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Problem and Countermeasure of Energy Performance Contracting in China

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Abstract

As an advanced energy management mode and a new market-oriented operation and energy-saving mechanism, the Energy Performance Contracting has almost ten years' development history in China, which has obtained excellent energy saving effect. However, the development process for the present Energy Performance Contracting mechanism in China is relatively slow and it is faced with a series of problems including weak technological power, difficult financing for the project and not sufficient social recognition, etc. This paper presents the suggestive countermeasures to reasonably develop the Energy Performance Contracting in China.

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Keywords: Energy Performance Contracting, status, problem, countermeasure;

1. Introduction

After outburst of oil crisis in 1970s around the whole world, the Energy Performance Contracting has been developing in the market economy countries as a brand-new energy saving mechanism. Energy Performance Contracting (EMC for short) is a market-oriented energy-saving mechanism and commercial operation mode that the professional energy-saving company (ESCO for short in foreign country and EMCO in China) provides an overall set of systematic services to the clients including energy diagnosis, scheme design, technique selection, project financing, equipment procurement, installation and adjustment, operation maintenance, staff training, saved energy measurement, saved energy follow-up, etc through energy-saving service contract and obtains the investment and profits according to the contractual regulation from the clients' energy-saving benefits obtained from energy saving reformation.

China is the second largest energy consumption country only next to America; but the energy utility efficiency is low and it is listed into the countries which have the most serious waste in energy. At the

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beginning of 1990, EMC mechanism is formally introduced into China. At that time, our government conducted many discussions with the experts of the World Bank to reach a consensus in demonstrating and promoting EMC in China and made the decision to carry out China's energy-saving promotion project to widely promote the energy-saving work in China. It is shown in the statistics data of EMCA that presently there are more than 100 energy-saving service countries in the whole country. However, faced with the large domestic energy-saving market demand and the successful implementation of EMC in the foreign country, the energy-saving service company does not have the rapid development just as expected. In contrast, the present status of these energy-saving service companies is definitely passive, which greatly hinders the development of EMC in China.

2. Status of EMC in China

The original State Economic and Trade Commission make use of the loan from the World Bank and the increased amount of GEF to implement "The World Bank /GEF Energy-saving Promotion Project in China" and establish three demonstration energy-saving service companies in 1997 including, Beijing Yuanshen Energy Saving Technology Ltd, Liaoning Province Energy Saving Technology Co., Ltd and Shandong Province Energy Saving Engineering Co., Ltd. From 1997 to the end of 2006, the energy efficiency investment for the three demonstration companies in Beijing, Liaoning and Shandong has a steady increase year by year and the three companies accumulatively have carried out 475 energy-saving projects for 405 enterprises with the total investment amount of RMB 1.331 billion. Through implementing these projects, the energy service company obtained net profits of RMB 0.42 billion and the net benefits of the clients equal to eight to ten times of that of the energy service companies. The energy-saving capacity from these projects is up to 15.1 billion tons of standard coal and the formed CO₂ emission reduction capacity is up to 1,450,000 tons each year. It is sufficiently proven that the EMC is full of vitality in China.

Presently, our government and the World Bank have started the Stage II of the project. The project will still get the support from GEF and its target is to further promote the new market-based mechanism of EMC, which will promote the industrialization development of new energy saving service companies in China, help expand the domestic investment for the energy efficiency project, increase the energy efficiency of China and reduce the emission of greenhouse gas. It is predicated that during the implementation period of Stage II of the project, the accumulative saved energy is about 35,330,000 tons of standard coal and the corresponding CO₂ emission reduction capacity is 23,420,000 tons.

3. EMC Problems in China

Although the project has obtained certain achievements, there are still many problems for EMC's development in China, including weak technology power, difficult financing for the project and inefficient social recognition, etc.

3.1. Policy

The enterprise does not have sufficient driving force to implement the energy saving project. The current energy saving law does not regulate strong constraint force that it does not formulate mandatory regulations and economic encouragement means to drive the enterprises to carry out energy saving reformation and there are no obvious punishment measures for those low energy utilization enterprises or actions. There are no encouragement policy for the energy saving behavior, particularly no consideration of the energy saving's environmental benefit. There are only some high energy consumption enterprises

to recognize the energy saving's importance starting from cost saving aspect, most enterprises have no energy saving enthusiasms since the energy does not account a large part in the product's cost.

The energy saving service industry does not have a regulated market and has no evaluation standard. The energy saving service companies are still at the initial development stage in China and it does not have a mature industrial regulation, such as service standard, saved energy measurement and identification method, contractual regulation and performing the ethic principle, etc. Meanwhile no standard is available to evaluate the service quality of energy saving service company, the energy saving service market is in a mess.

