United Nations Development Programme

Ministry of Science and Technology
Government of the Socialist Republic of Vietnam

UNDP/GEF Project: Vietnam – Promoting Energy Conservation in Small and Medium Scale Enterprises

(PIMS 2057)

Final Evaluation Report

Mission Member:
Mr. Roland Wong, International Energy Expert
Mr. Vu Quang Dang, National Energy Expert

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ABBREVIATIONS

Acronym	Meaning
ADB	Asian Development Bank
APEC	Asia Pacific Economic Cooperation Forum
APR	Annual Progress Report
ASEAN	Association of Southeast Asian Nations
Asia-BRESL	Asia: Barrier Removal to Cost Effective Energy Efficiency Standards & Labeling
AWP	Annual Work Plan
CLASP	Collaborative Standards and Labeling Program
CER	Certified Emission Reductions
DoIT	Department of Industry and Trade in Provinces
DoST	Department of Science and Technology in Provinces
DPD	Deputy Project Director
DSM	Demand Side Management
ECCs	Energy Conservation Centers (Hanoi, Haiphong, Danang, Cantho & HCMC)
EC&EE	Energy Conservation and Energy Efficiency
EESPs	Energy Efficiency Service Provision/Providers
ELI	Efficient Lighting Initiative
EPC	Energy Performance Contract
ESCO	Energy Service Company
FE	Final Evaluation
GEF	Global Environmental Facility
GHG	Greenhouse Gases
GoV	Government of Vietnam
GWh	Gigawatt-hour
HCMC	Ho Chi Minh City
HUT	Hanoi University of Technology
IE	Institute of Energy (MOI)
IFC	International Finance Corporation (of the World Bank Group)
IHER	Institute of Heat Engineering and Refrigeration (HUT)
IMS	Information Management System
INCOMBANK	Industrial and Commercial Bank of Vietnam
KWh	Kilowatt-hours
LGF	Loan Guarantee Fund
LPG	Liquefied Petroleum Gas
MDG	Millennium Development Goals
MEPS	Minimum Energy Performance Standards
MoC	Ministry of Construction
MoF	Ministry of Finance
MoIT	Ministry of Industry and Trade
MoNRE	Ministry of Natural Resources and Environment
MoPI	Ministry of Planning and Investment
MoST	Ministry of Science and Technology (since 2003)
MoSTE	Ministry of Science, Technology and Environment (pre-2003)
MTE	Mid-Term Evaluation

Acronym	Meaning
NAFOSTED	National Foundation for Science and Technology Development
NGOs	Non Government Organizations
NPD	National Project Director
NPM	National Project Manager
PDF-B	Project Development Fund – Block B
PECSME	Promoting Energy Conservation in Small and Medium Scale Enterprises (in Vietnam)
PIR	Project Implementation Report
PM	Project Manager
PMU	Project Management Unit
QPR	Quarterly Progress Report
QWP	Quarterly Workplan
R&D	Research & Development
SDC	Swiss Agency for Development Cooperation
SMEs	Small and Medium Enterprises
SMEDD	SME Development Department
SMEPC	SME Promotion Council
SOEs	State Owned Enterprises
TOE	Tonnes of Oil Equivalent
ToT	Training of Trainers
TCE	Tonnes of Coal Equivalent
TOR	Terms of Reference
TTCs	Technology Transfer Centers (located in provincial centers)
UNDP	United Nations Development Programme
UN-ESCAP	UN Economic and Social Commission for Asia and the Pacific
VCA	Vietnam Cooperative Association – formerly VICOOPSME
VCCI	Vietnam Chamber for Commerce and Industry
VECEA	Vietnam Energy Conservation and Efficiency Association
VECP	Vietnam Energy Conservation Program
VEEPL	Vietnam Energy Efficient Public Lighting
VEPF	Vietnam Environmental Protection Fund
VietinBank	Vietnam Bank for Industry and Trade (formerly INCOMBANK)
VNCPC	Vietnam Cleaner Production Centre
VNEEP	Vietnam National Energy Efficiency Program
VoV	Voice of Vietnam
VSBK	Vertical Shaft Brick Kiln
WB	World Bank
WU	Women Union

EXECUTIVE SUMMARY

Background

The project document for PECSME was signed in October 2005. PECSME commenced operations in January 2006 with the Inception Mission and workshop. The main driver for PECSME was the need to realize energy savings for the SME industrial sector in Vietnam that accounts for over 96% of all enterprises, 50% of all employment and 40% of the country's GDP.

The project development **goal** is *to reduce the annual growth rate of GHG emissions through the removal of key barriers to the adoption of more energy efficient technologies and energy efficient practices in the SME sector*.

To achieve this goal, the Project was designed with a number of expected **project outcomes:**

- Outcome 1: Improved EE&EC awareness and improved capacity for EE&EC policy development that would increase the impact of existing policies and recently enacted EE&EC decree through strengthened relevant ministries, departments and agencies of the Government of Vietnam;
- Outcome 2: Adoption of a communications strategy to enhance SME and public awareness of EE&EC through an integrated communications system including information collection, dissemination and reporting;
- Outcome 3: Enhanced EE&EC capacity that has been developed through a comprehensive training plan that improves technical and financial skills;
- Outcome 4: High quality and sustainable energy services available in Vietnam through development of technical support for EE&EC professionals;
- Outcome 5: Improved understanding of the banking and financial sector of the benefits of EE&EC investments to the extent that they would be willing to finance SMEs through loan guarantees;
- Outcome 6: Full operational demonstration projects that increase the credibility of EE&EC investments and improve the probabilities of replication.

Context and Purpose of the Final Evaluation

The purpose of the FE for this Project is to *evaluate the progress towards the attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements.* The FE is to serve as an agent of change and play a critical role in supporting accountability. As such, the FE will serve to:

- promote accountability and transparency, and to assess and disclose levels of project accomplishments;
- synthesize lessons that may help improve the selection, design and implementation of future GEF activities;

- provide feedback on issues that are recurrent across the portfolio and need attention, and on improvements regarding previously identified issues; and,
- contribute to the GEF Evaluation Office databases for aggregation, analysis and reporting on effectiveness of GEF operations in achieving global environmental benefits and on the quality of monitoring and evaluation across the GEF system.

Assessment of Project Outcomes and Sustainability

The overall rating of the project results is HS. This is based on the Project achieving its intended outcomes including reduction of GHG emissions from selected industrial sectors, its successes in the removal of knowledge, regulatory and financial barriers to EE in the selected industrial sectors, and the strengthening of local capacity to train and support the promotion and implementation of EE&EC projects in Vietnam.

The overall Project sustainability rating is L or "Likely". This rating is primarily based on:

- The GoVs policies for supporting EC&EE for SMEs and funding for institutional support to promote EC&EE at provincial levels through DoST, DoIT and ECCs;
- Plethora of information available on EC&EE issues in Vietnam as well as a high level of public and SME awareness on the benefits of EC&EE;
- The continued growth of a competitive and sustainable energy efficiency service industry in Vietnam to assist SMEs and large industry in implementing EC&EE investments;
- The formation of the prominent "Vietnam Energy Conservation and Energy Association" (VECEA) that is funded by large industry, industrial SMEs, EESPs, ESCOs, financial institutes and various government agencies through memberships. The VECEA will serve as a focal point after the completion of PECSME for:
    - foreign EC technology suppliers and service providers coming to Vietnam;
    - training programs on EC&EE issues and investments;
    - technical and financial advice on EC&EE for members; and
    - the setup of demonstration projects;

- The migration of LGF operations to the MoST at the request of the GoV who wish to see the continued operation of the LGF after the completion of PECSME.

Table A: Summary Assessment of Project Outcomes and Sustainability

Project Objectives	Intended Outcomes (from re-constructed project planning matrix from 2008)	Outcome Assessment (Rel=Relevance, Eff=Effectiveness Efy=Efficiency Ov=Overall Rating)	Sustainability Assessment[1]	Actual Outcomes (as of 30 March 2011)
Goal: The annual growth rate of GHG emissions from SMEs is reduced through the removal of major barriers to adoption of more energy efficient technologies and energy management practices	Intended GHG Outcome: CO_2 emissions are reduced by an accumulated total of 538.8 ktonnes at the end of PECSME or "Project".	**Rel – HS** **Eff - HS** **Efy - HS** **Ov – HS**	**Likely**	*Actual GHG Outcome:* CO_2 reductions are estimated to be 837 ktonnes (654 ktonnes direct and 183 indirect) and forecast to be 15,000 ktonnes to the Year 2021, 10 years after the end of PECSME
Objective: To significantly improve energy utilization efficiency in the SME sector	Intended Energy Savings Outcome: Cumulative energy savings of 136.1 kTOE in the SME sector achieved by end of Year 2010 Intended Energy Cost Reduction Outcome: Average reduction of 10-15% in energy cost per unit production in 500 targeted SMEs	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Energy Savings Outcome:* Cumulative energy savings from PECSME activities were estimated to be 205.8 kTOE (includes direct and indirect savings) *Actual Energy Cost Reduction Outcome:* Average reduction of 24% in energy cost per unit production including 30% - 60% reduction in SMEs who have deployed a VSBK in brick sector
Outcome 1: Improved EC&EE Policy and Institutional capacity				
	Intended Outcome 1.1: Improved awareness and capacity	**Rel – HS** **Eff – HS**	**Likely**	*Actual Outcome 1.1:* Improved awareness and capacity of GoV

[1] *Likely (L):* very likely to continue and resources in place; *Moderately Likely (ML):* model is viable, but funding or resources may not be in place; *Moderately Unlikely (MU):* model is not viable or needs changing; and/or resources not in place; and *Unlikely (U):* model is not viable and resources are not in place.

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	of GoV officers on EC&EE issues and EC&EE policy development: 1. 3 national seminars held with 450 participants in all seminars 2. 4 training courses held with 100 central and local government officers trained 3. 3 study tours conducted 4. 6 policy papers and policy recommendations on EC&EE proposed by capable policy makers at central and local levels starting from Year 2.	**Efy – HS** **Ov – HS**		officers on EC&EE awareness and EC&EE policy development 1. 4 national seminars held with 400 participants in all seminars 2. 10 training courses held with 306 central and local government officers trained 3. 3 study tours conducted in China, Thailand and Korea 4. One law on EC&EE approved by National Assembly on 17 June 2010 and 12 initiatives on EC&EE issued by local governments
	Intended Outcome 1.2: Incentive policies for supporting EC&EE investment in SMEs have been developed: 1. One circular on EC&EE labelling formulated and approved by MoIT; 2. One circular on Tax Incentives & Financial Incentives formulated and submitted to MOF for approval 3. 3 EE products labelled 4. 4 EE equipment producers	**Rel – HS** **Eff – HS** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 1.2:* *Incentive EC&EE policies have been developed:* 1. One circular on EC&EE labelling formulated and approved by MoIT in 2007; 2. Circular No. 142/2007/TTLT/BTC-BCT dated 30 Nov 2007 on grant provision for EC projects was incorporated in the EC&EE Law approved in June 2010 3. 8 EE products labelled 4. 5 EE equipment producers that have

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	that participate in labelling program 5. 3 formulated and MoST-approved regulations related to promotion of EC&EE technology transfer in SMEs 6. 500 SMEs utilize incentives 7. 3 workshops to promotion of new circulars/regulations completed			participated in labelling program 5. Decree No. 133/2008/ND-CP dated 31 December 2008 on guiding Implementation of Law on Technology Transfer was issued and Decree on the Establishment of National Technology Innovation Fund was approved by the Prime Minister 6. 543 SMEs utilize those incentives 7. 3 workshops conducted
	Intended Outcome 1.3: EC&EE policies have been incorporated into the National SME Development program through technical assistance provided to SMEPC and SMEDD as a part of the National SME Development Support Program	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 1.3:* EC&EE policies have been incorporated into the National SME Development Program.
	Intended Outcome 1.4: EC&EE coordinating agencies in the SME sector and provincial technical support networks are established and operational: 1. Network between PMU and ECCs/DoSTs and key project	**Rel – S** **Eff – HS** **Efy – S** **Ov - S**	**Likely**	*Actual Outcome 1.4:* ECCs have been established with DoST to service SMEs with provincial technical support and EC&EE awareness raising: 1. Network between PMU and ECCs/DOST and key project partners

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	partners established, maintained regular communication; 2. EC&EE Expert Association established by end-Year 3; 3. 150 EC&EE projects that are annually supported by the Expert Association starting from Year 4			established in 2006 2. EC&EE Expert Association established in December 2010 with more than 600 members. 3. Activity removed
	Intended Outcome 1.5: MoNRE capacity is improved in modifying environmental standards related to GHG emissions: 1. 3 national environmental standards related to GHG emission updated and enforced	**Rel – S** **Eff – S** **Efy – S** **Ov – S**	**Likely**	*Actual Outcome 1.5* MoNRE capacity has improved in modifying environmental standards related to GHG emissions: 1. Some environment standards related to air pollution in production villages were updated and are going to be submitted to MoNRE 2. Workshop organized with key experts on finalizing drafted environmental standards
Outcome 2: Enhanced SME and public awareness of EC&EE	Intended Outcome 2.1: Communications strategy developed: 1. One strategy developed and agreed by key stakeholders by end Year 1	**Rel – HS** **Eff – HS** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 2.1* Communications strategy developed: *1.* One project communication strategy was finalized in October 2006 and implemented in 2007. In 2008, an adjustment was made to focus the

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				communication activities on the priority sectors and geographic areas
	Intended Outcome 2.2: An information dissemination network has been established and the capacity of the organizations involved with the network has been strengthened: 1. At least 80% trainees actively participate in EC&EE information dissemination activities 2. One information network established and relevant participating organizations identified by end-Year 1 3. Two training courses for EC&EE communicators of participating organizations conducted 4. Two local study tours for information network participants conducted 5. 20 trained participants actively participate in information dissemination 6. 50% study tour participants contributing their learning	**Rel – HS** **Eff – S** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 2.2* An information dissemination network has been established and the capacity of the organizations involved with the network has been strengthened: 1. 62% trainees actively participate in EC&EE information dissemination activities 2. One information network of 20 EC&EE communicators in SME sector established in 2007 3. One communication training course was completed with 35 participants from ECCs, DoST and media in 2007 4. One domestic study tour was successfully conducted for information network participants 5. 23 trained participants actively participate in information dissemination 6. 67% study tour participants contributed their learning experiences to PECSME

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	experiences to PECSME information dissemination activities			information dissemination activities
	Intended Outcome 2.3: Awareness of SMEs and general public on EC&EE was assessed: 1. One feedback survey completed 2. One survey on knowledge, attitudes and practices regarding utilization of energy among SMEs completed	**Rel – S** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 2.3* Awareness of SMEs and general public on EC&EE was assessed: 1. Feedback survey on knowledge, attitudes and practices regarding utilization of energy among SMEs was completed in September 2010 2. One baseline survey on knowledge, attitudes and practices regarding utilization of energy among SMEs completed in 2006
	Intended Outcome 2.4: SME energy-use database has been developed: 1. SME energy-use database developed by Year 2 2. 1000 users of database	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 2.4* Energy-use database has been developed: 1. One SME energy-use database of five selected sectors was developed and launched for use in 2006 2. 4,200 users have access to database
	Intended Outcome 2.5: EC&EE information to SMEs disseminated through the network: 1. 20% increase in volume of information posted on the web site starting Year 3. 2. 10 articles on EC&EE topics	**Rel – HS** **Eff – HS** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 2.5* EC&EE information to SMEs disseminated through the network: 1. 1,650 news/article posted on the website 2. 165 articles on EC&EE topics

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	published in leading local newspapers and magazines annually 3. Five booklets on EC&EE published and disseminated 4. 100,000 copies of leaflets and booklets disseminated 5. 50,000 hits on the website 6. 20 leaflets on EC&EE published and disseminated 7. Four TV programs in central and local channel annually from Year 2 8. 25,000 users of website 9. Four "Voice of Viet Nam" programs broadcasted annually 10. One website on EC&EE information of SME sector operational by Year 1			published in leading local newspapers and magazines 3. Six booklets on EC&EE technical instruction published and distributed 4. 203,000 copies of leaflets, newsletter and booklet disseminated 5. Over 606,000 hits on the website 6. 20 different leaflets printed and disseminated 7. 41 TV programs during PECSME 8. 30,125 users access to the website 9. 28 programs on the Voice of Vietnam 10. One PECSME website developed and regularly updated from October 2006
	Intended Outcome 2.6: EC&EE public awareness enhanced through advocacy and awareness campaigns: 1. 10 EE equipment suppliers and EESPs use PECSME marked materials on their products	**Rel – HS Eff – S Efy – HS Ov - HS**	**Likely**	*Actual Outcome 2.6* EC&EE public awareness enhanced through advocacy and awareness campaigns: 1. Six EE equipment suppliers and EESPs used PECSME marked materials on their products

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	2. Two exhibitions of energy efficient equipment held by MoST 3. Six workshops, forums and information exchange meetings conducted by ECCs annually from Year 2			2. Seven exhibitions of energy efficient equipment held by MoST 3. 54 workshops organized by PMU and ECCs/DoST
	Intended Outcome 2.7: SME interest in carrying out EC&EE projects has been raised: 1. 420 SMEs registered for assistance from ECCs/DoST during Years 2 & 3 to implement EC&EE projects	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 2.7* SME interest in carrying out EC&EE projects has been substantially raised: 1. 596 SMEs have registered for assistance from ECCs/DoST to implement EC&EE projects
Outcome 3: SME and EESP capacity has been enhanced to implement EE&EC projects	Intended Outcome 3.1: Local trainers are able to train others to become EC&EE trainers: 1. 21 trained trainers provide EC&EE training under the project by mid-Year 2 2. Three trainers from universities and colleges trained abroad. 3. 30 trainers certified by MoST by mid-Year 2 4. 12 training material modules completed and approved	**Rel – HS** **Eff – S** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 3.1* Local trainers are available in Vietnam to train others to become EC&EE trainers: 1. 28 trained trainers provided EC&EE training under the project by 2008 2. activity removed 3. 28 trainers certified by MoST by 2008 4. 15 training material modules have been updated, improved and transferred to relevant organizations

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				and stakeholders
	Intended Outcome 3.2: SME knowledge on the benefits of EC&EE has improved: 1. 100 DoST officers from selected provinces trained during 1-day training seminars on EC&EE benefits starting from Year 2 2. 50 SME managers from selected provinces trained during 1-day training seminars on benefits and financial analysis of EC&EE projects starting from Year 2 3. 500 SMEs are implementing EC&EE techniques and practices from Years 1 to 5 4. 500 technicians from SMEs in selected provinces in Northern, Central and Southern areas trained on EC&EE techniques and practices by Years 2 & 4	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 3.2* SME knowledge on the benefits of EC&EE has improved: 1. 350 local officers trained on economic and environment benefits of EC&EE technologies during 2006-2008 2. 895 SME managers from five industrial sectors trained on benefits-cost and financial analysis of EC&EE by 2010 3. 543 SMEs implemented EC&EE implemented by 2011 4. 890 SME managers and technicians trained on EC&EE techniques and operation by 2011
	Intended Outcome 3.3: Development of Sustainable EC&EE Training Programs for	**Rel – n/a** **Eff – n/a** **Efy – n/a**	**n/a**	*Actual Outcome 3.3* All activities removed

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	Relevant Universities and Colleges 1. 01 EC&EE training program designs completed by Year 4 2. 03 EC&EE training program designs completed by Year 4	**Ov – n/a**		
	Intended Outcome 3.4: Training program has been improved based on recommendations of the evaluation: 1. One recommendation on redesigned training programs incorporating evaluation findings completed by mid-Year 5	**Rel – S** **Eff – S** **Efy – S** **Ov - S**		*Actual Outcome 3.4* Training program has been improved based on recommendations of the evaluation: *1.* Two revaluation reports completed in 2008 and 2009
	Intended Outcome 3.5: Capacity to conduct energy audits is strengthened: 1. 500 energy audits and/or feasibility studies conducted by end-Year 5 2. 60 energy consultants trained in energy auditing and undertook audits at selected sites by mid- Year 2. 3. 50% trained consultants carrying out energy audits by Year 3.	**Rel – HS** **Eff – HS** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 3.5* Capacity to conduct of energy audits is strengthened: 1. 467 preliminary energy audits; 278 detailed energy audits and/or feasibility studies conducted 2. 72 trainees trained on energy audits and 65 trained on financial analysis and loan document preparations in 2008 3. 67% trained consultants carrying out energy audits by 2008.

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Outcome 4: Growth of competitive and sustainable EE services industry through enhanced business, engineering and financial skills of EESPs	Intended Outcome 4.1: EESP training program has been completed: 1. 3 consulting firms incorporate energy efficiency services provision into their business operations each year starting Year 4 2. 10 EESPs that have prepared business plans following the model presented in the training course by Year 3 3. 60 energy consultants from EESP trained on EC engineering and financial arrangement for investment projects 4. 15 energy consultants from EESP trained on EC engineering and financial arrangement for investment projects 5. Three new EESP businesses that are legally established during Year 4 and 5	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 4.1* EESP training program has been completed: 1. 5 ECC/TTCs in Binh Duong, Hai Phong, Hanoi and HCMC incorporate EESP as a business line 2. 14 EESPs have prepared EC business plans 3. 72 energy consultants from EESPs trained on EC engineering and financial arrangement for investment projects 4. 20 EESP managers at different levels were trained on business plans and designing service packages 5. Three new EESPs legally established
	Intended Outcome 4.2: An institutional and legal framework for EESPs has been	**Rel – HS** **Eff – HS** **Efy – HS**	**Likely**	*Actual Outcome 4.2* An institutional and legal framework for EESPs has been developed:

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	developed: 1. One recommended suitable institutional and legal framework for EESPs submitted to MoIT.	**Ov – HS**		1. One recommendation of a suitable institutional and legal framework for sustainable EESPs development has been presented to MOIT and the Science, Technology & Environment Committee of National Assembly
	Intended Outcome 4.3: EESP ability to run an EC business is enhanced: 1. One EESP energy efficiency engineering design tool and model marketing strategy developed by Year 3. 2. Four EESPs utilize EE design tools and marketing strategies 3. On-job training provided to local EESPs in EC&EE project development and implementation 4. Five technical assistance services provided to local EESPs in making bankable project proposals, business	**Rel – HS** **Eff – HS** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 4.3* EESP ability to run an EC business is enhanced: 1. One model marketing strategy of Bat Trang Designing & Production Company sent to interested EESPs 2. Four EESPs (HCM ECC, Bat Trang Production and designing company, Hai Duong EESP, Hatech) have implemented EC marketing tools 3. Four on-job training programmes on EC&EE provided to 56 staff and 20 EESPs in four selected sectors (brick, ceramic, food-processing and paper & pulp) in the north and south during 2008-09. 4. Six technical assistance services (mainly consultation to development of feasibility studies) provided to VSBK and LPG kiln manufacturer

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	plans and in securing financing for SME clients by Year 3.			
	Intended Outcome 4.4: Model contracts are available to EESPs to sell services to SMEs: 1. 50 EESP contracts for providing energy efficiency services marketed and implemented with SMEs during Years 3 and 5.	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 4.4* Model contracts are available to EESPs to sell services to SMEs: 1. 271 contracts have been signed between EESPs and SMEs; 3 energy performance contracts signed between EESPs and SMEs.
	Intended Outcome 4.5: Capabilities of local EC equipment suppliers has been assessed: 1. One completed evaluation report on capabilities of local EE equipment provision 2. One set of recommendations on EE equipment provision development program submitted to MoST	**Rel – S** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 4.5* Assessment of local capabilities for EC equipment supply has been completed: 1. Evaluation of capabilities of local EE technology suppliers in brick and ceramic sectors prepared by mid-2008 2. Recommendation on inclusion of EC&EE technologies into the list of potential EC technologies that will be supported by the National Technology Innovation Fund (NATIF)
	Intended Outcome 4.6: Energy performance of locally produced industrial equipment has been evaluated:	**Rel – S** **Eff – HS** **Efy – HS**	**Likely**	*Actual Outcome 4.6* Energy performance of locally produced industrial equipment has been evaluated:

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	1. An evaluation report on energy performance of locally produced industrial equipment 2. A report on energy performance improvement potential for locally produced industrial equipment submitted to MoST	**Ov – HS**		*1.* One evaluation of energy performance of locally produced industrial equipment in brick and ceramic sectors was completed in 2008 that includes identification of energy performance improvement potential for this equipment
	Intended Outcome 4.7: Technical capacity of local equipment manufacturers and fabricators has been enhanced: 1. Six manufacturers that are either implementing or planning to invest in production of high-energy efficient equipment. 2. One training course on high efficiency equipment design and production technologies for local manufacturers/fabricators conducted by Year 3.	**Rel – HS** **Eff – S** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 4.7* Technical capacity of local equipment manufacturers and fabricators has been enhanced: *1.* Five manufacturers that are either implementing or planning to invest in production of high-energy efficient equipment *2.* Two training courses for LPG kiln and VSBK suppliers in brick and ceramic sectors conducted in December 2008.
	Intended Outcome 4.8: A research and design (R&D) program is being developed to sustain improvements to EC&EE programs in Vietnam:	**Rel – S** **Eff – HS** **Efy – S** **Ov - S**	**Likely**	*Actual Outcome 4.8* A national R&D Program for CC response is being developed by MoST and MoNRE:

Table A: Summary Assessment of Project Outcomes and Sustainability

Project Objectives	Intended Outcomes (from re-constructed project planning matrix from 2008)	Outcome Assessment (Rel=Relevance, Eff=Effectiveness Efy=Efficiency Ov=Overall Rating)	Sustainability Assessment[1]	Actual Outcomes (as of 30 March 2011)
	1. One recommendation for an R&D program that is supported by local equipment manufacturers/fabricators and submitted to MoST in mid-Year 4.			1. PECSME provided technical assistance to develop this program that has listed EC&EE priority technologies that will be integrated into the program
Outcome 5: Increased willingness of the banking and finance sector to provide loans to SMEs for EC&EE projects	Intended Outcome 5.1: Increased awareness of the banking and finance sector of the benefits of EC&EE projects: 1. Technical service network established and operational by mid-Year 2 for assisting banking and financial institutions evaluate EC&EE projects. 2. Nine banks and financing institutions are providing financial services for EC&EE projects to SMEs by Year 3. 3. Four training courses on risk & benefits and evaluation of EC&EE projects for banking and financial institutions	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 5.1* Increased awareness of the banking and finance sector of the benefits of EC&EE projects: 1. A list of engineering experts who can provide technical evaluations of EC&EE loan applications was developed for financial institutions 2. 11 financial institutions have been providing loans for EC&EE projects 3. Five training courses on risk, benefits and evaluation of EC projects was provided to credit officers from banking and financial sector in 2007 and 2009.
	Intended Outcome 5.2: SME access to finance for EC&EE projects has improved: 1. Three annual roundtable	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 5.2* SMEs access to finance for EC&EE projects has improved: 1. Ten meetings between banks and

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	discussions between banks and SMEs are conducted from Year 2. 2. Ten loan contracts are discussed in each roundtable meeting starting Year 2. 3. Two brochures/guides on sources of financing, loan guarantees and bank requirements for EC&EE investments published and circulated to SMEs by Year 2.			SMEs on loans and the LGF 2. Barriers for signing 10 loan contracts were removed in round table meetings between banks and SMEs, EESP and PMU staff. 3. Four brochures on LGF and the Vietinbank loan program for EC&EE investments published and disseminated to SMEs, EESPs and DoST.
	Intended Outcome 5.3: An loan guarantee fund mechanism for SMEs for EC&EE investments is mobilized and operational: 1. Loan Guarantee Fund to support EC&EE investments operational by Year 2 2. Approved LGF operation regulations by Year 2	**Rel – HS** **Eff – S** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 5.3* An loan guarantee fund mechanism for SMEs for EC&EE investments is mobilized and operational: 1. Agreement on LGF Management that including operational regulation and criteria of project selection signed by MoST, Vietinbank and UNDP in December 2006 2. Guideline on LGF operation within Vietinbank branches approved in May 2007 & disseminated to Vietinbank branches through the training workshop in June 07.

