

## *Executive Summary of Evaluation*

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### Background

The China Utility-Based Energy Efficiency Finance Program (CHUEE) was launched in 2006 to stimulate investment in energy efficiency (EE) and renewable energy (RE) projects by supporting financial institutions (FIs)<sup>1</sup> to build a sustainable energy lending business in China. With the completion of the Program’s six-year (2006–2012) implementation mandate, banks participating in the program had provided loans worth US\$783 million to 178 EE and RE projects, reducing greenhouse (GHG) emissions by 19.3 million tons a year.

Despite this success, in 2009, The World Bank Group’s Independent Evaluation Group (IEG) determined that beneficiaries were mainly large companies. While the decision to focus on large companies was justified based on larger contributions to GHG reductions, IEG recommended that IFC’s follow-up support focus on SMEs to increase additionality. The IFC CHUEE 3 SME Advisory Services (AS) project (CHUEE 3) was developed to respond to IEG’s recommendations by increasing access to financing for SMEs.

CHUEE 3 started implementation on May 21, 2012 and is tasked with providing extensive, in-depth and practical advisory services to the Chinese market to overcome three major barriers for EE and RE development among SMEs – perceived market risks, technical risks and lack of access to finance.

In adherence with Global Environment Facility (GEF) guidelines, an independent mid-term evaluation to assess CHUEE 3 SME AS’s progress and achievement by the end of 2013 is required. The Terms of Reference (TOR), *Guidelines for GEF Agencies in Conducting Terminal Evaluations*, and the *East Asia-Pacific Design, Monitoring & Evaluation Standard Operating Procedures* serve as the basis for this mid-term evaluation.

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<sup>1</sup> The term “FI” is used interchangeably with “banks” in this report.

The IFC is conducting a Mid-Term Evaluation of the CHUEE 3 SME AS Program to assess the overall performance from May 21, 2012 to December 31, 2013 to ensure IFC accountability toward donors and stakeholders. The key evaluation questions are: What is the likelihood of achieving the impact? What are the lessons learnt to improve the design? Performance and progress are assessed against the following key areas:

**Relevance:** The extent to which the Program objectives, structure, design, and product is suited to beneficiaries' requirements, country needs, global priorities, and partners' and donors' policies.

**Effectiveness:** The extent to which the Program outcomes are expected to be achieved, and the extent to which these outcomes will be achieved sustainably, with a positive development impact.

**Efficiency:** The extent to which Program results are being delivered with the least costly resources (funds, time, expertise) possible (without carrying out a full financial audit).

**Sustainability:** The likely ability of the Program to continue to deliver benefits for an extended period of time after its completion.

**Additionality:** The extent to which projects would have been funded without Program technical and financial support.

**Impact:** The positive and negative changes produced by a Program, directly or indirectly, intended or unintended. This involves the impacts and effects resulting from the Program on local social, economic, environmental, and other development indicators.

## Objectives

The CHUEE 3 SME AS project is tasked with providing extensive, in-depth and practical advisory services to the Chinese market to overcome three major barriers for EE and RE development for SMEs – perceived market risks, technical risks and lack of access to finance. The program has four objectives:

**Objective 1:** By April 14, 2015, provide 90 EE/RE loans with a total value of US\$288 million to Chinese SMEs, resulting in GHG emission reductions of 0.76 million tons CO<sub>2</sub>/year.

**Objective 2:** By December 31, 2018, provide 175 EE/RE loans with a total value of US\$558 million to Chinese SMEs under the risk sharing facilities (RSFs), resulting in GHG emission reductions of 1.5 million tonnes CO<sub>2</sub>/year; and result in partner financial institutions (FIs) building green finance portfolios (including RSF portfolios) of 2.5 times of their RSFs, with impact of 3.75 million tons CO<sub>2</sub>/year GHG emissions reduction.

**Objective 3:** By April 14, 2015, build capacity in a minimum of four partner banks to develop a portfolio of EE/RE loans.

**Objective 4:** By April 14, 2015, produce and make available one set of EE/RE Project Development Guidelines (on how EE/RE lending projects would be developed) and help at least 315 individuals to improve their sustainable energy financing (SEF) skills and knowledge.