3.2. Financing

It is difficult to finance for the energy saving companies. In this stage, the EMC project of the energy service companies in China is hard for to obtain financing approval inform the financing institution such as the bank. Most operating energy saving companies have weak economic power and could not provide the guarantee for the warranty or mortgage. Since the input and output cycle of EMC lasts for a long term and the large project will get the returns several years later after input. So the enterprise is faced with great fund pressure for the subsequent investment. While as medium-sized and small enterprises, moreover, for the new emerging enterprises, their credit level is relatively low, it is hard for them to obtain the commercial loan from the bank, which restricts the further development of the enterprise. Due to inefficient capital, it is difficulty to carry out a large quantity of good energy saving reformation projects.

There is no credit evaluation mechanism available and the lending limit from the bank is too low. In addition, the development prospect for the energy saving service company in China is not clear and the bank has no the extensive understanding for the EMC operation mechanism, which also increases the difficulty for the energy saving service company to get the loan from the bank.

3.3. The energy service company

The energy service company is not in professionalism and has no operation capability. It is brand-new and complex operation mechanism for the energy saving service companies. The potential energy saving service companies do not have the professional training and most of them do not have the comprehensive technology ability, market expanding ability, commercial planning formulation ability, financial management and risk prevention ability, later stage management ability, etc which reduces credibility level from clients.

There are no authorized saved energy verification means available. The evaluation for EMC is the core problem and all benefits of energy saving companies are substantially from the energy saving benefits. However at present, it is difficult to reach consensus between the energy saving service service companies and the enterprise for the verification and evaluation for the saved energy. There is no the uniformed evaluation standard and the authorized third institution to conduct the verification and evaluation for the saved energy.

4. Countermeasures to Promote EMC Development in China

Based on the status of EMC development in China, the following suggestions are proposed to promote the development of energy service industry:

4.1. Information advertisement

It should promote the EMC through the energy service list. With the double limitation of capital and technology, the final consumers know little of energy saving knowledge. This phenomenon is particularly obvious in the public buildings. Therefore, the EMCA should draw out comprehensive energy service list, to clearly state the details of project description, function description and demonstration case research. The service list advertisement could clear away the information and cognition barriers to know EMC development.

4.2. Policy

To standardize the energy service market; In order to protect the interests of the clients, promote the public image of energy service company and avoid the nonstandard energy service companies from disturbing the market order, the market access mechanism must be set up to strictly examine the nature of energy service companies. In Europe, various EU countries are making efforts to establish a credit investigation system for energy service companies to protect against some companies entering into energy saving service industry in order to seek exorbitant profits and causing negative influence for the credit and ability of the whole industry. It should take the strict examination for the applied energy saving companies from the aspects of technology level, financing capability and scale size, etc to increase the access level; and establish credit archive for the operating energy saving companies to conduct real-time follow-up investigation for the implementation level and effects, profitability and loan payment ability, etc for the undertaken projects of these companies. For those companies with bad implementation effect, lagged technology level, poor profitability ability and low level of installation payment for the energy saving projects, the announcement will be made for their reformation. If there is no improvement for many times, it should revoke the operation qualification of the company.

4.3. Financing

While it is successful for the Stage II guarantee plan for the energy saving promotion project in China, we also find that it is far sufficient faced with great energy saving service market at present in China. The professional energy saving guarantee fund and corresponding operation institution should be set up to build and perfect energy saving financing mechanism with the guarantee fund to start the bank loan in China. The strict examination is also necessary for the EMC's qualification to achieve the special fund for particular purpose. This kind of mode is similar to the operational mode of the World Bank and GEF. The only difference is to have different capital providers that the special energy saving guarantee fund is principally responsible by the finance. The finance's expenditure highlights the government's emphasis for the energy saving course, meanwhile, the finance has a big amount which is, as the guarantee fund to provide the assurance for the EMC's financing in a wider scope.

The guarantee fund for the energy saving projects should be divided into national and local levels. The national guarantee fund for the energy saving projects is contributed by State Finance and there should be the special appointed organization responsible for the management. The local guarantee fund for the energy saving projects is contributed by Local Finance and it should be responsible by the relevant departments. The two-level energy saving project guarantee fund has different responsibilities that State-level is responsible to provide guarantee for the national large-scale energy saving project, meanwhile as the backing support for the local level energy saving guarantee fund. The local energy saving guarantee fund is principally used to support EMC project in the local district, which is responsible to cultivate the local energy saving service market. This division is helpful to improve various EMC development level for various districts in a whole and avoid the non-uniform phenomenon.

5. Conclusion

The paper presents the development status and existing problems of energy service company in the present stage of China and provides the measures to continue the promotion of EMC in China. As the new emerging energy saving mechanism in the world, EMC has wide development space. Promoting the development of MEC industry is helpful to save energy consumption, improve energy utilization rate and also helpful for the smooth implementation of the strategy of “developing recycling economy, constructing energy saving and environment-friendly society” in China.

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