Table A: Summary Assessment of Project Outcomes and Sustainability

Project Objectives	Intended Outcomes (from re-constructed project planning matrix from 2008)	Outcome Assessment (Rel=Relevance, Eff=Effectiveness Efy=Efficiency Ov=Overall Rating)	Sustainability Assessment[1]	Actual Outcomes (as of 30 March 2011)
	3. A set of LGF project selection criteria has been completed and enforced by Year 2 4. 60 SMEs receive loan guarantee assistance 5. $ 2.0 million of loan guarantee commitments issued from the LGF			3. Guideline on LGF project selection criteria and operation within Vietinbank branches approved in May 2007 & disseminated to Vietinbank branches through the training workshop in June 07 4. 50 SMEs received LGF assistance 5. US$1.7 million of loan guarantee commitments million issued from LGF
	Intended Outcome 5.4: SMEs access to financial resources from the banking and financial sectors has improved: 1. 80 SMEs received financing from Vietinbank and other financial sources for their EC&EE projects 2. $14 million of loans provided to SMEs from various loan programs and other financial sources 3. Amount of loan repayments received from SMEs (not specific)	**Rel – HS** **Eff – S** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 5.4* SMEs access to financial resources from the banking and financial sectors has improved: 1. 54 SMEs have received finance from the Vietinbank Loan Program and VEPF, of which 50 received LGF support 2. US$ 2.32 million (VND 44 billion) loan provided by financial institutions is a supplement to SMEs self investment of $24 million 3. $736,842 loan repayments received from SMEs until March 2011

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Project Objectives	Intended Outcomes (from re-constructed project planning matrix from 2008)	Outcome Assessment (Rel=Relevance, Eff=Effectiveness Efy=Efficiency Ov=Overall Rating)	Sustainability Assessment[1]	Actual Outcomes (as of 30 March 2011)
	Intended Outcome 5.5: Financing mechanisms evaluated to improve sustainability of LGF: 1. Two evaluation reports on effectiveness and viability of financing mechanisms by mid-Year 3 and mid-Year 5. 2. One sustainable financing program proposal by end-Year 5	**Rel – HS** **Eff – HS** **Efy – S** **Ov – HS**	**Likely**	*Actual Outcome 5.5* Financing mechanisms evaluated to improve sustainability of LGF: *1.* Two completed evaluation reports completed in September 2008 and October 2009. 2. One final recommendation on LGF Exit Strategy completed in January 2010; an MoST proposal on LGF transfer and management after the completion of PECSME approved by GoV in January 2011; regulations and guidelines for post-PECSME LGF management and operations completed.
Outcome 6: Increased credibility of EC&EE through successfully implemented demonstration projects	Intended Outcome 6.1: Potential EC&EE demonstration projects identified through a comprehensive feasibility analyses: 1. 10 investment by mid- Year 1	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 6.1* Potential EC&EE demonstration project s identified through a comprehensive feasibility analyses: 1. 12 investment projects selected for demonstration by 2006
	Intended Outcome 6.2: Demonstration project requirements have been identified: 1. One set of criteria for selection of demonstration projects by	**Rel – S** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 6.2* Demonstration project requirements have been identified: 1. One set of criteria for selection of demonstration projects was completed

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Project Objectives	Intended Outcomes (from re-constructed project planning matrix from 2008)	Outcome Assessment (Rel=Relevance, Eff=Effectiveness Efy=Efficiency Ov=Overall Rating)	Sustainability Assessment[1]	Actual Outcomes (as of 30 March 2011)
	mid-Year 1			in 2007
	Intended Outcome 6.3: Barriers to EC&EE demonstration project have been identified and removed: 1. Two companies that have satisfactorily utilized financial assistance for demonstration investment by mid-Year 2	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 6.3* Barriers to EC&EE demonstration project have been identified and removed: *1.* Four companies that have satisfactorily utilized financial assistance for demonstration investment by 2008
	Intended Outcome 6.4: Baseline data for demonstration sites collected: 1. 10 approved sets of baseline data for demonstration sites	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 6.4* Baseline data for demonstration sites collected: *1.* 12 approved sets of baseline data for demonstration sites
	Intended Outcome 6.5: EC&EE demonstration projects implemented: 1. 10 completed evaluation reports for each demonstration project highlighting operating and economic performance 2. 10 demonstration site owners that are satisfied with the technical assistance provided during facility start-up 3. 10 training sessions for the 10 demonstration project	**Rel – HS** **Eff – S** **Efy – HS** **Ov - HS**	**Likely**	*Actual Outcome 6.5* EC&EE demonstration projects implemented: 1. 12 completed evaluation reports for each demonstration project highlighting operating and economic performance 2. 12 demonstration site owners that are satisfied with the technical assistance provided during implementation 3. 12 training sessions for operating personnel at the 12 demonstration

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Project Objectives	Intended Outcomes (from re-constructed project planning matrix from 2008)	Outcome Assessment (Rel=Relevance, Eff=Effectiveness Efy=Efficiency Ov=Overall Rating)	Sustainability Assessment[1]	Actual Outcomes (as of 30 March 2011)
	operating personnel 4. 8,000 TOE energy savings from the demonstration sites 5. 53,000 ton CO_2 emission reductions from the demonstration sites			projects 4. 7,712 TOE energy savings from the demonstration sites 5. 31,942 ton CO_2 emission reductions from the demonstration sites
	Intended Outcome 6.6: Demonstration projects experience has been shared with other stakeholders: 1. One evaluation of the operation of the demonstration program completed by Year 3 2. 12 national workshops presenting demonstration program results conducted	**Rel – HS** **Eff – HS** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 6.6* Demonstration projects experience has been shared with other stakeholders: 1. One evaluation of demonstration program completed by September 2008 2. 15 workshops conducted in combination with Outcome 2
	Intended Outcome 6.7: EC&EE investments in the SME sector has been catalyzed: 1. 80 EC&EE investments through guarantee and energy service delivery mechanism 2. 500 EC&EE replicated with some projects implemented with soft support from PECSME 3. 136.1 ktoe cumulative energy savings from SME EC&EE	**Rel – HS** **Eff – S** **Efy – HS** **Ov – HS**	**Likely**	*Actual Outcome 6.7* EC&EE investments in the SME sector has been catalyzed: 1. 54 projects got loan support from various financial institutions 2. 531 EC&EE replicated out of which 121 projects were implemented with soft support from PECSME 3. 205.8 ktoe cumulative energy savings from SME EC&EE projects during

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Project Objectives	Intended Outcomes (from re-constructed project planning matrix from 2008)	Outcome Assessment (Rel=Relevance, Eff=Effectiveness Efy=Efficiency Ov=Overall Rating)	Sustainability Assessment[1]	Actual Outcomes (as of 30 March 2011)
	projects during PECSME 4. 538.8 kton CO_2 emission reductions from SME EC&EE projects during PECSME			PECSME 4. 836.8 kton CO_2 emission reductions from SME EC&EE projects during PECSME

Replicability or Catalytic Role of Project

PECSME has been the catalyst for influencing government policymakers and SME owners into supporting and implementing EC&EE investments in Vietnam. This has led to a high rate of replication of PECSME demonstrations.

M&E During Project Implementation

The quality of M&E design and implementation was highly satisfactory due to the detailed log-frame for PECSME that was effective in monitoring project progress, and the quality of PIRs and APRs provided to the Evaluation Team.

With respect to monitoring long-term changes, the PMU setup an information management system that systematized the collection of EC&EE project information, reducing the complexity and work required to track progress of over 550 EC&EE projects throughout Vietnam. The IMS is being transferred to MoST to allow the Government to continue tracking the long-term progress of SME EC&EE investments and their energy performance.

Assessment of Processes Affecting Attainment of Project Outcomes and Sustainability

Preparation and Readiness:

The PECSME project design from the 2004 PDF B Phase was well prepared and comprehensive with realistic and attainable project outcomes and outputs. The quality of these preparations has had a positive effect on implementation of the project.

Country Ownership and Drivenness:

To a significant extent, Project outcomes have been attained with strong ownership and drivenness of the Vietnamese government.

- Excellent working relationship between the PMU and GoV agencies on EC&EE issues;
- Passing of an EC&EE law in June 2010 as well as a number of related decrees and circulars;
- High level of GoV co-financing support especially at the provincial levels;
- Continued GoV support of PECSME outputs after completion of the Project including the "Vietnam Energy Conservation and Efficiency Association" (VECEA) that will be the national focal point of EC&EE initiatives in Vietnam after the completion of PECSME, and the takeover of LGF administration by MoST (under NAFOSTED).

Stakeholder Involvement:

Stakeholder involvement of appropriate government and private sector personnel has been a key to the success of PECSME. This included effective and sustained

engagement of MoST and MoIT, DoST and DoIT-funded ECCs as well as emerging energy professionals, EESPs and ESCOs throughout the entire duration of PECSME.

Financial Planning:

Financial controls of the Project were satisfactory. As of March 31, 2011, more than USD 5.22 million or 95% of PECSMEs budget has been disbursed.

Supervision and Backstopping by UNDP:

Supervision and backstopping efforts by UNDP Vietnam and the UNDP-GEF Regional office in Bangkok were satisfactory.

Co-Financing and Delays:

The Project co-financing amounts were USD 34.52 million, USD 11.22 million over the 2004 co-financing budget of USD 23.30 million.

Delays in the project completion date of December 2010 are mainly due to the GoVs request to provide additional effort and time up to handover LGF management to GoV under the MoST administered agency, NAFOSTED. The PMU requested the terminal date be extended to September 30, 2011 to accommodate additional capacity building to MoST personnel on the LGF. Further details are contained under Recommendation 5.

Lessons Learned

- *The success of PECSME is mainly a function of its quality of preparation*. In this case, a high quality project design was produced in 2004 under a PDF B grant of more than USD 300,000. These PDF B resources were used to collect data to establish an accurate baseline, identify key stakeholders (MoIT and MoST) and effectively engage these stakeholders as an integral part of the project. The outcome of this was a project document with realistic project objectives and achievable outcomes. Implementing agencies such as UNDP must manage project preparations to realize the outcome of better quality project designs given the current trends of GEF in lowering project preparation costs. UNDP may need to consider co-financing some of the baseline surveys and stakeholder engagement activities or obtain an agreement that GEF increases or covers the full cost of project preparations.

- *For policy support, donor projects should support new policies from the central government that have strong linkages with the national policy framework and can be implemented at local levels of government.* For EC policies on PECSME, provincial governments were required to provide approvals for a number of EC investment proposals. The ability of the GoV to implement central government policies from the central level to provincial levels demonstrated strong GoV drivenness and support to implement EC investments. Without this strong support, there would be difficulties in raising financing for EC investments for SMEs;

- *Capacity building programs for EC and the energy sector in general need to be holistic in approach.* The design capacity building programs of PECSME contained all the elements required to induce investors and SMEs into implementing EC projects. At the commencement of PECSME in 2005, knowledge and awareness of EC&EE issues was poor. The holistic design of EC capacity building activities of PECSME contained the following essential elements:

    - *Awareness raising*. The Project had raised awareness of EC&EE issues during the entire duration of PECSME. The awareness raising needed to be strategically targeted to ensure knowledge with policymakers to SMEs to the general public and wider audiences on official government policies;
    - *Technological familiarization*. For the industrial sectors involved with PECSME, stakeholders were provided with technical details of various EC technologies and measures as well as their estimated energy savings;
    - *Financial benefits*. SMEs and investors were more aware of the reduced energy costs related to EC&EE investments. For some SMEs, energy costs are as high as 40% of their operational costs;
    - *Strengthening the supportive regulatory framework*. The Project assisted the GoV to strengthen the appropriate regulatory regime to ensure higher rates of adoption of EC&EE measures;
    - *Risk assessment*. This is an important aspect for EC investors who to understand the risks from poor execution of an EC project to risks of lower production and the increased difficulties of servicing debts;
    - "*Learning-by-doing*". This gives stakeholders full exposure to planning and implementing EC projects;
    - *Strategic scale up of training programs.* To achieve wide-scale capacity to implement EC programs within the duration of the Project, PECSME targeted the SMEs (end-users of energy) and EESPs (specialists in EC implementation) for EC training programs within the five selected industrial sectors. Moreover, the PECSME training design included the initial but effective "training of trainers" phase (ToT) that essentially targeted individuals who could train other trainers, SMEs or EC practitioners; this accelerated the transfer of EC knowledge throughout Vietnam.

- *Successful EC demonstration projects:*
    - are well managed to demonstrate increased production and profitability. PECSME demonstrations in general have shown how SMEs can increase their productivity and improve the quality of their products. The exceeding the Project's replication targets is an indicator of the success of the Project's demonstrations;
    - showcase new technology and practices that are affordable to the end-user. The EC demonstration investment costs can be paid back by the SMEs within a 0.5 to 5 years period through the loan programs setup by the Project, constituting a good investment for the SME; and
    - are located in close proximity to potential markets. In the case of the ceramics and brick sectors demonstrations, the clustering of these industries (e.g. in Bat Trang and Phu To District) provided easier access to demonstration projects as opposed to the other industrial sectors, which are more dispersed (i.e. textiles, food processing and pulp & paper);

- *With regards to Energy Performance Contracts (EPCs)*:
  - small enterprises are more likely to hire the ESCO as a consultant and do the work themselves since small enterprises are more cost-conscious and "hands-on" in terms of managing their enterprise;
  - the EPC modality has higher risks with smaller enterprises where their revenue streams are not as certain (that may occur if there is a drop-off in production levels) placing the ESCO at risk not being able to properly service their debts;
  - baseline determination of small enterprises is more of an issue than with medium to large enterprises. Smaller enterprises who become familiar with the EPC contract modality may withhold vital information that may lower the baseline energy consumption and reduce the income of the ESCO;
  - EPCs are more likely to succeed:
    - ⇒ for EC measures that take less than 3 months to implement, have a payback period of less than one year, and are less than USD 50,000 in capital cost; and
    - ⇒ for an ESCO that has a specialized EC skill such as boilers or EE lighting systems and can undertake a complex and more capital intensive EC measure that is more common with large enterprises. It is possible certain medium to large enterprises will want to outsource EC measures where their own personnel are unable to undertake such measures. The ESCO in this case will have to have access to collateral or a loan guarantee to obtain the required bank finance to implement the EC measures;

- *Successful design and implementation of awareness raising programs includes the conveyance of simple messages that are strategically disseminated to target groups.* For PECSME, early awareness raising activities were outsourced focusing more on the general public as well as policymakers and SMEs. In the latter stages of PECSME, awareness raising was more targeted to specific end-users of energy, in particular the SMEs involved with the five industrial sectors.

- *"Good projects will attract money"*. By demonstrating increased productivity and profitability of EC investments, providing well-targeted and effective training and knowledge dissemination programs, and removing a significant financial barrier, PECSME was able to:
  - demonstrate the EC potential of Vietnam in the SME sector;
  - catalyze the Vietnamese EC market for SMEs;
  - induce the formulation and implementation of other donor projects;
  - attract climate change funds mainly from Europe and Japan to Vietnam primarily for EC capital investments as well as further technical assistance;
  - ensure funding was in place for EC market transformation after the completion of PECSME.

Recommendations

Recommendation 1: The GoV should strongly consider completing a number of studies that will guide and inform them on preparing future EC&EE policies related to the ESCO business model and the EPC modality. Studies include:

- Review of the legal framework required to strengthen the ESCO business model and securing EC investments through energy performance contracts (EPCs). This study should also include a review of and recommendations to improve GoV procurement procedures to enable EPCs to be used for EC with public assets;
- Strategic planning of Vietnam's energy demands for the industrial sector. This should include models of Vietnam's industrial growth over the next 10 to 20 years, and the implications of these growth patterns on the country's energy demands, required energy imports and feasible development of domestic sources of energy. Government policy options for the different scenarios of industrial growth can be analyzed and used for policy formulation;
- Energy pricing review and related socio-economic impacts. Pricing policies for domestic coal and electricity affect energy choices of the end users. Policy adjustments need to be considered in the context of encouraging improved use of primary fuels, electricity and other forms of energy without undermining industrial competitiveness or creating social hardships;
- Policy development for advancing EC&EE with new industries. Newer and more modern industrial facilities are likely to have a greater impact on Vietnam's future economic growth. MoIT should undertake an overview of new industrial facilities recently built or planned and examine the expected or recorded energy intensity of these facilities. These energy intensities should be compared with energy intensities of plants with the best technologies available; this will provide EC&EE policymakers a measure on which future EC&EE policies can encourage EE in new industrial facilities and buildings.

These studies are key elements to inform the GoV on shaping future EC&EE policy that will influence energy pricing and industrial development.

Recommendation 2: Future capacity building programs in EC can be channeled through the newly formed Vietnam Energy Conservation and Efficiency Association (VECEA). The mandate of VECEA is to promote EC&EE through the membership of the association through awareness raising programs, activities to build capacity and facilitate technology transfers, serve as a forum for discussion on government EC&EE policies, publishing of EC&EE materials; and fostering linkages with other national and international EC&EE associations. Future EC&EE capacity building programs with the VECEA would include:

- providing approaches to foster "specialization" on various topics within the EC spectrum. This may include detailed courses on specific equipment such as boilers, air conditioners, pumps and motors. With EC opportunities trending to being more competitive, there will be higher demand for specialized training in specific topics (such as boilers) for fledgling EESPs and ESCOs. This training can be housed within the VECEA for members;

- an accreditation program that designates EESP professionals as qualified to perform and provide EC services. Such a designation will provide more confidence to clients of EESP and ESCO services, and provide a much-needed boost to the growth of the industry;
- business courses for ESCOs. With ESCOs and EPCs in their nascent stages of development in Vietnam, courses to strengthen ESCO business practices, will also strengthen the delivery of EC projects. Aspects of ESCO business training should focus on:
  - risk assessment. Many ESCOs need skills to determine risk profiles of their potential clients and assessing risks of the EPC modality. For example, ESCO professionals need to have more understanding on potential variations to their EPC revenue stream possibly caused by the lack of the client's production and inability to pay, their baseline energy scenario as well as the risks that estimated energy savings are not realized. Risk assessment courses will strengthen the ESCO service model in Vietnam; and
  - business development strategies. Specifically for Vietnam, the ESCOs business development officer must be an engineer with the capacity to liaise with their client's technical staff on the specific details of the EC measure and with top-level managers who are mainly concerned with the financial issues and the quality of the final product;

- building a VECEA roster for sourcing appropriate EC expertise for their membership. VECEA can vet the roster and serve as the focal point for sourcing specialized expertise such as boilers, air conditioners and brick kilns.

Recommendation 3: Assist the MoIT with concepts and suggestions to link its National Target Program for EC (Phase II between 2011 to 2015) with SMEs. Since the MoIT is mainly concerned about technologies and promoting industry in Vietnam, one concept may be to promote certain EC technologies that would be popular EC investments for SMEs with potential to be fabricated or manufactured in Vietnam. A survey should be conducted to determine the specific technologies that would be in high demand in future for SMEs and to determine the feasibility of manufacturing or assembling such EC technologies in Vietnam. This may include energy efficient pumps, solar panels, and energy efficient lighting fixtures.

Recommendation 4: Improve the usage of the LGF and its impact through:

- *Increase the LGF amount from USD 1.7 million to provide more loan guarantees to SMEs.* Vietinbank has indicated that it will increase the LGF amount to improve access of SMEs to its commercial loans, which are 2 to 3% below commercial rates. Vietinbank are able to provide cheaper loans due to their successful access to climate funds from KfW, IFC and other promotional banks which they could loan at lower rates;

- *raise the LGF ceiling for each project loan to USD 165,000 (3.5 billion VND) and for each investor to USD 210,000 (4.5 billion VND)*. Rationale for this recommendation comes from the need to include larger EC projects whose costs have risen over the last 2 years; and

- *expanding the LGF conditions to include ESCOs and Energy Performance Contracts.* This would remove a substantial barrier to the development of ESCOs in Vietnam. Currently, ESCOs are only able to service smaller EC investments where they can borrow money against scarce personal or family assets; moreover, they are experiencing difficulty in accessing larger EPCs due to lack of access to larger financing. The new LGF administrators in NAFOSTED and the Vietinbank Bank have sent strong indications that the new operating regulations of the post-PECSME LGF will include ESCOs managing EPCs. This expansion combined with capacity building activities for ESCOs on business training will foster the flourishing of the ESCO industry in Vietnam.

Recommendation 5: Extend PECSME from its current terminal date of June 30, 2011 to September 30, 2011. The extension is required for a number of reasons:

- The transfer of the LGF to NAFOSTED management is taking longer than expected. New LGF operating regulations and guidelines on the selection and approval of EC&EE projects were expected to be completed by March 31, 2011. It now appears that these regulations and guidelines will now be completed by May 2011 and June 2011 respectively;
- With the GoV expected to approve the regulations and guidelines by June 2011, NAFOSTED and Vietinbank officers need time to familiarize themselves with the new LGF operational modalities. Training of these officers on the new LGF operations is to be implemented during July and August 2011;
- The terminal date of PECSME is recommended for September 30, 2011;
- There are sufficient funds remaining in the PECSME budget to support the formulation of new LGF regulations and guidelines as well as training for Vietinbank and NAFOSTED officers on new LGF operational procedures, developing a new 2-year business plan for the LGF, planning and conducting the terminal workshop and managing the Project.

1. INTRODUCTION

This report summarizes the findings of the Final Evaluation Mission conducted during April 2011 for "Promoting Energy Conservation in Small and Medium Enterprises" (herein referred to as the "Project" or PECSME) implemented by the United Nations Development Program (UNDP), PIMS 2057 and with financing support provided by the Global Environment Facility (GEF). The Project Document (Prodoc) of October 2005 provides details to remove key barriers to energy conservation and energy efficiency within small and medium industrial enterprises (SMEs) in Vietnam. PECSME field operations commence in January 2006 with the Inception workshop. The Project was expected to have a 5-year duration with the completion date of October 2010; the Project is now expected to be completed on September 30, 2011 pending approval of recommendations in this report.

1.1 Background

1.1.1 Overview of Vietnam's Energy Sector

Vietnam's economy has demonstrated steady growth since the 1990s with an average GDP growth of 7% for between 1998 and 2008[14]. Notwithstanding the recent economic downturn of 2008 and 2009, Vietnam's economy shows signs of recovery from the 2008 and 2009 GDP figures of 6.3% and 5.3% respectively to the 2010 GDP figure of 6.7%. The basis of Vietnam's economic growth has been its transition from a centrally planned economy to a market-based economy. As a result, the private sector has become an increasingly significant player in Vietnam's economic development. SMEs contribute more than 40% to Vietnam's GDP.

Vietnam's primary energy consumption has also been growing at an average rate of 7% per year between 2001 and 2008 with the growth rate being 13% between 2005 and 2008. Vietnam's fuel consumption in 2005 was equivalent to 30,516 kTOE or 1.59 million TJ; in 2008, fuel consumption increased to 51,875 kTOE or 2.70 million TJ[15]. In 2008, Vietnam produced 73,060 GWh of electricity of which 35% was from hydro, 39% from natural gas/LPG/oil and 13% from coal (or 1.17 million tonnes of coal). Out of the 73,060 GWh, more than 50% of this energy was consumed by industry.

With the growth in energy consumption, Vietnam is trending towards being less self-sufficient in energy; with growth in electricity demand expected to increase from 73,060 GWh in 2008 to over 200,000 GWh/yr by 2020, domestic sources of electricity generation will need to keep pace with this growth in demand. Vietnam has high quality and cost-competitive indigenous energy resources (coal, hydro electricity, oil, LPG, natural gas, fuel wood and crop residues). However, the development of generation facilities using fossil fuels to meet electricity demands of the country appears to be the least cost approach for power utilities of Vietnam. Notwithstanding the abundance of hydropower and wind power sites, the GoV is considering the adoption of feed-in tariffs for independent power producers to develop renewable energy projects.

[14] http://www.baovietnam.vn/xa-hoi/94988/20/Khai-mac-ky-hop-thu-4-Quoc-hoi-khoa-XII-GDP-dat-6,52-phan-tram-la-dang-khich-le

[15] From the International Energy Agency country data for Vietnam, http://www.iea.org/Textbase/country/n_country.asp?COUNTRY_CODE=VN

Vietnam is demonstrating the required strategic energy planning to support the country's targeted economic growth of 8%. This would include supporting investments in domestic renewable power generation and promoting energy conservation and energy efficiency (EC&EE).

In Vietnam, there has been a steady transition to market oriented energy pricing. For primary fuels such as oil and natural gas, prices are determined by international markets. For electricity consumption, power tariffs for commercial and industrial uses already reflect peak demand constraints. Time-of-use meters and tariffs have been introduced for selected large consumers. In addition, the Government of Vietnam (GOV) has decided to steadily increase electricity tariffs step-by-step by up to 30% to cover the full marginal cost of the significant new generation, transmission and distribution capacity required. This rise in electricity prices will make EC&EE investments more profitable.

Vietnam's overall GHG emissions are mainly from energy, agriculture and land use changes. In 2003, Vietnam's energy sector accounted for about 61 million tonnes of CO_2 emissions[16] and was the main contributor to Vietnam's overall GHG emissions[17] of 106 million tonnes CO_2. In 2005, the World Resource Institute reported 177 million tonnes of CO_2 emissions for Vietnam. By 2020, the energy sector contribution to GHG emissions is expected to be 232 million tonnes CO_2 out of a total of 267 million tonnes CO_2. By 2030, MoNRE expects this figure to rise to 516 tonnes CO_2 of which 91% would come from the energy sector[18].

1.1.2 Development of the SME Sector in Vietnam and Energy Conservation

In Vietnam's drive towards a market economy, SMEs play a significant role in future employment growth instead of state owned enterprises. SMEs in Vietnam are defined as "independent enterprises with less than 10 Billion Dong in paid-up capital or fewer than 300 employees" [19] (equivalent to USD 475,000 in 2011). Since 1986, the SME sector experienced extensive growth when the GoV promulgated several policies and legislative measures to encourage the diversification of enterprise styles and increase the size of non-state enterprises. The outcome of these measures has been[20]:

- the current 450,000 registered SMEs (96%) in Vietnam
- a 40% contribution by SMEs to Vietnam's economy; and
- SMEs employing 50% of the country's workforce.

As such, Vietnam's SME sector consumed a significant proportion of the country's energy resources despite the economic downturn of 2008 and 2009. In 2009, 23% of the SMEs were deactivated in Vietnam, fairing far better than other countries such as China, where by comparison, 40% of SMEs were deactivated during the same year. As the recovery continues, Vietnamese SMEs continue to face many challenges including

[16] http://www.iaea.org/inisnkm/nkm/aws/eedrb/data/VN-enem.html
[17] According to the GHG emissions inventory by MONRE – the Ministry of Natural Resources and Environment
[18] http://khituongbinhphuoc.dyndns.org/tintuc12.htm
[19] According to the Government Decree No 90 on SME Development Promotion
[20] http://www.toquoc.gov.vn/Thongtin/Gio-Thu-25/Se-Gian-Thue-Cho-Doanh-Nghiep-Vua-Va-Nho.html

the dramatic growth in the number of SMEs; this created higher demand for new employees in 2010 (particularly in the south) in preparation for a new business cycle[21].

In comparison to other countries, the outlook for the SME sector in Vietnam remains optimistic as the sector strives to modernize. This works towards economic development and achievement of Millennium Development Goals (MDG) (i.e. poverty alleviation, social development, and gender participation). The UNDP-GEF PECSME project has been instrumental in providing technical assistance to modernize SMEs by reversing the trends towards widespread use of old technologies, poor management practices, lack of staff skills in efficient operation of energy consuming equipment, and the lack of investment in modern equipment.

The three SME energy-related issues that provided rationale for PECSME included:

- *Rising electricity costs.* For most SMEs, electricity use is typically between 35 and 50% of the SME's operating cost. The projected rising costs of electricity (required to fund major electricity infrastructure investments) threatens the competitiveness of the entire SME sector that will affect the ability of the SME sector to contribute to MDG goals;

- *Exposure of SMEs to price variations of imported fuels.* Vietnam is increasing its use of imported fuels such as oil, coal and gas that are commonly used in the SME sector. With the rising global price of these fuels, efforts to efficiently use this fuel within the SME sector will be beneficial for the SME sector and the balance of payments for Vietnam;

- *Supply constraints for various domestic fuel sources.* SMEs have been experiencing limited supplies of fuel wood and coal resulting in rising prices. The outcome of these supply constraints has been:

    - relocation of polluting industries to outside cities (to be closer to fuel sources and in areas with more lax enforcement of pollution regulations);
    - limitations of pipeline infrastructure to distribute indigenous natural gas to SMEs (now only available in South Vietnam);
    - an increase in the amount of coal imported into Vietnam (mainly from Australia) accompanied by rising coal costs; and
    - a rapidly emerging need to transfer practices of energy efficiency and efficient use of traditional and domestically available fuels (e.g., rice husks in the Mekong Delta).

