Research on the effect of Market Mechanism for Industrial Energy Conservation

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Abstract. Over the years, China’s energy conservation practices has relied on government intervention, that is, the energy efficiency of enterprises has been improved by means of administrative orders and government regulation, but the endogenous power of energy conservation has not been effectively stimulated. Since the 12th Five-Year Plan period, with the improvement of enterprises’ understanding of energy conservation, the government has gradually faded out from its powerful position during the 11th Five-Year Plan period and more attention has been paid to enterprises’ dominant position in energy conservation. The Third Plenary Session of the 18th Central Committee of the CPC put forward that the market shall play a decisive role in the allocation of resources and the energy conservation shall give full play to the role of market mechanisms. Moreover, it also proposed to create a multi-benefit market environment, improve enterprises’ enthusiasm in energy conservation, actually benefit the enterprises in energy conservation and make the energy conservation a conscious action of enterprises by promoting contract energy management system, carrying out carbon emissions permit trading, implementing power demand side management and using fair and transparent market means.

1. INTRODUCE
In recent years, China has introduced a series of policies and measures to actively support and guide the development of energy conservation service industry, greatly promote energy performance contracting and make full use of market mechanisms, so as to promote energy conservation and emission reduction, and reduce greenhouse gas emissions. Energy conservation and environmental protection industry has also been listed as the top of seven strategic emerging industries, with important missions of adjusting economic structure and forming a new economic growth point. As an important part of the energy conservation service industry, its stable, high-quality and efficient development plays a very important role in leading the development of the whole energy conservation and environmental protection industry.

Since the 11th Five-Year Plan period, energy conservation service industry has maintained a high growth rate of 30%~60%. According to statistics, by the end of 2012, there were 4,175 enterprises engaged in the energy services industry, with 435,000 employees. 2,339 energy services companies were registered by the National Development and Reform Commission, and 122 companies were recommended by the Ministry of Industry and Information Technology of People’s Republic of China. In 2012, the gross output of energy conservation service industry reached CNY 165.34 billion, an increase of 32.2% over the previous year; a total of 3,905 energy performance contracting projects
were implemented, with a total investment of CNY 50.57 billion, an increase of 22.6% over the previous year, thus achieving energy savings of 17.745 million tce and reducing more than 44.3 million tons of carbon emission.

In terms of the quantity and investment amounts of energy performance contracting projects, the industrial field is still the primary part of energy conservation services and its investment accounts for 74% of the total investment in energy conservation of the society. The projects include chemical, metallurgy, non-ferrous metals, building materials, spinning, mechanical equipment, light industry, electronic information, communication, etc., and the contents are the improvement of industrial boilers, the utilization of waste heat and pressure, and energy conservation transformation of motor and driving system.

The sharing of energy conservation benefits is the major mode of energy conservation services. Under the impact of comprehensive utilization of financial incentive and tax preference, the number of energy performance contracting projects based on the sharing of energy conservation benefits is the largest, accounting for 47% of the total number of projects; projects applying the guarantee of energy savings for 44%; projects applying the energy cost escrow account for 4%; projects applying finance lease and other modes account for 5%. In terms of service period of the contract, the share period of projects based on the sharing of energy conservation benefits usually is 4 to 8 years, while the escrow period of projects based on the energy cost escrow generally is 8 to 20 years.

2. Policies of Energy Services Industry

2.1 National policies for promoting energy services industry

the State Council forwarded the Opinions on Accelerating the Promotion of Energy Performance Contracting and Promoting the Development of the Energy Conservation Service Industry (hereinafter referred to as the Opinions) of the National Development and Reform Commission, the Ministry of Finance, the People’s Bank of China and the State Administration of Taxation, which fully affirmed the positive role that energy performance contracting has played in China and called for “taking effective measures to create a favorable policy environment and accelerate the development of the energy services industry.”

The Opinions set forth the development goals of energy services industry in two stages, that is, “to support and foster a batch of specialized energy service companies, develop a batch of comprehensive large-scale energy services companies and establish a vibrant, distinctive, standardized and orderly market for energy conservation services by 2010; to establish a complete energy conservation service system, further develop the specialized energy service companies with enhanced service capacity and expanded service scope, and make energy performance contracting one of the main ways for energy-consuming enterprises to implement energy conservation transformation by 2015.”

the Ministry of Finance and the National Development and Reform Commission jointly issued the Interim Measures for the Management of Financial Incentive Funds for Energy Performance Contracting Projects (hereinafter referred to as the Measures), which further clarified the supporting object, scope and supporting rules of financial incentive funds. Subsequently, various detailed rules for the implementation of financial incentive management of provinces, autonomous regions and municipalities directly under the central government were announced.

The Measures stipulated that energy services companies shall be rewarded for energy conservation reform projects implemented in the form of energy performance contracting. The incentive conditions are for projects with annual energy conservation amount of more than 100 tce (industrial energy conservation projects with annual energy savings of more than 500 tce) and projects with annual energy savings of less than 10,000 tce. The incentive standard is CNY 240/tce from the central finance and local incentive funds shall not be less than CNY 60/tce.
the national standard “General Technical Rules for Energy Performance Contracting” (hereinafter referred to as “General Rules”) was officially issued. The General Rules specified terms and definitions of energy performance contracting, contract types, technical requirements, reference contract texts, etc. The provision of reference contract texts is conducive to reduce links in communication between the signing parties and improve the practicality of energy performance contracting projects. Besides, it also plays an important supporting role in supervising projects invested by the government and implementing relevant incentive and support policies.