Results from this mid-term evaluation show rapid progress against objectives. By December 31, 2013, four CHUEE partner banks received in-depth advisory services and disbursed 21 EE/RE loans valued at US\$72.4m, which equates to more than 200% of the target for inception through December 31, 2014. Furthermore, partner FIs built green finance portfolios (including RSF portfolios) of US\$ 1.9 billion, approximately 27 times their RSFs. A total of four new financial products were designed and launched, and 349 individuals reported improved SEF skills. While GHG emissions reductions and avoided energy use data has not yet been reported to IFC due to banks’ slow uptake of IFC’s Climate Assessment for FI’s Investment (CAFI) tool, three of four partner banks have committed to using the CAFI tool (and the fourth is very likely to commit). Thus, it is anticipated that energy and GHG data will be submitted to IFC during the next reporting period and results will be commensurate with CHUEE 3’s accelerated loan disbursement figures <sup>2</sup>.

## Analysis

The following table presents a **high-level overview** of the findings for each GEF evaluation area.

<p><b>Relevance</b></p>	<p><b>Satisfactory</b></p> <p>CHUEE 3 is a good fit to World Bank/IFC strategy in China, and relevant to the country context. The 2. CHUEE 3 secured 100% of targeted client cash fees, commitments for 168% of targeted client cash fees, and 67% of overall client contributions. The Program effectively built off the lessons of CHUEE 1 and 2. CHUEE 3 has established a strong reputation in the market but could do more to leverage and coordinate with relevant stakeholders.</p>
<p><b>Effectiveness</b></p>	<p><b>Satisfactory</b></p> <p>The progress toward outcomes and objectives at mid-term indicate that the product design is largely effective in facilitating development of the market, particularly as measured by loans disbursed; financial products deployed; and increased capacity among FIs for SEF. A combined approach to RSF and AS was important to demonstrate SEF to partner FIs. While AS added more value to participating FIs, RSF seemed less attractive to FIs. One partner FI is a strong example of the effectiveness of the CHUEE 3 program in building an SEF portfolio by leveraging RSF and AS.</p>

<sup>2</sup> By June 2014 all RSF loans have reported impacts using CAFI

<b>Efficiency</b>	<p><b>Satisfactory</b></p> <p>The results to-date for CHUEE 3 activities indicate that the program is cost-effective in facilitating EE/RE investments and developing SEF portfolios for participating FIs. Efficiency of CHUEE 3 could be improved by better leveraging internal World Bank resources and utilizing “train-the-trainer”<sup>3</sup> methods and outside consultants. CHUEE 3 should recognize results from China Banking and Regulatory Commission’s (CBRC) methodology to calculate and report GHGs to streamline the data reporting process for FIs.</p>
<b>Sustainability</b>	<p><b>Likely</b></p> <p><u>Financial</u>: FI’s accelerated development of financial products and the high volume of non-RSF loans suggest the business case for SEF is being proven under CHUEE 3. These factors, combined with a healthy economic forecast for the 13th Five-Year Plan (FYP), indicate the likelihood that FIs will sustain SEF activities after the close of the CHUEE 3 program.</p> <p><u>Socio-political</u>: Government support of clean energy and energy efficiency under the 13th FYP is anticipated and has important implications for program impact sustainability</p> <p><u>Institutional framework and governance</u>: Technical skills and knowledge building through AS is enabling FIs to undertake SEF activities independently.</p> <p><u>Environmental</u>: The evaluation team identified no environmental risks that may jeopardize the sustainability of project outcomes. Greater focus on air quality by national authorities will increase needs for EE/RE investments at SMEs.</p>
<b>Additionality</b>	<p><b>Satisfactory</b></p> <p>CHUEE 3, in particular AS, added value to the participating FIs, SMEs and EE/RE market. CHUEE 3 likely had an augmentative and accelerating effect in terms of the number, value, and timeframe of EE/RE loans for SMEs. CHUEE 3 took on risks other actors weren’t willing to take, such as collecting cash fees. The program built confidence among ESCOs and end users to pursue EE/RE financing.</p>
<b>Impact</b>	<p><b>Not Rated (per GEF guidelines)</b></p> <p>CHUEE 3 is very likely to achieve its program impact as set in objectives. CHUEE 3 has raised awareness and built capacity at local government, participating FIs, ESCOs, and SMEs for EE/RE project financing. The success of CHUEE Jiangsu and CHUEE Shandong has sparked interest from other provincial governments. Work with financial leasing companies is a promising area of expansion for CHUEE 3, and lessons are being shared with other countries.</p>

<sup>3</sup> “Train-the-trainer” refers to IFC staff training outside consultants (e.g., China Energy Management Company Association) on how to train and build capacity at FIs on EE/RE project technical review to increase efficiency and reduce the potential for bottlenecks in EE/RE project technical review. Further detailed discussion on “train-the-trainer” is included on pages 21 and 35 of this report.