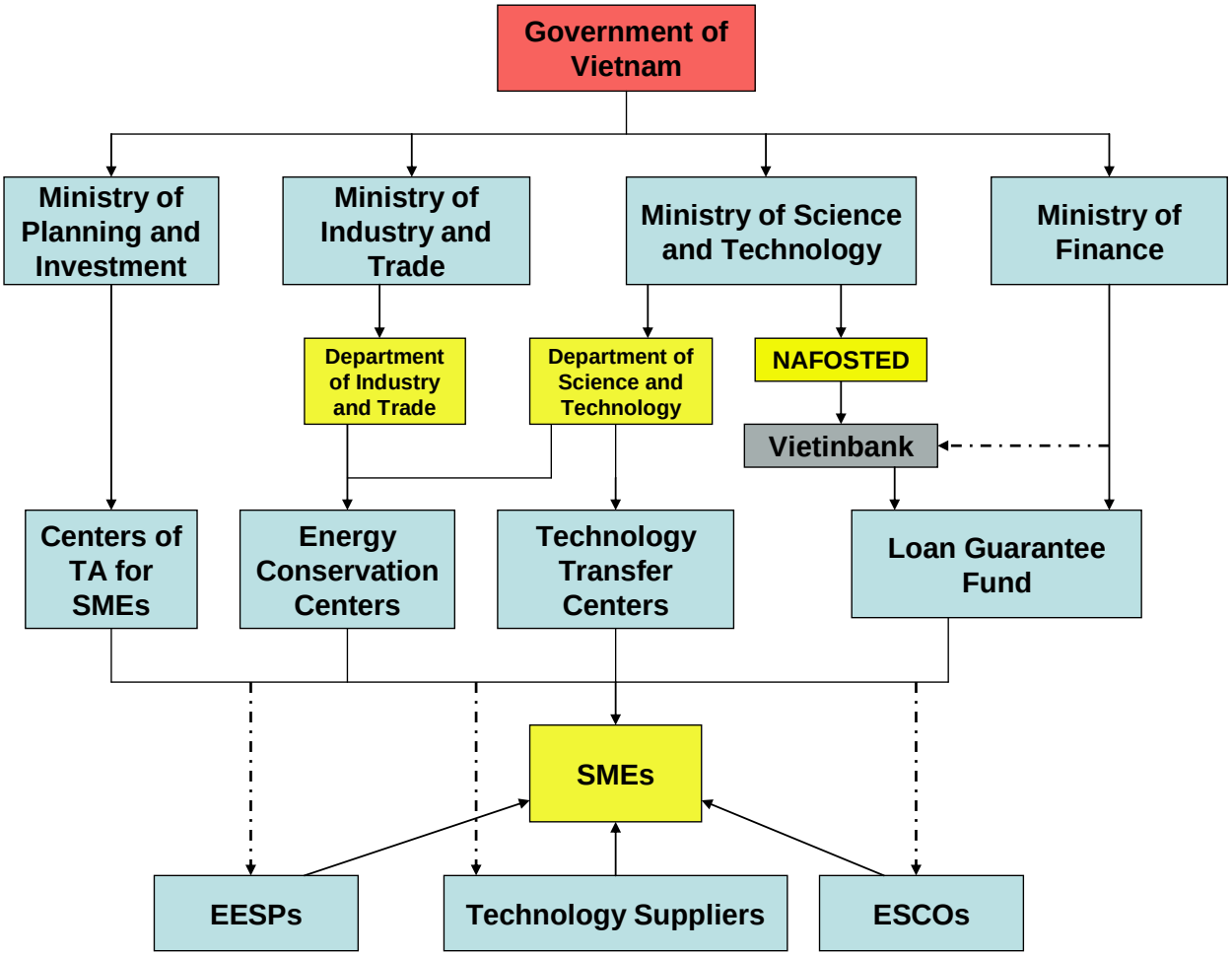
The GoV has been supportive of SME development, and issued a decree in 2001[22] on SME development assistance. This decree established policy-making agencies, central and local sectoral and inter-sector management agencies, and coordinating, cooperating and supporting agencies for SMEs. In particular, the SME development decree led to the development of the SME Development Department (SMEDD) and the SME Promotion Council (SMEPC), as well as the establishment of an export support fund at the central level and credit guarantee funds for SMEs in the provinces to

[21] http://www.vfr.vn/index.php?option=com_content&task=view&id=1013&Itemid=26 and http://rwconnect.esomar.org/2011/05/03/meeting-the-mr-needs-of-vietnamese-smes

[22] No. 90/2001/ND-CP dated 23 November 2001 on Assistance to SME Development

access commercial bank funding sources. These developments were led by the MoPI, which has the overarching role of supporting SMEs. Institutional arrangements supporting SMEs (including those developed by PECSME) are shown on Figure 1.

Figure 1: Institutional Arrangements for Agencies Supporting SMEs



With the SME sector in Vietnam becoming increasingly exposed to internal and external competitive pressures, the reduction of energy costs continues to be viewed as a key initiative to support the growth of the SME industrial sector. Prior to PECSME, SMEs generally lacked the knowledge of and were unable to implement energy conservation measures. They were also unable to access the financing to implement EC&EE investments due to their lack of collateral.

Prior to PECSME, most equipment commonly used in the SME sector in Vietnam was energy inefficient. Technical support to train SME staff on managing and operating the antiquated equipment at optimal levels was also absent.

1.2 Project Goals, Objectives and Expected Results

The project development **goal** is *to reduce the annual growth rate of GHG emissions through the removal of key barriers to the adoption of more energy efficient technologies and energy efficient practices in the SME sector*.

To achieve this goal, the Project was designed with a number of **project outputs and outcomes:**

- Outcome 1: Improved EC&EE policy development and institutional capacity to increase the impact of policies and recently enacted EC&EE decrees;
- Outcome 2: Adoption of a communications strategy to enhance SME and public awareness of EC&EE through an integrated communications system including information collection, and formation of a network for dissemination and reporting of EC&EE information;
- Outcome 3: Enhanced SME and EESP capacity that has been developed through a comprehensive training plan to improve their technical and financial analysis skills to implement EC&EE projects;
- Outcome 4: Growth of a competitive and sustainable energy services industry through enhanced business, engineering and financial skills of EESPs;
- Outcome 5: Increased willingness of the banking and financial sector to provide loans to SMEs for EC&EE projects;
- Outcome 6: Increased credibility of EC&EE through successful implementation of demonstration projects.

Section 2 will provide more detail on the achievements to date of the project's outcomes and outputs.

1.3 Final Evaluation

1.3.1 Purpose of the Evaluation

For all UNDP projects funded by GEF, a final evaluation (FE) is required after completion of a project to *provide a comprehensive and systematic account of the performance of the completed project by evaluating its design, process of implementation and achievements vis-à-vis GEF project objectives and any agreed changes during project implementation.* As such, the FE for this Project will serve to:

- promote accountability and transparency, and to assess and disclose levels of project accomplishments;
- synthesize lessons that may help improve the selection, design and implementation of future GEF activities;
- provide feedback on issues that are recurrent across the portfolio and need attention, and on improvements regarding previously identified issues; and,

- contribute to the GEF Evaluation Office databases for aggregation, analysis and reporting on effectiveness of GEF operations in achieving global environmental benefits and on the quality of monitoring and evaluation across the GEF system.

This Final Evaluation was prepared to:

⇒ be undertaken independent of project management to ensure independent quality assurance;

⇒ apply UNDP norms and standards for evaluations;

⇒ assess achievements of outputs and outcomes, likelihood of the sustainability of outcomes; and if the project met the minimum M&E requirements;

⇒ report basic data of the evaluation and the project as well as provide lessons from the Project on broader applicability.

An evaluation team was fielded to Hanoi for the 13 – 23 April 2011 period. The Terms of Reference (ToRs) for the Final Evaluation are contained in Appendix A.

1.3.2 Key Issues to be Addressed

Key issues addressed on this FE include:

- The appropriateness of the Project concept and design in the context of catalyzing EC&EE projects in Vietnam;
- Implementation of the Project in the context of relevance, efficiency and effectiveness of the activities; and
- Project impacts based on current outputs and outcomes and the likelihood of sustaining project results.

Outputs from this FE will provide guidance in charting future directions on energy efficiency and conservation for Vietnam.

1.3.3 Evaluation Methodology and Structure of the Evaluation

The methodology adopted for this evaluation includes:

- Review of project documentation (i.e. project documents, APRs, meeting minutes of Steering and Advisory Committees) and pertinent background information;
- Interviews with key project personnel including the Project Manager, technical advisors (domestic and international), demonstration project proponents, investors and relevant UNDP staff;
- Interview with relevant stakeholders from Government; and
- Field visits to selected project sites and interviews with beneficiaries.

A full list of documents reviewed and people interviewed is given in Annex B. A detailed itinerary of the Mission is shown in Appendix C. The Evaluation Mission for the UNDP-GEF project was comprised of one International Expert and one National Expert.

This evaluation report is presented as follows:

- An overview of project achievements from the commencement of operations in January 2006;
- An assessment of project results based on project objectives and outcomes through relevance, effectiveness and efficiency criteria;
- Assessment of sustainability of Project outcomes;
- Assessment of the replication or catalytic effect of the Project;
- Assessment of monitoring and evaluation systems;
- Assessment of progress that affected Project outcomes and sustainability; and
- Lessons learned and recommendations.

This evaluation report is designed to meet GEF's "Guidelines for GEF Agencies in Conducting Terminal Evaluations, Evaluation Document No. 3" of 2008:

http://www.thegef.org/gef/sites/thegef.org/files/documents/Policies-TEguidelines7-31.pdf

The Evaluation also meets conditions set by the UNDP Guideline for Evaluators, June 2002:

http://www.undp.org/gef/documents/me/ME-HandBook.pdf

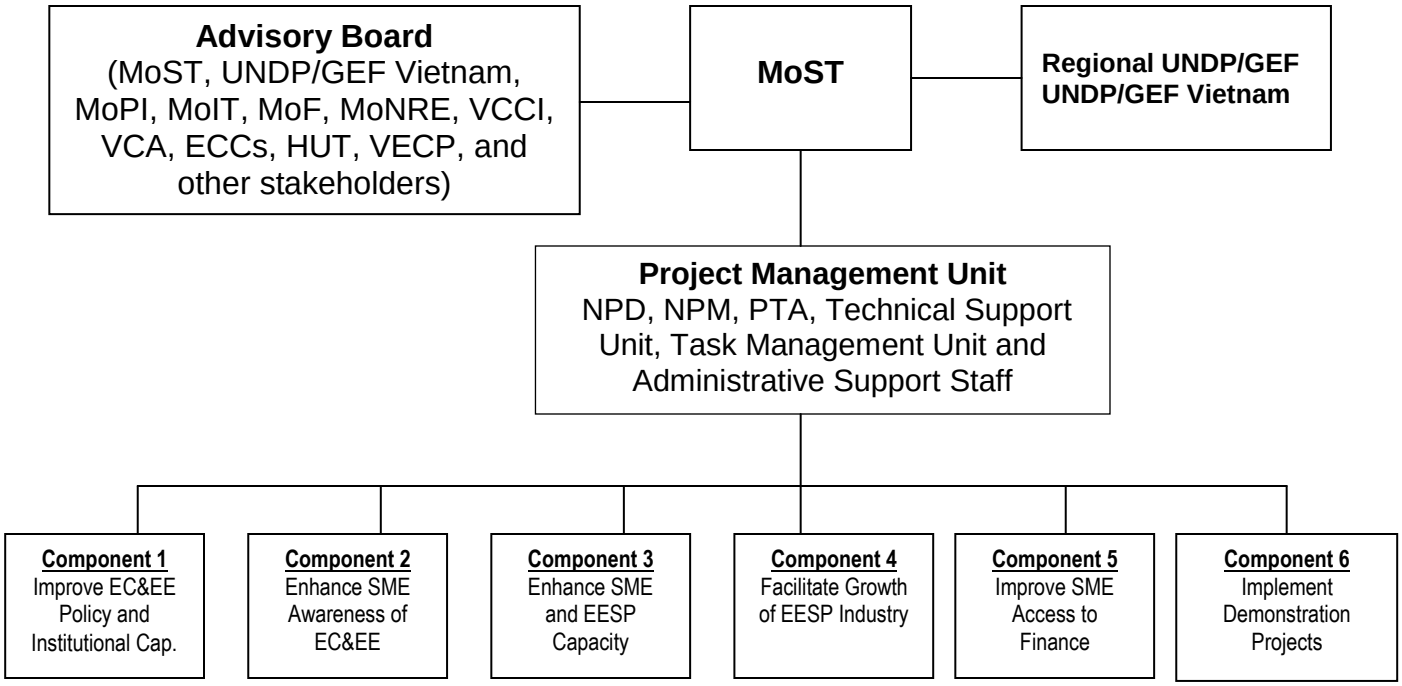
1.4 Project Implementation Arrangements

The project organization chart is shown on Figure 2. The main stakeholders of PECSME include:

- Ministry of Science and Technology (executing agency);
- Department of Science and Technology (management of provincial energy conservation centers (ECCs)/TTCs that promote EC&EE with local SMEs);
- Ministry of Natural Resources and Environment (GEF focal point and monitoring of GHG emissions);
- Vietnam Environmental Protection Fund (MoNRE-administered fund that funds EC&EE investments amongst other environmental projects);
- Ministry of Industry and Trade (for EC&EE policy development and implementation of national EC&EE programs);
- Department of Industry and Trade (co-management of provincial energy conservation centers that promote EC&EE with local SMEs);
- Ministry of Finance (for policy and regulatory guidance on financial matters);
- Vietinbank (management of PECSME Loan Guarantee Facility and provision of funds for financing EC&EE projects for SMEs);
- Vietnam Association of Small and Medium Enterprises;
- Emerging Energy Service Providers (EESPs who provide specialized technical assistance and implementation of EC&EE projects throughout Vietnam);

- Hanoi University of Technology (management of program to build technical capacity of EESPs);
- Investors and interested local SMEs for EC&EE project implementation.

Figure 2: PECSME Project Implementation Arrangements



2. ASSESSMENT OF PROJECT RESULTS

2.1 Overview of Project Achievements and Results

PECSME is a project designed to reduce GHG emissions through promoting EC&EE in the SME industrial sector in Vietnam. The Project has undertaken a number of measures designed to remove awareness, technical, financial and regulatory barriers that hinder widespread adoption of EE&EC by SMEs. Actual PECSME achievements are listed on Table 1 against the revised September 2008 Project log-frame. The original Project log-frame from April 2004 is shown in Appendix D.

The Project has achieved all targets; in some cases, project targets have even been exceeded. The Project has been largely responsible for catalyzing SME EC&EE investments in Vietnam.

2.2 Assessment of Project Results

Each outcome was evaluated against individual criterion of:

- *Relevance* – the extent to which the outcome is suited to local and national development priorities and organizational policies, including changes over time;
- *Effectiveness* – the extent to which an objective has been achieved or how likely it is to be achieved; and
- *Efficiency* – the extent to which results have been delivered with the least costly resources possible.

The Project outcomes were rated based on the following scale:

- *Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives;
- *Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives;
- *Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives;
- *Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives;
- *Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives;
- *Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

In addition, the Evaluation team has provided an assessment (wherever appropriate) on Project impacts, positive or negative, and possible long-term effects of the outcomes or outputs.

2.2.1 Project Goal and Objective

Project Goal: Reduce the annual growth rate of GHG emissions from SMEs through the removal of major barriers to adoption of more energy efficient technologies and energy management practices.

Intended GHG Outcome: ⇒ CO_2 emissions are reduced by an accumulated total of 538.8 ktonnes at the EOP
Actual GHG Outcome: ⇒ *The forecast CO_2 emissions reductions are estimated to be 837 ktonnes up to the end of the Project. This includes 654 ktonnes of direct and 183 ktonnes of direct and indirect CO_2 emission reductions respectively.*

Rating: *relevance: HS*
effectiveness: HS
efficiency: HS
overall rating: HS

The reductions have mainly come from the brick making and ceramic sectors where CO_2 reductions from new EC technologies have been high. The indirect CO_2 emissions to date are probably higher since the evaluation team was informed that all traditional brick kilns (estimated to be over 50 VSBKs) in Lam Thao, Phu To Province were being converted to VSBKs; in the ceramics industrial sub-sector, there are more than 30 LPG kilns that have not been accounted for in the database.

Project Purpose: To significantly improve energy utilization efficiency in the SME sector.

Intended Energy Outcome: ⇒ Cumulative energy savings of 136 kTOE in the SME sector achieved by end of Year 2010; ⇒ Average reduction of 10 to 15% in energy cost per unit production for 500 SMEs
Actual Energy Outcome: ⇒ *The forecast cumulative energy savings are 205.5 kTOE up to 30 March, 2011;* ⇒ *Average reduction of 24% in energy costs per unit production*

Rating: *relevance: HS*
effectiveness: HS
efficiency: HS
overall rating: HS

Of the 205.5 kTOE saved in energy during the course of PECSME, 149.6 and 33.5 kTOE was saved in the brick and ceramic sectors respectively. This was attributed to the widespread adoption of the EC technology in these sectors; these sectors have been supported by excellent programs that have raised awareness and provided technical support to brick and ceramic SMEs during the Project. The average 24% reduction of energy cost per unit production is a weighted average between all the industrial sectors on this Project. This included a 4 to 12% reduction for food processing, textile and pulp & paper sectors, a 30 to 60% reduction for the brick sector and a 15 to 25% reduction in the ceramics sector. GHG emission reduction impacts have been calculated for PECSME using the methodologies suggested by:

- the "Manual for Calculating GHG Benefits of GEF Projects: Energy Efficiency and Renewable Energy Projects, April 16, 2008 (GEF/C.33/Inf.18)";
- CDM Executive Board methodologies (AMS II.D., Version: 11 for brick and ceramic sectors, AM0036 for boilers in the pulp & paper, textile, and food processing sectors); and
- a combined grid emissions factor used to estimate the Vietnamese electricity grid of 0.5764 tCO_2/MWh.

Table 1 summarizes the GHG reduction estimates (using GEF guidelines) that were generated during PECSME (to its estimated terminal date of September 30, 2011).

Table 1: Summary of CO_2 Reductions from the Project

Direct emission reduction[23], t CO_2	
Bricks	667,832
Ceramics	189,047
Food Processing	63,071
Textiles	39,178
Pulp and Paper	32,335
Total direct emission reduction, t CO_2	**991,463**
Direct post-project emission reduction[24], t CO_2	
Bricks	**2,076,386**
Ceramics	**900,896**
Food Processing	**104,666**
Textiles	**74,706**
Pulp and Paper	**18,396**
Total direct post-project emission reduction, t CO_2	**3,175,050**
Indirect emission reduction[25] due to replication projects, t CO_2	
Bricks	**7,312,884**
Ceramics	**2,117,533**
Food Processing	**635,919**
Textiles	**408,509**
Pulp and Paper	**358,089**
Indirect emission reduction, t CO2	**10,832,933**
TOTAL EMISSION REDUCTIONS DUE TO UNDP-GEF PROJECT, t CO_2 (10-yr cumulative after completion of PECSME, up to 2021)	**14,999,446**

[23] These direct emission reduction figures (total of 991 ktonnes) are estimated to the projected completion date of PECSME of September 30, 2011 and are different from the 837 ktonnes which are the emission reductions up to March 30, 2011. Direct emission reductions occur PECSME and were considered for all 6 demonstration projects in brick, ceramic and pulp and paper sectors. Direct impacts can also include EC investments that have benefited from the Project's supportive mechanisms such as the LGF (that improved SME access to financing) and EESPs and ESCOs (who technically assisted the SMEs).

[24] Direct post-project emissions are from EC projects after the completion of PECSME and supported by the PECSME loan guarantee fund that will continue to operate a minimum of 10 years after the end of PECSME (as recommended by GEF manual or less depending on service life of EC intervention). Direct post-project emissions can be considered for all six demonstration projects (in brick, ceramic and pulp and paper sectors, food processing and textiles over a period of 10 years) due to kiln, LPG oven and boiler service life being greater than 10 years. Only 5 years service life can be considered for a combination of various EC measures such as lighting fixtures and power bars.

[25] Indirect emissions are from "replication" projects developed with knowledge of PECSME demonstrations but without PECSME assistance. Estimates are derived from assumptions that the bottom-up replication factor is 2.0 and the top-down causality factor is 60%, and that emissions are generated during PECSME and 10 years after the completion of PECSME.

Table 2 summarizes the energy savings and GHG reductions up to March 31, 2011 for the demonstration and replication projects for each industrial sector.

Table 2: Summary of Demonstration and Replication Projects

Sector	No. of DEMO	No. of DIRECT[26]	No. of INDIRECT[27]	Total	Energy Savings to 31 March 2011 (kTOE)	CO_2 Reductions to 31 March 2011 (ktonne)	Actual Invest-ment (USD million) ****
Brick	3	150	57	210	149.6	579.4	23.61
Ceramics	3	93	37	133	33.5	171.0	2.90
Food-processing	2	95	10	107	10.4	40.0	1.60
Textile	2	30	15	47	6.0	24.3	0.92
Paper	2	42	2	46	6.3	25.2	0.95
Total	12	466	121	**543**	**205.8***	**839.9****	**29.98**

* Equivalent to 151% of current approved target of 136.1 kTOE
** Equivalent to 156% of current approved target of 538.8 ktonne CO_{2eq}
*** Only investments of DEMO and IMPA projects included.

While the impact of PECSME has been significant, the evaluator has noted that:

- the number of ECC&EE investments could have been higher since stakeholder demand for loan guarantees from the LGF for EC financing was and is still very high;
- the replication impact over EC initiatives has experienced excellent growth during 2009 and 2010, notably in the brick and ceramic sectors; and
- high degree of certainty that the LGF will be continued after the completion of the Project.

2.2.2 Component 1: EC&EE Policy and Institutional Support Program

Intended Outcome 1.1*:*
⇒ Improved EC&EE awareness and capacity on EC&EE policy development within the GoV:
1. 3 national seminars with total of 450 participants held in the first and second years;
2. 4 training courses on economic and environment benefits of EC&EE measures/ technologies held with 100 central and local government officers trained;
3. 3 study tours conducted;
4. At least 6 policy papers and policy recommendations on EC&EE proposed by

[26] DIRECT projects are designated as REPL in the PECSME database. These projects have received PECSME support through EESPs, ESCOs and/or the LGF
[27] INDIRECT projects are designated as IMPA in the PECSME database. These projects were aware of the demonstration but did not use PECSME assistance for development

capable policy makers at central and local levels starting Year 2.

Actual Outcome 1.1:

⇒ *EC&EE awareness and capacity on EC&EE policy development amongst GoV officers has improved:*

1. *4 national seminars with total of 400 participants held in the first and second years;*
2. *10 training courses on economic and environment benefits of EC&EE measures/ technologies held with 306 central and local government officers trained;*
3. *3 study tours conducted in China, Thailand and Korea;*
4. *one law on EC&EE approved by National Assembly on 17 June 2010 and 12 initiatives on EC&EE issued by local governments*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

Training of GoV officers in the early stages of the Project was very relevant given the low level of awareness amongst policymakers EC&EE policies globally. The workshops, seminars & training courses and study tours in regional countries China, Thailand and Korea provided excellent and relevant learning tools in EE policymaking. Based on feedback from government officers on PECSME-supported seminars, the training courses and other training initiatives, many attendees claimed the events were highly beneficial to their understanding of EE&EC policies and the required courses of action to develop these policies in Vietnam. The Project's contribution of technical assistance to developing different aspects of EE&EC Law, and its organization of consultation workshops to solicit appropriate stakeholder feedback were significant factors towards the improvement of the drafted version of the Law on EC&EE submitted to the National Assembly in June 2010. The Law that was promulgated by the National Assembly in 17 June 2010 is one of the most important outcomes of the project.

Intended Outcome 1.2*:*

⇒ Incentive policies for supporting EC&EE investment in SMEs developed:

1. One circular on EC&EE labeling formulated and approved by MoIT;
2. One circular on Tax Incentives & Financial Incentives formulated and submitted to MoF for approval
3. Three EE products labeled
4. Four EE equipment producers that participate in Labeling Program
5. Three formulated and MoST-approved regulations related to promotion of EC&EE technology transfer in SMEs
6. 500 SMEs utilize those incentives
7. Three workshops to promote new circulars and regulations completed

Actual Outcome 1.2:

⇒ *Incentive policies for supporting EC&EE investment in SMEs have been developed:*

1. *One circular on EC&EE labeling formulated and approved by MoIT in 2007;*
2. *One Circular No. 142/2007/TTLT/BTC-BCT dated 30 November 2007 on grant provision for EC projects has been incorporated in the Law on EC&EE that was approved in June 2010*
3. *Eight EE products labeled*
4. *Five EE equipment producers participated in Labeling Program*

5. *Decree No. 133/2008/ND-CP dated 31 December 2008 formulated on guiding the Implementation of the Law on Technology Transfer issued (incorporating the previous draft Decree on priority list of EE&EC Technology); Decree on the Establishment of National Technology Innovation Fund has been approved by Prime Minister*
6. *543 SMEs utilize those incentives*
7. *Three workshops conducted (one workshop on promotion of EC&EE labeling, and two workshops on gather comments on draft Law on EC&EE).*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

PECSMEs role in the formulation of the Law on EC&EE was significant. The formulation of the Law had inputs from a technical expert, senior national experts of the PMU, and feedback from stakeholder consultation workshops to improve the quality of the draft Law on EC&EE. The National Assembly passed the Law on 17 June 2010, prior to the completion of PECSME.

Intended Outcome 1.3*:*

⇒ EC&EE policies incorporated into the National SME Development Program through technical assistance provided to SMEDD to incorporate EC&EE programs into the National SME Development Support Program

Actual Outcome 1.3:

⇒ *EC&EE policies have been incorporated into the National SME Development Program by incorporating EC&EE content into the National Training Program for SMEs. This was tested in two training courses in Hanoi and Da Nang, and training material was completed for use in the National SME Training Program (delivered by the Enterprise Development Agency of MoPI).*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

PECSMEs efforts to link training with the national efforts to improve the performance of the SME sector is highly relevant. The effectiveness of these efforts combined with the national importance of EC&EE in Vietnam has garnered widespread and higher profile support within GoV for this Project. All EC&EE training materials have been bound into five technical books, and have been distributed to EESPs and ECCs at the provincial level for dissemination to SMEs.

Intended Outcome 1.4*:*

⇒ EC&EE coordinating agencies in the SME sector and provincial technical support networks are established and operational:

1. Network between PMU and ECCs/DoST and key project partners established, maintained regular communication;

2. EC&EE Expert Association established by end-Year 3;
3. 150 EC&EE projects that are annually supported by the Expert Association starting from Year 4

Actual Outcome 1.4:

⇒ *ECCs have been established with DoST to service SMEs with provincial technical support and EC&EE awareness raising:*

1. *Network between PMU and ECCs/DOST and key project partners established in 2006*
2. *EC&EE Expert Association established in December 2010 with more than 600 members.*
3. *Activity removed*

Rating: *relevance:* *S*
effectiveness: *HS*
efficiency: *S*
overall rating: *S*

The establishment of a coordinating mechanism at the provincial level to support SMEs has been an effective conduit in disseminating specific EC&EE information with the SMEs, the end users of energy. PECSME established an EC&EE network that extends to more than 20 ECCs/TTCs (under DoST) in provinces encompassing 31 ESCOs and EESPs and 600 members in an EC&EE Association. Finances for provincial EC&EE activities by ECCs/TTCs and some EESPs are budgeted at the provincial level. With this support, the EESPs and ECCs/TTCs are able to work (effectively, efficiently and directly) with the SMEs to provide them with appropriate support on energy audits and potential EC&EE investment opportunities.

