China Energy Efficiency Financing Landscape Report

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Preface

The near-term opportunities to expand innovative financing for industrial energy efficiency (EE) in China are monumental. One can get an idea of just how large the scope of opportunity is by understanding the aspirations of the Chinese government. The twelfth Five-Year Plan (2011–2016) calls for a 16 percent reduction in the energy intensity of production (energy used per Renminbi [RMB] of production). Achieving this goal will involve negotiating, implementing, and monitoring the energy reduction targets of nearly 20,000 companies that annually consume energy in excess of 5,000 tons of coal equivalent.

As mind-boggling as this goal is, it should be taken seriously as the Chinese government has demonstrated itself uniquely capable of implementing critical but difficult policies. (EE improvement is widely understood to be as important to the government as the one-child-per-family policy.) Though the 20 percent reduction in energy intensity prescribed by the Eleventh Five-Year Plan (FYP) was scoffed at by many experts as impossible, that goal was met.

Nevertheless, the challenge is daunting. The Top 1,000 companies that accounted for the energy intensity reductions of the 11th FYP were virtually all large, state-owned companies. Many were able to finance their energy efficiency improvements with their own capital. The rest had little difficulty obtaining financing from the banking system; their size and the implicit guarantee of repayment from the government make them favorite customers of Chinese banks.

Many of the 20,000 companies now targeted for reductions are in an entirely different situation. They are smaller, have less capital, and are not necessarily state-owned. If the 12th FYP goal is to be met, Chinese banks will need to make loans to many new and less-favored clients.

These companies are not easily reached through federal government mandates. Recognizing this, the Chinese government has allocated responsibility for meeting the 12th FYP efficiency goals to the provinces. Characteristics of the needed EE projects also complicate access to financing: the projects are small, the technology choices are complex, and such projects are often perceived as riskier (and less lucrative) than investments in production capacity. Provincial officials seeking a successful provincial economy will need to assist these companies in building relationships with the banks, most likely joining forces with local energy services companies (ESCOs) and other market players to develop viable projects.

It was in this context that the IIP commissioned this study to assess the mechanisms and availability of EE project financing for these smaller companies and the ESCOs and EE technology providers who serve them. By presenting the landscape of available financing alternatives, we hope to provide Chinese and international EE finance practitioners a vantage point from which to discern the most effective route to encourage, support, reinforce, and complement existing efforts by the Chinese government and banking system to accommodate this important market.

Patrick D'Addario
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Abbreviations and Acronyms

ABC	Agriculture Bank of China
ADB	Asian Development Bank
AFD	French Development Agency
BoB	Bank of Beijing
BRCB	Tianjin Binhai Rural Commercial Bank
CBEEX	China Beijing Environment Exchange
CBRC	China Banking Regulatory Commission
CDM	Clean Development Mechanism
CDM Fund	The China CDM Fund
CECEP	China Energy Conservation and Environment Protection Group
CEEF	China Energy Efficiency Finance project
CER	Certified Emission Reduction
China Exim	The Export Import Bank of China
CHUEE	China Utility Energy Efficiency Program
DRC	Local Development Resource Commission
DSM	Demand Side Management
EE	Energy Efficiency
EEP	Energy Efficiency Project
EIA	Environmental Impact Assessment report
EMCA	Energy Management Company Association
EPC	Energy Performance Contracting
ESCO	Energy Services Company
FI	Financial Institution
FSR	Feasibility Study Report of EEPs
FYP	Five Year Plan
GDP	Gross Domestic Product
GEF	Global Environment Fund
GHG	Greenhouse Gas
GOC	Government of China
GTA	Global Trade Alert
host	Owner of the facility where EEPs are installed and savings realized
I&G	China Investment & Guarantee Co., Ltd.
ICBC	Industrial and Commercial Bank of China
IFC	International Finance Corporation
IFI	International Financial Institution
IIP	The Institute for Industrial Productivity
IPO	Initial Public Offerings
kWh	kilowatt hour
LIBOR	London Interbank Offered Rate
MII	China's Ministry of Industry and Information
MOF	China's Ministry of Finance
MSCO	Medium Sized Company
mtce	metric tons of standard coal equivalent
NDRC	China's National Development and Reform Commission
PBOC	People's Bank of China
PE Funds	Private equity funds
PRC	People's Republic of China
RMB	Renminbi
RSF	Risk-Sharing Facility
SCLC	South China International Leasing Company
SEMCSC	Shanghi Energy Management Contract Steering Committe
SMEs	Small and Medium Sized Enterprises
SOEs	State Owned Enterprises
SPDB	Shanghai Pudong Development Bank
tce	Tons of standard coal equivalent
USD	U.S. dollar
VAT	Value added tax
WB	World Bank

1 Literature Review

China has at least two decades of experience in financing projects to improve industrial energy efficiency. As early as 1992, the Asian Development Bank (ADB) approved a U.S. dollar (USD) 107 million loan (No. 1178-PRC) with the national Government of China (GOC) to finance energy efficiency and environmental improvement projects in three industrial sectors: cement, fertilizer, and iron and steel. Based on the success of that loan, ADB provided a second energy conservation and environmental improvement loan (No. 25252-PRC) for USD 178 million in 1996. However, since energy prices were quite low then and the primary emphasis of the EE efforts was to increase production and reduce pollution, industrial companies did not generally recognize the concept of EE savings.[1]

Awareness of EE savings and financing in China essentially began with the emergence of the energy service company (ESCO) industry, which was primarily a result of Phase I of the World Bank's China Energy Conservation Project in 1997. Under this project, the World Bank (WB) funded the establishment of three pilot Chinese ESCOs located in Beijing, Shandong, and Liaoning. Since then, ESCO financing has gained attention as an important element of EE financing among the GOC, international financial institutions (IFIs), domestic banks, and research institutes.

This section contains a review of previous literature on EE[2] financing in China to aid understanding of the general market situation.

Financing the Growth of Energy Efficiency Service Industry in Shanghai (Lin, Jiang, et al. 2005), sponsored by Lawrence Berkeley National Laboratory, identifies the causes of inadequate financing resources for ESCOs, even for viable Energy Efficiency Projects (EEPs). These causes include:

1. Banks don't understand energy-saving technologies and thus don't believe the claims by ESCOs that the technologies will save enough money to repay their costs in a few years.
2. There is no generally accepted measurement and verification standard for savings; each ESCO seems to have its own system to measure savings based on project-specific engineering data and complex calculations.
3. Banks make only asset-based loans,[3] and many ESCO projects don't have sufficient capital assets.
4. Most ESCOs are new and have limited credit histories, thus it is not easy for banks to assess their repayment capacity and creditworthiness. Even if banks are willing to extend credit to an ESCO, they usually prefer to offer a working capital loan rather than a term or project-related loan.

Financing Energy Efficiency: Lessons from Brazil, China, India and Beyond (Robert Taylor, Chandrasekar Govindarajalu et al., 2008), sponsored by WB, reinforces these findings by identifying key obstacles that need to be overcome to complete EEPs. Those obstacles include the following:

1. Project financing for energy-saving projects is not conventional.
2. Some characteristics of EEPs are not conducive to financing, such as the following:
   - Cost-saving investment is not conventional, and non-specialist investors and financiers may not want to make investments or loans against the promise of future savings calculated by specialists in project development.
   - EEPs are often small and scattered; if they cannot be effectively aggregated, they may incur high transaction costs.
   - The technical content of EEPs is diverse, and effective solutions often require the art of efficient adaptation.
3. Structuring an energy efficiency deal is difficult, and limitations on the sophistication and reliability of contracting increase the difficulty of financing, even with viable EEPs.

1 See RRP of Second Industrial Energy Efficiency and Environment Improvement Project of ADB (PRC 25252).
2 EE in this report is defined as energy conservation, including waste to power, and energy efficiency retrofit only.
3 Banks do offer unsecured loans, but these products are only accessible for very large and established companies, so they are also balance-sheet based financing products.

4. Enterprises in rapidly growing economies, such as China, pay more attention to growth in sales than to increases in energy efficiency.
5. Banks lack knowledge of EE technologies, considering such specialized knowledge outside the scope of their operational interest, and there are relatively few reputable, third-party technical consultants.
6. Banks are reluctant to change their existing procedural frameworks, which are not favorable for EEPs.
7. Chinese banks were very risk-averse in the lending environment at that time.

The China Energy Efficiency Financing Phase II Project Appraisal (2010) by the WB identifies the following barriers to EE financing in China:

1. Banks perceive industrial EE lending as high risk.
2. As EE projects are perceived as riskier than normal industrial expansion projects, the global financial crisis creates even higher barriers to EE financing.
3. Banks do not know how to control environmental and social risk, impeding an increase in lending to environmentally friendly projects, including EEPs.
4. The government's RMB 4 trillion stimulus package may not sufficiently highlight EE, given the package's strong focus on boosting demand.

China's ESCO Industry 2010: Saving More Energy Everyday through the Market (Sun Xiaoliang and Zhu Lin with Bob Taylor 2011) systematically reviews the development and market situation of the ESCO industry, summarized as follows:

1. Total ESCO-involved investment during 2006–2010 was about RMB 68 billion, and although the ESCO industry has grown remarkably, with annual investment increasing from USD 100 million in 2003 to USD 4,250 million in 2010, many ESCO companies still do not have access to financing, mainly because they are technology-focused and small (65 percent of Energy Management Company Association [EMCA] members have registered capital valued at less than USD 1.5 million and non-EMCA members have far less registered capital).
2. Most ESCO investment goes to the industrial sector (74 percent) and buildings (24 percent).
3. Sixty-one percent of ESCO investments are funded under a shared-savings structure, while 36 percent are guaranteed savings.
4. The average industrial project investment under a guaranteed-savings structure (USD 2.2 million) is twice that of shared-savings projects (USD 1 million).[4]
5. The unit investment cost per ton of standard coal equivalent (tce) of energy savings from ESCO projects gradually increased from RMB 1,520 in 2006 to RMB 2,700 in 2010. The study also notes that payments by owners of host facilities in which EEPs are installed and savings realized under the shared savings structure are often fixed to provide predictable cash flows to ESCOs; this emphasizes the importance of greater formal involvement of banks and other financial institutions (FIs) in ESCO projects.

Energy Efficiency Finance: Assessing the Impact of IFC's China CHUEE Program (IEG, 2010) specifically analyzes the impact of a risk-sharing facility (RSF) provided by the International Finance Corporation (IFC). The RSF offers a partial loan guarantee to facilitate loans for EEPs through its two participating banks, the Bank of Beijing (BoB) and the Industrial Bank. The report recognizes that the very significant government efforts to improve EE and reduce emissions have generated strong demand for project-based EE financing. The report also notes the following:

1. From December 2006 to September 2009, using USD 60 million of the RSF fund, the China Utility Energy Efficiency (CHUEE) program guaranteed some RMB 3.5 billion of loans to 78 companies for 98 EEPs, without a default loss.
2. The Industrial Bank marketed the RSF-backed EE loans to existing clients and expanded its loan portfolio with relative ease. By contrast, the Bank of Beijing targeted new clients and encountered extreme difficulty in expanding its EE portfolio. Consequently, 98 percent of CHUEE's loan guarantees were issued by the Industrial Bank.

4 This is understandable because the former usually required host companies to finance the project with savings guaranteed by ESCOs. Since hosts usually are larger than ESCOs, hosts have more financing power.

3. CHUEE's success resulted from the establishment of a CHUEE network, in which the participants included 47 banks and FIs, 14 utilities, 135 ESCOs, 76 EE equipment suppliers, and 72 energy users.

4. An "Exit Plan" for sustainable EE financing is important to ensure the sustainability of energy efficiency lending activities. When investors (i.e., hosts, ESCOs, vendors, or leasing companies) implement EEPs, they should include mechanisms to raise capital, encourage risk taking, and build capacity to conduct technical appraisals.

Barriers to Energy Efficiency Improvement: Empirical Evidence from Small-and Medium-sized Enterprises in China (Genia Kostka, et al, 2011) applies an empirical, cross-section regression analysis to survey data from 479 small and medium sized enterprises (SMEs) in the Zhejiang Province to try to deepen the understanding of EE financing barriers for SMEs. It finds that the following parameters of an SME are statistically significant for the likely successful financing of EEPs:

1. Large revenues

2. Expansion plans, if an SME has plans to expand in near future, it may be more likely to invest in EEPs

3. High energy costs (reducing China's energy subsidy) motivates SMEs to reduce energy use

4. Successful borrowing history

Poor access to EE technologies and a lack of information hinders SMEs from adopting EE investments and technologies; however, policy makers and development agencies may design a systematic means for disseminating EE information to SMEs

Next Steps for Financing Energy Efficiency in China (Robert P. Taylor, 2012) is an analysis of programs implemented by IFIs and other development agencies to promote EE financing in China. Based on a desk review and personal interviews, the analysis concludes that, although these programs have greatly expanded debt financing to EEPs in China, there is more to be done in the future. To develop EE financing programs at provincial levels, the authors propose establishing partnerships between government-related EE organizations and a suite of domestic commercial FIs. This solution emphasizes the involvement of FIs, other than the banks, such as commercial guarantee companies and leasing companies. The report finds that it is necessary to expand lending beyond the first tier and a very limited number of credible large clients (mostly state-owned enterprises [SOEs]), into second-tier clients, such as SMEs with decent histories and credit.