## Conclusions and Recommendations

A series of lessons learned at the mid-term of CHUEE 3 SME AS is set out below along with specific recommendations which could be applied in the future.

**LESSON LEARNED 1:** A combined approach to RSF and AS was important to demonstrate SEF to partner FIs. While AS added more value to participating FIs, CHUEE 3's RSF seemed less attractive to FIs due to the relatively high fees and low coverage (50%).

**RECOMMENDATION 1:** CHUEE 3 should maintain the combination of RSF and AS. However, CHUEE 3 should allocate more resources and focus to AS. In terms of RSF, CHUEE 3 should work with national or local government to expand the percentage of the risk sharing and to lower the cost of this mechanism.

All participating banks indicated that AS is of great importance and value to them. Through this mechanism, they gain international best practice and build internal capacity to increase lending to EE/RE projects. Participation in CHUEE 3 also helps banks raise their profile in the market. Given this feedback, CHUEE 3 should keep and strengthen AS. On the other hand, CHUEE's RSF was also described as valuable, but not perfect. Banks reported that, due to low loan coverage and relatively high fees, the RSF does not work well for them. Previously, under CHUEE 1 and 2, the RSF coverage was 75% of the loan value. Under CHUEE 3, the coverage is 50% of the loan value, which is less attractive to participating banks. The loan officer is responsible for the overall default risk of the loan. Even with CHUEE 3 covering 50% of the loan, if a default occurs, the loan officer is blamed for the default. Thus, the RSF, as structured, generates no incentive to bank loan officers and account managers. CHUEE 3 also charges relatively high fees to participating banks for RSF. However, there are other risk sharing mechanisms available to banks, which are operated by China's state owned enterprises (SOEs) and local governments, which will cover 100% of the loss and charge lower fees. It is recommended that CHUEE 3 increase the RSF coverage to 100%. This does not necessarily mean that CHUEE should provide all of the coverage. Instead, it should leverage its relationship with government to attract public funds (such as the specific fiscal fund, Clean Development Mechanism (CDM) Fund, and development banks) to join the CHUEE 3 RSF pool. CHUEE 3 should establish an evaluation mechanism for the default case. After professional judgment, if the default is not due to the responsibility of the bank, the RSF can cover 100% of the loss recovery. While it can be argued that increasing the loan coverage to 100% may encourage banks to pursue low quality projects (because they will incur less risk if the loan defaults), the evaluation team observes that the current challenge of EE/RE SME financing is not that banks extend too much lending to RE/EE SME projects and generate non-performing loans for lack of due diligence, but rather, they hesitate to extend lending because they consider their default risk and credit history too much. It is an incentive for banks if CHUEE 3 can raise the loss recovery to 100%. To avoid "moral hazard," CHUEE 3 can establish a loss review mechanism to make sure that the RSF is only applicable to cases in which the default was not the bank's fault. Overall, CHUEE 3 should strengthen AS and improve RSF. IFC should consider how and to what extent CHUEE 3 should improve and how to allocate limited resource between strengthening AS and improving RSF.

**LESSON LEARNED 2:** The credit limit of RMB 20 million is too low to locate and support qualified EE/RE projects.

**RECOMMENDATION 2:** The credit limit of CHUEE 3 should be increased to RMB 40 million or above.

CHUEE 3 RSF only covers loans up to RMB 20 million. Participating FIs indicated this is too low, and they cannot take on many great projects because of this limitation. This finding was reiterated by EMCA, which stated that many EE/RE retrofit projects need more than RMB 20 million of funding, and CHUEE 3 should increase the credit limit. According to EMCA's statistical data, the average size for an EE/RE retrofit exceeds RMB 20 million. A ceiling of RMB 40 million or above would be more effective.

**LESSON LEARNED 3:** According to IFC policy, the CHUEE 3 Program can only support non-state-owned FIs, such as joint stock commercial banks or city commercial banks. However, policy and large-scale banks can play significant role in developing the EE/RE market and are keen to get technical support (AS) through the CHUEE 3 Program.

**RECOMMENDATION 3:** CHUEE 3 should partner with policy banks, like China Development Bank, and large-scale commercial banks, like the Industrial and Commercial Bank of China (ICBC), to provide advisory service, which is expected to generate more impacts to EE/RE development.

