Document of
The World Bank

Report No: ICR00001480

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-51678)

ON A

GLOBAL ENVIRONMENT FACILITY GRANT

IN THE AMOUNT OF SDR19.7 MILLION (US$26 MILLION EQUIVALENT)

TO THE

PEOPLE'S REPUBLIC OF CHINA

FOR A

SECOND ENERGY CONSERVATION PROJECT

December 17, 2010

China and Mongolia Sustainable Development Unit
Sustainable Development Department
East Asia and Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective December 1, 2010)

Currency Unit = Yuan Renminbi (RMB)
1.00 = US$ [0.15]
US$ 1.00 = [6.65]

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

Asia Sustainable and Alternative Energy Programme	ASTAE	International Bank for Reconstruction and Development	IBRD
carbon dioxide	CO_2	International Finance Corporation	IFC
China Energy Conservation Association	CECA	Key Performance Indicator	KPI
China Energy Efficiency Financing	CHEEF	Measurement and Verification	M&V
China National Investment and Guarantee Co. Ltd.	I&G	Ministry of Finance	MOF
China Utility-Based Energy Efficiency Finance	CHUEE	Monitoring and Evaluation	M&E
Country Assistance Strategy	CAS	National Development and Reform Commission	NDRC
Country Partnership Strategy	CPS	Non-Governmental Organizations	NGOs
Department for International Development	DfID	Operations Manual	OM
Energy Efficiency	EE	Operational Program 5	OP5
Energy Management Company	EMC	Project Appraisal Document	PAD
Energy Management Company Association	EMCA	Project Development Objectives	PDO
Energy Performance Contracting	EPC	Project Management Office	PMO
Energy Service Company	ESCO	Project Preparation Facility	PPF
Global Environment Facility	GEF	Renminbi	RMB
Global Environment Objectives	GEO	State Economic and Trade Commission	SETC
greenhouse gas	GHG	tons of coal equivalent	tce
Gross Domestic Product	GDP	United States Dollar	US$
Implementation Agreement	IA		

Vice President:	James W. Adams
Country Director:	Klaus Rohland
Sector Managers:	Ede Jorge Ijjasz-Vasquez Narasimham Vijay Jagannathan
Project Team Leader:	Alberto U. Ang Co
ICR Team Leader	Alberto U. Ang Co

China
Second Energy Conservation Project

CONTENTS

A. Basic Information

Country:	China	Project Name:	Energy Conservation Project, Phase II
Project ID:	P067337	L/C/TF Number(s):	TF-51678
ICR Date:	12/17/2010	ICR Type:	Core ICR
Lending Instrument:	FIL	Borrower:	GOVERNMENT OF CHINA
Original Total Commitment:	US$26.0M	Disbursed Amount:	US$26.0M
Revised Amount:	US$26.0M		
Environmental Category: F		**Global Focal Area: C**	
Implementing Agencies: National Development and Reform Commission			
Cofinanciers and Other External Partners:			

B. Key Dates

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	09/26/2001	Effectiveness:	06/18/2003	06/18/2003
Appraisal:	03/25/2002	Restructuring(s):	Not applicable	Not applicable
Approval:	10/24/2002	Mid-term Review(s):	05/30/2006	05/22/2006 05/21/2008
		Closing:	06/30/2010	06/30/2010

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes:	Satisfactory
Risk to Global Environment Outcome	Negligible to Low
Bank Performance:	Satisfactory
Borrower Performance:	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Satisfactory	**Overall Borrower Performance:**	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating**
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	None
GEO rating before Closing/Inactive status	Satisfactory		

D. Sector and Theme Codes		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
Central government administration	2	2
District heating and energy efficiency (EE) services	91	91
Non-compulsory pensions, insurance and contractual savings	7	7
Theme Code (as % of total Bank financing)		
Climate change	40	40
Other financial and private sector development	20	20
Pollution management and environmental health	40	40

E. Bank Staff		
Positions	**At ICR**	**At Approval**
Vice President:	James W. Adams	Jemal-ud-din Kassum
Country Director:	Klaus Rohland	Yukon Huang
Sector Managers:	Ede Jorge Ijjasz-Vasquez Narasimham Vijay Jagannathan	Mohammad Farhandi
Project Team Leader:	Alberto U. Ang Co	Robert P. Taylor
ICR Team Leader:	Alberto U. Ang Co	
ICR Primary Author:	Alberto U. Ang Co	

F. Results Framework Analysis

Project Development Objectives (PDO) or Global Environment Objectives (GEO) and Key Indicators (as approved)

The objective of the project is to expand domestic investment in EE projects through the aggressive development of China's nascent Energy Management Company (EMC) industry, thereby achieving large-scale EE improvements and associated reductions in the growth of carbon dioxide (CO_2) emissions and other pollutants.

Revised PDOs or GEOs (as approved by original approving authority) and Key Indicators and reasons/justifications

The PDOs and GEOs were not revised.

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)		Formally Revised Target Values	Actual Value Achieved at Completion or Target Years	
Indicator 1:	Total investments of EMC industry (US$ million)					
	Baseline value is zero (excluding investments from three demonstration EMCs)	Total	299.6		Total	5,826.3
		2004	14.4		2004	69.4
		2005	22.2		2005	212.3
		2006	38.0		2006	280.0
		2007	62.4		2007	1,004.4
		2008	80.2		2008	1,565.0
		2009	82.4		2009	2,695.2
Indicator 2:	Number of profitable EMCs in operation					
	About 6-8 EMCs (in addition to the three demonstration EMCs)	Total	60		Total	321
		2004	10		2004	40
		2005	20		2005	47
		2006	30		2006	82
		2007	40		2007	153
		2008	50		2008	257
		2009	60		2009	321

(b) GEO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1:	Energy savings and CO_2 emission reductions from EMC projects (million tons CO_2)			

		Energy savings in tons of coal equivalent (tce) (million tce)				
	Baseline value is zero (see comments in Indicator 1)	Total 2004 2005 2006 2007 2008 2009	27.5 1.3 2.0 3.5 5.7 7.4 7.6		Total 2004 2005 2006 2007 2008 2009	273.3 4.3 11.9 15.1 51.4 74.5 116.1
		CO_2 emission reductions (million tons CO_2)				
	Baseline value is zero (see comments in Indicator 1)	Total 2004 2005 2006 2007 2008 2009	18.3 0.9 1.4 2.3 3.8 4.9 5.0		Total 2004 2005 2006 2007 2008 2009	192.8 3.0 8.5 10.8 36.7 51.1 82.7

(c) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)		Formally Revised Target Values	Actual Value Achieved at Completion or Target Years	
Indicator 1:	Increased commercial investments in EMC projects.					
	1. I Total investment of EMC projects supported by guarantee facility (US$ million)					
	0	2004-10	309		2004-10	131
	1.2 Number of EMC projects supported by guarantee facility					
	0	No target specified			2004-10	148
	1.3 Number of participating banks					
	0	No target specified			2004-10	12 Chinese banks with 37 branches
Indicator 2:	Increased capacity for EMC industry to identify and implement EE projects[1]					
	2.1 Number of EMCs implementing projects					
	Same as PDO Indicator 2	2004-09	60		2004-09	321

[1] This indicator is the same as PDO Indicator 2: Number of profitable EMCs in operation.

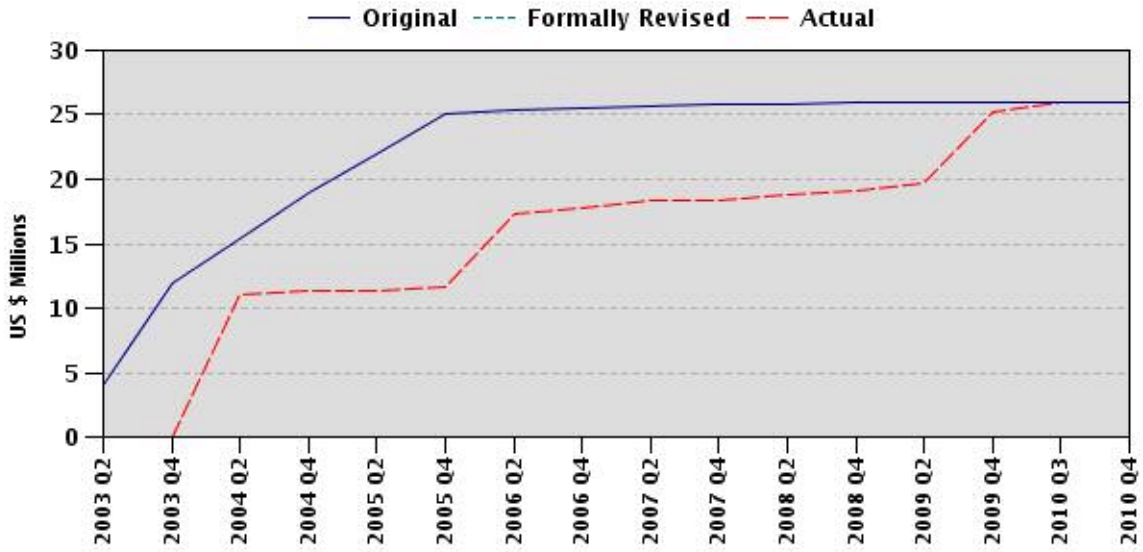
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	GEO	IP	Actual Disbursements (US$ millions)
1	12/27/2002	Satisfactory	Satisfactory	0.00
2	06/27/2003	Satisfactory	Satisfactory	0.00
3	12/24/2003	Satisfactory	Satisfactory	11.00
4	06/29/2004	Satisfactory	Satisfactory	11.40
5	12/28/2004	Satisfactory	Satisfactory	11.40
6	06/20/2005	Satisfactory	Satisfactory	11.60
7	03/03/2006	Satisfactory	Satisfactory	17.37
8	04/04/2007	Satisfactory	Satisfactory	18.43
9	04/17/2008	Satisfactory	Satisfactory	19.12
10	03/11/2009	Satisfactory	Satisfactory	25.20
11	01/09/2010	Satisfactory	Satisfactory	25.58

H. Restructuring (if any)

Not Applicable

I. Disbursement Profile



1. Project Context, Global Environment Objectives and Design

1.1 Context at Appraisal

Country and Sector Background. China made remarkable progress during the past two decades of the 20th century in making two historic transitions—from from a rural, agricultural society to an urban, industrial society, and from a centrally-planned economy to a more globally integrated market-based economy. Improving EE has been a cornerstone in China's energy policy since the early 1980s. As China approached the millennium, the Government deployed a variety sophisticated energy conservation policies that were better suited to the developing market economy. These policies included (a) economic framework reformation of most enterprises through price mechanisms; (b) regulation with the passage of an Energy Conservation Law in 1997 in support of appliance standards and labeling programs, building codes, and industrial benchmarking; (c) research and development and/or technology transfer of new and more energy-efficient technologies; and (d) market-based initiatives through development of new investment mechanisms for EE. China collaborated with a variety of international organizations on each of these EE initiatives. Through the assistance of Global Environment Facility (GEF), International Bank for Reconstruction and Development (IBRD), and European Commission, the US$151 million China Energy Conservation Project (Phase I) was implemented from 1998-2006 to support the introduction of a market-based approach to financing energy conservation investments through Energy Performance Contracting (EPC)—a practice typical to an Energy Service Company (ESCO) or EMC[2]—involving three newly established pilot EMCs in Beijing, Liaoning, and Shandong. As a follow-on project, the US$243 million China Second Energy Conservation Project (Phase II) was implemented from 2003-2010 as a major dissemination and expansion effort to help overcome the barriers to rapid development of China's EMC industry as efficiently as possible.