To scale up EE investment, it is clear from the literature that FIs need to provide more financing to SMEs and ESCOs. However, innovative project financing products are urgently needed if FIs are to assume this expanded role. A major bottleneck to increased financing for SME EEPs is that banks require loan collateral that is beyond the capacity of ESCOs and SMEs. Both of these problems need to be addressed if EE financing in China is to make a significant contribution to the accomplishment of its national 12th FYP energy conservation goals.

2 Bank Sector Background

2.1 Local Banks

Specific to EE financing, China has three tiers of commercial banks. Tier One banks include the so-called Big 4, the Industrial and Commercial Bank of China (ICBC), China Construction Bank, Agriculture Bank of China (ABC), and Bank of China, as well as China's fifth-biggest lender, the Bank of Communications. Tier One banks are generally large SOEs and have total assets in excess of RMB 2 trillion.[5]

Tier Two banks are shareholding commercial banks, usually medium-sized with permission to run branches and sub-branches nationwide. Their loan portfolios are several hundred billion RMB. Tier Two banks include: CITIC Bank, Industrial Bank, Minsheng Bank, Huaxia Bank, China Everbright Bank, Shanghai Pudong Development Bank (SPDB), Guangdong Development Bank, the China Merchants Bank, etc. Many of these banks are active in EE lending. Two government-owned policy banks, the Export-Import Bank of China (China EXIM) and the China Development Bank (CDB), have recently and actively cooperated with IFIs for EE financing and are also regarded as Tier Two banks. Policy banks do not take deposits and are funded mainly through government capital injection, interest-subsidized loans from the People's Bank of China (PBOC), and the issuance of financial bonds in the interbank market to pursue designated lending segments. China EXIM is focused on trade-related finance and infrastructure development.

Tier Three banks are comprised of provincial and city banks, such as the Bank of Beijing and the Bank of Nanjing, and focus on business in their respective regions. Most Tier Two and Tier Three banks are controlled by large SOEs but have various shareholding structures and private ownership. They also have a higher proportion of SME clients and are active in EE and SME financing.

5 Tier one banks are also defined by PBOC as National Large Banks, tier two as national medium and small sized Banks, tier tree as regional medium and small sized banks.

2.2 Regulating Framework

The banks in China are primarily regulated by the PBOC, China's central bank, and the China Banking Regulatory Commission (CBRC). The National Development and Reform Commission (NDRC) and the Ministry of Industry and Information (MII) also have critical influence on the Chinese banking sector for EEP financing. Each of these organizations is briefly summarized below.

The PBOC is in charge of regular central bank functions (including issuing RMB and administering its circulation, determining the exchange rate policy, managing the state treasury as its fiscal agent, and formulating and implementing monetary policy according to China laws), regulating financial markets (including the inter-bank lending market, inter-bank bond market, the foreign exchange, and gold markets), preventing and mitigating systemic financial risks to safeguard financial stability, developing various statistics and economic forecasts, and other tasks.[6] PBOC's influence on banks is primarily on macro issues that affect all companies with bank financing needs.

- PBOC promulgated General Rules and Standards for Commercial Loans in 1996, and they still provide the basic legal framework for bank lending.
- PBOC controls interest policy. The bank designates the upper limit of savings rates (capped at the prime saving rate) and establishes the minimum lending interest rate at 90 percent of the prime interest rate. No commercial bank can lend RMB at a rate lower than that floor, nor can they accept any deposits at an interest higher than the prime saving rate.
- PBOC manages monetary policy, including legal deposit reserve requirements. To counter inflation, PBOC increased the deposit reserve requirement 13 times from January 2010 to the end of 2011. In June 2011, it adjusted the required reserve-to-capital ratio from 15.5–21.5 percent, the highest level since 1985, when the government started commercializing its banking system. (On December 1, 2011, PBOC slightly decreased the ratio to 21 percent). This

6 People's Bank of China website.

tightening of monetary policy has greatly limited the overall lending capacity of banks and diminished the availability of EE project financing.

- PBOC is responsible for issuing loan certificates, and every company must have one before it can obtain any bank loans. To enable banks to easily check a company's credit history, these loan certificates are uniquely numbered for each company and record all borrowing and repayment transactions.
- A credit reference center under PBOC is responsible for the establishment, operation, and management of a national unified credit information database. As of March 2010, this database held the credit information of over 680 million individuals and 16.2 million companies, of which 200 million individuals and 7.5 million companies have borrowing records.[7] PBOC is also responsible for the construction of a unified credit inquiry platform for financial institutions and the registry of pledged account receivables. On the basis of registering the pledge of accounts receivables, companies can apply for loans from banks.

The NDRC is the national development policy maker (responsible for the FYPs) and acts as the price regulator and approval agency for all energy-related projects in China. The NDRC is responsible for all nationwide EE work and industrial policies, and it has the following three major influences on EEPs:

- NDRC develops the policies that tell banks what kinds of EEPs and technologies and which sectors are encouraged for lending (and which are restricted). By law, banks must comply with these policies and usually regard NDRC's sector policies as a fundamental risk factor to be evaluated in lending to EEPs.
- Investments in EEPs are administered by the NDRC at the national level and are subject to approval (prior to construction) by a city or provincial Development Resource Commission (DRC) with respect to project scope, type of host facility[8], environmental impact, level of investment, and other qualification criteria required for government incentives. According to terms set out by NDRC, any electricity-generating EEPs at grid-connected hosts must be registered with the DRC and receive an interconnect dispatch agreement from the local grid (even if it is at a captive power plant on the property of a host facility after completion of construction).
- NDRC formulates government incentives for EEPs and establishes the criteria for obtaining them, with energy savings verified by NDRC-approved entities. To obtain incentives for their EEPs, ESCOs are required to register their company with the NDRC and the Ministry of Finance (MOF).

The CBRC is in charge of the following: (1) formulating supervisory rules and regulations governing banking institutions; (2) authorizing the establishment, changes, termination, and business scope of these institutions; (3) conducting examinations of banking institutions and enforcing rules; (4) conducting fit-and-proper tests of senior banking institution management; (5) compiling and publishing relevant statistics; and (6) undertaking other tasks designated by the State Council.[9] To control the overall financial risks to the country, it is also responsible for regulating and supervising banks, capital leasing companies, and guarantee companies to make sure their performance complies with laws, rules, and regulations. The CBRC authorizes the establishment, changes to, termination of, and business scopes of banks; makes on-site or off-site inspections; and monitors the qualifications of candidates for senior management positions at banks. Its policy has a critical influence on banks' daily operations and the directed lending sectors for all FIs.

MII is responsible for SME development and for formulating supporting policy for loan guarantee companies with a business focus on SMEs. To date, MII policy has not significantly affected EE financing, but MII could possibly provide policy support for innovative financial products to address the financing problems of SMEs and EEPs.

7 Presentation by Cao Jiping, Director of the Hebei Branch of the Credit Reference Centre, PBOC. See: http://doc.mbalib.com/view/63aca817ab0f4f8b281dd5b567c6fc5d.html.

8 For example, in a Coke Oven Gas reutilization project, the coke oven equipment is the underlying infrastructure subject to NDRC's sector policy.

9 China Banking Regulatory Commission website.

3 Energy Efficiency Policy Development

In the past five years, China has enacted a series of significant policies favorable to EE. Some of these policies are summarized in this chapter.

3.1 Mandatory Energy Saving Targets in the 12th FYP (2011–2015)

The 12th FYP and its sub-policies constitute a programmatic policy on EE and are intended to play a fundamental role in promoting investment in EEPs by providing the following goals and programs.

- **Energy intensity reduction goal:** As noted in the below chart, energy consumption per RMB 10,000 of gross domestic product (GDP) is expected to decrease from 1.034 tce in 2010 to 0.869 tce in 2015. This 16 percent decrease is estimated to save about 670 million tce during the 12th FYP.

TABLE 3.1: Unit Energy Consumption per RMB 10,000 of GDP

	2005	2010	2015
Tce per RMB10,000 GDP	1.276	1.034	0.869
Reduction compared to 2005		19.0%	31.9%
Reduction compared to 2010			16.0%

- **Energy efficiency programs:** Some aspects of programs include electricity pricing reforms in favor of efficiency, financial support to ESCOs, development of an energy consumption cap system for energy-intensive sectors, and pilot energy savings trading. The Key Energy Conservation Program in the comprehensive work plan for energy conservation and emission reduction during the 12th FY includes: the Energy Conservation Retrofit Program, the Energy Conservation Technology Industrialization Demonstration Program, the EEPs Social Benefit Program, the Energy Performance Contracting Promotion Program and the Energy Conservation Capacity Building Program.

To make the energy intensity reduction goal practicable and achievable, the comprehensive work plan breaks it down by province. The progress in each province will be monitored as a key indicator in the annual performance evaluation of provincial officials.

3.2 Restricting Bank Lending to High-Energy Consumption Sectors

The CBRC issued its first green financing policy, "Guiding Opinions on Extending Credit for Energy Conservation and Emission Reduction," in 2007. The "Guiding Opinions" policy defines energy conservation and emissions reduction broadly and limits increased lending to the energy-intensive sectors (e.g., cement and steel).

3.3 Encouraged Lending to EEPs

The "Guiding Opinions" policy also mentions that EEPs satisfying the same conditions as other projects and loans should receive a higher priority for bank lending. Since EEPs do not have any major asset value beyond the savings they generate, and which banks do not currently recognize as collateral, they cannot compete with normal corporate loans supported by large balance sheets or guarantees. Consequently, the regulation does not significantly encourage banks to finance EEPs.

3.4 Project Financing Business Guidelines

CBRC formulated project financing business guidelines in 2009 to standardize project-based bank lending activities. Under the guidelines, project financing is defined as a loan to a specially established project company for construction of a large production facility, infrastructure, real estate, or other project for which the project revenues constitute the major source of repayment. Banks are required to determine a reasonable upper limit for the loan based on three factors: (1) mandated equity/debt ratio of at least 20 percent (normally 30 percent) of the total project investment amount, to be provided by the host, ESCO, or other sponsor; (2) project risk level; and (3) the bank's risk tolerance level. The guideline states that the bank's project financing should focus on borrower

solvency, an assessment of the project risk from a technical/financial feasibility perspective, and the reliability of the source of repayment.[10] Guidelines further require that the projects satisfy government policies on industry and land planning, environmental protection, and investment administration. Borrowers are also required to obtain all related governmental permits, provide all project assets/expected project revenues as security to satisfy collateral conditions for the loan, and, if necessary, owners may be required to provide their stock in the project company as pledged security. Banks are careful in handling the risk involved in collecting accounts receivable from project revenues. The initial project finance experience of Chinese banks has been in power, infrastructure, and real estate projects, with receivables based on power purchased from large, state-owned grid companies or on the collection of tolls in the case of expressway or other infrastructure projects.

3.5 Energy Saving Incentives for EEPs

In the 12th FYP (2011–2015), the government increased incentives for EEPs in three ways:

- Broader eligibility: EEPs with an annual energy savings of more than 5,000 tce (or roughly 15 million kilowatt hours [kWh]) are eligible for government rewards. This threshold was decreased from 10,000 tce under the 11th FYP, allowing many medium-sized EEPs to qualify for the reward and potentially stimulating more industrial companies to initiate EEPs.
- Increased value of incentives: In eastern China, the incentive per tce saved was raised from RMB 200 in 2006–2010 to RMB 240 in the 12th FYP. In middle and western China, the incentive was raised from RMB 250 to RMB 300 per tce.
- Partial capitalization of the incentives: If approved by NDRC and MOF, 60 percent of the estimated incentive funds can be advanced before the project has been completed and commissioned. After project completion and commissioning, the remaining incentive funds are paid based on a third-party audit of the energy savings.