CHUEE 3 should expand its AS and RSF to Chinese policy and development banks, such as the China Development Bank, the Export-Import Bank of China, and the China Agricultural Development Bank. They should also expand to large state-owned commercial banks, including ICBC, Bank of China, China Construction Bank, Agricultural Bank of China, and the Bank of Communications. These banks can make important contributions to the energy consumption and emissions reductions goals of China through lending for EE/RE projects at SMEs, furthering the impact of CHUEE 3 in China.

**LESSON LEARNED 4:** China's financial leasing sector grew by more than 30% in 2013, and the development of leasing finance for SMEs is an important focus for China's economic growth.

**RECOMMENDATION 4:** CHUEE 3 should apply its experience with banks to financial leasing companies, and continue to involve these companies in the program.

CHUEE 3 should continue to expand its collaboration with financial leasing companies, and other non-bank FIs, as much of the accumulated experience with banks can be applied to the financial leasing sector. CHUEE 3 has existing experience with financial leasing companies through its CHUEE Shandong program, where it assisted an IBRD financial leasing client that had received a concessional loan. IFC has also had discussions with global financial leasing experts and has observed a number of leasing companies active in Hubei. This is an important area for CHUEE 3's expansion.

**LESSON LEARNED 5:** The AS of CHUEE 3 is of great value and help to the participating FIs, however, banks need more information about the best practices of their domestic and foreign peers.

**RECOMMENDATION 5:** In addition to the annual CHUEE 3 meeting, CHUEE 3 should organize more workshops or trainings for FIs, in particular, workshops where CHUEE 3 participating FIs can learn from each other.

FIs would benefit from increased information about best practices in financing from domestic and foreign peers. CHUEE 3 should host periodic workshops, where FIs could share lessons and learn from each other. CHUEE 3 should also provide case studies of successful SME EE/RE lending initiatives that can be shared with FIs. There are numerous best practices, particularly from one partner FI, that could be circulated. Additional best practices and lessons could be gathered from groups such as IIP or Energy Foundation, which have been deeply involved in EE/RE projects for SMEs in China for decades.

**LESSON LEARNED 6:** CHUEE 3 has established a sound reputation in the market but could do more to leverage and coordinate with stakeholders in a similar space.

**RECOMMENDATION 6:** Specific partners should be identified and activities for collaboration should be identified, such as “train-the-trainer” for EMCA and leveraging Institute for Industrial Productivity’s (IIP) support in showcasing successful projects, in order to increase CHUEE’s impact in the China market, while minimizing its own resource outlay.

While stakeholders’ feedback on the CHUEE 3 program has been positive, nearly all groups shared specific opportunities for increased coordination to support mutual aims in energy efficiency gains among SMEs and reduced carbon emissions. CHUEE 3 should develop a specific plan to coordinate and leverage with other stakeholder groups with similar missions in China. It may consider adding indicators to its performance monitoring plan (PMP) so leveraging can be measured.

**LESSON LEARNED 7:** The external communication of CHUEE 3 program is limited, except for the annual meeting.

**RECOMMENDATION 7:** CHUEE should enhance external communication and program promotion. It is value-added if IFC and world bank can work together to promote CHUEE 3 and EE/RE.

While CHUEE 3 holds an annual Program Advisory Committee (PAC) meeting and provides a quarterly newsflash, numerous FIs, ESCOs, end users, and outside stakeholder groups indicated that CHUEE 3’s communications could be improved. CHUEE has been implemented in China since 2006, but it is still not well known among many ESCOs and end users. Specific suggestions include utilization of social media, especially Sina Weibo (Chinese Twitter) and the project link on the National Development and Reform Committee (NDRC) website. ESCOs and end users are familiar with these sites and go to them frequently for the latest EE/RE news, policies, and trends. It is also suggested that CHUEE 3 have a presence at more large national industry conference.

**LESSON LEARNED 8:** While technical review of EE/RE projects for FIs has been limited to 5 to 10 projects



per FI, with only one senior engineer on the team to do the work, efficiency is still limited.

**RECOMMENDATION 8:** CHUEE 3 should increase utilization of local consultants and “train-the-trainer” mechanisms to conduct technical reviews for EE/RE projects and to build capacity at FIs for SME lending.

CHUEE 3 should increase its efficiency by utilizing “train-the-trainer” mechanisms and continuing to hire outside consultants to help in the technical EE/RE project reviews for banks, as well as to build capacity at FIs for SME EE/RE lending. By selecting trainers and consultants carefully, potential for poor quality can be avoided. Organizations like EMCA have indicated a willingness to support CHUEE 3 on technical project review.

**LESSON LEARNED 9:** Several ESCOs and end users are receiving loans for “portfolio projects,” thereby multiplying the EE and GHG benefits associated with SME lending.