Intended Outcome 1.5*:*

⇒ MoNRE capacity is improved in modifying environmental standards related to GHG emissions:

1. 3 national environmental standards related to GHG emission updated and enforced.

Actual Outcome 1.5:

⇒ *MoNRE capacity has improved in modifying environmental standards related to GHG emissions:*

1. *Some environment standards related to air pollution in production villages were updated and are going to be submitted to MoNRE*
2. *Workshop organized with key experts on finalizing drafted environmental standards*

Rating: *relevance:* *S*
effectiveness: *S*
efficiency: *S*
overall rating: *S*

PECSME provided effective technical assistance to MoNRE in the development of environmental standards related to GHG emissions. This included:

- a review and assessment of the effectiveness of existing environmental standards in production villages such as the Bat Trang ceramics village near Hanoi;

- conducting a survey on the compliance of current environmental standards (TCVN 5937 and 5939:2005) in the production villages;
- gap identification between the existing air environmental standards and available industrial technology; and
- development of appropriate GHG emission standards in production villages.

The GHG emission standards consist of the revised National Technical Standards on Emission of Inorganic Substances and Dust (including GHGs) from small businesses in the production village; these standards are going to be submitted to MoNRE for approval.

2.2.3 Component 2: EC&EE Communication and Awareness Program

Intended Outcome 2.1*:* ⇒ Communications strategy developed: 1. Strategy developed and agreed to by key stakeholders by end Year 1.
Actual Outcome 2.1: ⇒ *Communications strategy developed:* *1. One project communication strategy was finalized in October 2006 and implemented in 2007. In 2008, an adjustment was made to focus the communication activities on priority sectors and geographic areas*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

By early 2008, the revised Communication Strategy was available to promote EC&EE projects with SMEs. This resulted in 150 SMEs registering for PECSME EC&EE service support. Many of the activities related to communication and awareness have been conducted by the PMU as well as advertising and EC marketing partners.

Intended Outcome 2.2*:* ⇒ An information dissemination network has been established and the capacity of the organizations involved with the network has been strengthened*:* 1. At least 80% trainees actively participate in EC&EE information dissemination activities 2. One information network established and relevant participating organizations identified by end-Year 1 3. Two training courses for EC&EE communicators of participating organizations conducted 4. Two local study tours for information network participants conducted 5. 20 trained participants actively participate in information dissemination 6. 50% of study tour participants contributing their learning experiences to PECSME information dissemination activities.
Actual Outcome 2.2: ⇒ *An information dissemination network has been established and the capacity of the organizations involved with the network has been strengthened:* *1. 62% trainees actively participate in EC&EE information dissemination activities*

2. *One information network of 20 EC&EE communicators in SME sector established in 2007*
3. *One communication training course completed with 35 participants from ECCs, DoST and media in 2007*
4. *One domestic study tour was successfully conducted (visited Energy Information Center) for information network participants*
5. *23 trained participants actively participate in information dissemination*
6. *67% of study tour participants contribute their learning experiences to PECSME information dissemination activities*

Rating: *relevance:* *HS*
effectiveness: *S*
efficiency: *HS*
overall rating: *HS*

Key participants in the strengthening of the EC&EE information dissemination network included DoST, DoIT, ECCs/TTCs, EESPs, ESCOs. Local study tours and PECSME organized EC&EE information sessions bolstered their knowledge on EC&EE projects, activities and appropriate EC technologies.

Intended Outcome 2.3*:*
⇒ Awareness of SME and general public on EC&EE assessed:
1. One feedback survey completed
2. One baseline survey on knowledge, attitudes and practices regarding utilization of energy among SMEs completed

Actual Outcome 2.3:
⇒ *Awareness of SME and general public on EC&EE assessed:*
1. *Feedback survey involving 500 managers and workers from 7 provinces on knowledge, attitudes and practices regarding utilization of energy among SMEs was completed in September 2010*
2. *One baseline survey on knowledge, attitudes and practices regarding utilization of energy among SMEs completed in 2006*

Rating: *relevance:* *S*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

In comparison with the baseline survey of 2006, the September 2010 survey findings indicate that SME knowledge on EC&EE issues has increased with changed attitudes towards EC&EE solutions.

Intended Outcome 2.4*:*
⇒ SME energy-use database has been developed:
1. SME energy-use database developed by Year 2;
2. Over 1,000 users of the database.

Actual Outcome 2.4:
⇒ *SME energy-use database has been developed:*
1. *One SME energy-use database of five selected sectors was developed and*

launched for using from year 2006
2. *4,200 users access to database*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

The database prior to 2008 was developed on an excel spreadsheet. In late 2008, the database was moved to a Microsoft Access platform, a tool that provides a more efficient means of uploading energy and SME data as well as producing readable and accurate energy reports. The database has been shared with MoIT and MoST for their use in monitoring SME energy usage on their programs.

Intended Outcome 2.5*:*
⇒ EC&EE information disseminated to SMEs through the network:
1. 20% increase in volume of information posted on the web site starting Year3.
2. 10 articles on EC&EE topics published in leading local newspapers and magazines annually
3. Five booklets on EC&EE published and disseminated
4. 100,000 copies of leaflets and booklets disseminated
5. 50,000 hits on the website
6. 20 leaflets on EC&EE published and disseminated
7. Four TV programs in central and local channel annually from Year 2
8. 25,000 users of website
9. Four "Voice of Viet Nam" programs broadcasted annually
10. One website on EC&EE information of SME sector operational by Year 1

Actual Outcome 2.5:
⇒ *Dissemination of EC&EE Information to SMEs through the Network:*
1. *1,650 news/article posted on the website (increased by 11% in comparison with 2009 period)*
2. *165 articles on EC&EE topics published in leading local newspapers and magazines*
3. *06 booklet on EC&EE technical instruction published and distributed*
4. *203,000 copies of leaflets, newsletter and booklet disseminated*
5. *Over 606,000 hits on the website*
6. *23 different leaflets printed and disseminated*
7. *41 TV programs*
8. *30,125 users access to the website*
9. *28 programs on the Voice of Vietnam*
10. *One PECSME website developed and regularly updated from October 2006*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

The use of public media and the project website has been effective and efficient in disseminating EC&EE information. All information dissemination targets were attained or exceeded.

Intended Outcome 2.6: ⇒ EC&EE public awareness enhanced through completion of advocacy & awareness campaigns: 1. 10 EE equipment suppliers and EESPs using PECSME marked materials on their products 2. Two exhibitions of energy efficient equipment held by MoST 3. Six workshops, forums and information exchange meetings conducted by ECCs annually from Year 2
Actual Outcome 2.6: ⇒ *EC&EE public awareness enhanced through completion of advocacy & awareness campaigns:* *1. Six EE equipment suppliers and EESPs using PECSME marked materials on their products* *2. Seven exhibitions of energy efficient equipment held by MoST (05 exhibition shops of EE equipment participated in Techmart and 02 Exhibitions on EC&EE equipment conducted in HCMC and Hanoi)* *3. 57 workshops organized by PMU and ECCs/DoSTs with participation of 8,000 persons* *4. Three writing contests completed on EC&EE for reporters from media agencies*

Rating: *relevance:* *HS*
effectiveness: *S*
efficiency: *HS*
overall rating: *HS*

All targets related to increasing public awareness of EC&EE were met or exceeded. These activities only strengthened the profile of the GoVs drive to raise awareness of EC&EE issues.

Intended Outcome 2.7*:* ⇒ SME interest in carrying out EC&EE projects has been raised: 1. 420 SMEs registered for assistance from ECCs/DoSTs to implement EC&EE projects during Years 2 and 3.
Actual Outcome 2.7: ⇒ *SME interest in carrying out EC&EE projects has been substantially raised:* *1. 596 SMEs have registered for assistance from ECCs/DoSTs to implement EC&EE projects*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

The positive result of this outcome is the result of the excellent awareness raising and knowledge dissemination program implemented in this component. With 596 registered SMEs, 543 EE projects were successfully implemented with direct support (technical assistance and/or LGF). Moreover, the government also applied regulatory pressure on

SMEs to adopt EE measures, notably the discouragement of building new "traditional brick kiln" in some provinces since January 2011.

2.2.4 Component 3: EC&EE Technical Capacity Program

Intended Outcome 3.1*:* ⇒ Local trainers are able to train others to become EC&EE trainers: 1. 21 trained trainers providing EC&EE training under the project by mid-Year2 2. Three trainers from universities and colleges trained abroad. 3. 30 trainers certified by MoST by mid-Year 2 4. 12 training material modules completed and approved
Actual Outcome 3.1: ⇒ *Training for trainers provided:* *1. 28 trained trainers providing EC&EE training under the project by 2008* *2. Activity removed* *3. 28 trainers certified by MoST by 2008* *4. 15 training material modules updated, improved and transferred to relevant organizations and stakeholders*

Rating: *relevance:* *HS*
effectiveness: *S*
efficiency: *HS*
overall rating: *HS*

PECSME has provided "training of trainers" (ToT) with teachers from well-known organizations such as Enerteam, Power University, Da Nang University, ECC – HCMC, ECC- Da Nang, ECC- Hai Phong, ECC- Ha Noi, IHERE (HUT), Ceratec and Bat Trang J&S Company. The training courses focused on EC management and operation for three sectors (paper & pulp, food processing and textile) and rational use of energy and effective operation of VSBK as well as LPG ceramic kilns for SMEs. All training materials on EC technology and equipment operation for SMEs were updated and disseminated to EESPs, related organizations and stakeholders.

Intended Outcome 3.2*:* ⇒ SME knowledge on the benefits of EC&EE improved: 1. 100 DoST officers from selected provinces trained during 1-day training seminars on EC&EE benefits starting from Year 2 2. 50 SME managers from selected provinces trained during 1-day training seminars on benefits and financial analysis of EC&EE projects starting from Year 2 3. 500 SMEs are implementing EC&EE techniques and practices from Years 1 to 5 4. 500 technicians from SMEs in selected provinces in Northern, Central and Southern areas trained on EC&EE techniques and practices by Years 2 & 4
Actual Outcome 3.2: ⇒ *SME knowledge on the benefits of EC&EE has improved:* 1. *350 local officers trained on economic and environment benefits of EC&EE technologies during 2006-2008* 2. *895 SME managers from five industrial sectors trained on benefits-cost and financial analysis of EC&EE by 2010* 3. *543 SMEs implemented EC&EE implemented by 2011*

4. *890 SMEs managers and technicians trained on EC&EE techniques and operation by 2011*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

The trainers from Outcome 3.2 disseminated EC&EE knowledge and skills to SMEs throughout several provinces in Vietnam. Feedback from the participants was positive with participants complimenting the training contents and teaching methods. Training material was comprehensive encompassing a wide range of topics from EC planning and financing implementing and maintaining EC technologies through best practices.

Intended Outcome 3.3*:*
⇒ Sustainable EC&EE Training Programs for Relevant Universities and Colleges has been developed:
1. 03 EC&EE training program designs completed by Year 4

Actual Outcome 3.3:
⇒ *Activity dropped.*

Intended Outcome 3.4*:*
⇒ Training Program re-designed based on recommendations from evaluation of the program.

Actual Outcome 3.4:
⇒ *Training program has been improved based on recommendations of the evaluation:*
1. *The first evaluation and the final evaluation of Training Program for EESPs, FSPs, local trainers and DoSTs was completed in Q3 2008 and Q4 2009.*

Rating: *relevance:* *S*
effectiveness: *S*
efficiency: *S*
overall rating: *S*

Intended Outcome 3.5*:*
⇒ Capacity to conduct energy audits is strengthened:
1. 500 energy audits and/or feasibility studies conducted by end-Year 5
2. 60 energy consultants trained in energy auditing and undertook audits at selected sites by mid-Year 2;
3. 50% trained consultants carrying out energy audits by Year 3

Actual Outcome 3.5:
⇒ *Capacity to conduct energy audits is strengthened:*
1. *467 preliminary energy audits; 278 detailed energy audits and/or feasibility studies conducted (202 energy audit and 76 feasibility studies conducted)*
2. *72 trainees trained on energy audits and 65 trained on financial analysis and loan document preparations in 2008*
3. *67% (or 48 out of 72 trainees) trained consultants carrying out energy audits by 2008*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

This is an excellent outcome for PECSME. The quality of the audits and feasibility studies has steadily improved since 2008. Stakeholders are aware of the value of well-planned EC projects. PECSMEs holistic approach (communication, demonstration, training, market research and financial support) has provided the necessary foundation towards a number of EC&EE projects being implemented.

2.2.5 Component 4: Energy Efficiency Service Provision Program

Intended Outcome 4.1*:* ⇒ EESP training program completed: 1. 3 consulting firms incorporate energy efficiency services provision into their business operations each year starting Year 4 2. 10 EESPs that have prepared business plans following the model presented in the training course by Year 3 3. 60 energy consultants from EESP trained on EC engineering and financial arrangement for investment projects 4. 15 energy consultants from EESP trained on EC business plans and designing service packages for investment projects 5. Three new EESP businesses that are legally established during Years 4 and 5.
Actual Outcome 4.1: ⇒ *EESP training program completed:* *1. 5 ECC/TTCs in Binh Duong, Hai Phong, Hanoi and HCM incorporate EESP as a business line* *2. 14 EESPs have prepared EC business plans;* *3. 72 trained on energy audits and 65 trained on financial analysis and loan document preparations (in combined with actual outcome 3.5);* *4. 20 managers at different level trained on business plan and designing service packages;* 5. *3 new EESPs legally established (Polytee & Bat Trang JS Production, Trading and Designing Company, Hatech) in 2010.*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

More detailed EC training was provided to prospective EESPs to service SMEs in implementing EC projects and investments. The training material prepared by various academic institutes in Vietnam (including the Hanoi University of Technology) for EESPs was condensed into 12 training modules covering a wide array of EC&EE topics. Interviews with Hatech and their industrial clients indicated that EESP EC knowledge was proficient.

Intended Outcome 4.2*:* ⇒ An institutional and legal framework for EESP activities has been developed: 1. Recommended suitable institutional and legal framework for EESPs submitted to MoIT
Actual Outcome 4.2: ⇒ *Suitable institutional and legal framework developed for EESP activities:* *1. Recommendation of a suitable institutional and legal framework for sustainable EESPs development was presented to MoIT and the Science, Technology & Environment Committee under the National Assembly.*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

A December 2009 PECSME study on an EESP institutional framework recommended a shift from state-funded EESP consultancies, government support EC&EE for SMEs through subsidies and loans, certification of EC consultancies, improving SME access to finance for EC&EE projects, and continued capacity building for EESPs and ESCOs.

Intended Outcome 4.3*:* ⇒ EESPs ability to run an EC business is enhanced: 1. One EESP energy efficiency engineering design tool and model marketing strategy developed by Year 3 2. Four EESPs utilize EE design tools and marketing strategies 3. On-job training provided to local EESPs in EC&EE project development and implementation 4. Five technical assistance services provided to local EESPs in making bankable project proposals, business plans and in securing financing for SME clients by Year 3.
Actual Outcome 4.3: ⇒ *EESP ability to operate an EC business is enhanced:* *1. One model marketing strategy of Bat Trang Designing & Production Company sent to interested EESPs* *2. Four EESPs (HCM ECC, Bat Trang Production and designing company, Hai Duong EESP, Hatech) have implemented EC marketing tools* *3. Four on-job training programmes on EC&EE provided to 56 staff and 20 EESPs in four selected sectors (brick, ceramic, food-processing and paper & pulp) in the north and south during 2008-09.* 4. *Six technical assistance services (mainly consultation to development of feasibility studies) provided to VSBK and LPG kiln manufacturer*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

This activity provided the necessary knowledge and on-the-job training to EESPs to operate a profitable energy consulting business. Training resources were expended to

assist EESPs in preparing bankable EC studies, provide them with better understanding of a variety of EC technologies, measures and management actions to sustain the investments. This knowledge combined with an EESP marketing strategy provided EESPs with more confidence to market their skills to SMEs and other industries in need of EC investments.

Intended Outcome 4.4*:* ⇒ Model contracts are available to EESPs to sell services to SMEs: 1. 50 EESP contracts for providing energy efficiency services marketed and implemented with SMEs during Year 3 and 5.
Actual Outcome 4.4: ⇒ *Model contracts to deliver EESP services to SMEs completed and executed:* *271 business contracts signed between EESPs and SME following PECSME contract model; three EPC projects signed between ESCO and SMEs following energy performance contracting model*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

In 2009, the Hatech Company of HCMC successfully implemented the EE measures at the Colusa – Miliket Foodstuff Joint Stock Company in HCMC through conducting an investment grade study and completing an EPC contract. The resulting energy savings were much higher than expected; as such, the Colusa-Miliket Company hired Hatech for another EE project for a new production line. EPC contracts from this EC investment became standardized templates for the further use in other EPC projects facilitating another two EPC projects for Hatech in 2010.

Intended Outcome 4.5*:* ⇒ Capabilities of local EC equipment suppliers has been assessed: 1. One completed evaluation report on capabilities of local EE equipment provision 2. One set of recommendations on EE equipment provision development program submitted to MoST
Actual Outcome 4.5: ⇒ *Assessment of local capabilities for EC equipment supply completed:* *1. Evaluation of capabilities of local EC technology suppliers in brick and ceramic sectors prepared by mid-2008;* *2. Recommendation on inclusion of EC&EE technologies into the list of potential EC technologies that will be supported by the National Technology Innovation Fund (NATIF).*

Rating: *relevance:* *S*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

This activity has been valuable in providing guidance to equipment suppliers on the specific EC equipment that would be supported by GoVs EC&EE regulations.

Intended Outcome 4.6: ⇒ Energy performance of locally produced industrial equipment has been evaluated: 1. An evaluation of energy performance of locally produced industrial equipment prepared by end-Year 2; *2.* A report identifying energy performance improvement potential for locally produced industrial equipment completed and submitted to MoST by end-Year 2.
Actual Outcome 4.6: ⇒ *Energy performance of locally produced industrial equipment evaluated:* *1. Evaluation of energy performance of locally produced industrial equipment in brick and ceramic sectors prepared in 2008 that includes identification of energy performance improvement potential for these equipment*

Rating: *relevance:* *S*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

Intended Outcome 4.7*:* ⇒ Technical capacity of local equipment manufacturers and fabricators enhanced: 1. Six manufacturers are either implementing or planning to invest in production of high-energy efficient equipment in the ceramic and brick sectors. 2. One training course on high efficiency equipment design and production technologies for local manufacturers/ fabricators conducted by Year 3;
Actual Outcome 4.7: ⇒ *Technical capacity of local equipment manufacturers and fabricators enhanced:* *1. Five manufacturers that are either implementing or planning to invest in production of high-energy efficient equipment (Bat Trang Production and designing company, Ceratec, Polytee, Quynh Lam JS Brick and Tile Company, and Bat Trang Production, Trade and Design Joint Stock Company).* *2. Two training courses for equipment suppliers in brick and ceramic sectors conducted in December 2008*

Rating: *relevance:* *HS*
effectiveness: *S*
efficiency: *HS*
overall rating: *HS*

Through this activity as well as Activities 4.5 and 4.6, PECSME has managed to ensure that the supply of local EC equipment meets industrial standards. In this regard, PECSME brought in foreign advice to set these standards. For example, a European consultant on ceramic and brick making was brought into evaluate local brick making and ceramic kiln technologies, and provide recommendations on how to improve their performance.

Intended Outcome 4.8*:* ⇒ A research and design (R&D) program is being developed to sustain improvements to EC&EE programs in Vietnam: 1. One recommendation for an R&D program that is supported by local equipment manufacturers/fabricators and submitted to MoST in mid-Year 4.
Actual Outcome 4.8: ⇒ *A national R&D Program for CC response is being developed by MoST and MoNRE:* *1. PECSME provided technical assistance to develop this program that has listed EC&EE priority technologies that will be integrated into the program*

Rating: *relevance:* *S*
effectiveness: *HS*
efficiency: *S*
overall rating: *S*

Two workshops were completed in Hanoi and HCMC to consult with local fabricators and manufacturers to screen and select EC&EE technologies for R&D. This list of 12 EC&EE technologies was approved by MoST for inclusion into the R&D Program for Climate Change response.

2.2.6 Component 5: EC&EE Financing Support Program

Intended Outcome 5.1*:* ⇒ Increased awareness of the banking and finance sector of the benefits of EC&EE projects: 1. Technical service network established and operational by mid-Year 2 for assisting banking and financial institutions evaluate EC&EE projects; 2. Nine banks and financing institutions are providing financial services for EC&EE projects to SMEs by Year 3; 3. Four training courses on risk & benefits and evaluation of EC&EE projects for banking and financial institutions.
Actual Outcome 5.1: ⇒ *Increased awareness of the banking and finance sector of the benefits of EC&EE projects:* *1. A list of engineering experts who can provide the technical evaluations of loan applications was developed for financial institutions;* *2. 11 financial institutions (VEPF, 9 Vietinbank branches and Agribank branches) have been providing loans for EC&EE projects;* *3. Five training courses on risk, benefits and evaluation of EC projects was provided to credit officers from banking and financial sector in 2007 and 2009*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

The training of credit officers from the Vietinbank and VEPF was critical in establishing the relevance of the LGF to loans to the SME sector. The effectiveness of the training

allowed these institutions to commence the initial operations of the PECSME-designed LGF program; the initial operations of the LGF provided valuable experience to Vietinbank, allowing Vietinbank to gauge market demand for the LGF in partnership with the VEPF. To evaluate the technical feasibility of the EC&EE loan applications, these banks were provided with a roster of EC&EE engineering experts that were trained as EESPs through PECSME.

Intended Outcome 5.2*:*

⇒ SME access to finance for EC&EE projects has improved:

1. Three annual roundtable discussions between banks and SMEs are conducted from Year 2;
2. Ten loan contracts are discussed in each round table meeting starting Year 2
3. Two brochures/guides on sources of financing, loan guarantees and bank requirements for EC&EE investments published and circulated to SMEs by Year 2.

Actual Outcome 5.2:

⇒ *SME access to finance for EC&EE projects has improved:*

1. *Ten meetings between banks and SMEs on loans and the LGF*
2. *Barriers for signing loan contracts were removed in round table meetings between banks and SMEs, EESP and PMU staff*
3. *Four brochures on LGF and the Vietinbank loan program for EC&EE investments published and disseminated to SMEs, EESPs and DoST.*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

These meetings were valuable to inform SMEs of the availability of the LGF and financing to them for EC&EE investments. In addition, these meetings also informed SMEs of the support network available to them to properly evaluate and assess their EC&EE investments; this provided SMEs more confidence of EC&EE investments and associated risks.

Intended Outcome 5.3*:*

⇒ An loan guarantee fund mechanism for SMEs for EC&EE investments is mobilized and operational:

1. Loan Guarantee Fund to support EC&EE investments operational by Year 2;
2. Approved guarantee operation regulation by Year 2;
3. A set of project selection criteria for guarantee fund completed and enforced by Year 2;
4. 60 SMEs that received loan guarantee assistance;
5. US$ 2 million of loan guarantee commitments issued from LGF.

Actual Outcome 5.3:

⇒ *An loan guarantee fund mechanism for SMEs for EC&EE investments is mobilized and operational:*

1. *Agreement on LGF signed by MoST, Vietinbank and UNDP in December 2006. The agreement covered operational regulations of the LGF with a first amendment signed in 2008 to adjust multiplier of guarantee fund at 3.0.;*

2. *LGF operational guidelines for Vietinbank approved in May 2007 and disseminated to Vietinbank branches in June 2007. Amendment of the guideline on LGF and Vietinbank lending program completed in March 2009;*
3. *Guideline on LGF operation within Vietinbank branches approved in May 2007 & disseminated to Vietinbank branches through the training workshop in June 2007*
4. *50 SMEs received LGF assistance;*
5. *US$ 2.1 million issued from LGF in LGC.*

Rating: *relevance:* *HS*
effectiveness: *S*
efficiency: *HS*
overall rating: *HS*

The outcomes from this activity demonstrate a high degree of success and high demand for the LGF. The entire LGF amount of US$1.7 million was used to support 50 EC&EE projects with loan guarantees against a target number of 60 SMEs. Informal discussions with a number of SMEs during the mission revealed that many SMEs who wanted loan guarantees could not access the LGF to finance their EC&EE investments. In some jurisdictions such as Phu To province, a number of brick making SMEs had taken loans to convert to the energy efficient VSBK technology in response to a need to comply with local orders for the brick industry to become more energy efficient. Many of the SMEs who did not have access to the LGF borrowed funds by using other family resources for collateral for the loans but are having problems in debt servicing[28].

Intended Outcome 5.4*:*

⇒ SMEs have more access to financial resources from the banking and financial sectors:

1. 80 SMEs received financing from Vietinbank and other financial sources for their EC&EE projects
2. $14 million of loans provided to SMEs from various loan programs and other financial sources
3. Amount of loan repayments received from SMEs (not specific)

Actual Outcome 5.4:

⇒ *SMEs have more access to financial resources from the banking and financial sectors:*

1. *54 SMEs have received finance from the Vietinbank Loan Program and VEPF, of which 50 received LGF support*
2. *US$ 2.32 million (VND 44 billion) loan provided by financial institutions is a supplement to SMEs self investment of $24 million*
3. *$736,842 loan repayments received from SMEs until March 2011.*

Rating: *relevance:* *HS*
effectiveness: *S*
efficiency: *HS*
overall rating: *HS*

A number of SMEs have accessed financing through other sources such as the VEPF and commercial loans. EC&EE investments catalyzed by PECSME activities are in the order of US$ 24 million, far above the US$14 million loan target.

[28] Personal communication with PMU staff

Intended Outcome 5.5*:* ⇒ Financing mechanisms evaluated to improve sustainability of LGF: 1. Two evaluation reports on effectiveness and viability of financing mechanisms by mid-year 3 and mid-year 5. 2. One sustainable financing program proposal by end of Year 5.
Actual Outcome 5.5: ⇒ *Financing mechanisms evaluated to improve sustainability of LGF:* *1. Two completed evaluation reports completed in September 2008 and October 2009* *2. One final recommendation on LGF exit strategy completed in January 2010; the MoST proposal on LGF transfer and management after the completion of PECSME approved by GOV in January 2011; the regulations and guidelines for the post-PECSME LGF management and operation completed*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *S*
overall rating: *HS*

The evaluation reports of the LGF were instrumental in disseminating awareness of the successes of the LGF to the GoV in catalyzing EC&EE investments, and how to handover the LGF to the GoV after the completion of PECSME. The Prime Minister of the GoV has signed a letter of intent to administer the LGF through the MoST under the National Foundation for Science and Technology Development (NAFOSTED). Given the capacity constraints of NAFOSTED at this time and the need to convert operational regulations and guidelines to GoV standards, an extension of the terminal date of PECSME has been requested from June 30, 2011 to September 30, 2011. The stated willingness of the GoV to take over the LGF from PECSME is an outstanding achievement of this project.

2.2.7 Component 6: EC&EE Demonstration and Replication Program

Intended Outcome 6.1*:* ⇒ Potential EC&EE demonstration projects identified through a comprehensive feasibility analyses: 1. 10 investment by mid-Year 1.
Actual Outcome 6.1: ⇒ *Potential EC&EE demonstration project is identified through a comprehensive feasibility analyses:* *1. 12 investment projects selected for demonstration by 2006.*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

Intended Outcome 6.2: ⇒ Demonstration project requirements have been identified: *1.* One set of criteria for selection of demonstration projects by mid-Year 1
Actual Outcome 6.2: ⇒ *Demonstration project requirements have been identified:* *1. One set of criteria for selection of demonstration projects was completed by 2007*

Rating: *relevance:* *S*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

For Outcomes 6.1 and 6.2, EC&EE investment projects were selected on the basis of 2007 guidelines and criterion for the selection and implementation of EC&EE investments. The guidelines provided:

- eligibility criteria of the entrepreneurs;
- the scope of technical assistance to be provided to the entrepreneurs by PECSME, DoST and the financial sector partners;
- industrial sectors to be provided with demonstration assistance based on potential GHG reductions; and
- procedures for demonstration EC&EE projects with and without LGF assistance.