10 This is mainly refers to credit risk of host companies for ESCO-financed projects

3.6 Demand Side Management (DSM) Policy

In 2010 NDRC enacted a policy to promote DSM, mandating that grid companies implement DSM projects to produce an energy savings of no less than 0.3 percent of their electricity sales and 0.3 percent of their maximum power load in the previous year. Thus far, this DSM policy has not significantly affected overall EE implementation because the goal of 0.3 percent is small and energy savings have not been confirmed through subsequent measurement and verification (M&V).

3.7 Special Treatment and Tax Benefits for ESCOs

The ESCO industry is a focus of the GOC's efforts to promote EE business. A series of ESCO policies have been formulated and the incentives are becoming more concrete and practicable.

- Energy-saving incentives for EEPs implemented by ESCOs are generally higher than those provided to hosts. NDRC and MOF jointly issued "Management Methods of EPC [Energy Performance Contracting] Fiscal Reward Fund" in June 2010 to manage the incentives for ESCOs. The following is a summary of the incentives.

  a. **The eligibility criteria** require that the shared-savings model be applied; that the EEP's annual energy savings is between 100 tce and 10,000 tce[11]; that 70 percent of the total EEP investment be from the ESCO; and that the ESCO be registered with NDRC and MOF, have a registered capital of more than RMB 5 million, and have its main business scope focused in energy conservation services.

  b. **Incentive payments** are structured so that the central government will provide at least RMB 240 and the provincial government will provide no less than RMB 60 per tce saved. In Beijing and Shanghai, the total incentive paid to ESCOs is over RMB 500 per tce saved due to the high local governmental contribution.

- **Tax reduction and exemption policy**: According to Circular 110, jointly issued by MOF and the General Taxation Administration to clarify value added tax (VAT), business tax, and income tax policies for promoting the development of the ESCO industry, ESCOs qualify for VAT and business tax exemptions if they satisfy the following requirements:

11 Compared to a minimum of 5,000 tce for host companies

(1) ESCOs use the standardized EPC contract template comply with the technical requirements set forth in the General EPC Technical Rules, and (2) shared-savings terms are included in the EPC contract.

- For ESCOs to receive a three-year, 100 percent corporate income tax exemption, followed by a three-year, 50 percent reduction, the following requirements must be satisfied: (1) the ESCO should have over RMB 1 million of registered capital; (2) the ESCO should use the standardized EPC contract template and comply with the technical requirements set forth in General EPC Technical Rules; (3) shared-savings terms should be included in the EPC contract; (4) the EEP should utilize advanced technologies that can be classified into one of the 10 categories of energy conservation technical retrofit jointly issued by MOF, NDRC, and the Global Trade Alert (GTA) in Fiscal Tax (2009) Document Number 166; and (5) the ESCO should finance over 70 percent of the total EE project investment cost.

Since GOC ESCO incentive policies are predicated on use of the shared-saving rather than the guaranteed savings model in the EPC,[12] ESCOs are required to take responsibility for organizing financing for EEPs. If they cannot provide sufficient collateral for bank loans, most ESCOs cannot raise sufficient funds elsewhere to implement the EEPs. In many cases, this results in ESCOs losing the business opportunity. If hosts are compelled to organize funds from their own sources (which should not be difficult after they have been educated by ESCOs on EE opportunities), they will prefer to implement the viable EEPs by themselves. In such cases, ESCOs will likely be subcontracted by hosts to provide technical consulting services and guarantee energy savings, which will reduce ESCO profits.

12 The main difference between the shared-savings and guaranteed savings models in China is that the shared savings model requires ESCOs to finance the project, while financing under the guaranteed savings model is organized by host companies with the ESCO providing a savings guaranty.

4 Demand for EE Financing

As mentioned in the *China Energy Efficiency Financing and Investment Report (2010)* by Dai Yande, Xiong Huawen, and Jiao Jian, sponsored by the China Sustainable Energy Program and published in January 2012 during the 11th FYP (2006–2010), China invested a total of RMB 847 billion[13] in energy efficiency during the 11th FYP, of which 17.7 percent or RMB 150 billion was from government and the remaining RMB 697 billion was from social investment. In total, RMB 648 billion was invested in industry and RMB 103 billion on buildings. As estimated by the report, the EE investment (USD 125 billion[14]) made during the 11th FYP directly resulted in annual energy savings of 339.9 million tce, while the aggregated annual energy savings through all energy conservation efforts during the same period is 630 million tce.[15]

According to the 12th FYP, 670 million tce is expected to be saved during the period 2011–2015, based on the data provided in *China's ESCO Industry 2010* and the *China Energy Efficiency Financing and Investment Report (2010)*. The total EE investment during 2011–2015 is expected to be at least RMB 1.2 trillion (i.e., RMB 240 or USD 37.8 billion[16] each year).

Compared to the total EE investment during the 11th FYP period, the investment involving ESCOs is small, about RMB 20.5 billion, and only accounts for 9.8 percent on average, indicating that EEPs with large hosts

TABLE 4.1: EE Investment for the 11th and 12th Five Year Plans

	11th Five Year Period					12th Five Year Period				
Total Energy Savings (metric tons of standard coal equivalent [mtce])	630					670				
From Structure Change (mtce)	251					270				
From EE investment (mtce)	379					400				
Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Unit Investment (RMB/tce)	1520	2050	2050	2050	2700	3000	3000	3000	3000	3000
Energy Savings (mtce)	6	37	77	149	111	80	80	80	80	80
EE Investment (RMB billion)	9	76	158	305	300	240	240	240	240	240
Total EE Investment (RMB billion)	847					1200				

Note: **1.** Total energy savings equaling 630 mtce in the 11th FYP is from the Appraisal Report of Energy Conservation and Emission Reduction Achievements by Chinese Enterprises. **2.** EE investments for the 11th FYP are from page 13 of China Energy Efficiency Financing and Investment. **3.** The unit investment for each tce of energy savings capacity during the 11th FYP is from China's ESCO Industry 2010. **4.** The statistic on energy savings due to EE project investments (400 mtce) is from the "12th Five Year Energy Saving and Enviroment Protection Industry Development Plan" at www.gov.cn/zwgk/2012- **5.** The amount of energy saved from EE project investments in the 11th FYP is calculated using the unit investment data given by China's ESCO Industry 2010. **6.** It is generally believed that the unit investment per tce of energy saving will increase by 10–20 percent during the 12th FYP from 2010. Here we assume the unit investment will rise by about 11 percent to RMB 3,000/tce. **7.** The statistic on energy savings in the 12th FYP (670 mtce) is from the 12th Five Year Plan.

13 China Low-Carbon Development Report 2011–2012, published by the Academy of China Social Science in November 2011, has a similar number of RMB 859 billion for EE investment in China during 2006–2010.

14 Converted at the 2010 average exchange rate of 6.77 RMB/USD, same as in China's ESCO Industry 2010.

15 See the appraisal report on Energy Conservation and Emission Reduction Achievements by Chinese Enterprises during the 11th FYP at http://news.emca.cn/n/20110926021142.html.

16 Using the current exchange rate of RMB 6.35/USD.

TABLE 4.2: Equity Investment of EE Projects During 2006–2010

	Host	ESCOs	International Institutes	Others	Total
Amount in Billion RMB	169.00	20.52	17.98	1.00	208.50
Share	81.1%	9.8%	8.6%	0.5%	100.0%

Source: *China Energy Efficiency Financing and Investment Report (2010)*

dominated the period. The following table summarizes the equity investment of different players in EEPs during 2006–2010 using data from the *China Energy Efficiency Financing and Investment Report (2010)*.

ESCO-related investments increased to about 16.7 percent by 2010, indicating that ESCOs began to play a more important role in EE financing only after the large and easily found EE potential had already been exploited. The ESCO industry's eventual market share will greatly depend on its current and future access to financing for EEPs. Many EE investment professionals hold the opinion that by the end of the 12th FYP, between one-quarter and one-third of EE investments will involve ESCOs.[17] Reasons for the anticipated rapid growth of ESCOs include:

- To capture the significant GOC tax incentives for ESCOs, many EEPs that previously would have been financed by hosts and equipment suppliers will now be structured as ESCO projects. Hosts and vendors will likely create new ESCOs to invest in their own EEPs, although ESCO funds may still ultimately come from the hosts and vendors. The very large ESCOs established by large industrial companies over the past two years appear to support this projection.
- Top existing ESCOs with good operating and financial track records and bank borrowing histories through a WB ESCO guarantee or IFC CHUEE program may now find it easier to finance their EEPs through banks.
- Domestic commercial banks have learned from previous ESCO project financing activities sponsored by IFIs and may now even lend from their own pool of funds. For example, the Industrial Bank, after years of cooperation with the IFC CHUEE program, created an EPC Loan product especially for ESCOs.

EEPs from both hosts and ESCOs need debt financing. If it can be conservatively assumed that a financing structure on an aggregated basis will receive 15 percent from government, 35 percent from hosts and ESCOs, and the remaining 50 percent from banks, then EE project developers may seek roughly RMB 120 billion (50 percent of the total RMB 240 billion,[18] or about USD 19 billion) of funding each year from bank loans or other debt sources. If one-quarter of the market share is from ESCO projects, then ESCO market potential for the debt financing will be RMB 30 billion per year.[19]

The GOC has broken down the national energy intensity goal of 16 percent for the 12th FYP by province in the "Comprehensive Work Plan for Energy Conservation and Emission Reduction," approved by the State Council in August 2011.

In addition to securing achievement of the national energy intensity goal, the GOC also initiated a Top 10,000 Enterprise Program in December 2011. As of 2010, the ranking of the top 10,000 enterprises, in terms of energy consumption, represents 17,000 companies that have an annual energy consumption of over 5,000 tce. Their aggregated energy consumption accounts for over 60 percent of China's total energy use. Consequently, these companies are the primary focus of the GOC for promoting and achieving the targeted 16 percent reduction in energy intensity. See Table 4.3 indicating the results achieved in the 11th FYP and the targets allocated to each province for the 12th FYP.

17 For estimation, as indicated in the "12th Five Year Energy Saving and Environment Protection Industry Development Plan," the output of energy saving industry will increase from RMB 83 billion in 2010 to RMB 300 billion in 2015 (See: www.gov.cn/zwgk/2012-06/29/content_2172913.htm). The tripled output of industrial energy savings must come from the industry's bigger proportion of total EE investment as the total EE investment during the 12th FYP will not grow at the same rapid rate.

18 As stated earlier in this section, a conservative estimate of annual EE investment demand during 2011–2015 is RMB 240 billion.

19 In comparison, during the 11th FYP ESCO projects received a total of RMB 46.9 billion in green credit loans from banks, or RMB 9.3 billion from bank loans annually (see page 65 of the China Energy Efficiency Financing and Investment Report 2010). Many factors contribute to the increase of ESCO demand on bank financing, including (1) the increase of unit energy savings investment (the average unit EE investment in the 11th FYP was RMB 2232/tce, and it is predicted to be RMB 3,000 per tce in the 12th FYP); (2) the increase of the energy saving target from 379 mtce to 400 mtce; and (3) the increase of ESCO share in the EE investment (10–25 percent).

TABLE 4.3: Energy Conservation Targets by Province

Province		Unit GDP Energy Consumption Reduction (%)			Energy Saving Goal in the Top 10,000 Enterprise Program (mtce)
		11th FYP Acheived	12th FYP Estimated	Aggregated 2006-2015	
	National	**19**	**16**	**32**	**250**
1	Anhui	20	16	33	8
2	Beijing	27	17	39	2
3	Chongqing	21	16	34	3
4	Fujian	16	16	30	5
5	Gansu	20	15	32	4
6	Guangdong	16	18	31	15
7	Guangxi	15	15	28	4
8	Guizhou	20	15	32	4
9	Hainan	12	10	21	0
10	Hebei	20	17	34	22
11	Heilongjiang	21	16	33	6
12	Henan	20	16	33	16
13	Hubei	22	16	34	7
14	Hunan	20	16	33	6
15	Inter Mongolia	23	15	34	12
16	Jiangsu	20	18	35	22
17	Jiangxi	20	16	33	4
18	Jilin	22	16	35	4
19	Liaoning	20	17	34	14
20	Ningxia	20	15	32	3
21	Qinghai	17	10	25	1
22	Shaanxi	20	16	33	7
23	Shandong	22	17	35	25
24	Shanghai	20	18	34	7
25	Shanxi	23	16	35	14
26	Sichuan	20	16	33	10
27	Tianjin	21	18	35	5
28	Tibet	12	10	21	0
29	Xinjiang	9	10	18	3
30	Yunnan	17	15	30	5
31	Zhejiang	20	18	34	10

5 Bank Lending Practices

A summary of the standard bank lending practices for EEPs in China is provided in the following sections.