**RECOMMENDATION 9:** CHUEE 3 should encourage FIs to identify and fund SME projects with large replication potential in the market, to multiply EE and GHG benefits associated with SME lending.

A strategy that is increasingly being used by large multinational corporations and industrial zones to reduce their overall energy and carbon footprint is a “portfolio approach”, whereby an entire portfolio of buildings or industrial plants is assessed simultaneously, and packages of energy-saving measures are implemented concurrently across multiple facilities.

Under CHUEE 3, an ESCO is employing a “portfolio approach” with its customer, as exemplified by two projects.

A “portfolio approach” can be applied in cases where SME ESCOs’ customers, or in rarer cases, SME end users, have large numbers of facilities under ownership or management. Benefits include quicker and larger energy and GHG savings. They also provide more newsworthy success stories that can enhance brand and reputation in the market. CHUEE 3 should encourage banks to identify “portfolio” EE/RE projects that will provide greater EE/GHG gains.

**LESSON LEARNED 10:** CHUEE Jiangsu and CHUEE Shandong are successful and popular models that other provinces are seeking to replicate.

**RECOMMENDATION 10:** CHUEE 3 should build off the success of CHUEE Jiangsu and CHUEE Shandong and expand to other provinces with high potential for energy and GHG reductions through SMEs.

CHUEE Jiangsu and CHUEE Shandong have been found to be successful and popular models that other provinces seek to replicate (no specific province names mentioned during interviews). These provincial models are also receiving praise from national stakeholders, such as CDM Fund, which encourage CHUEE 3 to replicate across provinces. In its study, *The Potential of Sustainable Energy Financing among Small and Medium Enterprises*, IFC identified the six provinces with the highest SME energy consumption in



China. Given the success of the CHUEE Shandong and CHUEE Jiangsu models, IFC should consider replication in additional provinces with large potential for energy GHG reductions among SMEs, which include Guangdong, Zhejiang, Henan, and Hebei (in addition to Shandong and Jiangsu, where CHUEE 3 is underway).

**LESSON LEARNED 11:** Coordination with national government agencies could be improved.

**RECOMMENDATION 11:** A coherent strategy for working with national government agencies, such as CBRC and Ministry of Finance (MOF), needs to be developed, and lessons from CHUEE 3 need to be distilled and regularly shared with these groups.

While no major problems with national government coordination were identified, a more coherent strategy for working with national government agencies, such as CBRC and MOF, needs to be developed. CHUEE 3 has made strong progress partnering and building capacity with FIs and provincial finance departments. In order to achieve greater market impact, and enhance the sustainability of EE/RE lending for SMEs, CHUEE 3 needs to team with national agencies to build their capacity to develop/implement national policies/programs that will promote ongoing EE/RE lending to SMEs, during and after the close of the CHUEE 3 program. The first step is to identify specific/appropriate role(s) for national government agencies to advance EE/RE lending to SMEs. This might be participating in a national RSF pool; promoting replication of the CHUEE 3 provincial models; or providing recognition to FIs. CHUEE 3 has made quick progress as of the mid-term evaluation, so a few discreet actions/roles for national agencies should be the focus. A second step is to continually communicate to national agencies on the objectives/achievements/lessons of CHUEE 3 and to seek ways to better align CHUEE 3 to national priorities. A third step is a joint, written work plan between CHUEE 3 and the agency that describes objectives of collaboration, proposed outcomes, and supporting activities. Ideally, the work plan can focus on sharing lessons/prepping agencies to play a key role in continuing/advancing the work on CHUEE 3 in the absence of a formal program. By combining capacity building from bottom-up and top-down, CHUEE 3's sustained, long-term impact in the China market, with reduced IFC resource allocation, is likely.

**LESSON LEARNED 12:** Participating FIs have committed to using the CAFI tool to report emissions, but they don't know whether it is accurate, and it is different from CBRC's statistical methodology.

**RECOMMENDATION 12:** CHUEE 3 should allow FIs to use CBRC's methodology and forthcoming tool to calculate and report GHGs.

While the partner banks have recently committed to use the CAFI tool (three out of four have fully committed, and the fourth is likely to commit), they don't know whether it is accurate, and it is different from CBRC's statistical methodology. CHUEE 3 should consider allowing FIs to use CBRC's methodology and forthcoming tool to calculate and report GHGs. By recognizing the results from Chinese national GHG guidelines, reporting of GHGs would be more streamlined for FIs, and IFC would be more likely to obtain data needed to report its results to stakeholders.

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