Rationale for Bank Assistance. The World Bank Group's assistance strategy was designed to help China (a) improve the business environment and accelerate the transition to a market economy, mostly through an array of knowledge transfer activities; (b) address the needs of the poorer and disadvantaged people and lagging regions, through investment lending in rural development, infrastructure, and social sectors, as well as capacity building and training; and (c) facilitate an environmentally sustainable development process, through investment lending in natural resource management, watershed rehabilitation and wastewater treatment, energy, and global environment projects supported by policy work as well as GEF and Montreal Protocol.

Contribution to Higher-Level Objectives. Both phases of the China Energy Conservation Project fully supported the objectives of the Country Assistance Strategy (CAS) for China, dated 1997 to

[2] An EPC involves a turnkey service for purchasing a complete package of EE improvements usually with minimal or no upfront cost to the client. A typical EPC project is delivered by an ESCO that guarantees the savings produced by the improvements will be sufficient to finance the full cost of the project. While ESCOs have been active on a large scale since the late 1980s—originating in Europe and North America—many countries, such as China, later adopted the concept in the late 1990s and began to achieve successful market developments. ESCO also refers to EMC (or EMCo), as termed in China; these terminologies are interchangeable in this document.

(a) reduce infrastructure bottlenecks by adjusting the investment pattern in favor of water management, energy, transportation, and telecommunications; (b) adjust the balance between energy development and conservation; and (c) develop alternative energy sources. These objectives were continued in the succeeding CAS released in 2003. The project is consistent with the objectives of GEF Operational Program 5 (OP5): Removal of Barriers to Energy Efficiency and Energy Conservation. Section 5.7 of OP5 includes support for activities that lead to sustainable "win-win" results that demonstrate local, national, and global benefits through removal of these barriers.

1.2 Original Project Development Objectives and Key Indicators

The objective of the project was to expand domestic investment in EE projects through the aggressive development of China's nascent EMC industry, thereby achieving large-scale EE improvements and associated reductions in the growth of CO_2 emissions and other pollutants. The key indicators of success in achieving the stated PDOs were the total annual EE investments generated by EMCs, and associated annual energy savings and reductions in CO_2 emissions. Table 1 shows the original PDOs or Global Environment Objectives (GEO) for GEF, and Key Performance Indicator (KPI) as approved in the Project Appraisal Document (PAD). The KPIs for the GEO, i.e. energy savings and CO_2 emission reductions from EMC projects, were basically measured and associated with the KPIs for the PDO, i.e. total investments of EMC industry. (The detailed indicators were previously shown in the Data Sheet.)

Table 1: Original PDOs and KPIs (as approved)

Project Development Objectives	**Key Performance Indicators**
• Achieve cost-effective improvements in EE on a commercially sustainable basis	• Total investments of EMC industry • Number of profitable EMCs in operation
Global Environment Objectives	**Key Performance Indicators**
• Sustainable removal of commercial barriers to EE investments	• Energy savings and CO_2 emission reductions from EMC projects

1.3 Revised PDO (*as approved by original approving authority*) and Key Indicators, and reasons/justification

The original PDO, GEO, and KPIs remained unchanged.

1.4 Main Beneficiaries

The primary target group, i.e. China's nascent EMC industry, remained the same as at appraisal throughout project implementation. The main beneficiaries were new and emerging EMCs, especially those (a) requiring core technical knowledge and skills to operate sophisticated EMC businesses, and (b) lacking access to credit financing for EMC business development. Through EPC, host enterprises also benefitted by receiving new, more efficient equipment at the end of the performance contract, paid for entirely through energy savings. Banks and financial institutions gained from the development, expansion, and implementation of viable business models through energy conservation financing. Society, as a whole, is expected to benefit economically and socially from (a) conservation of scarce energy resources (regarded as viable

alternative to construction of new power plants), (b) mitigation of the imbalance between energy supply and demand, (c) improvement of environment through reduction in global greenhouse gas (GHG) emissions, and (d) development of sustainable energy use patterns to meet the needs of the present without compromising those of future generations.

1.5 Original Components

The project comprised three components: (a) an EMC Service Component, designed primarily to provide in-depth, practical technical assistance to new and emerging EMCs on setting up and developing their businesses; (b) an EMC Loan Guarantee Program, designed to provide new and emerging EMCs with enhanced opportunities to receive loans from domestic banks, and to engage the banks in the development of a sustainable EMC industry; and (c) a Project Monitoring, Reporting and Evaluation Component designed to support the coordination and evaluation work. The EMC Service Component was implemented by the ESCO Committee of the China Energy Conservation Association, also commonly known as China's Energy Management Company Association (EMCA); the EMC Loan Guarantee Program was implemented by the China National Investment and Guarantee Co. Ltd. (I&G) as the sole implementing agency (refer also to *Annex 2. Outputs by Component*).

1.6 Revised Components

The components remained the same throughout the project.

1.7 Other significant changes

There were no significant changes to the project during implementation.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

Soundness of the Background Analysis. Analysis of the main achievements of Phase I up to the preparation of Phase II, indicated that the (a) concept of EPC was shown to be viable under Chinese conditions in terms of both financial and technical aspects; (b) promotion of this market mechanism was considered an important part of the Government's overall energy conservation policy; and (c) market demand for EPC services was demonstrated to be strong, attracting the attention of other interested parties. However, these new initiatives remained very small, due to barriers constraining rapid new EMC development: (a) lack of awareness of the basic concept; (b) lack of knowledge and skills to operate EMC businesses; and (c) lack of credit and equity financing for EMC business development. Phase II was designed by the Project Management Office (PMO) of the former State Economic and Trade Commission (SETC)[3] and its advisors to help address the main barriers as efficiently as possible, build upon the initial implementation experience of the three pilot EMCs, and cater to the evolving needs of the EMC industry.

[3] In 2003, SETC, the leading government counterpart for Phase I, was abolished, and relevant departments were merged into a new agency, the National Development and Reform Commission (NDRC).

Assessment of the Project Design. The project was designed through a gradual process over two years during the implementation of Phase I, and included many consultations with the three demonstration EMCs, new and emerging EMCs, domestic banks, central and local government officials, and international and domestic industry experts. The operation of a competitive, small grant program for new and emerging EMCs was considered during the early stages of project design. However, it was decided to rely only on guarantee mechanisms and avoid direct grants to EMCs. Such an approach was intended to increase the leverage and potential benefits from the limited GEF funds available, and catalyze private sector activity and commercial "contingent financing." Contingent finance arrangements developed in the Hungary Energy Efficiency Guarantee Project by International Finance Corporation (IFC) and Romania Energy Efficiency Project by GEF were closely reviewed, and elements from these projects were incorporated in the project design. The task team also exchanged views with Brazilian experts involved in the GEF/IBRD Brazil Energy Efficiency Project, who also were considering the development of a loan guarantee program for ESCO projects during that time.

Adequacy of Government's Commitment. Counterpart commitment and ownership were high during project preparation and design. Development and expansion of the EMC industry were part of the main directions of the Government's program to align its energy conservation strategy with the developing market economy. As previously mentioned, the development of this project involved many consultations with various stakeholders, to develop a broad consensus on the proper approach. SETC had already formed the EMC Service Group, and engaged highly qualified consultants and experts from different sectors to undertake project preparation.

Assessment of Risks. Despite the successful initial demonstration, the EMC business was basically new to China. The main risks of the Guarantee Program included (a) slower than expected development of EMC loan guarantee transactions, (b) poor market acceptance of the Program's guarantees, (c) lack of willingness of local banks to share EMC loan risks above token risk-sharing levels, (d) insufficient market acceptance of guarantee fees at levels commensurate with risks and costs, (e) excessive loan default rates, and (f) Guarantee Program operating cost overruns. The design of the project aimed to mitigate operational risks as much as possible and provide incentives for both maximum EE investment and capital reserve retention, through measures such as (a) implementation of training and technical assistance; (b) development of initial transactions; (c) determination of guarantee fees (at levels commensurate with risks and costs); and (d) engagement of local banks, well in advance of planned project effectiveness. For the EMC Service Component, the principal risk was the potential ineffectiveness of institutional development. This risk was mitigated through ongoing major capacity building investments—with support from the United Kingdom's Department for International Development (DfID) and the Bank's Asia Sustainable and Alternative Energy Programme (ASTAE)—and gradual approach to the development of the permanent EMC Service Association, led by SETC and the EMC Development Steering Committee. Under Phase I, a core EMC Service "Group" had already been formed within the PMO of SETC.

2.2 Implementation

Effects of Any Project Restructuring (or Other Significant Changes). There was no project restructuring, and there were no significant changes in the project components.

Mid-Term Review(s) and Actions Taken in Response to Problems. As planned at appraisal, two mid-term reviews were conducted (May 22 to June 2, 2006 and May 21 to June 2, 2008) to review project experiences, and make adjustments to Implementation Agreement (IA) arrangements, specific program rules, targets, management methods, etc. as necessary.

EMC Service Component. The early phases of this project posed big challenges for EMCA in building a strong reputation in the market as an entity, providing value-added services to its members, developing a sustainable platform for serving the EMC industry, and avoiding the many common pitfalls faced by newly established institutions. The initial EMCA membership criteria were later refined to maintain high standards of quality and equitable terms for EMCA's members[4].

EMCA delivered an effective program of (a) training and cross-exchange events for its members and prospective new EMCs, (b) information compilation and dissemination through a variety of channels, (c) support for expansion of the EPC market and sensitizing market players on the potential role of EMCs, (d) advocacy with Government and promotion for policy support, and (e) international exchange and cooperation. EMCA's aggressive outreach and market development activities accelerated broader market penetration, and rapid growth in EMCA membership and EE investments. EMCA clearly established itself as the principal institution representing China's EMC industry both in China and internationally.

The rapid expansion in EMCA membership and the EMC industry at large also created challenges for EMCA to maintain stability with its growth and develop systematic approaches to meeting the increasing demands of its growing number of clients. With so many new entrants into the business—not all of whom were stable or reputable—needs became more pressing for the development of industry standards, EPC model documentation, and Measurement and Verification (M&V) of savings protocol. EMCA organized relevant experts to conduct in-depth research and grasp EMC industry developments, as part of on-going efforts to raise the quality of EPC business in China. These efforts are expected to yield fruitful results during the next two to three years in greater standardization and further credibility within China's EMC industry.

EMCA has succeeded in maintaining financial sustainability after GEF financing ended in 2008. Its main sources of financing currently include membership fees, fees for certain services, and implementation of specific projects or research efforts financed by government, or various domestic or international groups.