5.1 EE Lending Is a Small Part of Bank Loans

Tier Two banks, which are the most active in SME and EE financing, lend only about 2–5 percent of their total corporate loans to EE, renewable energy, and environmental protection projects combined.[20] In 2010, banks provided about RMB 23.1 trillion of new corporate loans.[21] Annualizing the total green credit loans of RMB 488.4 billion[22] during the 11th FYP shows an EE investment of RMB 97.7 billion per year, which only accounts for 0.42 percent of the 2010 loans. In comparison, EE investments during the 11th FYP account for 0.92 percent of the total social fixed assets investments.[23] Thus, it can be concluded that EE lending is a niche or small business to banks, despite the significant national political importance placed on it by the GOC.

20 Annual reports and social responsibility reports of related banks.

21 PBOC summary on sources and uses of credit funds of financial institutions in 2010, see: http://www.pbc.gov.cn/publish/html/2010s03.htm. The newly issued loan of RMB 23.1 trillion is based on the assumption of an average 2.5-year loan term.

22 China Energy Efficiency Financing and Investment Report (2010), page 61. This report may overestimate the banks' lending on EE projects since it mainly refers to green credit loans, which can cover the financing for many other environmental friendly projects and are not limited to EE projects.

5.2 Interest Rates for EEPs

As a result of China's recent increases in inflation, the PBOC has repeatedly raised prime interest rates and legal deposit reserve requirements for banks which, feeling the liquidity pinch, would like to lend at higher interest rates. However, as previously stated, no commercial bank is supposed to lend RMB at a rate higher than 90 percent of the prime lending rate.

The table below clearly indicates the trend of rising interest rates for the period of January–September 2011.

23 China Energy Efficiency Financing and Investment Report (2010), page 13.

TABLE 5.1: Interest Rates for the Period of January–September 2011

	Below	Prime	Over Prime					
Basis points	[0.9 to 1.0]	1.0	Total Over Prime	1.0 to 1.1	1.1 to 1.3	1.3 to 1.5	1.5 to 2.0	above 2.0
January	21.4	29.5	49.2	16.0	15.0	6.1	8.7	3.5
February	19.9	31.8	48.3	17.9	14.6	5.6	7.3	2.9
March	14.0	30.2	55.8	18.3	17.8	7.0	9.2	3.6
April	12.5	28.4	59.0	18.7	20.6	7.4	9.1	3.2
May	11.2	28.0	60.9	20.8	21.3	7.3	8.7	2.7
June	9.9	28.9	61.2	20.6	22.7	7.2	8.1	2.6
July	8.5	26.7	64.7	20.8	24.0	8.1	9.0	2.9
August	6.1	25.3	68.7	22.4	25.8	8.4	9.1	3.0
September	7.0	25.9	67.2	21.6	25.5	8.3	8.9	2.9

Source: People's Bank of China

As noted above, in January 2011, 49.2 percent of bank loans charged interest rates that exceeded the prime rate set by PBOC, and this figure continually and quickly increased to 67.2 percent in just 9 months. During this period, PBOC adjusted the prime rate upward twice by 0.25 percent each time. The highest interest rate charged by banks is slightly over 12 percent for a three-year conventional loan to a medium sized enterprise.[24]

Compared to other types of projects, EEPs are quite likely to receive preferential treatment in interest rates. According to feedback from many banks, if they accept the loan application for financing an EEP, they may charge at the 'Base' prime rate or, at most, 10 percent above the prime rate.

However attractive, low interest rates appear to be of secondary importance in the context of difficulties that would-be borrowers for EEPs face in achieving borrower eligibility and meeting collateral requirements, etc.

5.3 Chinese Bank Credit Procedures

Corporate and EEP loans, as well as other project loans, are subject to the same standard credit evaluation procedures, with the latter subject to several additional procedures in most Chinese banks. After a bank and borrower reach agreement on the loan purpose and primary terms, they usually require the borrower to provide a copy of the feasibility study report (FSR) and to document environmental protection and project implementation permits obtained from the appropriate government agencies. Thereafter, the borrower typically follows the below procedures to get the EEPs financed:

- **Due Diligence:** This process is often conducted by client managers in a local branch of the bank in three primary areas: legal compliance check; loan security examination; and borrower/project profitability analysis through on-site visits, interviews, credit checks, third-party technical reviews, and other measures.
- **Branch Primary Review:** The due diligence report is then submitted to the vice president or president of the branch in charge of the credit extension for approval.
- **Credit Assessment and Internal Rating:** After approval from the branch's vice president, the loan application, together with supporting documents, is submitted to the credit control department in the branch to assess the borrower's creditworthiness, especially with regard to the quality and value of collateral, which may be assessed by a professional third-party assessor utilizing at least two valuation methods, and to assess the ability of the project's cash flow to cover the debt service. An internal rating is then calculated for the borrower by a computer system.
- Credit Cap and Interest Setting: The branch's credit control department next determines the maximum credit line that can be granted to the borrower. This is influenced by (1) any applicable sector credit policy formulated by headquarters, (2) the credit quota allocated to branch for its borrowers, and (3) the credit analysis, including the borrower's solvency capacity, borrowing need as assessed from normal operation, and the borrower's internal rating. The interest rate will also be established on the basis of the internal rating.

Depending on the amount of the loan to be extended, the EEP's loan application will be approved by the president at the bank's branch or headquarters level.

5.4 Collateral Requirement

Chinese banks are quite risk adverse. The major consequence of this characteristic is that when borrowers' balance sheets are not very strong, collateral weighs heavily in the assessment of their loan applications. Only very large companies, usually the top 5–10 companies in a sector or region, may be able to obtain unsecured loans. Table 5.2 summarizes collateral obtained by the major Tier Two banks during 2010.

Most SMEs (including ESCOs) are not eligible for unsecured loans, and their operations do not entail investments in high-collateral value assets like land, buildings, or financial securities. Instead, they have to obtain a third-party guarantee to secure financing from a bank or a leasing company. Otherwise, they have to self-finance with equity, which can result in diluting ownership or control of their companies.

Banks accept loan guarantees issued by qualified guarantee companies that have passed the banks' credit assessment of their assets, experience, and management, or guarantees issued by third-party guarantors with high credit ratings (such as AA or above). Banks also extend credit lines to qualified guarantee companies. In most cases, the guarantee company provides a cash deposit of 10–20 percent of the loan value as security.[25]

24 Interview by the author, October 2011.

25 Guaranty companies generally can get 5–10 times the financing leverage from banks

TABLE 5.2: Collateral Obtained by the Major Tier Two Banks During 2010

	BoB	Huaxia Bank	China Everbright Bank	Industrial Bank	Minsheng Bank	SPDB
Total loans (billion RMB)	**333**	**528**	**779**	**845**	**1058**	**1146**
Unsecured %	32%	18%	31%	24%	26%	22%
Guaranteed %	35%	34%	26%	23%	26%	28%
Mortgage %	25%	36%	36%	49%	39%	40%
Pledged %	7%	11%	8%	5%	9%	10%

Source: Annual reports from the banks listed.

Recently, banks have started to broaden the scope of acceptable collateral. For example, many banks now accept accounts receivable that satisfy certain conditions as collateral, such as when the creditor has a very high rating. If the creditor does not have a high rating, banks will require borrowers to buy insurance on the creditor's credit risk (called domestic trade credit insurance). For EEPs implemented with larger-sized hosts, loans collateralized by accounts receivable could become a new direction in EE financing.

Another challenge for EE lending is the low collateral asset value of EEPs versus typical collateral (land, buildings, securities, etc.) provided to banks. Under current bank practice, EE project equipment is heavily discounted in the collateral value assessment. For example, ABC provides an 80 percent discount on special equipment, such as electrical equipment, electronic products, communication equipment, and instruments, which are all staples of industrial EEPs. By comparison, accounts receivables, if acceptable, are discounted at 30–50 percent.

Guarantee and leasing companies also require collateral as a counter-guarantee measure. The difference is that, in comparison to banks, guarantee and leasing companies can accept somewhat greater credit risk due to their specialized professional experience and larger risk tolerance. In many cases, funding support and incentives from local governments promote financing to SMEs and other specific sectors for which the local government has a priority agenda. Thus, guarantee and leasing companies have a wider range of acceptable collateral and may require lower discounts rates.

5.5 Self-Capital Requirement

Although EEPs are legally required to have a minimum of 20 percent equity provided by the borrowers to qualify for bank financing, in practice, banks require 30–50 percent equity on the total EEP investment of most SMEs.

5.6 Project Loans

Many Chinese banks now provide loans to large-scale infrastructural projects (hundreds of millions of RMB), such as highway construction, real estate development, wind farms, and hydropower projects. When evaluating a project's feasibility, banks can apply the project's future cash flows in their analysis. To minimize credit risk, however, banks still require the borrowers to provide additional collateral or guarantees. Acceptable forms of collateral under the project loan model include land, buildings, charging rights protected by government policy,[26] credit support from a credible parent company, a loan guarantee from an acceptable guarantee company or third-party guarantors, universal purpose equipment, or securities or other liquid assets.

For EEPs implemented by smaller companies, the possible solution to providing sufficient collateral value might be to persuade banks to accept the project's future cash flows, which banks are reluctant to do because of their perceived high risk

26 If a renewable energy project is approved by government, then it has the right to connect to the grid and charge the grid company at the approved feed-in tariffs, per related government regulations. Another example is that a highway project, if approved by government, has the right to charge vehicles at approved toll price terms after completing construction.

relating to realization of future cash flows (savings) and the lack of government policy-protected revenues. Furthermore, banks are reluctant to accept future project cash flows as collateral because they are not secured assets that can be converted to cash if the borrower does not use the newly generated cash flow to repay the loan. A possible solution that is often discussed, but not yet implemented, is to escrow cash flows assigned from the borrower.

6 Debt Financing For EEPs

When discussing debt financing, it is necessary to understand that the collateral value of EE project assets is generally low. This low collateral value is based on certain characteristics of EEPs, including the following: (1) a large part of project costs are in project design and other, non-equipment costs; (2) the hardware purchased is often integrated into the host's production processes and has little value if removed; and (3) expensive monitoring equipment has little value outside of the project. In addition, financial institutions usually give a large discount on the fixed assets of an EE project since they are not universally used equipment (i.e., a motor or pump).

6.1 Domestic Bank Lending

Conventional loans

Fundamentally, these loans represent balance-sheet financing, so all banks provide such loans with a focus on loan security.

Working capital loans are not large because their purpose is to finance operating costs. The term is generally one year or less (in special cases, it can be up to three years for borrowers with a credit rating of A or above). Interest rates are floating and are lower than long-term loans. The borrower is required to guarantee the loan repayment by providing collateral generated from the business, such as inventory or accounts receivables. If the borrower cannot provide sufficient collateral value, as is often the case with SMEs and ESCOs, additional loan guarantees from a third party are required. Since EE loans are generally not large, large- and medium-sized companies may be able to supply sufficient collateral by making the repayment resource the entire operating revenue of the borrower. A working capital loan does not require a supporting FSR or governmental approvals, and the bank's decision-making period is short, usually three months or less. Other characteristics of working capital loans include:

- **Application windows** for these loans are very broad and available at almost all commercial banks, but they are difficult for SMEs and ESCOs to obtain.
- **EEP financing** gains only a few small benefits from this product because it is short-term and small (only a few million RMB for SMEs, which is not sufficient for even medium-sized projects), and it requires collateral.

Fixed-asset investment loans are provided by banks to help companies finance investments in fixed assets needed for their businesses. The definition of fixed assets includes civil works, equipment procurement and installation, infrastructure construction, technical retrofits, new product research and development, etc. The loan approval process is relatively long (up to one year) and conducted on a case-by-case basis. Borrowers are required to provide an FSR, an Environmental Impact Assessment (EIA) report, and obtain government approvals for them. Eligible borrowers must have a credit rating above A (some, like ABC, require AA or above). In addition to requiring mortgages on the financed assets, banks require borrowers to provide other security that typically includes the cash flows generated from the financed assets and the free cash flow of the borrower. Fixed-asset investment loans are middle-to-long term (up to seven years). Terms longer than 7 years need special approval from the bank's head office. The borrower's overall debt/asset ratio is commonly required to be less than 50 percent. Other characteristics of fixed-asset investment loans include the following:

- **Application windows** for these loans are very broad and are available at almost all commercial banks. However, they are quite difficult for SMEs and ESCOs to obtain, mainly due to the collateral requirement for fixed assets that SMEs and ESCOs typically do not have.
- **EEP financing** benefits are limited to only a few large projects since borrowers are required to provide acceptable collateral, and banks check the borrower's credit and history of operation profitability. This kind of loan is backed by the whole credit of the borrower, not merely the financed assets. If obtained, it could be very beneficial.