Intended Outcome 6.3*:* ⇒ Barriers to EC&EE demonstration project have been identified and removed: 1. Two companies that have satisfactorily utilized financial assistance for demonstration investment by mid-Year 2
Actual Outcome 6.3: ⇒ *Barriers to EC&EE demonstration project have been identified and removed:* *1. Four companies that have satisfactorily utilized financial assistance for demonstration investment by mid-Year 2008*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

The successful demonstration projects were completed in the brick making and ceramic sectors. Demonstration projects were setup in Bat Trang (near Hanoi) and Binh Duong (near HCMC) with the SMEs hosting the demonstration projects being able to get a loan guarantee from the LGF. These demonstration projects were well-managed and created awareness amongst brick and ceramic SMEs throughout Vietnam.

Intended Outcome 6.4*:* ⇒ Baseline data for demonstration sites collected: 1. 10 approved sets of baseline data for demonstration sites
Actual Outcome 6.4: ⇒ *Baseline data for demonstration sites collected:* *1. 12 approved sets of baseline data for 12 demonstration sites*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

The collection of baseline data for the demonstration projects was comprehensive and prepared by EESPs trained by PECSME programs.

Intended Outcome 6.5*:*

⇒ EC&EE demonstration projects implemented:

1. 10 completed evaluation reports for each demonstration project highlighting operating and economic performance
2. 10 demonstration site owners that are satisfied with the technical assistance provided during facility start-up
3. 10 training sessions for the operating personnel of the 109 demonstration projects
4. 8,000 TOE energy savings from the demonstration sites
5. 53,000 ton CO_2 emission reductions from the demonstration sites

Actual Outcome 6.5:

⇒ *EC&EE demonstration projects implemented:*

1. *12 completed evaluation reports for each demonstration project highlighting operating and economic performance*
2. *12 demonstration site owners that are satisfied with the technical assistance provided during implementation*
3. *12 training sessions for operating personnel at the 12 demonstration projects*
4. *7,712 TOE energy savings from the demonstration sites*
5. *31,942 ton CO_2 emission reductions from the demonstration sites*

Rating: *relevance:* *HS*
effectiveness: *S*
efficiency: *HS*
overall rating: *HS*

Though the energy targets and emission reductions did not meet the original targets, the outcome of this activity is still excellent. Energy savings and CO_2 emission reductions were demonstrated on these projects and showed SMEs that significant operational cost could be reduced notably in the brick and ceramic sectors where energy costs are in the range of 30% to 50% of the SMEs operational costs. For the textile, food processing and pulp & paper sectors, a number of EC measures were demonstrated where the most significant energy cost savings was through boiler retrofits.

The original energy savings and emission reductions targets were overestimated. Regardless, the actual energy saving and emission reductions of the demonstrations catalyzed interest of the SME industrial sector in EC&EE investments. Hence, the outcome of this activity is outstanding.

Intended Outcome 6.6*:* ⇒ Demonstration projects experiences shared with other stakeholders: 1. One evaluation of the operation of the demonstration program completed by end of project 2. 12 national workshops presenting demonstration program results conducted;
Actual Outcome 6.6: ⇒ *Demonstration projects experiences shared with other stakeholders:* *1. Evaluation of demo program completed in September 2008* *2. 15 workshops conducted in combination with Outcome 2.*

Rating: *relevance:* *HS*
effectiveness: *HS*
efficiency: *HS*
overall rating: *HS*

Intended Outcome 6.7*:* ⇒ EC&EE investments in the SME sector has been catalyzed: 1. 80 EC&EE investments through guarantee and energy service delivery mechanism 2. 500 EC&EE replicated with some projects implemented with soft support from PECSME 3. 136.1 ktoe cumulative energy savings from SME EC&EE projects during PECSME 4. 538.8 kton CO_2 emission reductions from SME EC&EE projects during PECSME
Actual Outcome 6.7: *EC&EE investments in the SME sector has been catalyzed:* *1. 54 projects got loan support from various financial institutions* *2. 531 EC&EE replicated out of which 121 projects were implemented with soft support from PECSME* *3. 205.8 ktoe cumulative energy savings from SME EC&EE projects during PECSME* 4. *839.9 kton CO_2 emission reductions from SME EC&EE projects during PECSME*

Rating: *relevance:* *HS*
effectiveness: *S*
efficiency: *HS*
overall rating: *HS*

The successful demonstrations have had a direct influence on the number of EC&EE projects that have been replicated during PECSME. This is an outstanding outcome for the project.

2.2.8 Overall Evaluation of Project

The overall rating of the project results is HS. This is based on the Project achieving its intended outcomes including reduction of GHG emissions from selected industrial sectors, the successful removal of knowledge, regulatory and financial barriers to EE in the selected industrial sectors, and the strengthening of local capacity to train and support the promotion and implementation of EE&EC projects in Vietnam. A summary of ratings for all outcomes is provided on Table 3.

Project Outcome	Relevance	Efficiency	Effective-ness	Overall Rating
Outcome 1: **Improved EC&EE policy and institutional capacity**	**HS**	**HS**	**HS**	**HS**
Outcome 1.1: Improved EC&EE awareness and capacity on EC&EE issues and policy development within the GoV	HS	HS	HS	HS
Outcome 1.2: Incentive policies for supporting EC&EE Investment in SMEs developed	HS	HS	HS	HS
Outcome 1.3: EC&EE policies have been incorporated into the National SME Development program through technical assistance provided to SMEPC and SMEDD as a part of the National SME Development Support Program	HS	HS	HS	HS
Outcome 1.4: EC&EE coordinating agencies in the SME sector and provincial technical support networks are established and operational	S	HS	S	S
Outcome 1.5: MoNRE capacity is improved in modifying environmental standards related to GHG emissions	S	S	S	S
Outcome 2: **Enhanced SME and public awareness of EC&EE**	***HS***	***HS***	***HS***	***HS***
Outcome 2.1: Communications strategy developed	HS	HS	HS	HS
Outcome 2.2: An information dissemination network has been established and the capacity of the organizations involved with the network has been strengthened	HS	S	HS	HS
Outcome 2.3: Awareness of SME and general public on EC&EE assessed	S	HS	HS	HS
Outcome 2.4: SME energy-use database developed	HS	HS	HS	HS
Outcome 2.5: EC&EE information disseminated to SMEs through the network	HS	HS	HS	HS
Outcome 2.6: EC&EE public awareness enhanced through advocacy and awareness campaigns	HS	S	HS	HS
Outcome 2.7: SME interest in carrying out EC&EE projects has been raised	HS	HS	HS	HS

Project Outcome	Relevance	Efficiency	Effective-ness	Overall Rating
***Outcome 3*: SME and EESP capacity has been enhanced to implement EE&EC projects.**	***HS***	***S***	***HS***	***HS***
Outcome 3.1: Local trainers are able to train others to become EC&EE trainers	HS	S	HS	HS
Outcome 3.2: SME knowledge on the benefits of EC&EE has improved	HS	HS	HS	HS
~~**Outcome 3.3**: Sustainable EC&EE training programs developed for relevant universities and colleges~~ ***Activity dropped***	Unable to rate	Unable to rate	Unable to rate	Unable to rate
Outcome 3.4: Training program has been improved based on recommendations of evaluations	S	S	S	S
Outcome 3.5: Capacity to conduct of energy audits is strengthened	HS	HS	HS	HS
***Outcome 4*: Growth of competitive and sustainable EE services provision industry through enhanced business, engineering and financial skills of EESPs**	**HS**	**HS**	**HS**	**HS**
Outcome 4.1: EESP training program completed	HS	HS	HS	HS
Outcome 4.2: An institutional and legal framework for EESPs has been developed	HS	HS	HS	HS
Outcome 4.3: EESP ability to run an EC business is enhanced	HS	HS	HS	HS
Outcome 4.4: Model contracts are available to EESPs to sell services to SMEs	HS	HS	HS	HS
Outcome 4.5: Capabilities of local EC equipment suppliers has been assessed	S	HS	HS	HS
Outcome 4.6: Energy performance of locally produced industrial equipment has been evaluated	S	HS	HS	HS
Outcome 4.7: Technical capacity of local equipment manufacturers and fabricators enhanced	HS	S	HS	HS
Outcome 4.8: A research and design (R&D) program is being developed to sustain improvements to EC&EE programs in Vietnam	S	HS	S	S
Outcome 5*: *Increased willingness of the banking and finance sector to provide loans to SMEs for EC&EE	**HS**	**HS**	**HS**	**HS**

Project Outcome	Relevance	Efficiency	Effective-ness	Overall Rating
projects				
Outcome 5.1: Increased banking and finance sector awareness of the benefits of EC&EE projects	HS	HS	HS	HS
Outcome 5.2: SME access to finance for EC&EE projects has improved	HS	HS	HS	HS
Outcome 5.3: An operational loan guarantee fund mechanism for SMEs for EC&EE investments	HS	S	HS	HS
Outcome 5.4:. SMEs access to financial resources from the banking and financial sectors has improved	HS	S	HS	HS
Outcome 5.5: Financing mechanisms evaluated to improve sustainability of LGF	HS	HS	S	HS
Outcome 6: **Increased credibility of EC&EE through successfully implemented and evaluated demonstration projects**	**HS**	**HS**	**HS**	**HS**
Outcome 6.1: Potential EC&EE demonstration projects identified through a comprehensive feasibility analyses	HS	HS	HS	HS
Outcome 6.2: Demonstration project requirements have been identified	S	HS	HS	HS
Outcome 6.3: Barriers to EC&EE demonstration project have been identified and removed	HS	HS	HS	HS
Outcome 6.4: Baseline data for demonstration sites collected	HS	HS	HS	HS
Outcome 6.5: EC&EE demonstration projects implemented	HS	S	HS	HS
Outcome 6.6: Demonstration projects experiences shared with other stakeholders	HS	HS	HS	HS
Outcome 6.7: EC&EE investments in the SME sector has been catalyzed	HS	S	HS	HS
Monitoring and Evaluation	HS	HS	HS	HS
Overall Rating				**HS**

Box 1 Demonstration and Replication of LPG Kilns for Ceramics Industry, Bat Trang Ceramics Village

Bat Trang Ceramics village is located 13 km southeast of Hanoi along the left banks of the Red River. For over 1,000 years, the area has been a major producer of ceramics with a reputation for producing excellent quality ceramic products. During the 16th century, the community gradually shifted to the manufacture of decorative ceramics. Wood biomass was the preferred source of fuel for the industry until the 1970s when there was a realization that this practice was causing deforestation. During the 1975-1985 period, coal was used for ceramics in Bat Trang in open pits where energy efficiencies were in the order of 7%. There are anecdotes of a different environmental condition during this period including warmer temperatures and poor air quality.

In 1995, there were an estimated 1000 ceramics kilns fired by coal. The first LPG kiln for ceramics in Bat Trang was in 1995 by Huynh Huong Ceramics. The LPG kiln was imported from Japan for US$35,000 for a 1.0 m^3 kiln, a hefty sum for most ceramics businesses. The impact of this kiln was a demonstration of the effectiveness of a closed kiln. From 1996 to 2006, an estimated 200 ceramic businesses built their own LPG kilns, none of them with the same efficiency of the Japanese kiln. Likely for proprietary reasons, none of the information amongst the different kiln owners was shared; it is noteworthy that may of these 200 kiln owners are not classified as SMEs. Today, only five open coal kilns are still operating in Bat Trang.

In 2004, Mr. Le Duc Trong successfully developed an LPG kiln for the ceramics industry as well as design a system for reusing excess heat from the LPG kiln for drying purposes with assistance from experts of Ha Noi University of Technology hired by PECSME during PDF B. Mr. Trong's design allowed GoV with the assistance of PECSME, to set technical standards for the purposes of transforming the ceramics kilns of Bat Trong. Once again, Huynh Huong Ceramics provided the efficient LPG kiln demonstration. In 2006, there were 300 coal kilns operating in Bat Trang. Since the Huynh Huong demonstration in early 2007, over 120 LPG kilns have been installed in Bat Trang, of which 30 SMEs got LGF support for loan provision. PECSME was able to train and promote Mr. Trong and his colleagues as energy efficiency service providers (EESPs) to the various ceramics SMEs. Today, there is a very high demand for LPG kilns in the cost range of US$20,000 to $50,000. There are still over 40 SMEs ***applying*** for financing and supply of an LPG kiln in Bat Trang (for shifting from inefficient LPG kilns to high efficiency LPG kilns supplied by Mr. Trong). Mr. Trong is currently servicing more than 25 ceramics SMEs throughout Vietnam (Binh Duong and Dong Nai) to convert to LPG.

The success of the Huynh Huong Ceramics LPG kiln demonstration was due to the ability of PECSME to demonstrate reduced energy consumption and operating costs, significant improvements on product quality and production efficiency and the location of the demonstration within a ceramics community, where the comprehension of the benefits of LPG kilns are better understood.

Source: Personal communication with Office of the People's Committee of Bat Trang, September 17, 2008 and April 16, 2011.

3. SUSTAINABILITY OF PROJECT OUTCOMES

In assessing Project sustainability, we asked "how likely will the Project outcomes be sustained beyond Project termination?" Sustainability of these objectives was evaluated in the dimensions of financial resources, socio-political risks, institutional framework and governance, and environmental factors, using a simple ranking scheme:

- *Likely (L):* very likely to continue and resources in place;
- *Moderately Likely (ML):* model is viable, but funding or resources may not be in place;
- *Moderately Unlikely (MU):* model is not viable or needs changing; and/or resources not in place; and
- *Unlikely (U):* model is not viable and resources are not in place.

The evaluation for sustainability is shown on Table 2. The Table provides a rating of the project design and viability going forward, including availability of budget and resources for continuation.

The overall Project sustainability rating is L. This rating is primarily based on:

- The GoVs policies for supporting EC&EE for SMEs and funding for institutional support to promote EC&EE at provincial levels through DoST, DoIT and ECCs/TTCs;
- Plethora of information available on EC&EE issues in Vietnam as well as a high level of public and SME awareness on the benefits of EC&EE;
- The continued growth of a competitive and sustainable energy efficiency service industry in Vietnam to assist SMEs and large industry in implementing EC&EE investments;
- The formation of the prominent "Vietnam Energy Conservation and Energy Association" (VECEA) that is funded by large industry, industrial SMEs, EESPs, ESCOs, financial institutes and various government agencies through memberships. The VECEA will serve as a focal point after the completion of PECSME for:
    - foreign EC technology suppliers and service providers coming to Vietnam;
    - training programs on EC&EE issues and investments;
    - technical and financial advice on EC&EE for members; and
    - the setup of demonstration projects;

- The migration of LGF operations to the MoST at the request of the GoV who wish to see the continued operation of the LGF after the completion of PECSME.

Table 2: Assessment of Sustainability of Outcomes

Actual Outcomes (as of March 2011)	Assessment of Sustainability	Dimensions of Sustainability
Objective 1: Improve EC&EE Policy and Institutional capacity.		
Actual Outcome 1: Improved EC&EE policy and institutional capacity.	• *Financial Resources:* Central and provincial government resources have been allocated to sustain government support for EC&EE investments in Vietnam. This includes resources allocated to DoST and DoIT to support technical support networks (such as ECCs and TTCs who promote and facilitate sustained EC investments by SMEs) and EE labeling; • *Socio-Political Risks:* Risks are low as the Central and Provincial governments strongly support EC initiatives to the extent that EC has been mandatory for some EC sectors such as EC in brick making in Phu Tho, Hai Duong Provinces; • *Institutional Framework and Governance:* GoV is setup institutionally to promote EC&EE policy as shown in Figure 1. Each ministry covers the important aspects of the EC&EE programs of Vietnam including training, due diligence of technology and knowledge imports, EE policy advancement and SME finance. Moreover, EC&EE policies have been incorporated into the National SME Development Support Program that is managed through MoPI. Capacity within the MoPI, MoIT, MoST and MoF has been strengthened to manage EC&EE issues. • *Environmental Factors:* Policies contribute towards greater energy security for Vietnam and the reduction of GHG and other harmful emissions from industry. ***Overall Rating***	L L L L **L**
Objective 2: Enhance SME and public awareness of EC&EE		
Actual Outcome 2: SME and public awareness of EC&EE has been enhanced	• *Financial Resources:* Similar to fiscal resources for sustaining policy and institutional support for EC&EE, central and provincial government fiscal resources are being allocated to DoST and DoIT to support	L

Table 2: Assessment of Sustainability of Outcomes

Actual Outcomes (as of March 2011)	Assessment of Sustainability	Dimensions of Sustainability
	information dissemination networks (such as ECCs and TTCs who promote and raise awareness of EC investments for SMEs). In addition, the Project has developed a number of EESPs and ESCOs who should have the fiscal resources to continue promotion of EC&EE investments from profits that they generate from implementing EC projects for SMEs; • *Socio-Political Risks:* Risks are low since the GoV strongly supports the promotion of EC&EE for the national interest. In addition, SMEs are also realizing that implementing EC&EE investments will generate significant reductions in energy costs and may even assist in the enhancement of their brands (by advertising that their products were made in an environmentally responsible manner). This is proven by over 596 SMEs have registered for assistance from ECCs/TTC under DoSTs and EESPs to implement EC&EE projects • *Institutional Framework and Governance:* DoST and DoIT are the main government agencies responsible for the promotion of EC&EE issues at the provincial levels. Through their ECCs and TTCs, EC&EE awareness raising can be more effectively tailored to the local provincial centers; • *Environmental Factors:* Awareness raising programs contribute towards greater energy security for Vietnam and the reduction of GHG and other harmful emissions from industry. ***Overall Rating***	L L L **L**
Objective 3: Enhance SME and EESP capacity to implement EE&EC projects		
Actual Outcome 3: SME and EESP capacity has been enhanced to implement EC&EE projects	• *Financial Resources:* Annual financial resources are being committed to enhance the capacity of SMEs and EESPs to implement EC&EE projects. Two sources of fiscal resources will come from: 1) National Target Program on EC&EE; 2) membership fees to the newly formed "Vietnam Energy Conservation and Energy Association" (VECEA), an organization whose members are comprised of SMEs, EESPs, ESCOs and large industry. VECEA will be dedicated to enhancing SME and EESP capacity to implement EC&EE projects. In addition, GoV resources are available to provide training sessions on new EC&EE	L

Table 2: Assessment of Sustainability of Outcomes

Actual Outcomes (as of March 2011)	Assessment of Sustainability	Dimensions of Sustainability
	technologies through the "Assistance Center for SMEs", implemented and managed by MoPI • *Socio-Political Risks:* With strong GoV support through its policies for EC&EE, SMEs and EESPs have strong business incentives to embrace EC&EE for their businesses and clients; • *Institutional Framework and Governance:* DoST and DoIT are the main government agencies responsible for the enhancing the capacity of SMEs and EESPs at the provincial levels. Through ECCs at the provincial level and linkages of the project to the MoPIs "Assistance Center for SMEs", capacity building programs for SMEs and EESPs will be sustained; • *Environmental Factors:* Capacity building programs for SMEs and EESPs contribute towards greater energy security for Vietnam and the reduction of GHG and other harmful emissions from SME industries. ***Overall Rating***	L L L **L**
Objective 4: Enhance business, engineering and financial skills of EESPs for the growth of competitive and sustainable EE services provision industry		
Actual Outcome 4: Growth of competitive and sustainable EE services industry through enhanced business, engineering and financial skills of EESPs	• *Financial Resources:* Large industry, SMEs, EESPs and ESCOs are financing the VECEA through membership fees to sustain the growth of EESPs and ESCOs to service SMEs as well as large industry to implement EC&EE projects. In addition, GoV resources are available through the National Target Program on EC&EE managed by MOIT (for ESCO financing and EESP training during Phase II) and the "Assistance Center for SMEs", implemented and managed by MoPI (for SME training only); • *Socio-Political Risks:* Some of the EESPs were formerly ECCs and TTCs supported by provincial government budgets. A number of these ECCs are transitioning to become private sector entities; as such, there are challenges for these personnel in terms having to promote their own business in comparison to being supported by the state. The continuing evolution of these ECCs and TTCs into private sector EESPs or ESCOs will have strong GoV support through its EC&EE	L L

Table 2: Assessment of Sustainability of Outcomes

Actual Outcomes (as of March 2011)	Assessment of Sustainability	Dimensions of Sustainability
	policies supporting the growth of EESPs and ESCOs; • *Institutional Framework and Governance:* Similar to Outcome 3, DoST and DoIT are the main government agencies responsible for the creating demand for EESP services that are more effectively promoted at the provincial level. Further support for EESP and ESCO growth will come from EESP and ESCO linkages to the National Target Program on EC&EE managed by MOIT, which provide institutional support for the training of EESPs and ESCOs; • *Environmental Factors:* Sustained growth of the EE services industry will contribute towards greater energy security for Vietnam and the reduction of GHG and other harmful emissions from SME industries. ***Overall Rating***	L L **L**
Objective 5: Improve access for SMEs to financing for EC&EE projects		
Actual Outcome 5: Increased willingness of the banking and finance sector to provide loans to SMEs for EC&EE projects	• *Financial Resources:* Vietinbank recognizes the successes and limitations of the PECSME LGF. To this end, Vietinbank is currently working with PECSME and NAFOSTED on new operational rules for a post-PECSME LGF and will increase the size of the LGF that will increase the number of loan guarantees it can provide to SMEs for EC&EE investments; • *Socio-Political Risks:* Risks are low since there is high SME demand for loan guarantees (a number of SMEs interviewed during the FE mission were not able to obtain loan guarantees due to the LGF being over-subscribed). In addition, the GoV is also taking over the management of the LGF from UNDP after the completion of PECSME indicating its willingness to support the continuation of the LGF as a catalyst for EC&EE investments with the SME sector; • *Institutional Framework and Governance:* The GoV has stated that the MoST will take over management of the LGF from UNDP after the completion of PECSME. LGF management will be under their NAFOSTED agency. The main reasons for the delay in the completion of PECSME to September 30, 2011 is the GoV request to provide a thorough transfer of knowledge and new administrative procedures to NAFOSTED personnel on the LGF;	L L L

Table 2: Assessment of Sustainability of Outcomes

Actual Outcomes (as of March 2011)	Assessment of Sustainability	Dimensions of Sustainability
	• *Environmental Factors:* Increased access for SMEs to financial resources for EC&EE investments will contribute towards greater energy security for Vietnam and the reduction of GHG and other harmful emissions from SME industries. ***Overall Rating***	L **L**
Objective 6: Setup demonstration projects to increase the credibility of EC&EE projects		
Actual Outcome 6: Increased credibility of EC&EE through successfully implemented demonstration projects	• *Financial Resources:* NAFOSTED and the Technology Innovation Fund managed by MoST will serve as a primary source of finances for demonstrating new EC technologies and demonstration projects in the future; • *Socio-Political Risks:* Similar to Outcomes 3 and 4, there is strong GoV support through its EC&EE policies that will support the growth of the EE services industry through EESPs and ESCOs; • *Institutional Framework and Governance:* DoST and DoIT are the main government agencies responsible for the supporting demonstration projects that are more effective at the provincial levels. Through ECCs at the provincial level and linkages of the project to the MoPIs "Assistance Center for SMEs", demonstration projects implemented by the ECEEA will be sustained; • *Environmental Factors:* Successfully managed demonstration projects will contribute towards greater energy security for Vietnam and the reduction of GHG and other harmful emissions from SME industries. ***Overall Rating***	L L L L **L**
	Overall Project Sustainability:	**L**

4. REPLICABILITY OR CATALYTIC ROLE

PECSME has been the catalyst for SME EC&EE investments in Vietnam. When the project commenced in 2006, SMEs were not a part of the formal national industrial economy; they were loosely regulated allowing the sector to operate on the margins using second-hand technologies and inefficiently consuming fossil fuels, amongst which coal was the primary fuel. As such, SME awareness of EC&EE was almost non-existent. Government policies to regulate their energy use were weak, and financial institutions deemed SMEs to be a high financial risk; hence, SMEs had no access to financial resources to finance EC.

Today, these issues are not impediments to SME EC&EE investments. PECSME activities have managed to influence government policy makers and SME owners into supporting and implementing EC&EE investments in Vietnam. This has led to a high rate of replication of PECSME demonstrations, mainly in the brick and ceramic industry sectors:

- *Brick sector.* Replication in the brick sector has been very successful. Investment into energy efficiency in this sector has been over US$ 23.5 million into 210 EE demonstration and replication brick kilns (mostly VSBKs) that have been constructed since the 2007 VSBK demonstrations in Phu Tho province in the North and Binh Duong Province in the South (northwest of HCMC). A total of 58 VSBKs have been developed within 3 years in Lam Thao district, Phu Tho province. This district is a model for other districts and provinces learning to develop a sustainable brick making industry. Replication and impact projects have been well supported through the emergence of EESP service companies through Viet Nam: 95 VSBKs projects in Hai Duong, 31 VSBK projects in Dac Lac province. Moreover, brick entrepreneurs had ample incentives due to the actual energy savings of the VSBK, the improvements in brick quality, improved rates of brick production and environmental improvement. Lastly, additional funding for VSBKs was made available by the National Environmental Protection Fund in the form of a soft loan provision and local governments in the form of subsidies[17]. The catalytic role of PECSME in VSBKs was significant and was a key factor in not allowing new traditional brick kilns in 2011 in Phu Tho Province.

- *Ceramic sector*. Replication and impact projects have been successful in the ceramics sector with over 133 LPG kilns at an investment cost of US$ 2.9 million. Reasons for this success includes well-managed demonstration projects, well-designed dissemination activities, stakeholder recognition of improved production and profitability, and the availability of finance (either through various SME banking schemes or equity). The catalyst for EE ceramic kiln investment has been Mr. Le Duc Trong, a beneficiary of PECSME training and the champion of EE investments in the ceramic sector in Vietnam. Since 2006, he has been operating a successful EESP, the Bat Trang Consulting and Design Service Company to disseminate an LPG kiln and other EC measures to the Bat Trang ceramics community as well as other ceramic industry clusters around Vietnam. Due to the successes of demonstrations in Bat Trang, the transformation of this production village has been

[17] Local government subsidies differ between provinces; Binh Duong province provided for each VSBK VND 30 million (USD 1,800) while the local government of Hai Duong provided a subsidy of only VND 7 million (USD 420) for each VSBK.

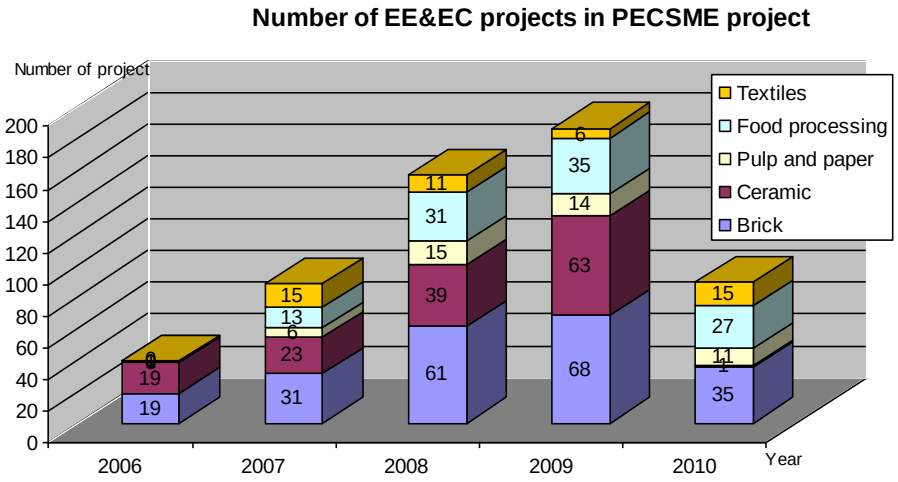
astounding. Replication of the EE kiln demonstrations has been high given the ease of other ceramic SMEs to view the demonstrations and other PECSME supported projects in the ceramics village.