[4] As revised within the second mid-term review period, a company in China is considered an ESCO by EMCA if it complies with all of the following criteria: (a) it is an independent legal body implementing energy conservation projects, (b) it has operated continuously for more than 12 months, (c) the company's registered capital is not less than RMB1 million, and (d) it has implemented as least one EPC project, and accumulated investment in EPC projects of no less than RMB1 million. The three basic types of EPC include (a) shared savings contracts, (b) guaranteed savings contracts, and (c) outsourcing of energy system management.

EMC Loan Guarantee Program. At the onset of program implementation, I&G faced challenges in extensive business development due to (a) complex operational coordination with relevant Government departments (e.g., the delay in setting up the Special Account[5], transfer of funds particularly the management fee, structuring of incentive fees, etc.); (b) lack of familiarity with EPC in the market; and (c) preference of local banks for traditional low-risk and asset-based lending. I&G fell short of loan guarantee targets in the first year of program operation in 2004, but recovered and met targets set by the government in 2005. With the exception of one large subrogation case in 2005 (amounting to RMB7.2 million), all projects under guarantee were monitored closely and performed well. While every effort was made to minimize subrogation cases, they were expected and viewed as the costs of doing business. What mattered most was how I&G and program partners reacted to mitigate loan guarantee fund losses, preserve the program's financial credibility and standing, and learn from the experience and avoid undue future losses.

Early issues were addressed through the development of a package of measures and incremental adjustments to the IA and Operations Manual (OM). I&G and EMCA renewed efforts to work together in concert, and focused on (a) expanding EMC guarantee business, (b) identifying and nurturing viable EMCs and encouraging repeat business, (c) widening the circle of participating banks willing to invest time and effort to support this business and assume greater proportion of risk, and (d) bridging the gap between these entities and their access to the banks and commercial credit on reasonable market-related terms. I&G also hired a chief energy conservation officer to support assessment of project feasibility studies and calculation of energy savings and GHG emission reductions.

At the time of the second mid-term review, I&G, working with the PMO, the Bank and government representatives, began to place greater emphasis on further customization of its products to match the needs of EMCs. Business activity at I&G on new EMC loan guarantees picked up strikingly during the latter part of 2007, with a series of new projects entering the application, appraisal, review, and approval system. While maintaining the focus on EPC-related projects only, a number of new guarantee products were developed by I&G and approved by the Bank project team, including (a) credit line guarantees for EMCs, (b) loan guarantees to host enterprises of EMCs for EPC projects, and (c) bond guarantees for energy savings performance. I&G's new guarantee commitments increased in 2008, reaching the highest volume of business under the project.

Project Monitoring, Reporting and Evaluation Component. The PMO was instrumental in supervising the project implementation in accordance with the GEF Grant Agreement, OM, and IA. The PMO was assigned to (a) undertake the day-to-day and overall coordination, supervision, and management of the project; and (b) periodically report to the Ministry of Finance (MOF), NDRC, and the Bank on project progress and existing problems, with corresponding recommendations. A major issue during the first mid-term review was the

[5] According to the OM, the Special Account is used as the first loss reserve to pay for subrogation, upon breach of loan contract. If the balance of the Special Fund is insufficient for the subrogation, the implementing agency has the responsibility to pay for the subrogation.

shortfall in financing for required PMO work, with the completion of most of the Phase I. The PMO was subsequently allowed to over-disburse original allocations for consulting service and incremental operating cost.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

M&E Design. The M&E design of Phase II was built upon the data collection methods and frameworks established under Phase I. The following KPIs were included in the M&E design: (a) total EE investments and EMC projects driven by the EMC Loan Guarantee Program, together with the associated savings in tce and reductions in GHG emissions in tons of CO_2 equivalent; (b) EE investments and energy savings derived from other EMC EE projects (outside the Guarantee Program); and (c) membership in the EMC Service Component (or association).

M&E Implementation. The PMO collected actual data and reviewed them for quality, and compiled reports on project status as well as progress on meeting performance indicators (especially energy savings levels). EMCA collected information through a comprehensive survey of its members on a calendar year basis and reported on the number of EPC projects implemented and the associated investments. The PMO contracted with an independent survey company to complete biennial estimates of the size and scope of EPC investment activities by EMCA non-members. The PMO compiled data from all implementing agencies and contractors.

M&E Utilization. M&E implementation evaluated collected data, and was used to assess the success of the project, as well as to monitor the growth of EMC industry in China. This was important not only for the EMC business in China itself, but also for the Government, the Bank, GEF, and outside parties. Statistical data on EMCs in China offered valuable data about the market for EMC project investments in China, and contributed to EMCs becoming important parts of many new EE project delivery initiatives in China.

2.4 Safeguard and Fiduciary Compliance

Procurement. The PMO was responsible for all project procurement (consisting only of consulting services), although details were prepared by the other two implementing entities, i.e., EMCA and I&G, for consulting assignments involving them. All procurement of consultants was carried out in satisfactory manner according to the updated versions of the *"Guidelines for Selection and Employment of Consultants by World Bank Borrowers."* No procurement activities were involved in the capital reserve component of the EMC Loan Guarantee Program, or in the incremental operating cost support to the two implementing entities.

Social and Environment. At appraisal, the project was expected to have major positive impacts on the environment, in terms of improved EE, and reduced air pollution and GHG emissions. No resettlement, social hardships, and adverse environmental issues were associated with the project, which supported relatively minor industrial and commercial building energy conservation retrofits and equipment renovation. A chapter of project OM defined a set of procedures for Environmental Review of all EMC subprojects supported by the EMC Loan Guarantee Program, in compliance with national and local environmental laws and regulations as well as the Bank policies and procedures. The OM also listed types of enterprises for which environmental hazards preclude any form of guarantee program support. Procedures that were

set forth in the agreed OM for screening projects entering the Guarantee Program for potential environmental issues were implemented satisfactorily.

Financial Management. Financial management procedures and reporting requirements for the Special Fund account were implemented in an acceptable manner. Financial statements for both EMCA and the I&G loan guarantee program, as well as those of the special account, were audited by the China National Audit Office, which issued "clean" or "unqualified" opinion. A "clean" or "unqualified" opinion refers to the independent auditor's opinion that the project's financial statements are fairly presented, in all material respects, in conformity with generally accepted accounting principles.

2.5 Post-completion Operation/Next Phase

Sustaining Reforms and Institutional Capacity. The State Council approved in April 2010 the *"Opinions on Accelerating the Promotion of Energy Performance Contracting and the Development of the Energy Efficiency Service Industry"* (SC/Office/Development [2010] No.25). This policy will provide support in financial incentives and taxation advantages, speed up the implementation of the EPC mechanism, and boost the development of the energy saving service industry. In June 2010, MOF and NDRC issued the *"Interim Method to Manage the Fiscal Rewards for Energy Performance Contracting Projects"* and specified the reward standards to be RMB240/tce from the central fiscal rewards and at least RMB60/tce from the provincial fiscal rewards. The *Method* also specified the eligible criteria and application procedures. The central government has allocated RMB2 billion for the rewards in 2010. More recently, China's new *"General Technical Rules for Energy Performance Contracting"* (National Standard GB/T 24915-2010), issued by China's National Standardization Management Committee on August 2010, specifies the EPC terms and definitions, technical requirements, and reference contract. These measures of continuing and expanding government support provide an exceptionally favorable framework for further expansion of China's EMC industry in the coming years.

Next Phase/Follow-up Operation. The Bank's overall energy conservation program has included a series of phased and parallel, mutually reinforcing initiatives, with each operation focused on a specific manageable set of development challenges. The China Energy Efficiency Financing (CHEEF) Project—with Phase I and II approved in 2008 and 2010, respectively, and additional financing under preparation for 2011—is viewed by the Government as an important follow-on set of projects to the GEF/IBRD-funded China Energy Conservation Project Phase I and II. The CHEEF projects are financial intermediary lending operations, providing financial support and technical assistance to participating commercial banks to develop and sustain energy conservation lending business lines. While the CHEEF projects have not as yet sought to directly involve EPC models, they strengthen the EE lending capabilities of domestic banks and reduce barriers for large industries—particularly the top 1000 national enterprises—to invest in EE projects. The China Utility-Based Energy Efficiency (CHUEE) Program, supported by GEF and implemented by IFC, and its follow-on second phase, support marketing, development, and equipment financing services for EE projects in the commercial, industrial, institutional, and multi-family residential sectors. About one quarter of the loans so far have involved EMCs in

some way[6].

Other ongoing and developing Bank programs that are greatly influenced by the project include support for strengthening and expanding EE programs both at the provincial and national levels, such as the (a) Shandong Energy Efficiency Project (particularly EE leasing—another form of contracting mechanism for energy services—to improve EE in industrial enterprises); (b) Provincial Energy Efficiency Scale Up Project (technical assistance and capacity building to support the implementation of provincial EE programs in Shandong, Shanxi, and Jiangxi, including development of EE service industry).

Transition Arrangements. The Grant Agreement specifies that the Recipient may keep in perpetuity any funds remaining in the guarantee program reserve Funds after the project closure, but only for the purpose of (a) continuing the EMC Loan Guarantee Program, or (b) using such Funds consistent with the objectives of reducing GHG emissions in China. As early as the second mid-term review, the Bank project team, PMO, and relevant Government parties discussed the continuation of the EMC Loan Guarantee Program fund operations in the future. In 2009, NDRC's PMO commissioned the Research Institute for Fiscal Science under MOF to conduct a study on how to use these funds. The study reviewed a series of options, and recommended continued use of the funds for EE loan guarantees, in broader, but similar ways to how they were used under the project. Another option emerged to use the Funds as seed fund for a national fund used for energy conservation and emission reduction. Eventually, the final decision on how to best use the Grant proceeds proved to be a long-term process requiring constant evaluation of the country's current and dynamic energy conservation priorities, and consultations with various government agencies and stakeholders. On the project closing date, MOF, representing the Recipient of the grant, declared that the remaining GEF Funds will be used only for the purpose of energy conservation and EE in China. The Recipient intends to use the remaining Funds to support risk sharing facilities and set up an equity fund targeting SMEs in the energy efficiency and clean-energy sectors.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Relevance to Country's Current Development Priorities. While the 12th Five Year Plan (FYP), which lays out the national, social, and economic policies for the next five years is yet to be officially released, continued aggressive encouragement of energy conservation and renewable energy are expected. It is also expected that the third pillar of the Country Partnership Strategy (CPS) for China for the period 2006-2010—i.e., manage resource scarcity and environmental challenges, through reducing air pollution, conserving water resources and optimizing energy use, improving land administration and management, and observing international environmental conventions—will remain highly relevant in the next CPS.

[6] Assessing the Impact of IFC's China Utility-Based Energy Efficiency Finance Program. Independent Evaluation Group (IEG). Washington, D.C.: The International Bank for Reconstruction and Development/The World Bank, 2010

Consistency with Current Global Priorities for GEF Projects. The project objectives remain fully consistent with GEF's Focal Area Strategies and Strategic Programming for GEF-4 (2007-2010), approved by the GEF Council in September 2007. One of the long-term objectives and strategic programs for Climate Change in GEF-4 is to promote energy-efficient technologies and practices in industrial production and manufacturing processes. Climate change mitigation continues to be a focal area strategy for the new GEF-5 programming, with one of the objectives being to promote market transformation for EE in industry and building sector, with expected outcomes of (a) sustainable financing and delivery mechanisms established, and (b) increased market penetration of energy efficient technologies and products.