New credit products

With the establishment of the GOC's national supportive policies, external support by international organizations, and the rising awareness of EEPs, more banks are seeking to expand their business in "green credit," especially in creating proper financial products for ESCOs, such as future receivables from EEP savings. This is by no means a mainstream product, but rather a limited offering from banks participating in the IFI EE finance programs described in section 6.2.

Project loans were launched by several banks after the CBRC project financing guidelines were issued in 2009. This product is actually derived from the fixed-asset loan class, but has the following differences: (1) banks have no recourse to the project sponsor beyond the sponsor's ownership share of the project company and its assets; (2) the sole source of loan repayment is the project company's revenue and cash flow; and (3) relatively higher financing leverage is allowed if the project company or the project sponsor have a high rating (i.e., A or higher). For conventional infrastructure and real estate projects, the debt financing ratio could reach 70–80 percent. If the project company or sponsor does not have a sufficiently high credit rating, the bank typically requires security in addition to the project assets to make sure the loan is fully secured. A few banks, such as Huaxia Bank, Industrial Bank, and BoB, have specific loans for EEPs because of their participation in EE lending programs from IFIs, as discussed in section 6.2. Other characteristics of project loans include the following:

- **Application windows** are relatively broad, and a large number of commercial banks can provide this product. However, normally only the bank's headquarters have authority to approve a project loan, which results in most loans being very large to command the bank's interest. These loans are very difficult for SMEs and ESCOs to obtain, mainly due to the collateral requirement and the large project scale. There is no way for EEPs to have sufficient collateral when project assets are 60–80 percent discounted by banks and the total EE investment includes a large proportion of soft costs.
- **EEP financing:** benefits from this product because these loans are a particularly good match for large EEPs, but only if the bank accepts the savings cash flow as collateral, as EEP equipment has very little collateral value. Project loan procedures are very strict as well, and bank branches usually do not have the authority to approve project loans. Thus, it requires very large projects and related loans (at least RMB 50 million for Tier Two banks and RMB 100 million for Tier One banks) to motivate the branch's staff to go through the complex procedures required on this loan. So far, banks have felt this is too risky to do.

SME joint surety loans normally entail three to seven independent SMEs of similar scale and the industrial sector joining together to form a legally constituted entity to provide multiple joint sureties to the bank for loan repayment. The joined companies typically operate in a sector encouraged by government policy and should have an impeccable credit history. Other eligibility criteria vary from bank to bank. For example, ICBC requires that each SME have a credit rating above C and a debt/asset ratio of less than 70 percent.

The purpose of this loan is primarily working capital, and it is typically capped (RMB 15 million multiplied by the number of SMEs in the entity for ICBC, and RMB 5 million for BoB). The amount of credit extended is determined by assessing the joint surety's debt load capacity. The loan term is usually one to three years.

- **Application windows** are offered by just a few banks, such as BoB, ICBC, and China Everbright Bank. These loans are complex and difficult but not impossible for SMEs and ESCOs to obtain. There are, however, associated risks and restrictions for all of the involved companies. The more companies involved, the larger the potential credit line, but the complexity of coordination and level of difficulty also increase.
- **EEP financing** is affected very minimally by this loan.

Accounts receivable pledged loans are starting to be accepted by Chinese banks as collateral, especially as banks gain experience in international trade finance and become more knowledgeable about receivables finance from Europe and the United States. ABC now accepts accounts receivable to collateralize lending to borrowers who have regular relations with the bank, an A credit rating, and creditors with an AA or better credit rating. The recognition of accounts receivable is broader than accounting recognition. For example, long-term receivables from a lessor who is contracted by the client and installs the equipment may be recognized by the banks as accounts receivable even before lease payments are invoiced. However, accounts receivable are generally regarded by banks as high-risk security, and interest rates are higher than for other secured loans (at present, over 12 percent). Currently, this type of loan is short-term and used by borrowers for working capital. The loan term is usually one to three years.

- **Application windows** are limited to a few banks, such as the Bank of Beijing and ICBC, and are difficult for SMEs and ESCOs to obtain, depending on their client's credit quality. If SMEs (ESCOs) have long-term contracts or stable sales

orders with credible clients, it may be possible for them to apply for this loan. However, due to the short repayment term, it has very limited value in ESCO EEP finances.

- **EEP financing** is minimally impacted by this type of loan currently. However, with some innovation in the product design, accounts receivable pledged loans may have broad application potential for viable EEPs as these projects typically will generate significant future savings. Difficulties in using accounts receivable lending for EEPs at present are that: (1) banks do not think that accounts receivables from EEPs have acceptable reliability and stability, because the savings are projections made by the EEP developers, and there is no established track record or other source of data for banks to verify that these estimates are real and reasonable, and (2) banks are required to provide a longer repayment term than normally extended for accounts receivables loans, which are short–term, to better match the term of host payments. One possible innovation would be to secure insurance or a guarantee (combination of performance and payment) on the EE accounts receivable.

ESCO savings loans

The BoB recently introduced the Energy-Saving Loan 2.0 financial service scheme, which created an innovative finance model, called the ESCO Receivables Pledge Loan, and packing credit models based on the business features of ESCOs, such as light-fixed assets, high investment, and slow return. In this scheme, credit will be provided to ESCOs based on the detailed calculation of the ESCO's project investment return period and the cash inflow forecast. The repayment term is one to five years, while the period to repay the principal loan amount does not exceed two years. BoB is operating in a special approval channel for this type of loan. For risk control, it is looking primarily to existing project receivables as the primary collateral; future receivables are also pledged for replenishment. The BoB is also securing a reasonable combination of property, machinery, or third-party guarantees as additional collateral. Other examples of ESCO savings loans include the following:

- The Shanghai branch of the SPDB has developed a future receivables pledge loan product for ESCOs. The product is customized for ESCOs who registered with the Shanghai Energy Management Contract Steering Committee (SEMCSC). Considering the service nature of the ESCO industry, no real-estate and no guarantees are needed for this loan product. The registered ESCO can collateralize the loan with its future receivables pledge, and the risk coverage depends on the quality and nature of those future receivables. The application documents include a registration certificate from SEMCSC, the ESCO service contract with the hosts, a measurement and verification certification by host enterprises upon completion of the construction, and some other basic information set forth in the application.
- The China Construction Bank and Ping An Bank (formerly the Shenzhen Development Bank) are both actively engaged in developing energy savings financing based on the ESCO service contract, which could be disseminated to their local branches nationwide. Some branches of the ICBC, China Merchants Bank, and Minsheng Bank are also actively practicing creative business models with ESCOs and financing EEPs with plans to expand to other branches after they obtain enough experience to convince headquarters of the low risk.

SME loan

Many banks offer SME loans and have recently increased their SME sector lending quotas at the direction of the GOC. Typical features of SME loans include: (1) a borrower credit rating requirement of at least A; (2) a small upper limit (around RMB 5–30 million); if the borrower has a high credit rating, the limit may be raised; (3) a one to three year term; (4) either a mortgage on real estate property (with a higher collateral rate or less discount) or a guarantee provided by an acceptable guarantor or guarantee company for security.

- **Application windows** for this kind of product are at a majority of banks, but it is difficult for smaller SMEs and ESCOs to obtain them compared to larger SMEs.
- **EEP financing** can be difficult as the relatively short term and small amounts may be insufficient, and the collateral requirement can halt the process.

The China Clean Development Mechanism (CDM) provides low-interest loans to banks. As of December 2011, fees accumulated through the certification of emissions reductions achieved under CDM projects in China had built the China CDM Fund (CDM Fund) up to RMB 10 billion. In alignment with national regulations, the CDM Fund will be used to support development of greenhouse gas (GHG) emissions reduction projects through equity investments, on-lending loans through banks, financial guarantees, and capacity building. As of

December 2011, the CDM Fund had on-loaned RMB 1.54 billion to 31 projects in 13 provinces, of which 12 projects are EEPs. The interest rate is low. Loans below RMB 70 million need to get approval from the CDM Fund management center, which will forward the loan to NDRC and MOF for recording. All loans over RMB 70 million are first approved by the CDM Fund's review council and then approved by NDRC and MOF.[27]

6.2 IFI EE Finance Programs

IFIs actively promote and lead EEP financing in China. Through EE finance programs, IFIs provide funds to finance a number of EE subprojects. In many cases, the funds can revolve since the IFI project loan terms are much longer than the repayment terms of the EE subprojects. The IFI funds are typically provided through the GOC to domestic banks for project on-lending.

The World Bank

The World Bank has a significant, long-standing and active role in promoting energy efficiency in China. In the mid-1990s, under a project co-funded by the Global Environment Fund (GEF), the WB established three pilot Chinese ESCOs. From 2003 to 2010, the WB also supported the China Investment & Guarantee Co., Ltd. (I&G) by offering an ESCO guarantee product.

The current WB project, China Energy Efficiency Financing (CEEF), is now in its third phase. Phase I was initiated in May 2008, Phase II in 2010, and Phase III in 2011. CEEF was set up to have an international cooperation project with the GOC to promote energy savings and emissions reduction. The project aims to promote energy-saving emissions reduction; improve energy efficiency financing market mechanisms and systems; improve the energy-saving technological-transformation ability of large and medium-sized industrial enterprises; and strengthen GOC's energy policy, planning, and implementation capacity. The project is currently the largest international loan/grant project in the field of energy savings in China. In total, the WB has provided USD 400 million to the following three Chinese banks for to them to lend to EEPs: (1) China EXIM (Phase I and III, USD 200 million), (2) Huaxia Bank (USD 100 million in Phase I), and (3) China Minsheng Bank (USD 200 million in Phase II). The WB loan repayment term is 18 years and is supported by a sovereign guarantee. The participating domestic banks are required to provide matching money from their own capital sources in proportions of 1:1 or 2:1 to the WB loans.

27 http://www.cdmfund.org/cn/news_info.aspx?n=20120216110125233189

The World Bank Program Features	
Category	Project loans
EE project eligibility	this program is specially designed for EEPs
Term	3–5 years, as a rule
Interest	Floating, usually 10%–20% below conventional loan products at or above the prime rate level
Collateral	Dependent on the participating bank's requirements
Focus	Large projects and large EE developers with an operating revenue of over RMB 400 million for the industrial sector
Participating banks	China EXIM, Huaxia Bank, China Minsheng Bank

China EXIM

China EXIM's participation in WB's CEEF project (its largest and most successful participating bank) is described here to illustrate how this program works. Phase I of the EXIM bank loan is USD 100 million for 17 years with a grace period of four years. In addition, the China EXIM provides domestic funds in equivalent RMB to at least USD 50 million over the project's duration, with a maximum of seven years in specific circumstances. Eligible loans will include medium and large-scale energy conservation investments in which the primary incremental benefits are cost savings associated with reduced energy consumption. This financing is targeted to energy-efficiency-enhancing rehabilitation and renovation EEPs in energy-intensive industries, such as (but not limited to) iron and steel, petrochemicals and chemicals, and construction materials. EEP investments are expected to be in the range of USD 5–25 million, with the borrowers contributing no less than 30 percent of the investment cost. EEPs are not eligible for such financing if their incremental benefits are primarily derived from capacity expansions or non-energy related cost savings.

During Phase III, the WB provided another USD 100 million loan to China EXIM. Qualified energy-saving sub-loan beneficiaries include large and medium-sized industrial energy consumption enterprises, large and medium-sized ESCOs providing energy-saving retrofits for industrial enterprises, and independently constituted project companies. To comply with the 11th FYP, qualified energy-

saving projects should focus on energy-saving technological transformation in key energy-consuming industries. This focus includes energy-efficient technologies, such as more efficient industrial boilers, kilns, and heat exchange systems; residual gas, waste heat, and residual pressure recovery; variable frequency speed regulation and energy-saving technologies on existing mechanical and electrical equipment, including engines, pumps, heating, and ventilating devices; and industrial energy system optimization.

China EXIM is also providing a specialized loan product for EE companies: the China Energy Efficiency Project Loan. Requirements for borrowers include being an independent legal entity registered with China's State Administration of Industry and Commerce with principal business interests in energy saving diagnosis, design, transformation, and operation, as well as registration with NDRC and MOF or recommendation from China's Ministry of Industry and Technology. In addition, business owners must be involved in the import and export business with at least an A+ credit rating. The EEPs should generate at least 10 percent energy savings. The maximum loan amount for a single project is 80 percent of the total project investment for a minimum of one year and up to 10 years.