The Ministry of Finance and the State Administration of Taxation jointly issued the Notice on Issues Concerning the Value-added Tax, Business Tax and Enterprise Income Tax Policies for Promoting the Development of the Energy Services Industry (hereinafter referred to as the Notice), which specified that the taxable income from business tax for energy performance contracting projects implemented by qualified energy services companies shall be temporarily exempted from business tax; the VAT taxable goods of projects transferred to energy-consuming enterprises shall be temporarily exempted from VAT; for those in compliance with the relevant provisions of the enterprise income tax law, the enterprise income tax shall be exempted from the first year to the third year from the tax year in which the first production and operation income of the project is obtained, and the enterprise income tax shall be halved from the fourth year to the sixth year according to the statutory tax rate of 25%.

The General Office of the State Council issued the Comprehensive Work Plan for Energy Conservation and Emission Reduction. It also proposed to study and establish an audit and trading system for energy savings of energy performance contracting projects to develop a third-party audit and evaluation mechanism, encourage large-scale key energy-consuming enterprises to make use of their technical advantages and management experience to set up specialized energy services companies, and guide and support various financing assurance institutions in providing risk-sharing services.

2.2 Provinces and cities policies for promoting energy services industry

Beijing Municipal Government took the lead in introducing local supporting and incentive policies for energy performance contracting in China, and issued the Interim Measures for the Management of Financial Incentive Funds for Energy Performance Contracting Projects in Beijing (hereinafter referred to as the Measures) to further implement the state policy on promoting the development of energy conservation service industry by means of the energy performance contracting.

Shanghai Municipal Government has revised and improved the Measures for the implementation of Special Support for Energy Performance Contracting Projects in Shanghai, and further increased financial support. The incentive standard has been raised to CNY 600/tce. Meanwhile, as for energy performance contracting projects that are lower than the national requirements but meet the requirements of Shanghai, it will still give a subsidy of CNY 500/tce.

According to the previsions of Fujian Province, “industrial projects shall be awarded with the standard of CNY 500/tce in accordance with approved annual energy savings of projects, and projects in such fields as construction, transportation and public institution shall be rewarded with the standard of CNY 800/tce.

According to the previsions of Shenzhen, “the energy performance contracting projects shall be rewarded with the standard of CNY 540/tce in one time as per the annual energy savings after their implementation, including CNY 240/tce of financial incentives from central government and CNY 300/tce of municipal financial incentives”.

The newly revised Measures for the Management of Financial Incentive Funds for Energy Performance Contracting Projects in Hainan Province greatly raised the incentive standard for energy performance contracting projects, increasing from CNY 360/tce to CNY 600/tce.
3. BARRIER OF ENERGY SERVICES INDUSTRY
In recent years, with the deepening of national energy conservation and emission reduction, energy performance contracting has gradually become one of the important means to carry out energy conservation and emission reduction in domestic industrial field. In reality, the industrial field is still the part with highest energy consumption and energy conservation potential in the overall national economy industry. It can be predicted that industrial enterprises will continue to be the important service objects of energy conservation service industry in the future, and the energy performance contracting will be more widely and deeply applied in the industrial field. However, in order to achieve this objective, many obstacles and challenges in promoting the energy performance contracting system need to be solved.

First, financing difficulty is still the biggest bottleneck restricting the development of energy conservation service industry. The operation mode of energy performance contacting results in its high dependence on funds. With the increasing number of implemented projects, a lot of funds of enterprises will be occupied. However, many small and medium-sized energy services companies are asset-light companies and lack of mortgage means in the process of conventional loans, thus resulting in financing difficulty. Moreover, those will directly restrict the development of enterprise so that the business cannot be expanded. According to the survey, financing difficulties account for 59.5% of all obstacles encountered by energy services companies in implementing energy performance contracting.

Second, the credit system of energy performance contracting system is not sound enough. At present, the overall credit environment in China still needs to be improved, which is a common problem of energy services companies and energy-consuming enterprises. To put it simply, energy-consuming enterprises worry about the reliability of the promises made by energy services companies, while energy services companies concern about whether they can actually share the benefits of energy conservation under contract. From the perspective of the operation mode of energy performance contracting, energy services companies have a higher risk of breaching of contract. At present, the period of energy performance contracting projects is 3 to 8 years, with a longer cycle and slow capital turnover. If energy-consuming enterprises intentionally breach the contract and defaults on the benefit incomes, it will directly affect the economic benefits of energy services companies.

Third, the current “one-size-fits-all” record management system restricts the development of the industry. The current policy stipulates that only energy services companies that have obtained the national record qualification can enjoy financial incentives, and to obtain the national record qualification, a series of conditions such as the registered capital reaching CNY 5 million need to be met. Many of small-scale energy service companies have advanced technologies and reform schemes. They can develop relatively small projects. However, due to their insufficient conditions to obtain the record qualification, they are excluded from the policy support. This is unfair and not conducive to the overall development of the energy conservation service industry.

4. SUGGESTION ON ENERGY SERVICES INDUSTRY
In view of obstacles in the promotion of contract management, the next steps are (1) to expand financing channels, reduce financing costs and encourage banks, bonding companies, VC funds and exchanges to innovate their products in accordance with characteristics of financing demand of energy services companies and assist energy services companies in solving financing difficulties through intervening mechanism for energy conservation and financing; (2) to establish the credit system, study and improve the credit system of energy performance contracting market by means of policy publicity, information release, and sharing of contract performance information with financial institutions; (3) to establish the qualification level certification system for energy services companies to replace the current “one-size-fits-all” record system, and assess and rate energy services companies through the certification of authorities to form a comprehensive, systematic, meticulous and operable certification indicator system and qualification level allowing companies at different levels to run projects of different scales.
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