the NDRC in order to enhance energy efficiency management on fixed-asset investment projects, promote the scientific and rational use of energies, curb energy waste at the source, and improve energy use efficiency. This regulation applies to any fixed-asset investment projects that are constructed within China, and mainly focuses on energy efficiency assessments and energy efficiency document examinations.

2.2.1. Minimum Energy Performance Standards and Labeling

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 regarding high-energy-using products.

c) Applicable sectors

Lighting, appliances, and equipment.

d) Outline

In 2012, the 100 Energy Efficiency Standards Promotion Program was initiated. By 2015, approximately 300 standards were developed or revised, including 61 MEPS.

2.2.2. Norms of energy consumption per unit throughput

a) Name

Norms of Energy Consumption per Unit Throughput

b) Purpose

The norms of energy consumption per unit throughput provide a technical basis for energy-saving assessments of new projects in order to phase-out backward production capacity and high-energy-consuming enterprises.

c) Applicable sectors

Industrial.

d) Outline

These norms specify the advanced energy efficiency values, the admittance energy efficiency values for new enterprises, and the limited energy efficiency values for existing enterprises.

There are 73 mandatory standards for the sectors of non-ferrous metals, iron and steel, chemical engineering, power, building materials, and coal mining. In addition, more norms of energy consumption per unit throughput are being developed.

2.2.3. Building Energy Conservation

a) Name

Energy Conservation Regulations for Civil Buildings and Building Energy Codes

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, etc.

c) Applicable sectors

Residential and commercial.

d) Outline

On October 1, 2008, the Energy Conservation Regulations for Civil Buildings came into force. The regulations consist 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.

In 2012, the Ministry of Housing and Urban-Rural Development (MOHURD) published the 12th Five-Year Building Energy Efficiency Plan. This plan required more stringent building energy codes and energy efficiency standards, promoted renewable energy and green building in construction, and suggested further improvements of the building energy efficiency standards. The plan actively promoted solar energy, shallow geothermal energy, biomass energy, and other renewable energy applications in buildings in order to highlight the importance of renewable energy construction. Currently, the energy conservation and

emission reduction targets of the 12th Five-Year Plan, from a legal standpoint, were expected to be completed on time.

2.2.4. 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

During the 12th Five-Year Plan, the Chinese Government actively promoted the standard system and regulations construction for fuel efficiency.

Currently, more than 10 standards regarding vehicle fuel economy (mandatory and voluntary) are being implemented.

2.2.5. Top 10,000 Enterprises Program

a) Name

Top 10,000 Enterprises Program

b) Purpose

This program is an important part of China's efforts to reduce energy intensity.

c) Applicable sectors

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

d) Outline

The Top 10,000 Enterprises Program, which is a mandatory program in the 12th Five-Year Plan period, is an expansion of the Top 1,000 Enterprises Program in the 11th Five-Year Plan. The latest version, implemented in the industrial sector, covers two-thirds of China energy consumption enterprises. Under this program, approximately 10,000 enterprises that use more than one million tons of coal equivalent (TCE) per year are required to meet energy consumption standards.

Detailed energy audits are also performed to ensure the quality of energy audits performed by enterprises or to verify actual energy savings from enterprises' implementation of energy-efficiency projects.

e) Financial resources and budget allocation

Financial support comes from the government and private sectors.

f) Expected results

The program could help enterprises discover problems and improve their energy efficiency.

2.3. Voluntary Measures

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

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. In addition, it assists social and economic sustainable development in order to harmonize social values and economic benefits, and stimulate technical development in the industry, thus increasing public awareness of resource consumption and environment protection, and ultimately increasing the market share of energy-efficient products.

c) Applicable sectors

Industrial (including agriculture), transport, residential, commercial, power, and government.

d) Outline

Energy Conservation Certification is a guarantee label, which indicates that energy-consuming products have met the stipulated energy efficiency standard. The process of obtaining Energy Conservation Certification is as follows: product inspection + factory inspection + supervision after receiving the certificate.

e) Financial resources and budget allocation

Primarily from the private sector (enterprises).

f) Expected results

Promote energy conservation technology progress and competition for certification of energy-efficient products. Eventually, both consumers and companies will recognize and accept energy conservation product certification.

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, energy management system (EnMS), measurement and verification of energy savings (M&V), etc. In addition, such standards help establish a technological foundation for energy measurement, and unify energy consumption calculations and equipment operating efficiency.

c) Applicable sectors

All sectors.

d) Outline

Currently, there are more than 100 energy conservation basic standards issued in China.

e) Financial resources and budget allocation

Government and private sectors.

f) Expected results

Establish a technological foundation for energy measurement, and unify energy consumption calculations and equipment operating 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, etc. One example is provided below.

a) Name

Energy-Efficient or Water-Saving Equipment Directory of Corporate Income Tax Concessions

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 products as well as stimulating technological innovation and energy efficiency improvement.

c) Applicable sectors

Industrial (including agriculture), transport, commercial, and power.

d) Outline

In the 12th Five-Year Plan, these financing policies are continued, with encouragement from the government to push for more research on innovative, energy-saving technology.

e) Financial resources and budget allocation

Government-sponsored scheme.

f) Expected results

Benefit the promotion of energy-efficient products, stimulate technological innovation, and improve energy efficiency.