- *Pulp and paper sector.* The main impacts of PECSME demonstrations in this sector have been the installation of efficient boilers and steam recovery. High investment costs and perceived opportunity costs from the shutdown of production lines were some of the barriers in implementing the EE project at pulp and paper factories. EESPs and ESCOs have played a critical role in advising pulp and paper SMEs in replacing old boilers with efficient boilers. With two successful demonstration projects in 2007, pulp and paper replication projects have increased rapidly since 2008 with 42 replication projects and 2 impact projects. The provincial ECCs, especially the Danang EEC, have played a pivotal role in promoting EC&EE in this sector;

- *Food processing.* Similar to the pulp & paper sector, EC&EE investments in the food processing sector have been catalyzed after 2008. EESPs and ESCOs (many of whom were beneficiaries of PECSME training courses) along with the provincial ECCs have also played critical roles in designing EC measures for food processing SMEs. The Hatech Company of HCMC has successfully implemented the EE measures at the Colusa – Miliket Foodstuff Joint Stock Company through conducting an investment grade study and completing an EPC contract. The energy savings from the Colusa-Miliket EC investment was much higher than expected to the extent that Colusa-Miliket is hiring Hatech for another EE project for a new production line. PECSME activities in this sector have catalyzed another 107 EC investments in the food processing sector;

- *Textiles.* The EC demonstration at the Tin Thanh Textile Company in Hanoi did not catalyze EC investments in the textile sector, nor were there many replications. Since the EC measures consisted of a number of very small measures including efficient lighting, use of natural lighting through roofing modifications, and use of capacitors to regulate current into older motors, the demonstration lacked the "visibility" required to generate widespread replication and investment interest. The potentially most visible measure in the textile sector is steam recovery from a textile steam machine; some locations did not install these units due to lack of available space in the factory. The Danang EEC implemented an EE project at 29 March Textile Company with total investment cost of 1.96 billion VND since 2008. There were issues regarding the measurement of the actual energy saved from these measures. As a result, a number of textile SMEs are likely using their own funds to implement EC measures as indicated by the lower numbers of direct projects (30) and indirect projects (15).

Figure 3: Number of EC&EE Projects Developed during PECSME (as recorded in PECSME database)



The reason for the decrease in the number of implemented projects in 2010 is due to incomplete data collection by PMU for 2010. The latest information, however, indicates more than 50 VSBKs and 25 LPG kilns have been installed in 2010. As such, this illustrates the growth trend of EC&EE projects under the influence of PECSME.

5. ASSESSMENT OF MONITORING & EVALUATION SYSTEMS

5.1 M&E during Project Implementation

Monitoring and Evaluation during PECSME has been highly satisfactory. Quarterly Workplans (QWPs) were used to identify project risks; risk assessments in the PIRs were quoted from ATLAS with inputs from the QWPs and the QPRs. PMU personnel have been diligent in identification of risks in all PIRs. Information inputs into the PIRS included numerous reports on specific activity plans, activity implementation reports and evaluation reports. Examples of topics covered in these reports included policy formulation, training needs assessments, LGF design and evaluation, baseline scenarios of demonstration projects, component mid-term evaluations, study tour outcomes, training effectiveness, and implementation reports for demonstration projects. A complete list of reports reviewed by the FE team is provided in Appendix C.

While the original 2004 log-frame of PECSME is lengthy and too detailed, the PMU made some changes based on the mid-term evaluation to consolidate the log-frame activities to increase its effectiveness as a monitoring tool. However, further consolidation should have been made to avoid unnecessary M&E work. The revised 2008 log-frame was used with some language changes to evaluate PECSME outcomes as provided in Section 2.2 of this evaluation report.

Ratings of the Project's Monitoring and Evaluation system[18] are as follows:

- *Quality of M&E design – HS*. This is mainly due to the fact that the log-frame for PECSME was quite detailed and effective in monitoring project progress;
- *Quality of M&E implementation – HS*. This is based on the quality of PIRs and APRs provided to the Evaluation Team.

5.2 Monitoring Long Term Changes

The overall purpose of the PECSME system has been to monitor the effectiveness of PECSME in assisting the GoV to develop EC&EE initiatives with SMEs, strengthening the relevant regulatory framework, tracking training programs for SMEs and GoV officers on EC&EE, tracking EC&EE project implementation and the LGF. As such, the 2008 log-frame served this purpose and could be used for subsequent EC&EE projects.

With respect to monitoring long-term changes from PECSME projects and replication projects, the PMU adopted a 2008 recommendation from the FE to setup an information management system that systematizes the collection of EC&EE project information. The PECSME database reduces the complexity and work required to track progress of over 550 EC&EE projects throughout Vietnam. More importantly, the database has information

[18] HS or Highly Satisfactory: There were no shortcomings in the project M&E system;
S or Satisfactory: There were minor shortcomings in the project M&E system,
MS or Moderately Satisfactory: There were moderate shortcomings in the project M&E system;
MU or Moderately Unsatisfactory: There were significant shortcomings in the project M&E system;
U or Unsatisfactory: There were major shortcomings in the project M&E system; HU or Highly Unsatisfactory: The Project had no M&E system

on the SME, its baseline energy consumption, energy usage and GHG emissions after the EC&EE investment, and project costs. The database uses a Microsoft Access platform, is user-friendly and easily provides reports.

The PMU informed the Evaluation team that the GoV has requested the transferal of the database to MoST and MOIT to allow the Government to continue tracking the long-term progress of SME EC&EE investments and their energy performance. MoST are planning to assign a dedicated M&E officer to maintain and populate the database.

6. ASSESSMENT OF PROCESSES AFFECTING PROJECT OUTCOMES AND SUSTAINABILITY

6.1 Preparation and Readiness

The PECSME project design from the 2004 PDF B Phase was well prepared and comprehensive with realistic and attainable project outcomes and outputs. The roles and responsibilities of all government institutions were clear with counterpart funding to meet project objectives. The quality of these preparations has had a positive effect on implementation of the project.

6.2 Country Ownership and Drivenness

To a significant extent, Project outcomes have been attained with strong ownership and drivenness of the Vietnamese government. Evidence supporting this statement includes:

- Excellent working relationship between the PMU, MoST, MoIT as well as MoPI. The excellent working relationship has resulted in PECSME being able to claim that it has assisted the GoV officers in EC&EE policy formulation and raising awareness of EC&EE issues;
- Passing of an EC&EE law in June 2010 as well as a number of related decrees and circulars;
- Co-financing support of the GoV towards the provincial levels of the DoST, DoIT and their ECCs to assist in promoting and more effectively providing technical assistance to SMEs;
- Continued GoV support of PECSME outputs after completion of the Project. This includes:
    - GoV support of the "Vietnam Energy Conservation and Efficiency Association" (VECEA) that will be the national focal point of EC&EE initiatives in Vietnam after the completion of PECSME. Both the MoST and MoIT are to be intricately involved in the activities of the VECEA including modest amounts of financing;
    - The takeover of LGF administration by MoST (under NAFOSTED) at the request of the Prime Minister of Vietnam.

6.3 Stakeholder Involvement

With Vietnam moving from a centrally planned to a market-based economy, stakeholder involvement of appropriate government and private sector personnel has been a key to the success of PECSME. This included MoST and MoIT devolving its activities to the provincial levels (with DoST and DoIT-funded ECCs/TTCs and Industrial Promotion Centers) where private enterprise and relevant technical institutes throughout Vietnam were consulted throughout the development and implementation of the Project. Through workshops and informal meetings, stakeholder involvement was expanded to include emerging energy professionals, EESPs and ESCOs; this was sustained throughout the entire duration of PECSME.

6.4 Financial Planning

Financial controls of the Project were satisfactory. Table 4 presents an overview of expenditures of the GEF contribution to the budget from 2005. Expenditures to March 31, 2011 were an estimated to be USD 5.222 million out of a total budget of USD 5.469 million. In general, more GEF funds were spent on Activity 3 (EE Technical Capacity Development) and Activity 5 (EC&EE Financing Support). As of March 31, 2011, more than USD 5.22 million or 95% of PECSME's budget has been disbursed.

6.5 Supervision and Backstopping by UNDP

Supervision and backstopping efforts by UNDP Vietnam and the UNDP-GEF Regional office in Bangkok were satisfactory. Their interventions were minimal given that the project was well-managed and exceeding targets.

6.6 Co-Financing and Delays

The Project co-financing amounts were USD 34.52 million, USD 11.22 million over the 2004 co-financing budget of USD 23.30 million. The additional finance was mainly SME equity finance of EC&EE investments in the brick and ceramic sectors, and to a lesser extent, the food processing and textile industrial sectors. The co-financing has also had a direct effect on achieving and exceeding the intended Project targets for replication of PECSME demonstrations and catalyzing sustained growth of EC&EE projects in Vietnam. PECSME co-financing is summarized on Table 5.

Delays in the project completion date of December 2010 are mainly due to the GoVs request to provide additional effort and time up to handover LGF management to GoV under the MoST administered agency, NAFOSTED. The original terminal date requested was June 30, 2011. During the FE, the PMU requested the terminal date be extended to September 30, 2011 to accommodate additional capacity building to MoST personnel on the LGF. Further details of the extension of the PECSME project to September 30, 2011 are provided in Section 7.2 under Recommendations.

Table 4: Project Budget and Expenditures for 2005-2011 (in USD as of March 31 2011)

Activity	2005	2006	2007	2008	2009	2010	2011 (up to 31 Mar2011)	Total Disbursed	Total Planned for Project	Total Remaining
Activity 1- EC&EE Policy and Institutional Support Development Program		75,628.20	70,029.20	96,366.60	68,142.92	89,866.57	3,929.56	403,963.05	330,913.18	(73,049.87)
Activity 2- EC&EE Communication and Awareness Program		81,802.00	106,587.50	188,596.90	104,975.89	102,603.46		584,565.75	501,283.10	(83,282.65)
Activity 3- EC&EE Technical Capacity Development Program		44,625.10	99,976.50	84,562.10	57,748.36	36,618.18		323,530.24	447,361.50	123,831.26
Activity 4- Energy Efficiency Services Provision Support		839.70	43,616.70	227,634.20	64,377.63	84,585.79		421,054.02	399,362.50	(21,691.52)
Activity 5- EC&EE Financing Support Program		353,040.10	715,309.10	745,280.70	59,023.15	46,488.55	20,220.16	1,939,361.76	2,214,683.99	275,322.23
Activity 6- EC&EE Technology Demonstration		58,569.20	91,842.90	177,364.50	124,011.96	138,486.55		590,275.11	637,430.16	47,155.05
Activity 7- Management	64,918.30	77,032.51	122,021.44	218,547.26	188,317.36	162,736.48	57,989.41	891,562.76	848,601.07	(42,961.69)
Activity 8- Monitoring and Evaluation	10,264.20	7,523.50	13,095.20	18,613.40	1,890.57	16,342.65		67,729.52	89,364.50	21,634.98
TOTAL	**75,182.50**	**699,060.31**	**1,262,478.54**	**1,756,965.66**	**668,487.84**	**677,728.23**	**82,139.13**	**5,222,042.21**	**5,469,000.00***	**246,957.79**

* There is also an additional USD 25,000 available in the PECSME budget from interest income generated from the LGF. This will be used for training GoV officers in the administration of the LGF under NAFOSTED.

Table 5: Co-Financing and Leveraged Resources (in USD as of March 31 2011)

Co financing (Type)	IA own Financing (mill US$)		Multi-lateral Agencies (Non-GEF) (mill US$)		Bilateral Donors (mill US$)		Central Government (mill US$)		Local Government (mill US$)		Private Sector (mill US$)		NGOs (mill US$)		Total Financing (mill US$)		Total Disbursement (mill US$)	
	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual
Grant															**0.00**	**0.00**	**0.00**	**0.00**
Credits															**0.00**	**0.00**	**0.00**	**0.00**
Loans							1.00	1.26*			18.10	1.03**			**19.10**	**2.29**	**0.00**	**0.00**
Equity							0.60	0.64	1.00	1.64	1.00	28.86***	0.50	0.43	**0.00**	**0.00**	**3.10**	**31.57**
In-kind							0.50	0.45	0.60	0.21					**0.00**	**0.00**	**1.10**	**0.66**
Non-grant Instruments															**0.00**	**0.00**	**0.00**	**0.00**
Other Types															**0.00**	**0.00**	**0.00**	**0.00**
TOTAL							2.10	2.35	1.60	1.85	19.10	29.89	0.50	0.43	**19.10**	**2.29**	**4.20**	**32.23**

Notes:

* Loan provided by VEPF

** Loan provided by Vietinbank

*** Investment by SMEs

7. LESSONS AND RECOMMENDATIONS

7.1 Lessons Learned

- *The success of PECSME is mainly a function of its quality of preparation*. In this case, a high quality project design was produced in 2004 under a PDF B grant of more than USD 300,000. These PDF B resources were used to collect data to establish an accurate baseline, identify key stakeholders (MoIT and MoST) and effectively engage these stakeholders as an integral part of the project. The outcome of this was a project document with realistic project objectives and achievable outcomes. Implementing agencies such as UNDP must manage project preparations to realize the outcome of better quality project designs given the current trends of GEF in lowering project preparation costs. UNDP may need to consider co-financing some of the baseline surveys and stakeholder engagement activities or obtain an agreement that GEF increases or covers the full cost of project preparations.

- *For policy support, donor projects should support new policies from the central government that have strong linkages with the national policy framework and can be implemented at local levels of government.* For EC policies on PECSME, provincial governments were required to provide approvals for a number of EC investment proposals. The ability of the GoV to implement central government policies from the central level to provincial levels demonstrated strong GoV drivenness and support to implement EC investments. Without this strong support, there would be difficulties in raising financing for EC investments for SMEs;

- *Capacity building programs for EC and the energy sector in general need to be holistic in approach.* The design capacity building programs of PECSME contained all the elements required to induce investors and SMEs into implementing EC projects. At the commencement of PECSME in 2005, knowledge and awareness of EC&EE issues was poor. The holistic design of EC capacity building activities of PECSME contained the following essential elements:

    - *Awareness raising*. The Project had raised awareness of EC&EE issues during the entire duration of PECSME. The awareness raising needed to be strategically targeted to ensure knowledge with policymakers to SMEs to the general public and wider audiences on official government policies;
    - *Technological familiarization*. For the industrial sectors involved with PECSME, stakeholders were provided with technical details of various EC technologies and measures as well as their estimated energy savings;
    - *Financial benefits*. SMEs and investors were more aware of the reduced energy costs related to EC&EE investments. For some SMEs, energy costs are as high as 40% of their operational costs;
    - *Strengthening the supportive regulatory framework*. The Project assisted the GoV to strengthen the appropriate regulatory regime to ensure higher rates of adoption of EC&EE measures;
    - *Risk assessment*. This is an important aspect for EC investors who to understand the risks from poor execution of an EC project to risks of lower production and the increased difficulties of servicing debts;
    - "*Learning-by-doing*". This gives stakeholders full exposure to planning and implementing EC projects
    - *Strategic scale up of training programs.* To achieve wide-scale capacity to implement EC programs within the duration of the Project, PECSME targeted the SMEs (end-users of energy) and EESPs (specialists in EC implementation) for EC training programs within the five selected industrial

sectors. Moreover, the PECSME training design included the initial but effective "training of trainers" phase (ToT) that essentially targeted individuals who could train other trainers, SMEs or EC practitioners; this accelerated the transfer of EC knowledge throughout Vietnam.

- *Successful EC demonstration projects:*
  - are well managed to demonstrate increased production and profitability. PECSME demonstrations in general have shown how SMEs can increase their productivity plus improve the quality of their products. The exceeding the Project's replication targets is an indicator of the success of the Project's demonstrations;
  - showcase new technology and practices that are affordable to the end-user. The EC demonstration investment costs can be paid back by the SMEs within a 0.5 to 2 years period through the loan programs setup by the Project, constituting a good investment for the SME; and
  - are located in close proximity to potential markets. In the case of the ceramics and brick sectors demonstrations, the clustering of these industries (e.g. in Bat Trang and Phu To District) provided easier access to demonstration projects as opposed to the other industrial sectors, which are more dispersed (i.e. textiles, food processing and pulp & paper);

- *With regards to Energy Performance Contracts (EPCs)*:
  - small enterprises are more likely to hire the ESCO as a consultant and do the work themselves since small enterprises are more cost-conscious and "hands-on" in terms of managing their enterprise;
  - the EPC modality has higher risks with smaller enterprises where their revenue streams are not as certain (that may occur if there is a drop-off in production levels) placing the ESCO at risk not being able to properly service their debts;
  - baseline determination of small enterprises is more of an issue than with medium to large enterprises. Smaller enterprises who become familiar with the EPC contract modality may withhold vital information that may lower the baseline energy consumption and reduce the income of the ESCO.
  - it is more likely to succeed:
    - ⇒ for EC measures that take less than 3 months to implement, have a payback period of less than one year, and are less than USD 50,000 in capital cost; and
    - ⇒ for an ESCO that has a specialized EC skill such as boilers or EE lighting systems and can undertake a complex and more capital intensive EC measure that is more common with large enterprises. It is possible certain medium to large enterprises will want to outsource EC measures where their own personnel are unable to undertake such measures. The ESCO in this case will have to have access to collateral or a loan guarantee to obtain the required bank finance to implement the EC measures;

- *Successful design and implementation of awareness raising programs includes the conveyance of simple messages that are strategically disseminated to target groups.* For PECSME, early awareness raising activities were outsourced focusing more on the general public as well as policymakers and SMEs. In the latter stages of PECSME, awareness raising was more targeted to specific end-users of energy, in particular the SMEs involved with the five industrial sectors.

- *"Good projects will attract money"*. By demonstrating increased productivity and profitability of EC investments, providing well-targeted and effective training and

knowledge dissemination programs, and removing a significant financial barrier, PECSME was able to:

- demonstrate the EC potential of Vietnam in the SME sector;
- catalyze the Vietnamese EC market for SMEs;
- induce the formulation and implementation of other donor projects;
- attract climate change funds mainly from Europe and Japan to Vietnam primarily for SME-EC capital investments as well as further technical assistance;
- ensure funding was in place for EC market transformation after the completion of PECSME.

7.2 Recommendations

The following recommendations are provided to the Government of Vietnam as areas that require further support:

Recommendation 1: The GoV should strongly consider completing a number of studies that will guide and inform them on preparing future EC&EE policies related to the ESCO business model and the EPC modality. Studies include:

- Review of the legal framework required to strengthen the ESCO business model and securing EC investments through energy performance contracts (EPCs). This study should also include a review of and recommendations to improve GoV procurement procedures to enable EPCs to be used for EC with public assets;
- Strategic planning of Vietnam's energy demands for the industrial sector. This should include models of Vietnam's industrial growth over the next 10 to 20 years, and the implications of these growth patterns on the country's energy demands, required energy imports and feasible development of domestic sources of energy. Government policy options for the different scenarios of industrial growth can be analyzed and used for policy formulation;
- Energy pricing review and related socio-economic impacts. Pricing policies for domestic coal and electricity affect energy choices of the end users. Policy adjustments need to be considered in the context of encouraging improved use of primary fuels, electricity and other forms of energy without undermining industrial competitiveness or creating social hardships;
- Policy development for advancing EC&EE with new industries. Newer and more modern industrial facilities are likely to have a greater impact on Vietnam's future economic growth. MoIT should undertake an overview of new industrial facilities recently built or planned and examine the expected or recorded energy intensity of these facilities. These energy intensities should be compared with energy intensities of plants with the best technologies available; this will provide EC&EE policymakers a measure on which future EC&EE policies can encourage EE in new industrial facilities and buildings.

These studies are key elements to inform the GoV on shaping future EC&EE policy that will influence energy pricing and industrial development.

Recommendation 2: Future capacity building programs in EC can be channeled through the newly formed Vietnam Energy Conservation and Efficiency Association (VECEA). The mandate of VECEA is to promote EC&EE through the membership of the association through awareness raising programs, activities to build capacity and facilitate technology transfers, serve as a forum for discussion on government EC&EE policies, publishing of EC&EE materials; and fostering linkages with other national and international EC&EE associations. Future EC&EE capacity building programs with the VECEA would include:

- providing approaches to foster "specialization" on various topics within the EC spectrum. This may include detailed courses on specific equipment such as boilers, air conditioners, pumps and motors. With EC opportunities trending to be more competitive, there will be higher demand for specialized training in specific topics (such as boilers) for fledgling EESPs and ESCOs. This training can be housed in the VECEA for members;
- an accreditation program that designates EESP professionals as qualified to perform and provide EC services. Such a designation will provide more confidence to clients of EESP and ESCO services, and provide a much-needed boost to the growth of the industry;
- business courses for ESCOs. With ESCOs and EPCs in their nascent stages of development in Vietnam, courses to strengthen ESCO business practices, will also strengthen the delivery of EC projects. Aspects of ESCO business training should focus on:
  - risk assessment. Many ESCOs need skills to determine risk profiles of their potential clients and assessing risks of the EPC modality. For example, ESCO professionals need to have more understanding on potential variations to their EPC revenue stream possibly caused by the lack of the client's production and inability to pay, their baseline energy scenario as well as the risks that estimated energy savings are not realized. Risk assessment courses will strengthen the ESCO service model in Vietnam; and
  - business development strategies. Specifically for Vietnam, the ESCOs business development officer must be an engineer with the capacity to liaise with their client's technical staff on the specific details of the EC measure and with top-level managers who are mainly concerned with the financial issues and the quality of the final product;

- building a VECEA roster for sourcing appropriate EC expertise for their membership. VECEA can vet the roster and serve as the focal point for sourcing specialized expertise such as boilers, air conditioners and brick kilns.

Recommendation 3: Assist the MoIT with concepts and suggestions to link its National Target Program for EC (Phase II between 2011 to 2015) with SMEs. Since the MoIT is mainly concerned about technologies and promoting industry in Vietnam, one concept may be to promote certain EC technologies that would be popular EC investments for SMEs with potential to be fabricated or manufactured in Vietnam. A survey should be conducted to determine the specific technologies that would be in high demand in future for SMEs and to determine the feasibility of manufacturing or assembling such EC technologies in Vietnam. This may include energy efficient pumps, solar panels, and energy efficient lighting fixtures.

Recommendation 4: Improve the usage of the LGF and its impact through:

- *Increase the LGF amount from USD 1.7 million to provide more loan guarantees to SMEs.* Vietinbank has indicated that it will increase the LGF amount to improve access of SMEs to its commercial loans, which are 2 to 3% below commercial rates. Vietinbank are able to provide cheaper loans due to their successful access to climate funds from KfW, IFC and other promotional banks which they could loan at lower rates;

- *raise the LGF ceiling for each project loan to USD 165,000 (3.5 billion VND) and for each investor to USD 210,000 (4.5 billion VND)*. Rationale for this

recommendation comes from the need to include larger EC projects whose costs have risen over the last 2 years; and

- *expanding the LGF conditions to include ESCOs and Energy Performance Contracts.* This would remove a substantial barrier to the development of ESCOs in Vietnam. Currently, ESCOs are only able to service smaller EC investments where they can borrow money against scarce personal or family assets; moreover, they are experiencing difficulty in accessing larger EPCs due to lack of access to larger financing. The new LGF administrators in NAFOSTED and the Vietinbank Bank have sent strong indications that the new operating regulations of the post-PECSME LGF will include ESCOs. This expansion combined with capacity building activities for ESCOs on business training will foster the flourishing of the ESCO industry in Vietnam.

Recommendation 5: Extend PECSME from its current terminal date of June 30, 2011 to September 30, 2011. The extension is required for a number of reasons:

- The transfer of the LGF to NAFOSTED management is taking longer than expected. New LGF operating regulations and guidelines on the selection and approval of EC&EE projects were expected to be completed by March 31, 2011. It now appears that these regulations and guidelines will now be completed by May 2011 and June 2011 respectively;
- With the GoV expected to approve the regulations and guidelines by June 2011, NAFOSTED and Vietinbank officers need time to familiarize themselves with the new LGF operational modalities. Training of these officers on the new LGF operations is to be implemented during July and August 2011;
- The terminal date of PECSME is recommended for September 30, 2011;
- There are sufficient funds remaining in the PECSME budget to support the formulation of new LGF regulations and guidelines as well as training for Vietinbank and NAFOSTED officers on new LGF operational procedures, developing a new 2-year business plan for the LGF, planning and conducting the terminal workshop and managing the Project.

APPENDIX A – MISSION TERMS OF REFERENCE FOR PROJECT FINAL EVALUATION

Project title:	**PIMS 2057** - **Promoting Energy Conservation in Small and Medium Enterprises in Viet Nam (PECSME)**
Project ID:	00045088
Implementing Partner:	Ministry of Science and Technology (MOST)
Duration of the Assignment:	25 working days
Duty Location:	Hanoi (Viet Nam) with in-country travel to project sites

1. BACKGROUND AND CONTEXT

1.1 Country context

Since early 2000, the government has paid attention to reducing the pressure on energy supply by issuing the Government Decree 102/2003 to set foundation for energy conservation and energy efficiency (EC&EE).

UNDP aims to help the Government of Viet Nam (GoV) to meet this challenge by helping to build GOV capacity to effectively conserve its scarce energy resources and make economic growth more efficient while fulfilling country's obligations as a signatory to global multilateral environmental convention agreements (MEAs).

1.2 Project background

Promoting Energy Conservation in Small and Medium Enterprises in Viet Nam (PECSME) is a Global Environment Facility (GEF) supported full size project (FSP) and is in line with GEF Operational Programme No. 5, "Removal of barriers to energy efficiency and energy conservation", implemented through the United Nations Development Programme (UNDP). All parties signed the 5-year project on 21 October 2004 that indicates official implementation of the project.

The PECSME project comprises an integrated set of activities designed to address in a holistic fashion the barriers to widespread utilization of energy efficient management practices, operations and technologies in Small and Medium Enterprise (SME) sectors in Viet Nam. The five key SME sectors being addressed in the project are brick, ceramics, textiles, paper and food processing. The project has taken the results of 12 carefully targeted demonstration projects in the five SME sectors and then applied them to a list of 518 replication projects during the past five years. The project is envisioned to achieve its objectives through an integrated set of six components comprising: (1) policy and institutional support development; (2) communications and awareness; (3) technical capacity development; (4) energy efficiency services provision support; (5) financing support; and (6) demonstrations. By the end of 2010, the project has covered 530 small and medium enterprises and contributed to the cumulative emission reductions of 736 kilotonnes CO_2 and the cumulative energy savings of 180 ktoe.

To total project cost is USD 42.509 million with USD 5.469 million of GEF financing and USD 37.04 million from Vietnamese counterparts, including USD 30 million from the business sector (financial institutions, manufacturers and SMEs). The GEF funding includes a provision of USD 1.7 million for providing a loan guarantee support to selected SMEs. The loan guarantee facility is explicitly designed to be self-sustaining activities beyond the project duration.

1.3 Project Expected Outcomes

The PECSME project is expected to reach its goals of GHG emission reduction and EC targets through its six major components that produce the following outcomes (which are organized component wise):

Component 1: EC&EE policy and institutional support development program

This component has been designed to address the barrier of lack of policy implementation capacity at the central, provincial and commune levels and the lack of timely development and implementation of the necessary regulations, circulars, support and control mechanisms and enforcement that make such policies effective. The outcomes include strengthened capacity of relevant government ministries, departments and agencies in effective policy and institutional design, guidance, implementation and enforcement of energy conservation measures. The following are the outcomes of this component.

1) Improvement of EC&EE awareness and building capacity on EC&EE policy development
2) Development of incentive policies for supporting EC&EE investment in SMEs
3) Provision of technical assistance for SMEPC and SMEDD to incorporate EC&EE into the national SME development support program
4) Establishment and operation of EC&EE coordinating agencies in the SME sector and provincial technical support networks
5) Supporting MONRE in studying and modifying environment standards related to GHG emissions

Component 2: EC&EE Communications and Awareness Program

This component has been primarily designed to address the barriers of lack of appreciation of the need to invest in energy audits and other energy efficiency services by SMEs, as well as low public awareness regarding the economic and environmental benefits of EC&EE. The barriers are addressed through an integrated communications system including information collection, dissemination and reporting. The following are the outcomes of this component.