3.2 Achievement of Project Development (or Global Environmental) Objectives

Progress in Achievement of PDO (or GEO). The Project has fully achieved its objectives and has played a key role in the successful development of the nascent EMC industry in China. EPC investment in 2009 totaled about US$2.7 billion. China's EPC business has grown much more strongly than originally hoped during the past six years at an average growth rate in EPC EE investments of 64% per year during the last three years (based on the EPC project investment data presented on Table 2). Direct energy savings benefits from EPC investments in 2009 totaled about 116.1 million tce, which equates to 82.7 million tons of CO_2, and exceeded the KPI target by 16 times. The project fostered the broad development of the number of EMCs operating in China. As shown in Table 3, EMCA membership rose, from 89 member entities in 2004 to 450 in 2009. Out of the 450 EMCA members in 2009, 321 (71%) are EMCs implementing EPC projects. The project is a part of the ongoing platform of Bank's support for energy conservation, which the Government deeply appreciates and wishes to continue in the future. China's EMC industry is posed for continued sharp growth in the coming years, and draws both national and international attention. Detailed output by components are further discussed in *Annex 2. Outputs by Component*.

<u>*EMC Service Component.*</u> EMCA has played a focal point for (a) fostering the legitimization of the EMC industry in China, (b) providing all-round and practical technical assistance for newly emerging and potential EMCs, (c) helping EMCs overcome obstacles in technology or business at the beginning of their operation, (d) building platform of communications between EMCs and government, and (e) assisting the Government in development of supportive policies for EMC industry. EMCA played a key role in helping to develop the new national policies of special support for the EMC industry approved by China's State Council in 2010. From its inception, EMCA has also focused on cooperation with a variety of financial institutions to increase mutual understanding between EMCs and financiers, and promote increasing access to commercial finance for its members. EMCA has maintained a strong focus on EMC market development activities, and has promoted increased cross-member cooperation, including joint efforts for larger projects. EMCA□s Energy Service Website and monthly LIESCOs in ChinaЪjournal are well known and appreciated. EMCA continues to update its training materials every year and has delivered hundreds of training courses and workshops, with increasing focus on special topics. Finally, EMCA has become a focal point for exchange with other countries on EMC development. While the GEF financial support under the project was important at the outset, EMCA has been operating as a self-sustaining institution since 2009.

Table 2: Performance indicators for energy-efficiency investments energy savings, and reductions of CO_2 emissions

generated by EMCs[7]

Project Development / Global Environment Objective	2004	2005	2006	2007	2008	2009
PDO/GEO 1: EPC Project Investments (US$ million)						
• Projects guaranteed by I&G	9.8	26.8	17.3	20.0	28.5	28.6
• Other EMCA members	37.0	137.1	179.0	853.1	1,255.8	2,278.0
• Non-EMCA Members	22.6	48.4	83.7	131.3	280.7	388.6
Total	**69.4**	**212.3**	**280.0**	**1,004.4**	**1,565.0**	**2,695.2**
Target	**14.4**	**22.2**	**38.0**	**62.4**	**80.2**	**82.4**
PDO/GEO 2: Project Life-cycle Energy Savings (million tce)						
• Projects guaranteed by I&G	0.6	1.5	0.9	1.0	1.4	1.2
• Other EMCA members	2.3	7.7	9.7	43.7	59.8	98.1
• Non-EMCA Members	1.4	2.7	4.5	6.7	13.4	16.7
Total	**4.3**	**11.9**	**15.1**	**51.4**	**74.5**	**116.1**
Target	**1.3**	**2.0**	**3.5**	**5.7**	**7.4**	**7.6**
PDO/GEO 3: CO_2 Emissions Reduction (million tons CO_2)						
• Projects guaranteed by I&G	0.4	1.1	0.7	0.7	0.9	0.9
• Other EMCA members	1.6	5.5	6.9	31.2	41.0	69.9
• Non-EMCA Members	1.0	1.9	3.2	4.8	9.2	11.9
Total	**3.0**	**8.5**	**10.8**	**36.7**	**51.1**	**82.7**
Target	**0.9**	**1.4**	**2.3**	**3.8**	**4.9**	**5.0**

Table 3: Active EMCs in China based on EMCA membership

Indicators for EMC Service Component	2004	2005	2006	2007	2008	2009
• Number of EMCA members	89	158	212	308	385	450
• EMC EMCA members	40	47	82	153	257	321
• % EMCs in EMCA members	45%	30%	39%	50%	67%	71%

EMC Loan Guarantee Program. The EMC Loan Guarantee Program implemented by I&G helped to address the inadequate access to commercial financing, which is a leading problem in EMC development in virtually all countries. Under the project, US$22 million was placed in a reserve account to help cover the risks of default on guarantees for commercial loans from Chinese banks for EPC projects. While the lending support to China's new EMCs was important, the special value of I&G's program was to operationally introduce new EMCs to the financing world, and the new EPC business to the banking industry. The guarantee company guaranteed loans to 42 different EMCs, most of which were privately owned. Almost all of these EMCs received their first bank loan ever under the program. The guarantee company partnered with 12 different banks and 6 provincial guarantee companies, introducing them to the business and

[7] EPC investments were calculated using prevailing exchange rates during the reporting period; energy savings were calculated using standard coefficients of tce and tce saved per 1000 constant 2007 RMB (converted to current RMB using China's Fixed Asset Investment Price Index), and standard coefficients were derived from actual EPC projects supported by I&G during 2004-2007; a 10-year period was conservatively assumed as the typical project life-cycle of EPC projects. Sources: EMCA annual survey of members; All China Marketing Research Co. surveys during the periods 2004-2005, 2006-2007, and 2008-2009 for non-EMCA members.

executing transactions. I&G developed specialized technical and credit appraisal methods for EPC business catering to Chinese banking customs. I&G issued loan guarantees for 148 EMC projects during 2004-2009 totaling RMB517 million, supporting RMB910 million in EPC project investments. As non-recoverable default losses were exceptionally small, the US$22 million in the reserve account remained in place at the end of Phase II, available for continued support of EE investments.

Project Monitoring, Reporting and Evaluation Component. Overall supervision and management by the PMO was important to ensure smooth progress of the project. The PMO established and honed a complete set of management documents to achieve a standardized and institutionalized project management. The PMO engaged suitable expertise and consulting work to assist implementing entities in the most of the detailed supervision responsibilities of the project, including review of annual plans, budgets, and accounts.

Causal Linkage between the Operation and Claimed Benefits. The "without project" scenario developed at project appraisal was based on a review of the existing EMCs in China at that time and prospects for further growth without special project support. Under this scenario, it was estimated that at least some US$53 million in EPC EE investment would be achieved during 2004-2010 without the project. The development of EMCA as an industry focal point and I&G's loan guarantee program as a mechanism to introduce EMCs to financial sector institutions played a major role in the phenomenal growth in EPC under the project.

The Government's aggressive and comprehensive set of energy conservation promotion programs implemented as part of its effort to achieve a 20% reduction in energy use per unit Gross Domestic Product (GDP) during 2006-2010 was a key factor in fostering the expansion of the EPC industry, by expanding demand for energy conservation investments. The high demand among enterprises for assistance in implementing energy conservation efforts was an especially important part of the sharp growth in EPC investments during 2007-2009. However, this level of growth in EPC would not have been possible without the investments of the project during 2004-2006, which deepened the foundations of the EMC industry by fostering development of new EMCs.

3.3 Efficiency

Cost Effectiveness. At project appraisal, the incremental cost option was selected as the basis for assessing economic performance. The incremental cost associated with the provision of the grant for the capital reserve is equal to the difference between the future value of the US$22 million Loan Guarantee Fund plus the US$4 million technical assistance grant, and the funds retained at the end of the project for continued use for GHG reduction. Using a conservative interest rate of 2.9%, the future value of the Fund would have been about US$29.3 million at the time of project closure in 2010[8]. The Total Current Assets[9] at the end of project closure was about US$22.3

[8] This is based on the assumption that the partial funds of the GEF grant were placed on fixed deposits using an average interest rate for the period 2004-2010.

[9] Total Current Assets include receivables due to expected subrogation recovery of about 54%; in other words, about 46% of the small outstanding receivables may not be fully recovered.

million; thus, the resulting incremental cost for the project was about US$7 million in 2010 US Dollars (compared to the appraisal estimate of US$4 to US$9 million in 2002 US Dollars). The actual incremental cost of US$7 million may be considered as the seed fund to implement the technical assistance and the loan guarantee program, and promote the aggressive development of the nascent EMC industry, which created a ripple effect that generated further EPC investments and savings from both EMCA and non-EMCA members. Conservatively, this is equivalent to a net unit carbon abatement cost, ranging from about US$0.03 to US$1.05 per tce of savings, depending on the percentage of savings from both EMCA members and non-members that can be attributed to Phase II itself. The lower mid-range of this US$/tce savings compares well with those during appraisal (about US$0.09 to US$0.12 per ton of carbon).

Financial Performance. At project appraisal, key parameters defining the investment and financial performance of the Program included (a) size and disbursement schedule for the capital reserve; (b) volumes of guarantee commitments achieved, including the extent of leveraging of the Program's capital reserve; (c) Program costs, including both operating costs and losses due to unrecoverable subrogation losses; and (d) revenue accruing to the Program, including revenue from guarantee fees and interest income from conservative investment of the capital reserve. As planned, the US$22 million Loan Guarantee Fund was disbursed in three tranches (US$11 million in 2004, US$5.5 million in 2005, and US$5.5 million in 2009) that established a firm linkage between disbursements and demonstrated performance. The Fund was able to mobilize commercial credits of RMB574 million over the 6.5 year implementation period, which is about 3.8 times the average size of the guarantee fund (as compared with 14 times at appraisal), which was not unexpected given that management fees were suppressed to promote the EE business, and market size and level of business were limited by a degree of risk aversion. However, taking into account subrogation loss and management fees paid as well as interest on reserve capital and guarantee fees earned, the guarantee reserve remains almost unchanged, i.e., GEF grant funds remained intact in the guarantee reserve account, with Total Current Assets (including expected receivables) of up to US$22.3 million at the end of project closure, as previously mentioned.

3.4 Justification of Overall Outcome Rating

Rating: Satisfactory

The project remains highly relevant to the country's current development priorities, especially with the recent policy to provide support in finance and taxation, speed up the implementation of the EPC mechanism, and boost the development of the energy saving service industry. The project was exceptionally successful in meeting its development objective to expand domestic investment in EE projects through the aggressive development of China's nascent EMC industry. The incremental cost of the project proved to be efficient to generate substantial tce of savings and CO_2 emission reductions.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

China's leadership has focused on building a resource-saving society, because sustainable and strong economic growth in China over the long term is more likely if natural resources are used

more efficiently. The project did not have direct goals for poverty reduction, gender aspects, or social development. However, the general population gained from the energy savings and associated GHG emission reduction benefits of the project. The social benefits of investment in energy conservation included creating significant numbers of jobs for all genders and businesses in energy-related services, such as manufacturing and installation of energy saving equipment.