French Development Agency Program Features	
Category	Project loans
EE project eligibility	EEP is an eligible project type
Term	3–5 years, as a rule
Interest	Floating, usually 10%–20% below conventional loan products and at or above the prime rate level
Collateral	Per participating bank's requirement
Focus	Focus on medium sized projects
Participating banks	SPDB, Huaxia Bank, China Merchants Bank

The French Development Agency (AFD)

AFD lent Euro 120 million to GOC, which, in turn, on-lent to three domestic banks in March 2010: SPDB, Huaxia Bank, and China Merchants Bank, each with Euro 40 million for a term of 10 years at 6-months London Interbank Offered Rate (LIBOR). Eligible subprojects for financing with the AFD loan include both renewable energy and energy efficiency.

The ADB

The ADB has implemented three EE loan projects with three provinces: Guangdong (2009), Shandong (2011), and Hebei (2012). ADB loans provide USD 100 million to each respective provincial government and are re-lent to EEPs through a financial intermediary that manages and reuses the funds during the 15-year loan term.[28]

The Asian Development Bank (ADB) Program Features	
Category	Project loans
EE project eligibility	Specially for EEPs
Term	3–5 years, as a rule
Interest	Floating, 10% discount from the prime interest rate, additional incentives can lower the effective interest to about 3%–4%[29]
Collateral	Loan guarantee required, typically from the local government. A commercial guarantee was accepted in Guangdong
Focus	Medium-sized EEPs and ESCOs are eligible borrowers
Participating banks	Guangdong Financial Trust Co. in Guangdong, China Everbright Bank in Shandong, and Huaxia Bank in Hebei

28 The ADB LIBOR-based loan interest rate is about 0.7 percent as of December 2011, and the prime interest rate for a 6-month loan is 6.1 percent, meaning the nominal interest rate of an on-lent RMB loan to subprojects is 5.49 percent. The three provinces adopt different refunding mechanisms, but all significantly lower the interest cost of subprojects. For example, in Hebei, half the accumulated interest difference between 5.49 percent collected from subprojects and 0.7 percent payable to ADB during the first five-year sub-loan term will be awarded to subprojects (subject to their successful implementation), thus bringing the actual interest rate to about 3.1 percent.

29 According to page one of Bond Markets, published July 2011 by the TheCityUK, the global bond market as of December 2010 is USD 95 trillion and the equity market capitalization in the same time is USD 55 trillion. Combining information on equity markets from the World Federation of Exchanges as of December 2010, Japan's bond/equity capitalization ratio is about 3:2, the United States' is 2:1, China's is 0:7.

For EEPs implemented by smaller companies, a possible solution to providing sufficient collateral value might be to persuade banks to accept the project's future cash flows. Banks are currently reluctant to accept these because of the perceived high risks related to the realization of future cash flows (savings) as there are no government policy protected revenues.

6.3 Bond Financing

The bond market in China is not well developed and was worth only about 73 percent of the stock market as of December 2010. In contrast, capitalization of the global bond market is about two times that of the stock market. In addition, within the bonds of RMB 1.12 trillion issued by enterprises in China, only 1.03 percent, or RMB 15.5 billion is issued by non-SOEs. Only recently have some SMEs started to jointly issue bonds. For example, as reported by China Finance Online[30] in February 2011, eight SMEs in Henan province, organized by the Henan Provincial Industry and Information Bureau, jointly issued RMB 490 million in bonds guaranteed by four guarantee companies to the interbank bond market. The government will provide subsidies to the guarantee companies according to the central government's SME credit supporting policy. The funds raised will be used for agricultural product processing, technical retrofits, high-tech development, and energy conservation. The bond term is six years, with an interest rate of 7.8 percent paid to the buyers (who are banks), but the actual financing cost to the eight SMEs is estimated at over 12 percent annually, due primarily to issuance costs and guarantee fees.[31] This is a pilot program that depends on government support for organizing the guarantee and providing subsidies. It is essentially the same as bank financing, but its funding channel is not as wide. Banks can also provide a guarantee letter to support the issuance of a bond.

Following this success, China's ESCO association, EMCA, is making efforts to organize several ESCOs to jointly issue bonds with a guarantee from I&G, which was the partner guarantee institution in the WB's ESCO guarantee program. As such, the bond financing fundamentally will rely upon I&G's guarantee.

30 http://bond.cnfol.com/110222/106,1306,9365334,00.shtml.

31 Additional to the 7.8 percent interest cost, guarantee fee is about 3 percent, issuance cost about 1 percent

7 Leasing For EEPs

7.1 World Bank Leasing

The WB launched a leasing project in June 2011 named the Shandong Energy Efficiency Project. The WB will provide loans of USD 133 million to one ESCO and two leasing companies in the Shandong province: the Shandong Rongshihua Leasing Company (an ESCO) will borrow USD 64 million, the Guotai Leasing Company will borrow USD 50 million, and the Shandong Luxin Energy Investment and Management Company will borrow the remaining USD 20 million. These companies will use the WB loan proceeds to finance EEPs in the form of financial leasing during the whole loan term of 17 years.

Program features include the following:

- Category: Financial leasing
- Region: Projects in Shandong province
- Targeted Customers and Types of EEPs: Leasing companies and ESCOs and industrial EEPs, sub-borrowers could be industries, ESCOs, and equipment vendors
- Collateral: The lessee must provide about 20–30 percent of equipment value as a deposit
- Typical Term: The lease contract term is three to five years
- Lease Interest Rate: 12 percent plus the cost of external guarantee/insurance resulting in a total effective rate of about 15 percent
- Participating Companies: Rongshihua, Guotai Leasing, and Shandong Luxin

Rongshihua and Guotai leasing companies are sub implementation entities that carry out the leasing for EEPs for the WB's leasing project in Shandong province. Rongshihua will use the WB funds to provide leases for EPC projects. Rongshihua can also play the role of a super ESCO, supporting small ESCOs in Shandong province by allowing them to use lease financing to carry out their EEPs under the ESCO model with three-to-five-year contract periods and an annual static return of around 12 percent. Small ESCOs will be required to get a guarantee from their host clients. The maximum funding per project is about RMB 30 million and is limited to funding the equipment investment.

Guotai Leasing is supporting small ESCOs, but it is funding the EEPs through leases to the industrial host enterprises.

7.2 Financial Leasing

After shared savings, guaranteed savings, and outsourcing, financial leasing makes up the fourth energy performance contracting model in the ESCO industry. In the leasing of EEPs, the main business model is a sale lease-back, wherein the lending period matches the EPC project sharing period with the host, which is normally one to five years. The rate of return is about 10–13 percent annually.

Like other financial institutions, leasing companies have reservations about funding EEPs in the ESCO industry, but some leasing companies, like the ones described below, have successfully funded EEPs with leases.

- **South China International Leasing Company (SCLC)** launched separate joint ventures with Siemens and Schneider in 2005. SCLC then developed a cement frequency conversion transformation project in Wulan and concluded an energy performance contract for a charred coal frequency conversion project in Shanxi province. Siemens and Schneider are providing related products and services and guaranteeing a portion of the energy savings. The SCLC provides financing support and collects rental payments. After continuous restructuring of its financing and leasing company, Siemens recently established energy savings and emission reductions as the main business focus of its leasing business in China.
- **China Zhongtou Leasing** is a non-bank financial leasing institution, registered in Beijing. The company, formerly known as Union International Leasing Company Limited and approved by the Ministry of Commerce, was established in March 1989. China Zhongtou Leasing also listed energy savings and emissions reduction as a key business focus with 1 billion Yuan support. China Zhongtou Leasing signed a strategic cooperation agreement with Schneider Electric for customer energy-saving solutions design, energy audits, energy monitoring, financial leasing, and other services that actively promote the development of domestic energy savings and emissions reduction.

- **Shandong Rongshihua Leasing Co.** was formerly one of the three pilot ESCOs in Phase I of the WB/GEF China Energy Conservation promotion project. During the project implementation period from 1996 to 2006, SRL finished 106 EPC projects across 10 industries with a total investment of RMB 0.525 billion and a savings of RMB 0.79 billion. In 2007, the company successfully converted into a financial leasing company, anticipating that leasing will become a breakthrough solution for ESCO financing.

Over all, financial leasing is not fully developed in China. At the end of 2009, financial leasing companies' contribution to the GDP was only 0.83 percent in China, compared to 30 percent in the United States. Most of the leasing companies are still in a "wait-and-see" mode because they lack knowledge of energy performance contracting, the average project scale is small, and the technologies are highly varied. Because leasing companies require the same kind of security from ESCOs as banks, financial leasing has not become a major ESCO financing option.

8 Credit Enhancement Programs

8.1 IFC CHUEE SME

In April 2011, IFC launched an innovative CHUEE program focused on SMEs and a new RSF. Two banks are participating in the program: SPDB and Tianjin Binhai Rural Commercial Bank (BRCB). IFC will take about 50 percent credit risk in the form of an unfunded risk-sharing guarantee in an investment of up to RMB 330 million with SPDB, and up to RMB 400 million with BRCB. The first-loss reserve is to be provided by MOF of China with the balance coming from the GEF's unused reserve from the WB ESCO guarantee program with I&G.

Program features include the following:

- Category: Partial credit loss insurance on the bank loans
- Targeted Customers and Types of EEPs: EE loan applicants of participating banks and all types of EEPs, including waste-to-power projects, are eligible.
- Typical Term: The IFC guarantee will remain valid through 2018, meaning all RSF-backed loans must expire before that time
- Collateral: Project assets
- Guarantee Cost: About 2 percent from the participating bank to IFC, which is added to the loan interest
- Participating Banks: SPDB, BRCB

8.2 Guarantee Companies

The guarantee is a credit enhancement product and is one of three main mechanisms used by banks to augment collateral for loans. To widely promote the EPC mechanism in China, one of the main tasks of Phase II of the WB/GEF China Energy Conservation Promotion Projects was to use the USD 2.2 million as grant principal to establish an ESCO guarantee program through China's largest guarantee company, I&G. By providing increased credit support for a group of light asset and low bank credit ESCOs over five years of operation, this guarantee model successfully helped the ESCOs to finance projects, and the ESCOs developed rapidly.

For EEPs implemented by SMEs and ESCOs, loan guarantees from dedicated guarantee companies are the major form of credit enhancement. In China, guarantee companies charge the borrowers 3–4 percent per annum on the outstanding guaranteed amount. Under Phase II of the WB's China Energy Conservation Promotion Project (also called the ESCO Guarantee Project), I&G offered a preferential guarantee rate of about 1.5 percent. The GOC has policies to subsidize guarantee companies that focus on SME guarantee business on the condition that the guarantee fee charged to SMEs not exceed 50 percent of the prime interest rate, which is equivalent to 3.45 percent for a three-to-five year term loan guarantee.

Guarantee companies can accept a slightly wider range of collateral than banks. For example, there are two kinds of receivables: one kind is contingent (conditional on savings from EEPs) in that it has not generated cash flow but is expected to do so after installation; the other has no such contingencies and will be converted to operating cash flow. Banks can generally accept the pledge of the second kind of receivable,[32] but to facilitate financing for the first kind, guarantee companies are necessary.

Until recently, few dedicated guarantee companies (like I&G, whose major business focus is to provide credit enhancement to EEPs implemented by SMEs and ESCOs) have emerged in the market to support EEPs. Since 2010, however, more guarantee companies have begun to work with EPC business, such as Beijing Capital Investment & Guarantee Company, Beijing Zhongguancun Sci-tech Guarantee Company, and Beijing Huazun Investment & Credit Guarantee Company. The last is a registered company with RMB 1 billion in registered capital, and it is among the first batch of Beijing firms to both obtain a financing guarantee institution operation license from the CBRC and be designated by NDRC to provide guarantees to SMEs. Its shareholding partners are the Zhong-huan Environment Protection Industry Investment Co., Beijing

32 For example, for its first project, an ESCO might not be able to get receivables loan from bank since it has no track record of stable cash flows; With some years of uninterrupted cash flow from that project, it can package the receivables as security for a bank loan to support its new EE project investment. Generally, however, ESCOs need to package several projects' receivables to finance one new project.

Zhong-tian-shi Real Estate Development Co., Shenzhen Tian-lu-jian Modern Agriculture Co., Shenzhen Xin-nong-da Agriculture and Forest Service Co., and Beijing Chang-tian-xing-ye Consulting Co. Huazun also established a special ESCO business department, equipped with professional evaluation experts, and introduced a financial service product specifically designed for ESCOs: the receivables pledge loan guarantee. This product's risk coverage is based on the ESCO business model and uses future receivables as the pledged collateral. Huazun will provide RMB loans, trade financing, bill acceptance, letters of guarantee, letters of credit, and on or off-balance sheet financing. In addition, loan amounts can be used on a revolving basis. Types of enterprises that can use this product include ESCOs, enterprises and institutions that carry out EE retrofits by themselves, energy-saving emissions reduction equipment manufacturers, licensed leasing companies, and professionals engaged in the development and implementation of clean development mechanism projects with their main income derived from CER. The period of guarantee may coincide with bank loans, and the guarantee premium rate is around 2 percent. At the same time, Huazun is also actively communicating with banks to obtain better bank access and expand its role.