1) Development of communications strategy
2) Establishment of information dissemination network and strengthening the capacity of organizations involved in information network
3) Assessment of awareness of SMEs and general public on EC&EE
4) Development of SME energy-use database
5) Dissemination of EC&EE information to SMEs through the network
6) EC&EE advocacy and awareness campaigns
7) SME registration of interest in obtaining technical assistance to carry out EC&EE

Component 3: EC&EE Technical Capacity Development Program

This component has been primarily designed to address the barriers of limited SME skills and knowledge in energy management practices and operations; lack of appreciation of the need to invest in energy audits and other energy efficiency services; and limited skills when preparing business cases for energy conservation loans. The following outcomes are expected to improve the technical and financial skills in EC&EE implementation through a comprehensive training plan.

1) Provision of training for trainers
2) Conduct of SME training courses
3) Development of sustainable EC&EE training programs for relevant universities and colleges
4) Monitoring and evaluation of training program
5) Conduct of energy audits in selected SMEs

Component 4: Energy efficiency Services Provision Support Program

This component has been primarily designed to address the barriers of lack of knowledge, information, skills, coordination and suitable high efficiency equipment by the energy efficiency services provision sector. The following outcomes are expected to contribute towards the development of EC/EE Technical support and services fostering of a competitive, high quality and sustainable energy efficiency services offer in Viet Nam

1) EESPs training program
2) Development of a suitable institutional and legal framework for EESP activities
3) Provision of assistance for EESP operations
4) Supporting the implementation of standardized contracts to deliver EESP services to SMEs
5) Assessment of local capabilities for energy efficient equipment provision
6) Evaluation of energy performance of industrial equipment
7) Technical capacity building for local equipment manufacturers/fabricators
8) Design of a sustainable EC&EE research and development program

Component 5: EC&EE Financing Support Program

This component has been primarily designed to address the barriers of limited SME skills when preparing business cases for energy conservation loans; lack of sufficient collateral for the finance sector to fund energy conservation measures; lack of skills in the finance sector to properly evaluate loan applications; and barriers to the utilization of established development or environmental funds for energy conservation. The following outcomes are expected to contribute to the development of banking and financial sector's awareness of benefits of EE/EC investments and willingness to finance SMEs.

1) Increasing banking and finance sector's awareness of benefits of EC&EE Projects
2) Facilitating SMEs to access financing for EC&EE projects
3) Mobilization of guarantee funding mechanism
4) Provision of technical assistance for existing development and environment funds to provide funding for EC&EE investments
5) Evaluation of established financing mechanisms

Component 6: EC&EE Demonstration Program

The demonstration program is designed not only to demonstrate the use of EC&EE technology in real world situations, but also to demonstrate how the project financing and EESP delivery mechanisms work in practice. The following outcomes are expected to increase credibility of EC&EE investments through successfully implemented and evaluated demonstration and replication projects.

1) Conduct of comprehensive technical-economic feasibility analyses of potential EC&EE investment projects
2) Identification and evaluation of demonstration requirements
3) Identification and implementation of removal of demonstration project barriers
4) Establishment of baseline data for demonstration sites
5) Implementation of demonstration projects
6) Monitoring and evaluation of the demonstration projects
7) Provision of technical assistance for implementation of 500 EC&EE investments

1.4 Project Status

The project was formally launched in October 2005 (ProDoc signature) but the actual implementation of the project has started through an inception workshop in January 2006. In accordance with the ProDoc signed between MOST and UNDP Viet Nam, the original planned project closing date was on 21 October 2010. However, at no additional cost to the project, the planned closing date is extended until June 2011 and this has been approved by UNDP and

GOV. At present, almost all the activities planned under the project have been completed in accordance with the project work-plan. There are still some activities that are ongoing in order to ensure sustainability of project results. The project completion needed to be undertaken from January to June 2011 with a specific focus on: (i) completion of the LGF transfers and ensures the continuity of the LGF thereafter; (ii) assessment of the project components; (iii) document the lessons learnt under the project; (iv) disseminate the project materials/lessons learnt to stakeholders.

2. OBJECTIVES OF THE FINAL EVALUATION (FE)

The final evaluation must provide a comprehensive and systematic account of the performance and success of PECSME. It will also identify/document lessons learned and make recommendations that might improve design and implementation of other UNDP/GEF projects. It looks at the potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. This will be done by assessing project design, process of implementation, achievements vis-à-vis project objectives endorsed by the GEF including any agreed changes in the objectives during project implementation, and other results. The specific objectives of the final evaluation are as follows:

(i) To promote accountability, transparency in assessing and disclosing levels of project accomplishments;
(ii) To identify and evaluate the effectiveness and outcome of strategies and activities of the project.
(iii) To synthesize lessons that may help to improve the selection, design, and implementation of future GEF activities;
(iv) To identify and evaluate the constraints and problems, which have been or are being encountered, the effectiveness of resource utilization and the delivery of project outputs.
(v) To assess progress towards attaining the project's global environmental objectives as per GEF Operational Programme concerned (OP No. 5).
(vi) To assess policy, institutional and financial instruments which have been identified and developed at the local level to ensure long-term sustainability of project-initiated activities beyond the project duration. Likelihood of continuation of project outcomes and benefits after completion of GEF funding such as LGF;
(vii) To identify the manner and extent to which the project has leveraged co-financing and policy changes
(viii) To review and evaluate the extent to which project impacts have reached the intended beneficiaries, both within and outside project sites;
(ix) To contribute to GEF Evaluation Office databases for aggregation, analysis and reporting on the effectiveness of GEF operation in achieving global environmental benefits and on the quality of M&E across the GEF system.

The evaluation should provide evidence-based information that is credible, reliable and useful, enabling the timely incorporation of findings, recommendations and lessons into the decision-making processes.

Like any project monitoring and evaluation activity, this final evaluation is conducted in accordance with established UNDP and GEF procedure "Guidelines for GEF Agencies in Conducting Terminal Evaluations" and is to be coordinated by the UNDP Viet Nam CO and supported by the Project Management Unit (PMU). The Logical Framework Matrix provides performance and impact indicators for project implementation along with their corresponding means of verification.

3. SCOPE OF THE ASSIGNMENT

The international consultant will work together with a national consultant as a team to deliver the final product. The International Consultant will be the Team Leader. The national consultant will be recruited by UNDP Viet Nam.

The evaluation will involve analysis and assessment of the following issues.

3.1 Assessment of the project results

The terminal evaluation will assess achievement of the project's objective, outcomes and outputs and will provide ratings for the targeted objective and outcomes. The assessment of project results seeks to determine the extent to which the project objective was achieved, or is expected to be achieved, and assess if the project has led to any other short term or long term and positive or negative consequences. While assessing a project's results, the terminal evaluation will seek to determine the extent of achievement and shortcomings in reaching the project's objective as stated in the project document and also indicate if there were any changes and whether those changes were approved. If the project did not establish a baseline (initial conditions), the evaluators should seek to estimate the baseline condition so that achievements and results can be properly established.

Assessment of project outcomes should be a priority. Outcomes are the likely or achieved short-term and medium-term effects of an intervention's outputs. Examples of outcomes could include but are not restricted to stronger institutional capacities, higher public awareness (when leading to changes of behavior), and transformed policy frameworks or markets. An assessment of impact is encouraged when appropriate. The evaluators should assess project results using indicators and relevant tracking tools.

To determine the level of achievement of the project's objective and outcomes, the following three criteria will be assessed in the terminal evaluation:

- **Relevance**: Were the project's outcomes consistent with the focal areas/operational program strategies and country priorities?
- **Effectiveness**: Are the actual project outcomes commensurate with the original or modified project objective?
- **Efficiency**: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost effectiveness? Wherever possible, the evaluators should also compare the costs incurred and the time taken to achieve outcomes with that of other similar projects.

The evaluation of relevancy, effectiveness and efficiency will be as objective as possible and will include sufficient and convincing empirical evidence. Ideally the project monitoring system should deliver quantifiable information that can lead to a robust assessment of the project's effectiveness and efficiency. Outcomes will be rated as follows for relevance, effectiveness and efficiency:

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

When rating the project's outcomes, relevance and effectiveness will be considered as critical criteria. If separate ratings are provided on relevance, effectiveness and efficiency, the overall outcomes rating of the project may not be higher than the lowest rating on relevance and effectiveness. Thus, to have an overall satisfactory rating for outcomes, the project must have at least satisfactory ratings on both relevance and effectiveness.

The evaluators will also assess other results of the project, including positive and negative actual (or anticipated) impacts or emerging long-term effects of a project. Given the long term nature of impacts, it might not be possible for the evaluators to identify or fully assess impacts. Evaluators will nonetheless indicate the steps taken to assess long-term project impacts, especially impacts on local populations, global environment (e.g. reduced greenhouse gas emissions), replication effects and other local effects. Wherever possible, evaluators should indicate how the findings on impacts will be reported to the GEF in future.

3.2 Assessment of sustainability of project outcomes

The terminal evaluation will assess the likelihood of sustainability of outcomes at project termination, and provide a rating for this. Sustainability will be understood as the likelihood of continued benefits after the GEF project ends. The sustainability assessment will give special attention to analysis of the risks that are likely to affect the persistence of project outcomes. The sustainability assessment should explain how the risks to project outcomes will affect continuation of benefits after the GEF project ends. It will include both exogenous and endogenous risks. The following four dimensions or aspects of risks to sustainability will be addressed:

- **Financial risks**: Are there any financial risks that may jeopardize sustainability of project outcomes? What is the likelihood of financial and economic resources not being available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining the project's outcomes)?

- **Socio-political risks:** Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?

- **Institutional framework and governance risks:** Do the legal frameworks, policies and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits? Are requisite systems for accountability and transparency, and required technical know-how, in place?

- **Environmental risks:** Are there any environmental risks that may jeopardize sustainability of project outcomes? The terminal evaluation should assess whether certain activities will pose a threat to the sustainability of the project outcomes.

Each of the above dimensions of risks to sustainability of project outcomes will be rated based on an overall assessment of the likelihood and magnitude or the potential effect of the risks considered within that dimension. The following ratings will be provided:

Likely (L): There are no or negligible risks that affect this dimension of sustainability.

Moderately Likely (ML): There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability.

Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, the overall rating for sustainability will not be higher than the lowest rated dimension. For example, if a project has an 'Unlikely' rating in any dimension, then its overall rating cannot be higher than 'Unlikely'.

3.3. Catalytic role of the PECSME project

- Are there any catalytic or replication effect of the project during and beyond PECSME implementation? If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out. No ratings are requested for the catalytic role.

3.4 Assessment of Monitoring and Evaluation (M&E) system of the PECSME project

The terminal evaluation will assess whether the project met the minimum requirements for project design of M&E and the implementation of the project M&E plan. GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project. Given the long duration of many GEF interventions, projects are also encouraged to include long-term monitoring provisions to measure mid-term and long-term results (such as global environmental effect, replication effects, and other local effects) after project completion. The terminal evaluation report will include separate assessments of the achievements and shortcomings of the project M&E plan and of implementation of the M&E plan.

M&E design. Projects should have a sound M&E plan to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART (specific, measurable, achievable, realistic and timely) indicators and data analysis systems, and evaluation studies at specific times to assess results and adequate funding for M&E activities. The time frame for various M&E activities and standards for outputs should have been specified.

M&E plan implementation. The terminal evaluation should verify that: an M&E system was in place and facilitated timely tracking of progress towards the project objective and outcomes by collecting information on chosen indicators continually throughout the project implementation period; annual project reports were complete, accurate and with well justified ratings; the information provided by the M&E system was used during the project to improve performance and to adapt to changing needs; and, the project had an M&E

system in place with proper training for parties responsible for M&E activities to ensure data will continue to be collected and used after project closure.

Budgeting and funding for M&E Activities. In addition to incorporating information on funding for M&E while assessing M&E design, the evaluators will determine whether M&E was sufficiently budgeted for a the project planning stage and whether M&E was funded adequately and in a timely manner during implementation.

Project monitoring and evaluation systems will be rated as follows on quality of M&E design and quality of M&E implementation:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

The overall rating of M&E during project implementation will be based solely on the quality of M&E plan implementation. The ratings on quality at entry of M&E design and sufficiency of funding both during planning and implementation stages will be used as explanatory variables.

3.5. Monitoring of Long-Term Changes

The monitoring and evaluation of long-term changes is often incorporated in GEF supported projects as a separate component and it may include determination of environmental baselines, specification of indicators, provisioning of equipment and capacity building for data gathering, analysis and use. This section of the terminal evaluation report will describe project actions and accomplishments toward establishing a long-term monitoring system. The review will address the following questions:

Did this project contribute to the establishment of a long-term monitoring system? If it did not, should the project have included such a component?

What were the accomplishments and shortcomings in establishment of this system?

Is the system sustainable – that is, is it embedded in a proper institutional structure and supported by financing?

Is the information generated by this system being used as originally intended?

3.6 Assessment of processes affecting attainment of project results

When relevant, the evaluation team should consider the following issues affecting project implementation and attainment of project results. Note that evaluators are not expected to provide ratings or separate assessments on these issues, but these could be considered in the performance and results sections of the report:

- **Preparation and readiness.** Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution (MOST) and its counterparts properly considered when the project was

designed? Were the partnership arrangements properly identified and the role and responsibilities negotiated prior to project approval? Were counterpart resources, enabling legislation, and adequate project management arrangements in place at project entry?

- **Country ownership/drivenness**. Was the project concept in line with the sectoral and development priorities and plans of Viet Nam? Are the project outcomes contributing to national development priorities and plans? Were the relevant representatives from government agencies at central and local levels, business sectors, universities, NGOs, etc involved in the project? Did co-financiers maintain its financial commitment to the project? Has the government approved policies and regulatory framework in line with the project objectives?

- **Stakeholder involvement.** Did the PECSME involve the relevant stakeholders through information sharing and consultation and by seeking their participation in project design, implementation and M&E? Did the PECSME consult with and make use of the skills, experience, and knowledge of the appropriate government agencies, NGOs, community groups, private sector entities, local governments, and academic institutions in the design, implementation and evaluation of project activities?

  Gender perspective: To what extent did the project account for gender differences when developing and applying project interventions? How were gender considerations mainstreamed into project interventions?

- **Financial planning**. Did the PECSME have the appropriate financial controls, including reporting and planning, that allowed management to make informed decision regarding the budget and allowed for timely flow of funds? Was there due diligence in the management of funds and financial audits? Did promised co financing materialize?

- **UNDP supervision and backstopping**. Did the staff of UNDP Viet Nam and Regional Coordinating Unit in Bangkok identify problems in a timely fashion and accurate their seriousness? Did their staff provide quality support and advice to the project, approve modification(s) in time as needed? Did they provide the right staffing levels, continuity, skill mix, and frequency of field visits for the project?

- **Co-financing and project outcomes and sustainability**. If there was a difference in the level of expected co-financing and the co-financing actually realized, what were the reasons for the variance? Did the extent of materialization of co-financing affect the project's outcomes and/or sustainability, and if so, in what ways and through what causal linkages? Refer annex 1 for more details of required project identification and financial data along with format for reporting identified information.

- **Delays and project outcomes and sustainability**. If there were delays in project implementation and completion, what were the reasons? Did the delays affect project outcomes and/or sustainability, and if so, in what ways and through what causal linkages?

3.7 Lessons and recommendations

The evaluators will present lessons and recommendations in the terminal evaluation report on all aspects of the project that they consider relevant. The evaluators will be expected to give special attention to analyzing lessons and proposing recommendations on aspects related to factors that contributed to or hindered: attainment of project objective, sustainability of project benefits, innovation, catalytic effect and replication, and project monitoring and evaluation.

Evaluators should refrain from providing recommendations to improve the project. Instead they should seek to provide a few well formulated lessons applicable to the type of project

at hand or to GEF's overall portfolio. Terminal evaluations should not be undertaken with the motive of appraisal, preparation, or justification, for a follow-up phase. Wherever possible, the terminal evaluation report should include examples of good practices for other projects in a focal area, country or region.

The International Consultant (team leader) will have overall responsibility for the quality and timely submission of the final products. Specifically, the team leader will perform the following tasks:

- Lead and manage the evaluation mission;
- Design the detailed evaluation scope and methodology (including the methods for data collection and analysis);
- Decide the division of labor within the evaluation team;
- Conduct an analysis of the outcome, outputs and partnership strategy (as per the scope of the evaluation described above);
- Draft related parts of the evaluation report; and
- Finalize the entire evaluation report.
- Certify the work of the team member and submit to UNDP for making payment

Note: The Team Leader is requested to include in his/her financial offer all associated costs for the team to deliver the final product (i.e. printing, communication, etc)

4. EVALUATION METHODOLOGY

4.1. General

The evaluators are expected to become familiar to the project objectives, historical developments, institutional and management mechanisms, activities and updated status of accomplishments. The methodology to be used by the evaluation team should be presented in the final report in detail. In order to make an evaluation of the project towards requirements mentioned in the Section III, the evaluators are expected to collect and analyze relevant information through:

- Review of original project documents and other documents related to PECSME implementation and EE&EC program and policy in Viet Nam;
- Group and individual interviews with project managers/officers and Senior Technical Advisors, component coordinators, relevant stakeholders, and at the least representatives of the project partners and beneficiaries, and
- Visits to project demonstration and replication sites.
- Participatory techniques and other approaches for the gathering and analysis of data.

It is anticipated that the evaluation team would have completed most of its desk review prior to the field mission. The team shall use the time during the field mission to verify and cross check its analysis and assessment before conducting the stakeholder workshop and presenting preliminary results.

Evaluations in UNDP will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'.[19] Moreover, the evaluation will be undertaken in-line with GEF principles:

- Independence
- Impartiality

[19] UNEG, 'Ethical Guidelines for Evaluation', June 2008. Available at http://www.uneval.org/search/index.jsp?q=ethical+guidelines.

- Transparency
- Disclosure
- Ethical
- Partnership
- Competencies and Capacities
- Credibility
- Utility

4.2 Evaluation process

An outline of an evaluation approach is provided below; however it should be made clear that the evaluators are responsible for revising the proposed approach as necessary. Any changes should be in-line with UN and UNDP criteria and professional norms and standards which can be accessed by the website: http://erc.undp.org/). They must be also cleared by UNDP before being applied by the Evaluators.

The evaluation must provide evidence-based information that is credible, reliable and useful. It must be easily understood by project partners and recommendations must be applicable to the remaining period of project duration.

In essence, the evaluation will be mainly supported by the following documents:

- PECSME Project documents and Inception Report (2005)
- Mid-term evaluation reports
- All Annual Work Plans (AWP 2006, 2007, 2008, 2009 and 2010).
- Annual Project Progress Reports/Project Implementation Reports for Years from 2005-2010
- Budget planning and updated disbursements tables
- Guideline for Selection and Implementation of EC&EE projects
- Loan Guarantee Agreement signed between MOST and Vietinbank; LGF Exit Strategy Report and Statement to Prime Minister related to LGF transfer and management beyond PECSME implementation
- List of final technical outputs per component and sample of documents (Walkthrough Audit reports, Energy Audits reports, Feasibility Studies, Implementation reports, and Verification reports), if needs be.
- Demo Program evaluation report (2008)
- Financial Mechanism (LGF) Evaluation Report, Assessment Report on LGF risks
- The list of all technical reports produced during the PECSME implementation
- Other relevant documents the Evaluators may consider useful for evidence-based assessment.

The evaluators are expected to follow a participatory and consultative approach ensuring close involvement from the government counterparts (MOST) and relevant project partners. As an instance, the Evaluators should be required to conduct interviews and meeting with selected stakeholders but not only limited to, the NPD and UNDP PO, the Project Manager, Senior Technical Advisors, project component coordinators (4), director of selected DOST and selected EESPs, Vietinbank HQ as LGF manager, selected SMEs' manager including site visits and representatives of Professional Associations such as ceramic association and manager of the Environment Protection Funds.

The methodology used by the evaluators should be presented in detail in the evaluation report. The report shall also include in appendices information related to:

- List of documentation reviewed;
- Itinerary
- List of persons interviewed and summary of field visits to project sites;
- Questionnaire used (if needs be) and summary of results;

- Terms of Reference of final evaluation

Although the Evaluators should feel free to discuss with the authorities concerned, all matters relevant to its assignment, it is not authorized to make any commitment or statement on behalf of UNDP or GEF or the project management.

The Evaluators should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

5. FINAL PRODUCT

The output of the mission will be the **Evaluation Report**. Preferably the length of the Report should not exceed 50 pages in total (not including the annexes), refer annex 2 for suggested outline of the report.

The Evaluators are required to prepare the followings documents:

- Mission agenda
- Questionnaires, if needs be
- Mission Main Findings Report, by the end of his (her) site presence;
- Draft Report after his (her) site presence
- Final Report

6. DEGREE OF EXPERTISE AND QUALIFICATION

The evaluators selected must not have participated in the project preparation and/or implementation and must not have conflict of interest with project related activities. The evaluation team will be composed of one International Consultant (team leader) and one National Consultant (team member). The consultants shall have prior experience in evaluating energy efficiency and climate change projects.

The ideal candidate for international consultant (team leader) shall have the following minimum qualifications and experience:

- Master's degree in economics, project management, public administration, environmental sciences and relevant fields;
- At least ten (10) years of working experience in the areas of energy efficiency, climate change or environmental management;
- Familiarity with energy efficiency in industrial sector;
- Familiarity with energy efficiency policies framework in a context similar to Viet Nam;
- Experience with financing mechanisms, financial analysis and evaluating financial viability of energy efficiency programs;
- Minimum of five years of evaluation of international supported projects;
- Recent experience with results-based management evaluation methodologies;
- Recent knowledge of GEF Monitoring and Evaluation Policy;
- Project evaluation experience within the UN system will be considered an asset;
- Demonstrable analytical skills;
- Demonstrated command over writing professional reports in English. Familiarity with Vietnamese language will be considered an advantage.

7. PROVISION OF MONITORING AND PROGRESS CONTROLS

The international consultant (team leader) will work together with a national consultant as a team. The international consultant will be the team leader and responsible for overall planning, execution and quality, contents and timely completion of the deliverables. Upon selection and

procurement of international and local consultants, the UNDP CO in Vietnam shall coordinate the initial communication between the two consultants and Project Management Unit (PMU), after which the international consultant shall assume the leadership role.

The Head of Sustainable Cluster at UNDP Country Office in Vietnam will be the overall supervisor for this assignment, and the evaluation team leader will report to him/her. The Program Officer (PO) nominated by the cluster head will be responsible for all coordination activities.

The evaluation team can seek out both UNDP PO and PMU for reasonable assistance and support that they may require to fulfill their responsibilities.

8. DURATION OF ASSIGNMENT, DUTY STATION AND EXPECTED PLACES OF TRAVEL

The duration of assignment for the international consultant has been estimated to **25 working days** within the period starting from 7 March to 10 May 2011**,** according to the following planning:

Preparation (home office – from 07 March to 18 March):

- Collection of and acquaintance with the project document and other relevant materials with information about the project;
- Layout the detailed evaluation scope and mission agenda (including the methods for data collection and analysis); the agenda should be preferably sent to the UNDP and PMU by 14 March 2011. The 10 day site presence (working days in the field) should be scheduled from 21 March to 1 April 2011.
- The PMU will arrange transportation for the consultants; will arrange for translation/interpretation when necessary, and if needs be, the PMU will book and provide the air flight ticket for conducting interviews in HCMC or visiting some selected sites outside Hanoi.
- Communication with the project staff to clarify matters.

Mission to Hanoi (Viet Nam) including visits to selected project sites in Hai Phong, Hai Duong, Da Nang, HCMC and Binh Duong (10 working days in Viet Nam from 21 to 1 April 2011):

- briefing with the UNDP Viet Nam CO
- briefing with the PMU
- project site(s) visits
- interviews and meetings with stakeholders
- review of additional project documents
- preparation of the mission main findings report, including the preliminary rating of activities, recommendations and lessons learnt
- debriefing with UNDP Viet Nam CO
- debriefing with the NPD and the PMU
- final mission main findings report and recommendations.

Elaboration of the draft report (home office till 15 April 2011):

- Additional desk review
- Completing of the draft report
- Presentation of draft report for comments and suggestions
- Additional information and further clarification with UNDP, project management and project staff.

Elaboration of the final report (home office till May 10):

- Incorporation of comments and additional findings into the draft report

- Finalization of the report.

  The draft Evaluation report shall be submitted to UNDP Viet Nam CO for review **within 10 working days after the mission**. UNDP and the NPD will submit comments and suggestions **within 10 working days** after receiving the draft report.

  The final Evaluation Report shall be submitted latest **on 10 May 2011**.

9. ADMIN SUPPORT AND REFERENCE DOCUMENTS

PMU will help to consultant with logistical arrangements if required (i.e. transport, accommodation, communications, visa, arranging meetings, supplying copies of required documentation, etc.) to support evaluation team.

The PMU will also be responsible for organizing the stakeholder workshop and coordinating the feedback from stakeholders and delivering the feedback to the TE team.

10. PAYMENT TERM

First payment of 20% of total contract value will be paid to the successful bidder upon receipt and acceptance by UNDP of detailed work-plan.

Second payment of 40% to be paid upon receipt and acceptance by UNDP of draft report.

Final payment of 40% to be paid after satisfactory acceptance by UNDP on completion of all deliverables under this TOR.

ANNEX 1: REQUIRED PROJECT IDENTIFICATION AND FINANCIAL DATA

The terminal evaluation report should provide information on project identification, time frame, actual expenditures, and co-financing in the following format, which is modeled after the project identification form (PIF).

I. Project Identification

GEF Project ID: [Assigned by the GEF Secretariat at pipeline entry.]
GEF Agency Project ID:
Countries:
Project Title: [As per the project appraisal document submitted to the GEF.]
GEF Agency (or Agencies):

II. Dates

Milestone	Expected date	Actual date
CEO endorsement/approval		
Agency approval date		
Implementation start		
Midterm evaluation		
Project completion		
Terminal evaluation completion		
Project closing		

III. Project Framework

Project component	Activity type	GEF financing (in $)		Cofinancing (in $)	
		Approved	Actual	Promised	Actual
1.					
2.					
3.					
4.					
5.					
6.Project management					
Total					

Activity types are investment, technical assistance, or scientific and technical analysis.

Promised co financing refers to the amount indicated at the point of CEO endorsement/approval.

Co financing (Type/Source)	IA own Financing (million US$)		Government (million US$)		Other* (million US$)		Total (million US$)		Total Disbursement (million US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
– Grants										
– Loans/Concessional (compared to market rate)										
– Credits										
– Equity investments										
– In-kind support										
– Other (*)										
Totals										

IV. Co financing

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

ANNEX 2: EVALUATION REPORT TEMPLATE AND QUALITY STANDARDS

This evaluation report template is intended to serve as a guide for preparing meaningful, useful and credible evaluation reports that meet quality standards. It does not prescribe a definitive section-by-section format that all evaluation reports should follow. Rather, it suggests the content that should be included in a quality evaluation report. The descriptions that follow are derived from the UNEG 'Standards for Evaluation in the UN System' and 'Ethical Standards for Evaluations'.

The evaluation report should be complete and logically organized. It should be written clearly and understandable to the intended audience. In a country context, the report should be translated into local languages whenever possible. The report should also include the following:

Title and opening pages—Should provide the following basic information:

- Name of the evaluation intervention
- Timeframe of the evaluation and date of the report
- Countries of the evaluation intervention
- Names and organizations of evaluators
- Name of the organization commissioning the evaluation
- Acknowledgements

Table of contents—Should always include boxes, figures, tables and annexes with page references.

List of acronyms and abbreviations

Executive summary—A stand-alone section of two to three pages that should:

- Briefly describe the intervention (the project(s), programme(s), policies or other interventions) that was evaluated.
- Explain the purpose and objectives of the evaluation, including the audience for the evaluation and the intended uses.
- Describe key aspect of the evaluation approach and methods.
- Summarize principle findings, conclusions, and recommendations.

Introduction—Should explain the purpose, intended audience, and structure of the report:

- Explain why the evaluation was conducted (the purpose), why the intervention is being evaluated at this point in time, and why it addressed the questions it did.
- Identify the primary audience or users of the evaluation, what they wanted to learn from the evaluation and why, and how they are expected to use the evaluation results.
- Identify the intervention (the project(s) programme(s), policies or other interventions) that was evaluated—see upcoming section on intervention.
- Acquaint the reader with the structure and contents of the report and how the information contained in the report will meet the purposes of the evaluation and satisfy the information needs of the report's intended users.