2.4.2. Subsidies and Budgetary Measures

2.4.2.1. Supporting Energy Saving Technological Innovation

a) Name

Financial Rewards for Energy-Saving Technical Retrofits

b) Purpose

To encourage and motivate enterprises to invest in energy conservation technological transformation, promote the implementation of key energy-conservation projects, and facilitate achievement of the energy conservation goal of the 12th Five-Year Plan

c) Applicable sectors

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

d) Outline

The Financial Rewards for Energy-Saving Technical Retrofits program, under the Ministry of Finance (MOF) and the National Development and Reform Commission (NDRC), rewards enterprises for energy savings achieved through technical renovation projects. The program was first initiated in 2007 and during the 11th Five-Year Plan, energy savings from qualified projects were required to more than 10,000 TCE to qualify for the financial reward. Funds for the rewards come from the central government's budget. Fiscal rewards have been increased to 240 RMB (approximately USD 40) per TCE saved in the eastern region and 300 RMB (around USD 50) per TCE saved in the middle and western regions.

e) Financial resources and budget allocation

Government-sponsored.

f) Expected results

Ensure the actual energy savings of energy-efficient technological transformation projects, improve efficiency in the use of the funds, and stimulate energy efficiency improvement.

2.4.2.2. Benefiting the Public through Energy-Efficient Products**a) Name**

Subsidies to the Public for Energy-Efficient Products Program

b) Purpose

This program aims to 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 energy conservation and emission reduction.

c) Applicable sectors

Residential and commercial.

d) Outline

This program refers to financial subsidies for energy-efficient products whose energy efficiency levels are Grades 1 or 2, including the following: air conditioners, refrigerators, flat-panel TVs, and washing machines. The program has been running since May 2009, and as of December 2010, the range of products has covered efficient lighting, efficient air conditioners, energy-saving cars, and high-efficiency motors. The standards for the subsidies are based on the price gap between energy-efficient products and general products. For example, after June 1 2010, the subsidy for high-efficiency air conditioners was set at CNY 200-250 per unit for Grade 1, and CNY 150-200 per unit for Grade 2. Air conditioners were the first products to be subsidized.

e) Financial resources and budget allocation

Government-sponsored

f) Expected results

Increase the market share of energy-efficient products by 10% to 20%.

2.4.2.3. Supporting Energy Services Companies**a) Name**

Financial Rewards for energy Performance Contracting Projects

b) Purpose

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

c) Outline

In 2010, China increased its support for Energy Service Companies (ESCOs) with a number of fiscal and tax incentive policies as well as some service standardization requirements. Energy performance contracting (EPC), among other market mechanisms, is a key focus for the Chinese Government in the 12th Five-Year Plan. In April 2010, the National Development and Reform Commission (NDRC), the Ministry of Finance (MOF), the People's Bank of China, and the General Tax Bureau released the paper titled, "Opinions on the Acceleration of the Promotion of Energy Performance Contracting and Development of Energy Efficiency Service Industry." This document acknowledges the growing role of EPC and sets qualitative targets and guidelines for 2012 and 2015, with regard to the growth and maturation of the industry.

In June 2010, the MOF and the NDRC released a new fiscal reward policy for ESCOs running shared-savings projects, whereby the ESCOs make the initial investment and the savings is then shared between the ESCO and the client. In August 2010, China's National Standardization Management Committee released a national standard on EPC that became effective on January 1, 2011, thus setting the technical requirements for EPC projects and offering a template for energy performance contracts. Incentives for projects were jointly issued by the MOF and the NDRC. For example, for projects with savings of 10,000 TCE or less, approximately 70% of the investment is from ESCOs and the measures to share the energy savings are contracted. In general, a project receives rewards of no less than CNY 300 (approximately USD 50), 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 its 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, etc. 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 higher prices for restricted or outdated enterprises. This policy can promote industrial adjustment and stimulate energy-efficient 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, etc. Provisional measures on urban heating price control were issued to promote payment for units of heat, rather than fixed or no-fee services, in the centralized heating system.

2.6. Other Efforts for Energy Efficiency Improvements

2.6.1. Cooperation through Bilateral, Regional, and Multilateral Schemes

The Chinese 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, etc. Currently, China has established bilateral cooperation mechanisms with 36 economies and regions, and it is involved in multilateral energy cooperation mechanisms in 22 international organizations and international conferences.

For example, in June 2008, China and the United States held the 4th Strategic Economic Dialogue in Washington, D.C., and signed the Decade Cooperation Framework Agreement in Energy and Environment. Energy efficiency is under the framework of the six priority areas of cooperation. In November 2009, during U.S. President Barack 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 formed an agreement on the Decade Action Plan for Energy Efficiency. An important part of this plan is that both sides will jointly hold a China-U.S. Energy Efficiency Forum once a year, alternately in the two economies, in order to exchange experiences and the best practices regarding energy efficiency of buildings, communities, industries, end-use products, and the 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, and energy efficiency technology trade and investment.

2.6.2. Cooperation with Non-Government Organizations

The Chinese Government cooperates with non-government organizations to stimulate energy efficiency improvements, as appropriate.

For example, the World Wide Fund, which is the first international conservation organization invited to work in China, includes four energy efficiency improvement programs: 1) Low-Carbon City Initiative in China (LCCI), which explores low-carbon development models in different cities and works to improve energy efficiency in the industrial, building, and transport sectors. It also addresses the development of renewable energy and ensures that other cities in China can learn from successful experiences and replicate them; 2) Business engagements; 3) Climate change: post-Kyoto negotiations; and 4) The 2020 Ways to 20% initiative.

2.6.3. Other Cooperation/Efforts for Energy Efficiency Improvement

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

For example, since 1997, the World Bank and the Global Environment Facility China Energy Conservation Project has been a significant international cooperation project. It is jointly organized and implemented by the Chinese Government (NDRC), the World Bank, and the Global Environment Facility (GEF) to focus on energy conservation and greenhouse gases emission mitigation. The project was implemented to build a model of ESCOs and an energy management contract mechanism, based on the market economy system in China. It also establishes support for technical institutions, both technically and financially.

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