While other guarantee companies are starting to explore the future receivables pledge model, this model constitutes a significant risk for the guarantee companies, especially at the technical level. Consequently, after several discussions among the stakeholders, a new counter guarantee model is being explored. Under this model, an investment company created by an industry technical expert would take part in the business and play a critical role during the EPC project financing procedure by identifying potential EEPs and recommending viable ones to the guarantee companies. The expert could also evaluate the technical feasibility of the EEPs and undertake the technical risk. The investment company could also provide an additional "technical" guarantee recognized by guarantee companies to help ESCOs raise capital for their projects. If the guaranteed bank loan is not large enough to finance the project, the investment company could invest the balance of the required funds directly into the EEPs. This model is still in a trial stage; it only accepts retrofit projects in heat supply systems requiring a gross investment of less than RMB 15 million.

8.3 Insurance

In 2003 major insurance companies began to market products that provide insurance against the credit risk of domestic trade receivables in China.[33] They mainly underwrite a seller's credit risk due to reasons such as a buyer's bankruptcy, insolvency, or default. When triggered by one of these events, the insurance compensates the seller for the loss of accounts receivable. Moreover, with this insurance in hand to increase their credit, ESCO EEPs (for host EEPs, there are no receivables, so this insurance is not applicable) may have a better chance to obtain bank loans. ESCO EEPs face an additional hurdle when the account receivables depend on the performance of the EEPs and are subject to energy savings verification. To fill this gap, EEPs still need some kind of energy saving performance guarantee or insurance product.

Insurance premiums charged are around 0.7 percent of the total account receivable turnover in a year. The corresponding loan backed with this insurance currently has a total financing cost of around 12 percent.

8.4 National SME Guarantee Program

In 2009, MII and the General Administration of Taxation jointly issued a notice exempting SME credit guarantee institutions from the operation tax. It states that the revenues of qualified guarantee companies from SME credit guarantee or re-guarantee business can be exempted from operation tax (5 percent) for three years after the related taxation authorities recognize their qualification. The exemption can be renewed if the guarantee companies are still qualified. Qualification criteria for SME guarantee companies are as follows: (1) the qualified guarantee company has been in operation for two years and has over RMB 20 million of registered capital; (2) the guarantee fee rate is not greater than 50 percent of the prime lending rate; (3) the total guarantee amount offered to SMEs accounts for 80 percent of its total guarantees portfolio over two years, and the total amount of single guarantees below RMB 8 million accounts for more than 50 percent of its total guarantee portfolio; (4) the average guarantee amount is below RMB 30 million, the financing leverage of the guarantee fund is three times the guarantee fund deposited in banks, and the compensation rate due to loan default is less than 2 percent.

33 http://www.p5w.net/news/xwpl/201007/t3089902.htmv

Affected by the stringent requirement on the guarantee size and compensation rate, the qualified guarantee companies pay close attention to the security obtained and typically require the borrower to provide counter guarantees.

In April 2010, MII and MOF jointly issued the Interim Management Methods on SME Credit Guarantee Fund,[34] further broadening the incentive threshold. The following types of subsidies can be repeatedly awarded to the SME guarantee and re-guarantee institutions on the condition that the aggregated subsidy shall not exceed RMB 30 million for one guarantee institution.

Program features include the following:

- Business Subsidy: Subsidize guarantee companies for no more than 2 percent of their total outstanding guarantee and re-guarantee companies for no more than 0.5 percent of their total outstanding re-guarantee
- Guarantee Fee Subsidy: Subsidize guarantee companies, the difference between the charged guarantee fee and 50 percent of the prime lending rate
- Capital Support: The government fund may invest no more than 30 percent of incremental capital in guarantee companies

Eligibility conditions for the program were loosened and include the following:

- Over one year of operation
- The incremental guarantee to SMEs in one year accounts for over 70 percent of incremental guarantee business in that year
- The compensation rate is less than 3 percent
- The guarantee fee charge is less than 50 percent of the prime lending rate

Following the institution of central government policies, provinces gradually promulgated their additional supporting policies on SME development. Thus far, local governments have established budget-funded SME guarantee companies and re-guarantee companies to extend guarantee support to SMEs in over 100 of China's major cities. Typically, these companies charge guarantee fees lower than 50 percent of the prime lending rate and require SMEs to provide counter guarantees. The range of acceptable counter guarantees is broad and includes corporate fixed assets, financial assets, and liens on a shareholder's personal property. EEPs are not a significant business line for these government SME guarantee institutions. Before this can happen, the counter-guarantee issue needs to be resolved, either by relaxing this requirement for EEPs (which is not likely) or by providing additional credit enhancement to the government SME guarantee institutions. Again, a combination of credit insurance and performance guarantee may quite effectively offset the guarantee company's perception of risk for EEPs.

34 http://www.miit.gov.cn/n11293472/n11293832/n12843926/13220711.html

9 Equity Sources of EE Financing

Because of the new government incentive policy for EE investments and the ESCO industry boom, investors are manifesting unprecedented interest in the energy conservation business. The following new equity funds are a representative sampling of this trend. Many of these funds are at the stage of fund-raising and project pipeline preparation, but generally they have mandates to invest in EEPs, ESCOs, and EE equipment manufacturers.

9.1 China Energy Conservation and Environment Protection Group (CECEP)

The CECEP, which was reorganized in 2010, is the only national SOE in the fields of energy conservation. It has over RMB 63 billion in total assets, 23 subsidiaries, and 230 affiliated companies. It plans to develop itself as the flagship company in the areas of energy conservation and environment protection, with total assets of RMB 100 billion, total sales of RMB 80 billion, and a net profit of RMB 8 billion by 2015. For projects of large scale (such as a waste energy reutilization project), CECEP may use its internal financing capacity to make equity investments to establish a project company that would implement the EEPs.

9.2 General Environment Industry Fund

This fund is raised and managed by GT (Beijing) Investment Management Co., which was established in 2009 by a national SOE, the China General Technology Group. It has registered capital in Pudong, Shanghai, worth RMB 50 million. The first phase aims to raise RMB 2 billion (mainly from domestic trust funds) and USD 100 million (internationally). The fund term is for 20 years, and EEPs are one of the four eligible investment areas. In addition, the investment management company has a dedicated investment fund for energy performance contracting and a General EPC Investment Fund, launched in September 2011.

9.3 Shiyin Energy Conservation and Environmental Protection Fund

In April 2011, this fund announced its intention to raise RMB 50 million to provide private equity financing for energy conservation and environmental protection projects that have high growth potential.

9.4 GoodHope Capital Co.

This fund is raising over RMB 100 million for the Goodhope Energy Efficiency Fund, which will focus on equity investments in ESCOs.

9.5 China CDM Fund

As mentioned in the "New Credit Projects" segment of section 6.1, The China CDM Fund is authorized by the government to make equity investments in GHG emissions reduction projects. But so far, no equity investments have been made in any EEPs.

9.6 Private Equity (PE) Funds

PE funds usually pay close attention to the growth potential of the EE portfolio or the cash return to equity investors. To utilize the tax benefit that the government provides to ESCOs, these funds will try to have their invested company register with NDRC. They typically have a performance clause in the investment agreement to secure the minimum return to equity, and they don't seek to control and operate the investee company. To maximize their return, they also expect the EEPs to leverage bank financing for a significant portion of project investment. To date, there is very little information on EE project investment by PE funds.

9.7 Other Funds

With the development of the energy-saving service industry and the establishment of supportive GOC policies, a growing number of established equity funds, such as SDIC Fund Management, Sequoia, Softbank, and PE/venture capital, have adopted energy savings and emissions reduction as a strategic focus. Such investors rely on initial public offerings (IPOs) to recoup their investment. On March 9, 2012, the China Securities Regulatory Commission approved the IPO of Top Resource Conservation Engineering Company, which will attract additional capital investment into the energy conservation service industry.

Since 2010, an increasing number of energy savings and environmental protection–focused investment funds have been established. One of EMCA's strategic partners, Genertec Investment Fund Management Company (founded in 2009) is regarded as the first SOE environment fund. After almost two years of research, Genertec launched the first EPC Fund in September 2011, with its first investment expected to be RMB 500 million. The fund can invest equity into either ESCOs or their EEPs. At the project level, the unleveraged expected annual return is at least 20 percent, with a minimum investment level of RMB 30 million. Investments can be made by establishing a joint project company between the ESCO and the investor or a joint company between the ESCO investor and any financial institutions that can leverage the equity funding and improve its internal rate of revenue.

10 Other Types of EE Project Financing Products

10.1 Energy Performance Contracting Project Trading

China Beijing Environment Exchange (CBEEX) and EMCA launched China's first EPC investment and financing trading platform in 2010, and in June 2011 they published the *China Energy Performance Contracting Trading Platform Operation Guide*. This Platform is allegedly designed to provide project financing based on projects' future savings receivables trade for ESCOs. The EPC project future receivables trade is the core content of the CBEEX platform, which is intended to help ESCOs obtain liquidity to implement new EEPs. The variety of EPC projects makes it difficult for investors to understand and evaluate them, and the Platform is expected to provide a complete evaluation system for EPC projects.

To make the trade possible, CBEEX is perfecting the security trading system for EPC investments and a financing trading platform to protect the rights and interests of all parties involved. To provide security for a potential buyer, a standard form of EPC contract was developed with specific terms regarding the time of shared savings, amounts, and ways of sharing. The Platform divides EPC projects into three types according to their features. CBEEX is also planning to influence the insurance broker companies to explore specialized insurance products. One is a future EPC service revenue right assurance, and another is EPC Energy Saving Capability Assurance. Moreover, the platform will create a credit default system to protect ESCOs' right to receive the deserved income from their hosts. However, the cost of financing through the Platform is currently very high due to the many links in the platform that are still not operative.

10.2 Cooperation Between ESCOs

Based on EMCA's current Chinese market analysis of various types of energy savings entities, ESCOs in China are divided into three main types: (1) market based, (2) technology based, and (3) capital based. Since 2010, as a result of GOC incentive policies and great market potential, a group of large capital firms began to enter the industry. To accelerate revenue growth, these new entrants are willing to cooperate with other ESCOs by providing funding, working together to operate the EEPs (benefitting from the established ESCOs' technology/product), and providing project experience. Target internal rates of return vary among companies due to different cooperation models. Some of the companies only provide funds and act as the financial investor, some require direct contracts with hosts, and some act as general contractors by parceling out parts of large or comprehensive EPC projects for specialized ESCOs. The required return varies with the project risk. At present, Chinese ESCOs are mainly SMEs with limited assets and no bank credit. To execute larger projects, they must collaborate with other, better capitalized ESCOs.

10.3 ESCO Industry Investment and Financing Service Platform by EMCA

As the top national organization to promote the EPC mechanism, support ESCO growth, and promote a sustainable energy service industry, EMCA set up a China ESCO Industry Investment and Financing Service Platform. It links over 800 of its ESCO members and a number of financial institutions with the support of industry experts to create more financing opportunities. The platform has two principal functions: (1) representing 800 members as a group to negotiate with financial institutions, and (2) providing technical support to those financial institutions interested in investing in EPC projects and ESCOs.

EMCA has been associated with the BoB, Genertec Investment Fund, Huazhun Investment & Credit Guarantee, and the Tianjin Emission Trading Exchange to establish a partnership for strategic cooperation. Furthermore, EMCA has successfully arranged financing support for dozens of ESCOs. With the support of its growing membership and expanding participation by financial institutions, this platform will continue to play a critical role, not only in bridging two parties, but in promoting future ESCO financing.

11 Summary

The principal problem in scaling-up China EE financing, especially for SMEs, is in satisfying guarantee and collateral requirements. The GOC has established a notable energy intensity goal for the 12th FYP of 2011–2015 and has made significant efforts to subsidize, provide incentives, and reduce taxes on ESCOs. In addition, the government is supporting the SME guarantee market. Bolstered by government policy, EE financing demand is anticipated to expand in the next five years to RMB 258 billion per year, and banks are expected to meet a significant portion of that demand.