(b) Institutional Change/Strengthening

This project played a major role in building a positive legal environment, sustainable institutions, and favorable operating conditions for EMCs in China. EMCA played a key role in the development and advocacy for the Government's 2010 set of supportive policies for the industry, which provide legal clarity and a highly favorable operating environment for EMCs in the coming decades. Since 2008, EMCA also has proved itself to be financially sustainable. Another important impact of the project's institutional strengthening was the loan guarantee program that built the (a) first bridges between commercial financiers and EMCs; (b) practical knowledge within EMCs on how to deal with financing organizations; and (c) understanding and experience in financing of EPC projects in Chinese banks and financial guarantee organizations. Experience under the project provided a platform to implement Government's desire to encourage increased commerical bank lending to EMCs.

(c) Other Unintended Outcomes and Impacts

Another potentially lucrative, but to date largely untapped market for EMCs lies in the unrealized opportunities in the government sector—besides the industrial sector as the major market for EPC in China. The dissemination effect of Phase II expanded the potential application of EPC mechanism to government facilities. On August 2008, China's highest level of Government body, the State Council, issued a national *"Regulation on Energy Conservation by Public Institutions,"* which establishes responsibilities, accountabilities, and targeting and monitoring requirements for increasing EE in government facilities for the first time. In July 2009, the State Council issued to regional governments, ministries and direct institutions the energy saving organization work of 2009, which called on views about speeding up the development of energy service industry by EPC and encouraging EMCs to implement EE retrofit for small or medium enterprises and public institutions. The opening of the EE market in the government sector will further stimulate China's growing EMC industry. (Similar to other countries like the United States, the ESCO industry has been successfully concentrated in institutional markets.)

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

Beneficiary survey and stakeholder workshops were not specifically carried out for the preparation of this ICR. However, this ICR benefited from prior workshops on the success of the project in developing the nascent EMC industry as well as issues that still face the industry (see *Annex 6. Stakeholder Workshop Report and Results*).

4. Assessment of Risk to Development Outcome

Rating: Negligible to Low

The overall risk to the development outcome and the global environment outcome is rated low. China's EMC industry has shown continued growth, and the government has issued key policies to further accelerate the use of EPC mechanisms. Energy conservation and efficiency projects through EPC has been proven as technically and financially viable, with the resulting energy cost savings paying for the investments and mitigating the harmful effects of GHG emissions.

5. Assessment of Bank and Borrower Performance

5.1 Bank

(a) Bank Performance in Ensuring Quality at Entry

Rating: Satisfactory

The PDOs were consistent with the country's and the Bank's strategic priorities during project approval and at the time of this evaluation. Project preparation included consultations with a wide range of stakeholders, in the central and local government, research units, Non-Governmental Organizations (NGOs), and industrial, commercial, and financial enterprises. Experiences and lessons learned from Phase I were fully taken into account in the final project design. Fiduciary and safeguard arrangements followed Bank guidelines. M&E were spelled out in a systematic approach.

(b) Quality of Supervision

Rating: Satisfactory

The Bank team conducted regular supervision missions twice a year. The two mid-term reviews, along with the two annual supervision missions, facilitated the resolution of implementation problems at the appropriate stages. Bank supervision ensured that EMCA, I&G, and PMO adhered to stringent operating procedures with the flexibility to develop and expand new business models and innovative approaches. The Bank required the PMO and the implementing entities to furnish good quality project progress reports for every supervision mission, including the annual report of EE investments, and associated energy-saving and carbon emissions. Bank missions regularly reviewed financial statements of the implementing entities. The Bank team also ensured that environmental screening of projects entering the Loan Guarantee Program was carried out, and the results were documented.

(c) Justification of Rating for Overall Bank Performance

Rating: Satisfactory

Based on the ratings for Bank Performance in Ensuring Quality at Entry and Quality of Supervision, the overall Bank performance is rated as Satisfactory.

5.2 Borrower

(a) Government Performance

Rating: Satisfactory

The Government demonstrated strong ownership and commitment to achieving the development objectives. Many energy-efficiency policies and programs were developed and implemented by the central government, and most of these programs were directed toward the industrial sector (also described in Section *6. Lessons Learned*). Local governments at all levels also created an enabling environment for EMC industry through subsidies, incentives, and other ways to support key energy conservation projects and energy-efficient products, promote new energy conservation mechanisms, and eliminate high energy equipment and support energy management capacity building.

(b) Implementing Agency or Agencies Performance

Rating: Satisfactory

EMCA exceeded expectations in (a) providing all-round and practical technical assistance for newly emerging and potential EMCs, (b) improving management techniques and capabilities of EMCs with regard to EPC projects, (c) building platform of communications between EMCs and government, and (c) assisting the Government in development of supportive policies for EMC industry. EMCA worked closely with I&G, the other implementing entity, in (a) providing lead generation for loan guarantee projects, (b) organizing experts to provide technical review of subprojects, and (c) disseminating the Guarantee Program in all of its training courses. I&G used a variety of ways to promote Guarantee Program for the market development of EMCs. The PMO successfully carried out the overall supervision and management to ensure the smooth progress of the project.

(c) Justification of Rating for Overall Borrower Performance

Rating: Satisfactory

Based on the ratings for Government Performance and Implementing Agencies Performance, the overall Bank performance is rated as Satisfactory.

6. Lessons Learned

Supportive Policies from the Government. Broad Government support for the promotion of EE in general and specific support for the development of the EMC industry were important factors in the success of this project. The attention given to EE by government authorities and enterprise managers at all levels in response to the government's insistence on achieving its national target of reducing energy use per unit GDP by 20% during the 11th FYP (2006-2010), increased demand for EE services and project investment. In addition, specific Government support for the EPC mechanism was also important, including clear and steady backing for all of the project's promotional activities, and research and support on policy issues.

Phased International Support. The design and implementation of a long-term project approach,

involving two strategically phased projects to introduce, and then expand the adoption of the mechanism in China, implemented over a 12-year period, was a key factor in the successful development outcome of the project. The results of the demonstration EMCs supported under Phase I were reviewed and incorporated in this second project. To provide market underpinnings for the expansion of the industry under Phase II, that project subsequently aimed to avoid direct grants to new or emerging EMCs, and substitute the Chinese commercial banking industry, supported with suitable risk-mitigation and technical assistance measures.

Choice of Market-based Financing Mechanisms. The shared savings model[10] that was first introduced and demonstrated under Phase I fostered an environment for EMCs to build their technical, financial, and management strength and expertise, while host enterprises received off-balance-sheet financing and assumed little financial risk. However, the shared savings model tended to favor large EMCs with access to financing, and small EMCs faced difficulties contracting further debt for a steady stream of projects, due to growing high debt-to-equity ratio concerns. As in other countries, guaranteed savings EPC models began to be developed aggressively in China, as long as host enterprises were willing and able to finance the projects. This option also had natural constraints, being more difficult to market, especially for EMCs without established reputations. In addition, outsourcing models also evolved based on the practical needs of host enterprises and as a result of further innovation in EMC service offerings. Elements of these three basic models have also been combined in a wider variety of different types of EMC project packages.

Role of EMC Association. The creation of a new, permanent EMC industry association to deliver technical assistance to newly developing EMCs under the project, foster mutual assistance between EMCs, and represent the industry to government and others proved to be a good decision. Key factors underlying EMCA's success included (a) clear association with but certain independence from government; (b) success in managing relations between companies within the association; and (c) substantial, stable but declining and finite source of financing for operations provided under the project. A critical factor was the quality of EMCA's leadership, which proved capable to balance a series of conflicting interests and demands, and steer the new entity onto a stable and sustainable path.

Collaboration with Financial Sector Institutions. The EMC Loan Guarantee Program was a first trial of use of GEF funds by the Bank in support of an in-country guarantee reserve fund. The mechanism proved successful in generating deal flow and involving 12 Chinese banks in EPC projects for the first time. Particular strong points include preservation of reserve fund

[10] The financing mechanisms for EPC project in China include: (a) ESCO Financing – also called Shared Savings model, ESCO takes up the financial and performance risks, and finances the project either by using its own fund or borrowing from a third party financier; ESCO and enterprise share the energy savings generated by the EPC project for a predetermined length of time and prearranged percentage; (b) Enterprise Financing – also called Guaranteed Savings model, enterprise takes up the financial risks and obtains project funds directly from a third party financier; ESCO guarantees that the energy savings will cover debt service, and pays for any shortfall in savings; (c) Outsourcing – also called Outsourced Savings model, enterprise entrusts the ESCO to retrofit the enterprise's energy system and manage its operation; ESCO gets outsourcing fee from the enterprise as set in the contract, which may have an element of shared savings in addition to the guaranteed savings element to provide incentives for the enterprise; this form of contracting has many variations and can also be referred to as Build, Operate and Transfer (BOT), Build, Own, Operate, and Transfer (BOOT), or Design, Build, Operate, and Maintain (DBOM).

capital and successful reach to a total of 42 different EMCs, majority of whom received their first bank loan ever under the program. Deal volume could have been increased greatly if the program was opened up to cover a wider variety of EE lending opportunities, and not just those involving the relatively narrow field of EPC. However, limiting the program to EPC proved to be the right decision, since the specialization resulted in both the remarkable coverage of the program within the EMC industry and innovation in developing financing products specially for EMCs.

Stability of the PMO, Implementing Entities, and Bank Team. The PMO, established in 1995, was involved in both Phase I and Phase II. The overlap in the implementation of the two projects preserved the key assets of the PMO, i.e., the highly motivated and dedicated management and staff, and facilitated project transition without major disruption in operations. The original Bank task team leader and the team's principal financial specialist remained part of the project team throughout the period of the two projects, enabling continuity in project supervision and dialogue with counterparts, resulting to major benefits in terms of a common vision, understanding through experience, as well as easy communication.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

The comments of NDRC on the draft ICR are attached in Annex 7. NDRC considers the draft ICR to reflect project implementation comprehensively and objectively, in accomplishing project goals and achieving good results. NDRC expressed its proposal on the use of remaining Guarantee Funds (the ICR discussed this issue in Section *2.5 Post-completion Operation/Next Phase, Transition Arrangements*).

(b) Cofinanciers

Not Applicable

(c) Other partners and stakeholders

None

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in US$ Million equivalent)

Components	Appraisal Estimate (US$ millions)	Actual/Latest Estimate (US$ millions)	Percentage of Appraisal
EMC GUARANTEE PROGRAM			
- EMC Loan Guarantee EPC Investments [(1)]	**$ 215.00**	**$ 131.00**	**60.9%**
- EMC Loan Guarantee Special Fund	**$ 22.00**	**$ 22.00**	**100.0%**
- EMC Loan Guarantee Technical Assistance	**$ 1.80**	**$ 1.10**	**61.1%**
EMC SERVICES	**$ 3.10**	**$ 2.90**	**93.5%**
PROJECT MONITORING, REPORTING & EVALUATION	**$ 0.60**	**$ 1.50**	**250.0%**
Total Baseline Cost	**$ 242.50**	**$ 158.50**	**65.4%**
Physical Contingencies	$ -	$ -	**0.0%**
Price Contingencies	$ -	$ -	**0.0%**
Total Project Costs	**$ 242.50**	**$ 158.50**	**65.4%**
Project Preparation Facility (PPF)	$ -	$ -	**0.0%**
Front-end fee IBRD	$ -	$ -	**0.0%**
Total Financing Required	**$ 242.50**	**$ 158.50**	**65.4%**

[(1)] This excludes other EPC Project Investments from EMCA and non-EMCA members, which totaled US$4,740 million and US$955 million, respectively during the project implementation from 2004-2010 (refer to *Table 2: Performance indicators for energy-efficiency investments energy savings, and reductions of CO_2 emissions generated by EMCs*).

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (US$ millions)	Actual/Latest Estimate (US$ millions)	Percentage of Appraisal
Borrower		$ -	$ -	0.0%
Local Communities		$ 1.50	$ 1.50	100.0%
Global Environment Facility (GEF)		$ 26.00	$ 26.00	100.0%
Local Sources of Borrowing Country		$ 215.00	$ 131.00	60.9%

Annex 2. Outputs by Component

EMC Service Component. This component consisted of a large capacity building and technical assistance program to raise broad awareness of the EMC mechanism, assist new EMCs to develop into established businesses, and help develop policy support. EMCA was legally registered under the China Energy Conservation Association (CECA) on December 31, 2003, and signed a performance contract with NDRC. The first EMC membership Foundation Meeting was held on April 3, 2004. The EMCA Secretariat was formally established after the Foundation Meeting. The EMCA Secretariat planned to have 12 core staff—Director, Deputy Director, Secretariat, Deputy Secretariat, 2 staff in the Marketing and Member Service Department, 2 staff in the Planning and Training Department, 1 staff in the Information and Research Department, 2 accountants, and 1 secretary[11].

The intended function of EMCA as the EMC service group/association was to serve new and emerging EMCs, including:

- Developing and implementing a massive and detailed training program for new and developing EMCs, including assistance in EMC establishment, corporate structuring and identification of types of corporate partners, assistance in project identification and development, assistance in overcoming operational problems, etc.;
- Acting as an advocate of the EMC industry in China, and recommending policy and support activities to the Government, international institutions, and other key groups, which will foster healthy industry growth;
- Preparing and disseminating basic information concerning the EMC business throughout China;
- Recruiting new association members, and developing feedback mechanisms for improving member services and developing new services; and
- Meeting and coordinating with financial institutions to introduce EMC business, explain performance contracting, and discuss potential roles and benefits of financial institution participation.

The outputs and contribution of the EMC Service Component for the successful development of the EMC industry in China are discussed in Section *3.2 Achievement of Project Development (or Global Environmental) Objectives*. Table 4 summarizes the specific output indicators for the EMC Service Component.

[11] At the time of project closure, EMCA had 13 full-time staff, with a director in charge of the overall operation. EMCA has six departments, including (a) Planning and Training Department, (b) Marketing and Membership Department, (c) Information and Research Department, (d) International Cooperation Department, (e) Promotion Centre for Energy Conservation Technologies, and (d) Comprehensive Accounting Department.

Table 4: Increased capacity for EMC industry to identify and implement EE projects

Output Indicator	2004	2005	2006	2007	2008	2009
Number of EMCs implementing projects	40	47	82	153	257	321
Number of EMCs and staff trained[12]	Hundreds of EMC training programs conducted and thousands of participants trained					

Characteristics of EMCs Operating in China. Table 4 shows that 321 EMCs were implementing EPC projects in 2009, which was eight times the number in 2004, when EMCA was founded. EMCA members were spread out in more than 20 provinces and concentrated mainly in North China and East China. The quality of EMCA members has steadily improved. Initially, the members were small companies,[13] but by 2009, many large multinational companies had become EMCA members. Non-EMCA members that carried out EPC projects were distributed in every region in China, demonstrating remarkable progress in promotion of the EPC mechanism nationwide and the development of EMC market under the project. With the development of EMC industry, the EPC mechanism now has three basic types of EPC model: shared savings, guaranteed savings, and outsourcing. In 2009, 65% of EPC projects were carried out in the form of shared savings, while guaranteed savings and outsourcing accounted for 19% and 16%, respectively.

Training Programs for EMCs. During 2004-2009, EMCA organized hundreds of training programs and cumulatively trained up to ten thousand people. EMCA's training programs for EMCs can be categorized into five types: (a) general training oriented to newly emerging and potential EMCs; (b) specific training on chemical, petroleum, cement, and other industries; (c) special subject training oriented to EMC managers, project managers, and financial managers; (d) specific training focusing cooperation between local energy conservation administrations; (e) outreach training, e.g., development of EMCs in West of China. In addition and complementary to the training programs, EMCA's outputs included: textbooks for training courses; EMCA website; research report on special subjects; how-to guidance; dissemination materials; databases of EMCs and experts; case studies; EMCA Annual Conference; supportive government policies; international communication and cooperation. Since its founding, EMCA has paid much attention to international communication by actively participating in international activities, organizing EMCA members to go global and learn from the experience of foreign EMCs, developing international market, and taking part in international cooperation projects.

Revenue Generation of EMCA. EMCA had two income streams from the GEF grant, and self-operated business and membership revenues. EMCA's income from the self-operated business includes training activities, market development, consulting business, international cooperative projects, EMCA website, and China Energy Conservation Service magazine. By March 2009,

[12] Please refer to the qualitative and quantitative description of all the outputs that have been realized in relation to EMCA's training programs.

[13] The expected annual income for small and medium enterprises is between RMB30 and 300 million, and the annual income of large enterprises is generally more than RMB300 million.

EMCA's self-operated business income amounted to RMB4.5 million. The increase of the self-operated business income and its utilization well supported the expansion of EMCA's service activities. The rapid increase of EMCA's ability to make revenue became the key element for EMCA's sustainable development in the future.

The achievement of output indicator targets for the number of operating EMCs, member companies of the EMCA, and annual investment for energy conservation projects, as well as associated energy savings and carbon reduction indicates that the EMC Service Component was fully successful. Although the current energy service market has yet to reach its full potential, both the government and the private sector have a positive attitude towards the EPC mechanism and its role in promoting energy conservation and reduce GHG emissions.

EMC Loan Guarantee Program. The goal of the EMC Loan Guarantee Program was to facilitate access to domestic commercial credit for the broad, strong, and sustained development of China's new EMC industry through (a) guarantee transactions, leveraging capital resources as much as possible, and facilitate lending to EMCs as possible; (b) commercially-oriented operation, in order to maintain resources for revolving, long-term use; and (c) strengthened involvement of domestic banks in the program as much as possible, thus enabling them to become increasingly familiar and comfortable with lending to the EMC industry as well as willing to undertake EMC credit risks themselves. The Guarantee Program provided partial credit risk guarantees to applying banks and EMCs, up to 90% of the loan principal amount under the EMC Program Guarantee Special Fund comprising GEF contribution of US$22 million equivalent. I&G, China's only national guarantee company, which maintains the longest track record of any company in China's nascent loan guarantee business, and has the widest credibility in the Chinese market, was appointed as the sole implementing agency of the program.

The outputs and contribution of the EMC Loan Guarantee Program for facilitating increased investments in EMC projects were previously presented in Section *3.2 Achievement of Project Development (or Global Environmental) Objectives*. Table 5 summarizes specific output indicators for the EMC Loan Guarantee Program.

Table 5: Increased Commercial Investments in EMC Projects

Output Indicator	2004	2005	2006	2007	2008	2009
Total investment of EMC projects supported by guarantee facility (US$million)	9.8	26.8	17.3	20	28.5	28.6
Number of EMC projects supported by the guarantee facility	19	33	33	26	16	21
Number of participating banks	13	17	13	12	8	10

Implementation of Loan Guarantee Program. By December 31, 2009, the EMC Loan Guarantee Program completed 148 EPC guarantee projects that involved 42 EMCs with a total project investment of RMB910 million. RMB517 million of the RMB574 million of loan principal was guaranteed. Energy savings amounted to 6.6 million tce, and carbon emissions were reduced by 4.7 million tons of CO_2 over the life of the projects.

Description of Participating Banks. Twelve Chinese banks,[14] with 37 branches participating, have issued loans to EMCs to effectively address the fund shortage of credit-worthy EMCs to implement EPC projects. Many other banks have expressed willingness to strengthen cooperation with guarantee companies in energy conservation and emission reduction and develop more financial products for energy services. The Bank of Beijing was among the most active commercial banks in the EMC Loan Guarantee Program, with 20 of its branches issuing loans to 68% of the EPC projects. As early as in 2006, the Bank of Beijing launched the *"Small Giants"* SME growth financing scheme, which included loans under the CHUEE Program of IFC.

Description of Participating EMCs. The 148 EMC loan guarantee projects involved 42 EMCs, of which the majority obtained bank loans for the first time. Programs supported by EMCs can be summarized into 10 project lines that cover 22 provinces and cities, including nine of the *"Ten Key Energy Conservation Programs"* of China (i.e., all except for combined heat and power). The projects were distributed among energy-intensive industries including steel, coke, and cement, and key energy conservation regions, including Beijing and Shanxi.

Defaults and Net Subrogation Losses. By the end of December 2009, RMB421 million guarantees on loans to 127 projects totaling RMB493 million had been released. Specifically, RMB397 million guarantees on loans to 122 projects totaling RMB467 million were released without subrogation. Guarantees for five projects were released after subrogation of RMB23.5 million. With RMB10.4 million recovered, guarantee subrogation amounting to RMB13.1 million remained outstanding at the end of 2009.

EMC Guarantee Special Fund. The US$22 million of guarantee reserve (equivalent to RMB150 million) was released in installments. Projects supported by the Program involved a total investment that was 6.1 times the guarantee reserve; the principal 3.8 times the guarantee reserve; the guaranteed amount was 3.4 times the guarantee reserve. Taking into account subrogation loss and management fees paid, as well as interest on reserve capital and guarantee fees earned, the guarantee reserve remains almost unchanged, i.e., the GEF grant remained intact in the guarantee reserve account.

Project Monitoring, Reporting and Evaluation Component. The PMO was responsible for coordinating and monitoring the overall Project, including both the EMC Service Component and the EMC Loan Guarantee Program. The PMO developed a complete set of management documents, to achieve standardized and institutionalized project management, including the (a) project OM that set out the procedures for project implementation; (b) implementation agreements between the Government and implementing entities; (c) management regulations including project accounting methods, audit procedures, Special Fund maintenance, consulting services procurement regulations, incremental costs reimbursement standards, and financial work reporting system. The PMO prepared the annual project summary, including energy savings and

[14] The 12 banks are Bank of Beijing, Industrial Bank, CITIC Industrial Bank, Wuhan Urban Commercial Bank, Agricultural Bank of China, Bank of Communications, Shanghai Rural Commercial Bank, Shenzhen Commercial Bank, Hua Xia Bank, China Development Bank, China Construction Bank, and Harbin Bank.

carbon emissions, and financial situation. The PMO reports were key inputs for the Bank's project supervision work.