Current banking practice and lending products, however, are not well-matched to meet the financing needs of EEPs, hosts, or ESCOs and other entities that develop or sponsor them. IFIs have launched multiple programs with several hundred million USD in loans to China to support EE financing. These IFI efforts have greatly facilitated the establishment and solid growth of the ESCO industry, explored innovative financing mechanisms for EEPs, and contributed to the implementation of pilot demonstration projects. To establish a sustainable EE financing market, other innovative financing products should be explored. Making the future cash flows of a solid EE project acceptable to banks is key to these innovations. Account receivable credit risk coverage by insurance companies, combined with energy savings guarantees provided by qualified guarantors with expertise in EE technologies, may be one solution. If a savings performance guarantee can be provided, host companies might become more willing to borrow from banks. They would need to provide their core business bank-acceptable assets, usually used for their main business, as collateral.

In any case, it seems that the following conditions are necessary for successful EEP financing: (1) hosts are credible (either they have sufficiently high bank ratings, have bank-acceptable collateral, or can provide acceptable third-party guarantees) or they have credit risk insurance; (2) the project is viable with acceptable financial returns; (3) savings can be measured and verified; (4) performance guarantees are provided by technically and financially capable entities; and (5) in cases where ESCOs are borrowers, hosts provide additional repayment guarantees.

As noted in the report, the estimate of EE investment in China for the 12th FYP (2011–2015) is a staggering RMB 1.2 trillion, or nearly USD 189 billion. It is unlikely this will be achieved unless the funding gap for EEPs is resolved.

Annex: Summary of EE Finance Lending Products

A.1: Bank of Beijing

A.2: Industrial Bank

A.3: Shanghai Pudong Development Bank

A.4: Minsheng Bank

A.5 Huaxia Bank

A.6: Export Import Bank of China (EXIM)

A.7: Everbright Bank

A.8: Bank of Shanghai

A.9: China Merchants Bank

A.1: Bank of Beijing

Product	Sponsor IFI	Borrower Eligibility	Project Eligibility	Max. Loan (RMB mil.)	Term (Yrs.)	Interest Rate	1st Source of Repayment	Security	Other
ESCO Guarantee Loan	WB	(1) ESCOs using EPC model, (2) Over 6 months of operations, (3) Overall debt/asset ratio less than 70%, (4) Guarantee from Guaranty Company applicable to ESCOs	(1) Energy Savings Projects; no Waste-to-Energy, (2) >50% project revenues from energy savings, (3) EIA issued, (4) No adverse impact on Hosts' cash flow Applicable to EE projects		3 to 5	Floating based on borrower credit rating	EE project	Loan guarantee (China I & G)	90% loan guarantee, guaranty fee: about 2%
Little Giant-Energy Conservation Loan	IFC	(1) Focus on SMEs, (2) Approved two years' debt/asset ratio, (3) Over two year history	Energy efficiency, clean energy utilization, and renewable energy projects	16.00	3 to 5		EE project	50% risk-sharing from IFC plus pledge of future project revenues	Signed agreement with EMCA in April 2011 for RMB 10 billion of credit line to ESCOs by 2015
Small Enterprise Joint Surety Loan		(1) 3-7 small independent companies with similar scale to form/provide joint surety, (2) Operate according to government sector policy, (3) No overdue debt history, (4) Loan used for operating working capital Applicable to SMEs	BoB will consider lending on the basis of assessed the overall solvency of the joint-surety team	5.00	1 to 3		Host operations	Joint surety assessed as sufficient in repaying bank loans	
Little Giant-SME Credit Loan		(1) Zhongguancun high-tech company, (2) Member of Zhongguancun Credit Promotion Association, (3) Over 1 year history, (4) Sales < RMB 200m with over a BB rating, or one of top 100 Zhongguancun pilot innovative enterprises Applicable to medium-sized companies registered in Zhongguancun High-Tech Zone, Beijing	Not applicable to EE projects	5.00	1 to 3	With government subsidy	Host operations	n.a.	
Carbon Loan Service		Focused on EPC		1-30	0.5 to 4	7%-9% APR of total loan	Shared savings/ EPC	n.a.	

A.2: Industrial Bank

Product	Sponsor IFI	Borrower Eligibility	Project Eligibility	Max. Loan (RMB mil.)	Term (Yrs.)	Interest Rate	1st Source of Repayment	Security	Other
Energy Saving & Emission Reduction through Technology Improvement Loan		(1) SMEs, (2) Productive enterprises	(1) Technology upgrade projects for energy saving projects, (2) New projects or project expansion and reconstruct.	40.00	Less than 5	Priced based on borrower credit risk; floating	EE project	50% risk-sharing from IFC plus pledge of future project revenues	(1) First mortgage right to the equipment, (2) Bank depost equal to 2-month debt service payments, (3) Other surety forms
CDM Loan			Applicable to EE projects	40.00	Less than 5	Priced based on borrower credit risk; floating	CER Income	50% risk-sharing from IFC plus pledge of future project revenues	(1) First mortgage right to the equipment, (2) Bank depost equal to 2-month debt service payments, (3) Other surety forms
EMC Loan		EMCs	New projects or project expansion and upgrade	40.00	Less than 5	Priced based on borrower credit risk; floating	Revenues from the enterprise operation	(1) Equipment mortgage, (2) Beneficiary enterprise as surety, (3) 50% risk-sharing facility provided by IFC	(1) First mortgage right to the equipment, (2) Bank depost equal to 2-month debt service payments, (3) Other surety forms
Buyers Credit for Energy Saving & Emission Reduction Equipment Suppliers		(1) EE equipment buyers, (2) SMEs	(1) Technology upgrade energy saving projects, (2) New projects or project expansion and reconstruct.	40.00	Less than 5	Priced based on borrower credit risk; floating + finance fee	Revenues from the enterprise operation	(1) EE equipment repurchase guarantee, (2) 50% risk-sharing from IFC	(1) First mortgage right to the equipment, (2) Bank depost equal to 2-month debt service payments, (3) Other surety forms
Energy Saving & Emission Reduction Equipment Supplier Production Expansion Loan		Energy saving & emission reduction equipment suppliers	Expand production & upgrade production lines	40.00	Less than 5	Priced based on borrower credit risk; floating + finance fee	Revenues from the enterprise operation		
Utility Service Loan		Downstream customers of utility companies Applicable to SME		40.00	Less than 5	Priced based on borrower credit risk; floating		(1) Bonded with utility service, (2) Equipment mortgage	(1) First mortgage right to the equipment, (2) Bank depost equal to 2-month debt service payments, (3) Other surety forms
Equipment Finance Leasing		Lease finance company	EE projects	40.00	Less than 5	Priced based on borrower credit risk; floating	Revenues from the enterprise operation		(1) First mortgage right to the equipment, (2) Bank depost equal to 2-month debt service payments, (3) Other surety forms
Non-Credit Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Carbon Assets Pledge Loan		Applicable to SME						Collateral free	

A.3: Shanghai Pudong Development Bank

Product	Sponsor IFI	Borrower Eligibility	Project Eligibility	Max. Loan (RMB mil.)	Term (Yrs.)	Interest Rate	1st Source of Repayment	Security	Other
IFC EE Loan	IFC	(1) Energy saving and emission reduction and renewable energy development enterprises, energy saving and emission reduction subprojects for large-scale projects, (2) EE equipment suppliers and service providers, including ESCOs and EMCOs, equipment leasing companies, (3) Utility companies, (4)SMEs	(1) New projects, (2) For EE projects, energy savings ≥10%, (3) Use mature technologies, provide energy-saving plans and supervision schemes, (4) Operate in line with regulations	40.00	≤7 + construct.	Priced based on borrower credit risk; floating + 0.5% upfront fee + 0.65% loss sharing fee	EE project	Collateral free	(1) Asset-liability ratio≤: manufacturer 70%, trading companies 80%, ESCO &EMC 90%, (2) Investment recovery period less than 6 years, (3) Project capital rate ≥20%
AFD EE Loan	AFD	(1) Energy saving and emission reduction enterprises, renewable energy development enterprises, (2) ESCOs and EMCs	(1) EE and renewable energy projects, (2) EE project: energy saving ratio ≥20%, (3) AFD certified projects	40.00	10	lower than market rates	EE project		
CDM Loan	IFC	Applicable to SMEs	Qualified CDM projects, including energy savings, emission reductions, renewable energy	40.00	≤7 + construct.	Priced based on borrower credit risk; floating	Revenues from the enterprise operation	Collateral free	
Green Equity Financing Arrangement	n.a.	Energy saving enterprises insterested in (1) accepting equity investments, (2) acquisition and employee stock ownership plan, (3) equity financing, (4) Pre-IPO and IPO Applicable to SMEs	n.a.						Direct equity finance + indirect bank finance
EMC Factoring		Applicable to SMEs and MSCOs							
EMC Receivables Pledge Loan		Applicable to SMEs and MSCOs							
International Carbon Factoring									
Green Debt Financing		Applicable to SMEs							

A.4: Minsheng Bank

Product	Sponsor IFI	Borrower Eligibility	Project Eligibility	Max. Loan (RMB mil.)	Term (Yrs.)	Interest Rate	1st Source of Repayment	Security	Other
Energy conservation and emission reduction financing project		(1) Enterprises focusing on EE market, especially SMEs, (2) Enterprises with solid presence on EE market, (3) ESCOs				Priced based on borrower credit risk; floating	EE project	(1) For enterprises with total assets less than 200M joint guarantee, inventory financing, etc, (2) For micro enterprises, personal housing mortgage, joint guarantee, etc., (3) For ESCOs, accounts receivable factoring, etc.	
China Energy Efficiency Financing II Project.	WB	SOEs, SMEs, ESCOs	EE projects in industrial sector in China	≤20M USD					

A.5: Huaxia Bank

Dragon Boat Project for startup enterprises		(1) Operation in line with government sector policy, (2) Credit rating of BBB or above, (3) Have loan card issued by PBOC, (4) Other requirements Applicable to ESCOs	Applicable to EE projects	20.00	1-1.5	Priced based on borrower credit risk; floating		Loan guarantee or equipment pledge	Enterprises with credit rates of BB or lower need to be guaranteed by governmental guarantee companies
Dragon Boat Project for emerging SMEs		(1) Operation in line with government sector policy, (2) Credit rating of BBB or above, (3) Have loan card issued by PBOC, (4) Other requirements Applicable to ESCOs	Applicable to EE projects	20.00	0.5-3	Priced based on borrower credit risk; floating		Loan guarantee or equipment pledge	Same as above
Dragon Boat Project for SMEs at steady growth stage (Loan Top Ups)		Same as the first loan to the SME	Applicable to EE projects	5-20% of the First Loan	0.5-3	Priced based on borrower credit risk; floating		Loan guarantee or equipment pledge	Same as above

A.6: Export Import Bank Of China (EXIM)

Product	Sponsor IFI	Borrower Eligibility	Project Eligibility	Max. Loan (RMB mil.)	Term (Yrs.)	Interest Rate	1st Source of Repayment	Security	Other
EE Project Loan		ESCOs registered by NDRC/MOF or recommended by MIIT, in line with credit rating requirements	Host enterprises should be involved in export and import business, energy savings ratio > 10%	≤80% of the contract value	≤10	Prime interest rate			

A.7: Everbright Bank

Low Carbon Finance – EMC		(1) ESCOs, EE equipment manufacturers and sales companies, (2) CDM enterprises registered at UN, (3) SMEs with green rights, such as forest & emissions rights	(1) Energy saving and emissions reduction projects, (2) Clean energy utilization, (3) Renewable energy development					Receivables pledge	

A.8: Bank of Shanghai

EPC Project Financing		Policy Guarantee Financing		≤70% of the contract value		Priced based on borrower credit risk; floating	Energy savings		
		Portfolio Guarantee Financing			≤2				

A.9: China Merchants Bank

Energy Saving Revenue Pledge Loan		ESCOs or energy consuming enterprises	(1) Energy saving and emission reduction projects, (2) Energy efficiency projects			Priced based on borrower credit risk; floating	EE project		
AFD Loan	AFD	Applicable to ESCOs and SMEs	(1) Energy savings projects, (2) Renewable energy projects, (3) Improving EE by at least 20%		10	Lower than market rates	EE project		
Buyer's Credit for Green Equipments		(1) Purchasing enterprises of energy effienct and environmental protection equipments, (2) Purchasing enterprises of new energy related equipments Applicable to SMEs and ESCOs							
Green Finance Lease	n.a.	Lease finance companies providing EE euipments for ESCOs or energy consuming enterprises							
CDM Integrated Financing Solution		(1) Enterprises equipped with advanced energy saving technologies and energy management experience , (2) In line with credit rating requirements	(1) Project adopting leading technologies both at home and abroad, (2) Generating significant energy saving revenues, (3)Without adverse effects on environment and society						

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