The PMO engaged sufficient expertise and several consultants, including third-party assessments of the project since 2005, to assist the Bank and Government in the supervision of the project. Towards the end of the project—as the implementing agencies entered into the final consulting contracts for Phase II—the PMO was allowed to eventually over-disburse original allocations for consulting service and incremental operating cost, thus allowing full use of the GEF grant allocations while keeping the project components and objectives the same.

Annex 3. Economic and Financial Analysis

EMC Loan Guarantee Program Operation Performance. The project performed well in (a) establishing and developing an expert team of professionals, (b) mobilizing significant number of diversified EE investments, improving the creditworthiness of many new EMCs, and (c) minimizing the credit default and net costs of project implementation. In this regard it is notable that:

- *Leverage.* It proved difficult to leverage the Fund to any significant degree in view of the risk aversion of beneficiaries, tight regulation of the banking sector, and restrictive management incentive system. Although the fund was unable to do much better than a 1:1 leverage ratio on an ongoing basis, it did mobilize commercial credits of RMB574 million over the implementation period, some 3.8 times the average size of the guarantee fund, which compared with 14 times at appraisal;
- *Level of business.* Allowing for the delayed start of the project the average level of loans underwritten annually during the project was US$13 million compared with the US$30 million estimated at appraisal; and
- *Subrogation and recovery*. Credit defaults were limited to 5 of the 148 projects amounting RMB23.6 million in total or 4.1% (compared to 5% at appraisal); about 40% of this amount had been recovered by the close of the project, leaving about RMB13.1 million still to be recovered.

Final or Net Grant. The EMC Loan Guarantee Program was a first trial of GEF funds to support a capital reserve for contingent finance arrangements. The distinction between a conventional grant and this contingent grant is that the latter will be partially or fully returned to the Recipient (i.e., MOF), or otherwise redeployed (e.g. for other types of guarantees), at the end of the project, for other uses in GHG reductions agreed with the Bank and the Recipient. The amount of Grant, which is not returned for redeployment—due to factors directly linked to the performance of the Guarantee Program—will be fully converted to a conventional grant or will be regarded as the Final or Net Grant.

The incremental cost option was selected to estimate the Final or Net Grant, as the basis for economic performance. The incremental cost associated with the provision of the grant for the capital reserve is equal to the difference between the future value of the US$22 million Loan Guarantee Fund plus the US$4 million technical assistance grant, and the funds retained at the end of the project for continued use for GHG reduction. The Loan Guarantee Fund was disbursed in three tranches (US$11 million in 2004, US$5.5 million in 2005, and US$5.5 million in 2009), and the US$4 million technical assistance grant was disbursed annually during 2005-2010 in varying amounts, as shown in Table 6. The future value of the Fund at project closure would have been about US$29.3 million, considering a conservative interest rate of 2.9%. The Total Current Assets (or funds retained) at project closure was about US$22.3 million (including expected receivables), as estimated from Table 8. Thus, the resulting incremental cost for the project was about US$7 million in 2010 US Dollars (compared to the appraisal estimate of US$4 to US$9 million in 2002 US Dollars).

Table 6: Final or Net Grant of the GEF project

Year	Technical Assistance (TA) Grant			Guarantee Program Reserve Fund (d)	Total GEF Grant (e) = (c) + (d)	2010 Future Value of Total GEF Grant @ 2.9%
	Incremental Operating Cost (a)	Consultants' Services (b)	Total TA (c) = (a) + (b)			
2004	$ -	$ -	$ -	$11,000,000	$11,000,000	$13,058,249
2005	$ 202,062	$ 268,339	$ 470,400	$ 5,500,000	$ 5,970,400	$ 6,887,797
2006	$ 203,785	$ 853,036	$ 1,056,821	$ -	$ 1,056,821	$ 1,184,849
2007	$ 38,347	$ 363,759	$ 402,106	$ -	$ 402,106	$ 438,114
2008	$ 202,422	$ 667,542	$ 869,964	$ -	$ 869,964	$ 921,154
2009	$ 71,061	$ 312,034	$ 383,094	$ 5,500,000	$ 5,883,094	$ 6,053,704
2010	$ 209,267	$ 608,347	$ 817,613	$ -	$ 817,613	$ 817,613
Total	**$ 926,944**	**$ 3,073,056**	**$ 4,000,000**	**$22,000,000**	**$26,000,000**	**$29,361,480**
Funds retained at project closure						**$22,314,048**
Final or Net Grant of the GEF project						**$ 7,047,432**

Financial Statements of the Project. The ex post financial evaluation is based on the audited consolidated financial results for the Guarantee Fund and I&G imprest accounts. The Consolidated Income Statement, Consolidated Balance Sheet, and Consolidated Cash Flow Statement of the EMC Loan Guarantee Special Fund from 2004-2010 are shown in Tables 7 to 9. The financial statements are based on the audit reports of the Audit Service Center of China National Audit for Foreign Loan and Assistance Projects. The audit reports were conducted in accordance with International Auditing Standards and the Government Auditing Standards of the People's Republic of China.

Table 7: EMC Loan Guarantee Special Fund – Consolidated Income Statement Summary 2004 – 2010
(as at end December)

(RMB thousand [1])

Items	2004	2005	2006	2007	2008	2010 [2]
A. Income of EMC Guarantee Program Special Fund	**574**	**1,181**	**797**	**1,094**	**1,570**	**1,281**
Guarantee Income	574	1,181	797	1,094	1,570	1,281
Other Income						
Less: Income Shared						
Yield						
Less Yield Shared						
Non-Operating Income						
B. Expense of EMC Guarantee Program Special Fund	**946**	**(1,085)**	**(486)**	**(1,493)**	**429**	**(1,391)**
Management Fee to Guarantee IA	1,664	3,226	2,530	2,962	3,187	2,876
Incentives to Guarantee IA		(2,142)	1,725	1,260	339	(2,587)
Guarantee Compensation						
Other Expenses						
Financial Expense	(750)	(2,235)	(4,785)	(5,775)	(3,183)	(1,750)
Operating Tax and Additional Tax	32	65	44	60	86	70
Non-Operating Expense						
Income Tax						
C. Profit and Loss of EMC Guarantee Program Special Fund	**(372)**	**2,266**	**1,283**	**2,586**	**1,141**	**2,672**

Note:

[1] Exchange rates used (RMB/US$)	8.2765	8.0709	7.8087	7.3046	6.8346	6.7907

[2] Eighteen-month period to end June

Table 8: EMC Loan Guarantee Special Fund – Consolidated Balance Sheet Statement Summary 2004 – 2010
(as at end December)

(RMB thousand [1])

Item	2004	2005	2006	2007	2008	2010 [2]
A. Current Assets						
Current Fund	7,754	47,157	32,683	21,139	27,497	144,847
Account Receivable	700	7,192	7,200	6,209	9,809	12,281
Other Receivables		1,057	1,455	257	28	
Short-Term Investment						
Including: National Bonds						
Assets for Mortgage Liability						
Long-Term Bond Maturing within One Year						
Other Current Fund	82,765	80,198	96,070	102,979	88,850	
Total Current Assets	91,218	135,603	137,408	130,585	126,184	157,128
Long-Term Assets						
Internal Transfer of Guarantee Special Fund						
Long-Term Bond Investments						
Total Long-Term Assets						
Total Other Assets						
Total Current Assets	**91,218**	**135,603**	**137,408**	**130,585**	**126,184**	**157,128**
B. Current Liabilities						
Other Accounts Payable	547	381	4,942	3,290	5,066	(1,568)
Tax Payable	5	6	43	59	84	
Other Levies payable	0	2	1	2	2	
Contingent Liabilities						
Total Current Liabilities	552	446	4,986	3,350	5,152	(1,568)
Long-Term Liabilities						
Internal Transfer of Guarantee Special Fund						
Total Long-Term Liabilities						
C. Owner's Equity						
Paid-Up Guarantee Special Fund	91,042	133,170	128,844	120,526	112,771	149,400
Gain or Loss of Guarantee Special Fund	(372)	1,894	3,177	5,763	6,904	9,576
Foreign Exchange Gain or Loss	(3)	94	402	946	1,357	(280)
Total owner's equity	90,667	135,157	132,422	127,235	121,032	158,696
Total Liabilities and Owner's Equity	**91,218**	**135,603**	**137,408**	**130,585**	**126,184**	**157,128**

Note:

[1] Exchange rates used (RMB/US$)	8.2765	8.0709	7.8087	7.3046	6.8346	6.7907

[2] Eighteen-month period to end June

Table 9: EMC Loan Guarantee Special Fund – Consolidated Cash Flow Statement Summary 2004 – 2010
(as at end December)

(RMB thousand [1])

Items	2004	2005	2006	2007	2008	2010 [2]
Cash Inflows						
A. Cash Inflows from Operating Activities						
Guarantee Fee and Cash Flow from Appraisal	574	1,186	797	786	1,476	833
Profit Received from Secondary Account			308			
Subrogation Recovery				3,391		8,139
Interest on Deposit		1,860	4,363	6,859	3,555	70
Other Cash Received Relating to Operation Activities		0		163	24	95
B. Cash Inflows from Investment Activities						**1,733**
C. EMC Guarantee Special Fund Received						
Guarantee Special Fund Received From WB	91,052	44,390				37,350
Subrogation Reserve Received from EMC Guarantee Special Fund						
Foreign Exchange Gain or Loss		(2,161)	(4,004)	(7,978)	(7,529)	(667)
Sub-total of Cash Inflows	**91,626**	**45,276**	**1,463**		**(2,474)**	**47,553**
Cash Outflows						
A. Cash Outflows from Operating Activities						
Subrogation Reserve to Guarantee IA						8,545
Management Fee to Guarantee IA		1,236		5,411	1,638	10,350
Subrogation Expense		7,192		2,400	3,600	157
Taxes		5	65	44	60	
Subrogation Recovery to EMC Guarantee Special Fund						
Profit to EMC Guarantee Special Fund						
Income Shared						
Others		6	0			
B. Cash Outflows from Investment Activities						
Fixed Deposits						
Sub-total of Cash Outflows		**8,439**	**65**	**7,854**	**5,298**	**19,052**
Net Cash Flow		**36,836**	**1,398**	**(4,635)**	**(7,772)**	**28,501**
Ending Balance of Cash and Cash Equivalents	**90,519**	**127,355**	**128,753**	**124,189**	**116,347**	**144,847**
Beginning Balance of Cash and Cash Equivalents		**90,519**	**127,355**	**128,753**	**124,119**	**116,347**
Net Increase in Cash and Cash Equivalents	**90,519**	**36,836**	**1,398**	**(4,635)**	**(7,772)**	**28,501**

Note:

[1] Exchange rates used (RMB/US$)	8.2765	8.0709	7.8087	7.3046	6.8346	6.7907

[2] Eighteen-month period to end June

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Chu, Junxue	Senior Finance Officer	CTRFC	Operations
Guinn, Charles	Consultant	EASEG	Energy Efficiency
Husband, Charles A.	Consultant	EASCS	Financial Analysis
Nguyen, Hoi-Chan	Consultant	OPCIL	Legal
Ogawa, Mariko	Operations Officer	EASEG	Financial Analysis
Rivera, Arturo S.	Senior Energy Specialist	ECSS2	Energy Efficiency
Singh, Jasneet	Senior Energy Specialist	SEGES	Energy Efficiency
Taylor, Robert P.	Consultant	ECSS2	Energy Efficiency (Task Manager)
Velilla, Teresita G.	Program Assistant	EASIN	Administrative and Client Support
Supervision/ICR			
Ang Co, Alberto U.	Senior Energy Specialist	EASIN	Energy Efficiency (Task Manager)
Chen, Hong	Operations Officer	EASSD	Operations
Draugelis, Gailius J.	Senior Energy Specialist	EASCS	Energy Efficiency
Hernandez, Cristina	Program Assistant	EASIN	Administrative and Client Support
Husband, Charles A.	Consultant	EASCS	Financial Analysis
Ogawa, Mariko	Operations Officer	EASEG	Financial Analysis
Rajagopal S. Iyer	Consultant	EAPCO	Operations
Ren, Xin	Environmental Specialist	EASCS	Environmental Safeguards
Singh, Jasneet	Senior Energy Specialist	SEGES	Energy Efficiency
Taylor, Robert P.	Consultant	ECSS2	Energy Efficiency (Task Manager)
Wang, Xiaodong	Senior Energy Specialist	EASIN	Energy Efficiency
Xue, Tao	Junior Professional Associate	SEGES	Research and Analysis
Zhang, Fang	Financial Management Specialist	EAPFM	Financial Management

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	US$ Thousands (including travel and consultant costs)
Lending		
FY00	6.1	63.78
FY01	13.6	80.04
FY02	19.3	143.88
FY03	3.5	19.62
FY04	0.0	0.00
FY05	0.0	0.00
FY06	0.0	0.00
FY07	0.0	0.00
FY08	0.0	0.00
FY09	0.0	0.00
FY10	0.0	0.00
FY11	0.0	0.00
Total:	42.6	307.32
Supervision/ICR		
FY00	0.0	0.00
FY01	0.0	0.00
FY02	0.0	0.00
FY03	8.7	48.41
FY04	8.3	48.43
FY05	10.0	68.32
FY06	7.1	48.82
FY07	10.1	72.47
FY08	8.7	68.08
FY09	7.9	52.62
FY10	4.7	46.50
FY11	2.7	15.00
Total:	68.2	468.70

Annex 5. Beneficiary Survey Results

There was no beneficiary survey carried out in preparation for this ICR.

Annex 6. Stakeholder Workshop Report and Results

Various stakeholder workshops were conducted throughout project implementation to (a) increase awareness of commercial banks in EMC business, (b) showcase the achievement made on China EMC industry in international workshops, (c) further explore the potential for EE improvements and financing options in interested enterprises and municipal governments, (d) promote EPC projects and energy conservation in universities and the education sector, and (e) assist the government decision makers in developing key new supportive policies for the EMC industry, among other consultation meetings with EE and conservation experts (both domestic and international). A final workshop was conducted last June 24, 2010, *"Energy Efficiency Service Industry in China: 12 Years and Beyond,"* which was attended by more than 100 participants consisting of World Bank representatives and top officials from government agencies, research institutions, energy service companies (including the three pilot companies in Phase I), other relevant stakeholders, and the media. Majority of the workshop participants are considered the "pioneers" of energy conservation in China. The workshop highlighted the success of the project to disseminate EPC nationwide, foster the EMC market, and ultimately establish a sustainable EMC industry in China, expand investments in EE projects, make continuous energy conservation and CO_2 emission reduction, and ease greenhouse effects and improve global environment.

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

National Development and Reform Commission, P.R. China

RE: Comments on China Energy Conservation Project II[15]

World Bank Beijing Office:

The China Energy Conservation Project II was jointly launched in 2003 by Government of China (GoC), World Bank (WB), and Global Environment Facility (GEF), and was completed on June 30, 2010. The project comes at the critical point when GoC is vigorously promoting energy conservation and emission reduction. As the department in charge of China's energy conservation work, the commission attaches great importance to this project; assigned dedicated staff responsible for project management; established the project management office; strengthened guidance and management; and actively provided support in all aspects. WB and other agencies have been providing important guidance and great support to the project, and maintained practical and good relationships with China. The project was smoothly carried out; expanded the adoption of Energy Performance Contract (EPC); demonstrated the loan guarantee mechanism and other market-based mechanisms; and played an active role in China's cause of promoting energy conservation and emission reduction. We herein express our satisfaction with the project, and acknowledge approval and gratitude to all parties involved in the project.

I. Summary of the Project and the Achievements

The objective of the China Energy Conservation Project co-developed by GoC, WB, and GEF is to help Chinese enterprises overcome market barriers in implementing energy conservation projects, and thus promote energy conservation and emission reduction. Phase II of the project aims to demonstrate and expand the EPC mechanism which was introduced in Phase I, promoting the development of China's energy conservation service industry. Specific tasks include two components, establishing the association for the energy conservation service industry and demonstrating the loan guarantee mechanism for Energy Management Company (EMC) projects. We believe that Phase II has accomplished the goals well and achieved good results.

1. Achievement of All Set Targets

Firstly, the project used GEF funds to set up the Energy Management Company Association (EMCA) in 2004, which provides technical assistance to the establishment and operation of EMCs. Membership of EMCA has expanded from the initial 89 to 450. Secondly, the project provided loan guarantee for EMC projects with $22 million GEF funds, which was implemented through the China National Investment and Guarantee Co. Ltd. (I&G). I&G has provided guarantee to 148 EMC loans with total guarantee amount of RMB0.52 billion and leveraged total investment of RMB0.91 billion. Indicators such as energy savings and CO_2 reduction have

[15] Original copy was sent to the Bank in Chinese and translated in English by the project team.

achieved the targeted level. At the same time, subrogation loss rate of the guarantee funds is controlled within the set target and the guarantee funds are maintained at the original level.

2. Effective Promotion of Developing China's Energy Conservation Service Industry

The Energy Conservation Project has resulted in wide recognition and rapid expansion of the EPC mechanism in China and supported the development of China's energy conservation service industry, through introduction of EPCs, support to EMCA, and guarantee service for EMC projects. GoC fully endorses the project and its results. In recent years a number of State Council documents and ministry regulations recommend speeding up the support to EPC. In April the State Council issued the "Opinions on Accelerating the Promotion of Energy Performance Contracting and the Development of the Energy Efficiency Service Industry," which included supportive policies on public finance, taxation, financing, and accounting. In June, the commission and the Ministry of Finance together issued the "Interim Method to Manage the Fiscal Rewards for Energy Performance Contracting Projects," setting aside central government budget funds for awarding EMC projects based on energy savings. EPC has become an important measure to promote energy conservation in China, and we will further increase our efforts in supporting its implementation.

3. Innovative Models of International Cooperation Projects on Energy Conservation

Project Phase II is the first time that public funds are used as a leverage to provide guarantee for EMC financing. $22 million of GEF funds have been set aside as the reserve for the guarantee facility. Through careful selection of projects and prudential management, the loss is kept minimal. Currently reserve funds have been maintained at the original level. This is an innovation on the traditional international cooperation model "project ends as funding drains," which provides demonstrative effects for future international cooperation projects.

II. Comment on the ICR of WB China Energy Conservation Project II

We have carefully studied the project ICR drafted by WB, and deem that the ICR report reflects the actual implementation comprehensively and objectively. The conclusions in the ICR report are fair, and we do not have different views on the conclusions.

We are grateful for the long-term support of WB and GEF on China's energy conservation work, and for the successful implementation of the Project Phase II. At present, both sides have established smooth relationships and formed good foundation for collaboration. We hope that you will continue to intensify support for China's energy conservation work, strengthen partnership of both sides, and strive for greater achievements.

III. Proposed Use of Remaining Guarantee Funds

According to project agreement, remaining guarantee funds will be used as a permanent grant to support China's energy conservation work. Based on current situation and the operational need of the "12th Five Year Plan" on energy conservation, we wish to use the remaining funds as seed funding, with additional GEF grants to be applied and other social (non-public) funds, to set up a

fund for promoting China's energy conservation industry including EMCs. We express our intention of using the remaining funds here. Meanwhile we are investigating specific plans for this proposed use. We wish to have your support on this proposal.

Resource Conservation and Environment Protection Department
National Development and Reform Commission
P.R. China

November 18, 2010

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Not applicable

Annex 9. List of Supporting Documents

1. Compilation of Aide Memoires and Mid-Term review Reports
2. WB/GEF China Energy Conservation Project Phase II, Final Report of NDRC (as prepared by the Energy Research Institute and coordinated by the PMO)
3. WB/GEF China Energy Conservation Project Phase II, Final Report of EMC Service Component
4. WB/GEF China Energy Conservation Project Phase II, Final Report of EMC Loan Guarantee Program
5. WB/GEF China Energy Conservation Project Phase II, Comments by NDRC (Chinese version)

MAP SECTION


CHINA
RUSSIAN FEDERATION
KAZAKHSTAN
MONGOLIA
TAJIKISTAN
AFGHANISTAN
XINJIANG
XIZANG
NEI MONGOL
QINGHAI
GANSU
NINGXIA
SHANXI
SHAANXI
SICHUAN
HEILONGJIANG
JILIN
LIAONING
HEBEI
BEIJING
TIANJIN
SHANDONG
HENAN
JIANGSU
ANHUI
HUBEI
ZHEJIANG
SHANGHAI
HUNAN
JIANGXI
FUJIAN
GUIZHOU
YUNNAN
GUANGXI
GUANGDONG
HONG KONG
MACAO
TAIWAN
HAINAN
Urumqi
Kashi
Lhasa
Hohhot
Yinchuan
Xining
Lanzhou
Taiyuan
Shijiazhuang
Jinan
Qingdao
Zhengzhou
Luoyang
Xi'an
Chengdu
Chongqing
Wuhan
Changsha
Nanchang
Hefei
Nanjing
Shanghai
Hangzhou
Fuzhou
Guiyang
Kunming
Nanning
Guangzhou
Haikou
Qiqihar
Harbin
Changchun
Shenyang
Anshan
Dalian
Bootou
BEIJING
Tianjin
Bo Hai
Sea of Japan
Yellow Sea
East China Sea
DEM. PEOPLE'S REP. OF KOREA
REP. OF KOREA
JAPAN
PHILIPPINES
VIETNAM
LAO PEOPLE'S DEM. REP.
THAILAND
MYANMAR
To Chita
To Ulaanbaatar
To Bishkek
To Dushanbe
To Mardan
To Da Nang
Heilong Jiang
Huang He
Chang Jiang
Tongtian
Nu
Jinsha
Lancang
Xun
80°E
90°E
100°E
110°E
120°E
130°E
40°N
30°N
20°N
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0 300 Kilometers
0 100 200 300 Miles
CHINA
SELECTED CITIES AND TOWNS
PROVINCE CAPITALS
NATIONAL CAPITAL
RIVERS
MAIN ROADS
RAILROADS
PROVINCE BOUNDARIES
INTERNATIONAL BOUNDARIES
NOVEMBER 2004
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