Description of the intervention—Provides the basis for report users to understand the logic and assess the merits of the evaluation methodology and understand the applicability of the evaluation results. The description needs to provide sufficient detail for the report user to derive meaning from the evaluation. The description should:

- Describe what is being evaluated, who seeks to benefit, and the problem or issue it seeks to address.

- Explain the expected results map or results framework, implementation strategies, and the key assumptions underlying the strategy.
- Link the intervention to national priorities, UNDAF priorities, corporate multiyear funding frameworks or strategic plan goals, or other programme or country specific plans and goals.
- Identify the phase in the implementation of the intervention and any significant changes (e.g., plans, strategies, logical frameworks) that have occurred over time, and explain the implications of those changes for the evaluation.
- Identify and describe the key partners involved in the implementation and their roles.
- Describe the scale of the intervention, such as the number of components (e.g., phases of a project) and the size of the target population for each component.
- Indicate the total resources, including human resources and budgets.
- Describe the context of the social, political, economic and institutional factors, and the geographical landscape within which the intervention operates and explain the effects (challenges and opportunities) those factors present for its implementation and outcomes.
- Point out design weaknesses (e.g., intervention logic) or other implementation constraints (e.g., resource limitations).

Evaluation scope and objectives—The report should provide a clear explanation of the evaluation's scope, primary objectives and main questions.

- Evaluation scope—The report should define the parameters of the evaluation, for example, the time period, the segments of the target population included, the geographic area included, and which components, outputs or outcomes were and were not assessed.
- Evaluation objectives—The report should spell out the types of decisions evaluation users will make, the issues they will need to consider in making those decisions, and what the evaluation will need to achieve to contribute to those decisions.
- Evaluation criteria—The report should define the evaluation criteria or performance standards used. The report should explain the rationale for selecting the particular criteria used in the evaluation.
- Evaluation questions—Evaluation questions define the information that the evaluation will generate. The report should detail the main evaluation questions addressed by the evaluation and explain how the answers to these questions address the information needs of users.

Evaluation approach and methods—The evaluation report should describe in detail the selected methodological approaches, methods and analysis; the rationale for their selection; and how, within the constraints of time and money, the approaches and methods employed yielded data that helped answer the evaluation questions and achieved the evaluation purposes. The description should help the report users judge the merits of the methods used in the evaluation and the credibility of the findings, conclusions and recommendations. The description on methodology should include discussion of each of the following:

- Data sources—The sources of information (documents reviewed and stakeholders), the rationale for their selection and how the information obtained addressed the evaluation questions.
- Sample and sampling frame—If a sample was used: the sample size and characteristics; the sample selection criteria (e.g., single women, under 45); the process for selecting the sample (e.g., random, purposive); if applicable, how comparison and treatment groups were assigned; and the extent to which the sample is representative of the entire target population, including discussion of the limitations of the sample for generalizing results.

- Data collection procedures and instruments—Methods or procedures used to collect data, including discussion of data collection instruments (e.g., interview protocols), their appropriateness for the data source and evidence of their reliability and validity.
- Performance standards—The standard or measure that will be used to evaluate performance relative to the evaluation questions (e.g., national or regional indicators, rating scales).
- Stakeholder engagement—Stakeholders' engagement in the evaluation and how the level of involvement contributed to the credibility of the evaluation and the results.
- Ethical considerations—The measures taken to protect the rights and confidentiality of informants (see UNEG 'Ethical Guidelines for Evaluators' for more information).
- Background information on evaluators—The composition of the evaluation team, the background and skills of team members and the appropriateness of the technical skill mix, gender balance and geographical representation for the evaluation.
- Major limitations of the methodology—Major limitations of the methodology should be identified and openly discussed as to their implications for evaluation, as well as steps taken to mitigate those limitations.

Data analysis—The report should describe the procedures used to analyse the data collected to answer the evaluation questions. It should detail the various steps and stages of analysis that were carried out, including the steps to confirm the accuracy of data and the results. The report also should discuss the appropriateness of the analysis to the evaluation questions. Potential weaknesses in the data analysis and gaps or limitations of the data should be discussed, including their possible influence on the way findings may be interpreted and conclusions drawn.

Findings and conclusions—The report should present the evaluation findings based on the analysis and conclusions drawn from the findings.

- Findings—Should be presented as statements of fact that are based on analysis of the data. They should be structured around the evaluation criteria and questions so that report users can readily make the connection between what was asked and what was found. Variances between planned and actual results should be explained, as well as factors affecting the achievement of intended results. Assumptions or risks in the project or programme design that subsequently affected implementation should be discussed.
- Conclusions—Should be comprehensive and balanced, and highlight the strengths, weaknesses and outcomes of the intervention. They should be well substantiated by the evidence and logically connected to evaluation findings. They should respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to the decision making of intended users.

Recommendations—The report should provide practical, feasible recommendations directed to the intended users of the report about what actions to take or decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation. They should address sustainability of the initiative and comment on the adequacy of the project exit strategy, if applicable.

Lessons learned—As appropriate, the report should include discussion of lessons learned from the evaluation, that is, new knowledge gained from the particular circumstance (intervention, context outcomes, even about evaluation methods) that are applicable to a similar context. Lessons should be concise and based on specific evidence presented in the report.

Report annexes—Suggested annexes should include the following to provide the report user with supplemental background and methodological details that enhance the credibility of the report:

- ToR for the evaluation
- Additional methodology-related documentation, such as the evaluation matrix and data collection instruments (questionnaires, interview guides, observation protocols, etc.) as appropriate
- List of individuals or groups interviewed or consulted and sites visited
- List of supporting documents reviewed
- Project or programme results map or results framework
- Summary tables of findings, such as tables displaying progress towards outputs, targets, and goals relative to established indicators
- Short biographies of the evaluators and justification of team composition
- Code of conduct signed by evaluators

APPENDIX B – MISSION ITINERARY (FOR APRIL 13-24, 2011)

The evaluation mission was comprised of an international consultant Mr. Roland Wong and one national consultant, Mr. Vu Quang Dang in accordance with the objectives of the evaluation and obtained data relevant for making judgments regarding Project success and lessons learned.

***April 13, 2011** (Wednesday)*			
#	**Activity**	**Stakeholder involved**	**Place**
	Arrival of Mr. Roland Wong		Hanoi
1	Briefing on PECSME by Mr. Dao Xuan Lai, Assistant Country Director and Head of Sustainable Development Cluster, Ms. Vu Thi Thu Hang, Programme Analyst, and Ms. Lan, UNDP	UNDP	Hanoi
***April 14, 2010** (Thursday)*			
2	Discussion with Mr. Nguyen Dinh Hau, National Project Director and Deputy Director of Department of Science and Technology under MoST on Government of Vietnam's transition of PECSME to GoV management	PMU and GoV	Hanoi
***April 15, 2010** (Friday)*			
2	Meeting with People' Committee and Ceramic Association of Bat Trang Village, and Bat Trang Joint Stock Company for Ceramic Design and Production (Bat Trang D&P Company) on PECSME's activities implemented in Bat Trang area and the D&P Company's participation	PMU and Gov, EESP	Hanoi
3	Meeting with Ministry of Finance (MOF) on the continuation of LGF operation beyond PECSME	PMU and GoV	Hanoi
***April 16, 2011** (Saturday)*			
4	Meeting with Lam Thao DPC on Vertical Shaft Brick Kiln (VSBK) Replication in Phu Tho province	PMU and GoV, enterprise	Phu Tho
***April 17, 2011** (Sunday)*			
	Travel to Danang		Hanoi
April 18, 2011 (Monday)			

6	Meeting with Department of Science and Technology (DOST) and Energy Conservation Center (ECC) of Da Nang on local initiatives and policy on EC&EE and newly established ECC	PMU and GoV	Danang
7	visit to 29 March Textile Company on EC&EE measures/techniques application in Textile and visit to Dai Thang Trading & Service Co (DEMO) on VSBK Kiln investment project with LGF support in Da Nang	PMU and GoV, enterprise	Danang
April 19, 2011 *(Tuesday)*			
8	Meeting with Hatech Company (ESCO): on ESCO, Energy Performance Contract (EPC) and EPC potential market barriers	PMU and EESP	HCMC
9	Meeting with Colusa – Miliket Foodstuff Joint Stock Company on EPC Demonstration Project Implementation	PMU, EESP and enterprise	HCMC
April 20, 2011 *(Wednesday)*			
10	Meeting with Vietnam Industry and Commerce Bank (Vietinbank) on Implementation of Loan Guarantee Fund (LGF) under PECSME and Continuation of LGF beyond PECSME in cooperation with MOST	PMU and enterprise	Hanoi
11	Meeting with National Energy Conservation Office (ECO) – Ministry of Industry and Trade (MoIT) on EC&EE policy development and National Energy Conservation Target Program	PMU and GoV, enterprise	Hanoi
12	Meeting with National Foundation for Science and Technology Development (NAFOSTED) under MOST on continuation of LGF operation beyond PECSME (NAFOSTED has been assigned by MOST to be the LGF manager in coming years)	PMU and GoV, enterprise	Hanoi
13	Meeting with the SME Technical Assistance Center in Ha Noi on PEC&EE session integrated into the National SME Training Program under MPI	PMU and GoV, enterprise	Hanoi
April 21, 2011 *(Thursday)*			
14	Meeting with PMU staff (PM, NSTA, Component Coordinators)	PMU	Hanoi
April 22, 2011 *(Friday)*			

15	Debrief meeting with UNDP CO/PMU on FE initial findings	UNDP and PMU	
April 23, 2011 *(Saturday)*			
16	Preparation of the report		Hanoi
April 24, 2011 *(Sunday)*			
	Departure of Mr. Roland Wong		

Total number of meetings conducted: **16**

APPENDIX C – LIST OF PERSONS INTERVIEWED AND DOCUMENTS REVIEWED

This is a listing of persons contacted in Vietnam (unless otherwise noted) during the Final Evaluation Period only. The Evaluator regrets any omissions to this list.

1) Mr. Dao Xuan Lai, Assistant Country Director and Head of Sustainable Development Cluster, UNDP Vietnam
2) Ms. Vu Thi Thu Hang, Program Analyst, Climate Change Mitigation, UNDP Vietnam
3) Ms. Le Lan, Programme Officer for Monitoring and Evaluation, UNDP Vietnam
4) Mr. Nguyen Dinh Hau, National Project Director, PECSME
5) Mr. Nguyen Ba Vinh, Project Manager, PMU
6) Dr. Pham Thi Nga, National Senior Technical Advisor, PMU
7) Mr. Phi Van Lich, Policy Advisor, PMU
8) Ms. Pham Thi Hanh Nhan, EESP and Financing Coordinator, PMU
9) Mr. Nguyen Dinh Hiep, Deputy General Director, Science and Technology Department, MoIT and Coordinator of the National EE Programme
10) Mr. Phuong Hoang Kim, Expert, Energy Sector, MoIT
11) Mr. Do Cong Thanh, Director of International Organization and NGO Department, MOF
12) Mr. Nguyen Tran Kien, Director, SME Banking Dept, VietinBank
13) Mr. Cat Huy Long, SME Banking Department, VietinBank
14) Mr. Huynh Phuoc, Director, DoST, Danang
15) Mr. Le Quang Nam, Deputy Director, Director, DoST, Danang
16) Mr. Duong Hoang Van Ban, Head of EC Division, Danang Science Technology Process Application Center, Danang
17) Mr. Le Tan Liem, Director, Dai Thang Trading & Service Co, Danang
18) Mr. Tran Xuan Hoe, Vice General Director, 29 March Textile Company, Danang
19) Mr. Tran Van Luc, Vice Manager of Electromechanical Division, 29 March Textile Company, Danang
20) Mr. Vu Xuan Hoang, Project manager, Hatech Company, HCMC

21) Mr. Huynh Duc An, Sales manager, Hatech Company, HCMC

22) Mr. Nguyen Anh Tuan, Vice General Director, Colusa – Miliket Foodstuff Joint Stock Company, HCMC

23) Mr. Ngo Ngoc Vinh, Manager of Technical – Investment and infrastructure Division, Colusa – Miliket Foodstuff Joint Stock Company, HCMC

24) Ms. Do Phuong Lan, Vice director of NAFOSTED, Hanoi

25) Mr. Chu Vu Viet, Vice Training Manager, SME Technical Assistance Center in Ha Noi

26) Mr. Le Duc Trong, Director of Bat Trang Ceramic D&P Company, Hanoi

27) Mr. Nguyen Manh Hung, Chairman of People' Committee of Bat Trang, Hanoi

28) Mr. Le Xuan Pho, Chairman of Ceramic Association of Bat Trang, Hanoi

29) Mr. Thu, General Secretary, Ceramic Association, Hanoi

Documents reviewed for this evaluation (all from UNDP unless otherwise noted) includes:

ID	Name of Reports, Brochures and Articles	Prepared by	Issue date
1.	**EC&EE Policy and Institutional Support Development Program**		
1.1	Final report on development of the Circular on financial incentives for EC&EE activities	Team from MOI	3/2007
1.2	Final report on development of the Circular on EC&EE labeling and its pilot implementation	Team from MOI	6/2007
1.3	Final report on development of management information system software and use manual	ISE-ICT service Engineering JSC	6/2007
1.4	Report on the study tour to China	Study tour team	12/2006
1.5	Report on the study tour to Thailand	Study tour team	9/2007
1.6	Report on the incorporation of EC&EE into the government regulations on the Fund for technology transfer	Hoang Ngoc Doanh	6/2007
1.7	Report on experiences of some foreign funds for technology innovation in supporting SMEs to use EC&EE technologies	Pham Quang Tri	6/2007
1.8	Study on incorporating relevant EC&EE technologies into the Lists of technologies to promote energy saving and efficiency	Nguyen Manh Quan	6/2007
1.9	Possibility of incorporating EC&EE contents into government guidelines for the Law on technology transfer	Do Hoai Nam	6/2007
1.10	Experiences of some foreign countries in forming the lists of technologies (negative list, incentive list and limited list)	Dang Duy Thinh	7/2007
1.11	Transforming the Hanoi Center for technology transfer into a financial autonomy organization with a specialized EC&EE unit	Nguyen Huu Luan	7/2007
1.11	Report on study tour in Korea	Study team	8/2008
1.12	Report on financial incentives resources for the fund to support EC&EE investments; Report on institutional system for EC&EE Law implementation.		
1.13	Report on incorporating EC&EE into the National SME Development Program	Do Van Hai	10/2008
1.14	Document for setting up the EC&EE association	Heating Association	2/2008
1.15	Provincial policy documents of Binh Duong, Tien Giang, Hai Dung, Da Nang, HCMC, Binh Thuan, Hai Phong and Vinh Phuc…..	DOSTs	2007, 2008 & 2009
1.16	Energy Conservation Services in Vietnam- An Assessment of Institutional Framework for Energy	National Experts	2009

ID	Name of Reports, Brochures and Articles	Prepared by	Issue date
	Conservation Service Providers		
1.17	National technical regulation on Emission of Inorganic Substances and Dusts of the small business in the trade village	National Experts	2009 & 2010
1.18	Reports on some proposed articles included in the Decrees of guidance to implementing the Law on EC&EE	National Experts	6/2010
1.19	Reports of review and comment to the drafted Law on EC&EE	National Experts	5/2010
1.20	Report on incorporating EC&EE into the National SME Development Program: - Evaluation and organizing reports and training materials of training courses in Danang and Hanoi. - Final training materials on EC&EE incorporate training courses into the government training program for SMEs in National SME Development program	TAC- HaNoi	2009/2010
1.21	The final draft of Environmental Standards on GHG emission for production villages - Workshop report on draft of Environmental Standards on GHG emission for production villages	MONRE	2009/2010
1.22	The report on completing the establishment of Vietnam Energy Conservation and Efficiency Association and organizing the 1st National congress of the Association	National Experts	09/2010
2.	**EC&EE Communication and Awareness Program**		
2.1	Brochure on introduction to PECSME project	PMU	6/2006
2.2	Introduction to the PECSME project's activities on Tet 2007 & 2008 Calendar	PMU	12/2007, 12/2008
2.3	Leaflet on introduction to EC&EE solutions in making paper	ECC HCM	6/2007
2.4	Leaflet on introduction to EC&EE solutions in food processing sector	ECC HCM	8/2007
2.5	Leaflet on introduction to Food-Processing DEMO	ECC Danang	6/2007
2.6	Leaflet on introduction to VSBK technology	IHERE	7/2007
2.7	Leaflet on introduction to EC&EE solutions in ceramic sector	PMU & Vinaceglass	8/2007
2.8	Leaflet on introduction to EC&EE solutions in textile sector	ECC HCM & PMU	8/2007
2.9	Leaflet on introduction to LGF Program	PMU and Vietinbank	5/2007
2.10	Stick paper on promoting EC&EE use	ECC HCM & PMU	12/2007
2.11	Leaflet on promoting EC&EE use for Women Union staff	Vietnam WU	11/2007

ID	Name of Reports, Brochures and Articles	Prepared by	Issue date
2.12	Leaflet on promoting application of EC&EE for Haiphong's SME		11/2007
2.13	Revised Leaflet on introduction to VSBK technology	PMU	6/2008
2.14	Poster on promoting application of EC&EE solutions	ECC HCM	5/2008
2.15	EC&EE newsletter No. 1 – No. 16	PMU & NACESTI	2007 – 2010
2.16	30 TV programmes	PMU, WU, DOST Bacninh, DOST Haiphong, ECC HCM	2007 -2009
2.17	28 VOV programs	VOV	2007-2009
2.18	07 exhibitions reports	ECC-HCMC, ECC Ha Noi, TTCs	2007-2009
2.19	150 articles on EC&EE	Reporters	2007-2009
2.20	Introduction to the PECSME project's activities on Tet 2011 Calendar	PMU	2010
2.21	EC&EE newsletter No. 17 - 20	PMU & NACESTI	2010
2.22	4 TV programmes	PMU, Haiphong, ECC HCM	2010
2.23	4 VoV programs	VOV	2010
2.24	30 articles on EC&EE	Reporters	2010
2.25	Report on KAP assessment on EC&EE use of SMEs		
3.	**EC&EE Technical Capacity Development Program**		
3.1	Training Need Assessment	IIEC & CRC	25/6/ 2007
3.2	Training Plan of PECSME Training Program	IIEC & CRC	15/7/2007
3.3	Training Material Assessment	IIEC & CRC	11/2007
3.4	Training Material of Module 1 – Energy Audit & EC&EE Technology	IIEC	6/7/2007
3.5	Training Material of Module 3 – Contracting, Monitoring and Verification of Energy Savings	IIEC	12/10/2007
3.6	Training Material of Module 6 – Investment Grade Study	IIEC	7/3/2008
3.7	3 Training Evaluation Reports of 3 training modules conducted in Hanoi and HCMC	IIEC &CRC	After each Training Course
3.8	Training materials of EC&EE Techniques and EE Technology Operation for SMEs in five selected sectors	ECC HCMC, IHERE and Battrang Design & Production Co.	2008 – 2009
3.9	Evaluation report on training program for local trainers, EESPs and DoSTs	CRC	10/2008

ID	Name of Reports, Brochures and Articles	Prepared by	Issue date
3.10	Evaluation report of training courses for SMEs managers & Technicians, and DoST officers	IHERE, ECCs/TTCs, D&P Co	2007 – 2009
3.11	Final evaluation report of training program impact	CRC	2009
3.12	Final training document of EC&EE for SMEs in Bick and Ceramic sectors	Professional Experts	2010
3.13	Final training document of EC&EE for SMEs in Textile, Paper & Pulp, Food Processing sectors	Professional Experts	2010
3.14	Guidelines for SMEs training organization	PMU	2010
4.	**Energy Efficiency Service Provision Support Program**		
4.1	Training Material of Module 2 – Financial Analysis & Loan Document	CRC	31/8/2007
4.2	Training Material of Module 4 - Project Implementation Management	CECEM & CRC	28/4/2008
4.3	Training Material of Module 5 – Service Marketing & Business Strategy	IIEC	1/2/2008
4.4	Survey report on local capabilities of EE Equipment providers for brick and ceramic enterprises	VIBM and Mr. Ekhard Rimpel	6/2008
4.5	Training material and Training Evaluation Reports of on job-trainings on EC&EE in paper sector and food-processing	Eneteam	During QI & QII, 2008
4.6	Training materials on VSBK technology transfer and on improvement of capacity of EC equipment and service providers in ceramic sector	VIBM and IHERE	During QIII & QIV 2008
4.7	Report on evaluation of energy performance of locally manufactured equipment for brick and ceramic sectors	VIBM and Mr. Ekhard Rimpel	9/2008
4.8	Document on Energy Performance Contracting (EPC) Methodology	Philippe Lavoie	4/2009
4.9	IGS of one EPC project	Hatech	6/2009
4.10	Final report of EPC project implementation	Hatech	11/2009
4.11	Model business plan & marketing for the Bat Trang ceramic Design and Production Co	National Expert	11/2009
4.12	The list of EC&EE technologies to be integrated in the National R&D Program on CC Response	National Experts	4/2010
4.13	Reports of 2 EPCs replication projects: IGS, Implementation report, final report	Hatech	11/2010
4.14	5 books about guideline in: brick, ceramic, energy audit	National experts, Bach Khoa publisher, PMU	11/2010
4.15	Training materials for energy audit in 2 sectors	Enerteam	9/2010
5.	**EC&EE Financing Program**		

ID	Name of Reports, Brochures and Articles	Prepared by	Issue date
5.1	Training Material of Module 7 – Introduction to EE Investment Projects for Financial Sector	CRC	5/12/2008
5.2	Design of Loan Guarantee Fund Program	IC & Local Financial Team (MOF)	7/2006
5.3	Agreement on LGF Management	PMU, MOF & Vietinbank	12/2006
5.4	Guidelines on LGF Operation and Vietinbank Loan Program	Vietinbank	5/2007
5.5	Leaflet on introduction to LGF Program	Vietinbank	7/2007
5.6	Leaflet on introduction to Vietinbank Loan Program	Vietinbank	7/2007
5.7	Evaluation report of LGF operation	Nguyen Thi Hien	8/2008
5.8	Amendment of LGF Agreement	Vietinbank, UNDP & PMU	12/2008
5.9	Evaluation reports of two training on benefits and risk of EC&EE project for banking officers	Vietinbank &PMU	4/2009
5.10	Assessment report of EC risk loan guarantee	National Expert	1/2010
5.11	Recommendation on Loan Guarantee Fund Exit Strategy	National Experts	10/2010
5.12	Final Statement to Prime Minister on LGF Exit Strategy	National Experts & PMU	10/2010
5.13	CDM training materials	International expert	1/2010
5.14	Fist demo MIS software for LGF management	Goldstar Company	12/2010
6.	**EC&EE Demonstration Program**		
6.1	Documentation of 12 DEMO Projects including: Energy audit reports, Feasibility Studies, Implementation Reports and Verification Reports	ECC-HCMC, Enerteam, IHERE, VIBM	During 2006 -2010
6.2	Documentation of 584 Replication Projects and Impact Projects including: 457 Energy Walk-through audit reports, 180 Detail Energy audit reports, 75 Feasibility Studies, 521 Implementation Reports and 351 verification reports	EESPs	During 2007 -2010
6.4	PECSME' Guideline for Selection and Implementation of EC&EE Projects and revised version of the guideline.	PMU	5/ 2007 2/2009
6.5	Updated version of Information Management System of Implemented EC&EE Projects	PMU	11/ 2008 – 2010
7.	**Project Management**		
7.1	Project Inception Report	PMU & IC	1/2006

ID	Name of Reports, Brochures and Articles	Prepared by	Issue date
7.2	Regulation of PMU Operation and Management	PMU & MOST	2006
7.3	Project Monitoring and Evaluation Plan	ISTA	5/2008
7.4	Quality Management Guideline	ISTA	6/2008
7.5	Draft Statement to Prime Minister on LGF Exit Strategy	PMU	5/2010
7.6	Proposal for Project Extension until June 2011	PMU	6/2010

APPENDIX D – REQUIRED PROJECT IDENTIFICATION AND FINANCIAL DATA

I. Project Identification

GEF Project ID: 1336

GEF Agency Project ID: 2057

Countries: Vietnam

Project Title: Promoting Energy Conservation in Small and Medium Scale Enterprises (PECSME)

GEF Agency (or Agencies): UNDP - United Nations Development Programme

II. Dates

Milestone	Expected date	Actual date
CEO endorsement/approval		March 02, 2005
Agency approval date		October 21, 2005
Implementation start		November 15, 2005
Midterm evaluation		September 15, 2008
Project completion		June 30, 2011
Terminal evaluation completion	October 1, 2010	April 13, 2011
Project closing	October 21, 2010	June 30, 2011[32]

[32] Proposed to extend to September 30, 2011

III. Project Framework

Project component	Activity Type*	GEF financing (in $)		Co-financing (in $)**	
		Approved	Actual	Promised	Actual
1	Scientific and technical analysis	331,448	403,963.05	650,000	432,601
2	Technical assistance	549,052	584,565.75	620,000	656,347
3	Technical assistance	389,453	323,530.24	500,000	451,770
4	Technical assistance	484,024	421,054.02	1,690,000	955,343
5	Technical assistance & Loan	2,023,743	1,939,361.76	1,100,000	2,320,000
6	Technical assistance & Investment	648,284	590,275.11	18,260,000	29,287,839
7	Project management	938,356	891,562.76	480,000	419,202
8	Monitoring and Evaluation	104,641	67,729.52	0	
		5,469,000	5,222,042.21	23,300,000	34,523,102

* Activity types are investment, technical assistance, or scientific and technical analysis.
** Promised co-financing refers to the amount indicated at the point of CEO endorsement / approval.

IV. Co-Financing and Leveraged Resources (in USD as of March 31, 2011)

Co financing (Type)	IA own Financing (mill US$)		Multi-lateral Agencies (Non-GEF) (mill US$)		Bilateral Donors (mill US$)		Central Government (mill US$)		Local Government (mill US$)		Private Sector (mill US$)		NGOs (mill US$)		Total Financing (mill US$)		Total Disbursement (mill US$)	
	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual	Pro-posed	Actual
Grant															**0.00**	**0.00**	**0.00**	**0.00**
Credits															**0.00**	**0.00**	**0.00**	**0.00**
Loans							1.00	1.26*			18.10	1.03**			**19.10**	**2.29**	**0.00**	**0.00**
Equity							0.60	0.64	1.00	1.64	1.00	28.86***	0.50	0.43	**0.00**	**0.00**	**3.10**	**31.57**
In-kind							0.50	0.45	0.60	0.21					**0.00**	**0.00**	**1.10**	**0.66**
Non-grant Instruments															**0.00**	**0.00**	**0.00**	**0.00**
Other Types															**0.00**	**0.00**	**0.00**	**0.00**
TOTAL							2.10	2.35	1.60	1.85	19.10	29.89	0.50	0.43	**19.10**	**2.29**	**4.20**	**32.23**

Notes:

* Loan provided by VEPF

** Loan provided by Vietinbank

*** Investment by SMEs

APPENDIX E – ORIGINAL APRIL 2004 PROJECT FRAMEWORK DESIGN

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
A. Project Goal			
1.1. The annual growth rate of GHG emissions from SMEs is reduced through the removal of major barriers to adoption of more energy efficient technologies and energy management practices	Cumulative GHG emission reduction from SME' activities of about 962.0 ktonnes CO_2 by the end of Year 2009.	- Documentation of energy consumption for 5 major SME sub-sectors by PMO. - Inventory conducted by MONRE.	Energy consumption monitoring activities under the project are fully supported.
B. Project Purpose			
2. Energy utilization efficiency in SME sector is significantly improved	Cumulative energy savings of 136.1 KTOE in the SME sector achieved by end of Year 2009	Documentation of the number of EC&EE investments implemented.	Energy policies encouraging EC&EE are strictly and seriously enforced.
	Average energy cost per unit production in the SME sector is reduced by 10-15% by Year 5.	Project surveys in 5 major SME sub-sectors and evaluation reports.	Reliable data on energy savings are available from SME financial records.
C. Project Outputs			
1. EC&EE Policy and Institutional Support Development Program			
Increased impact of existing policies as well as from the recently enacted EC&EE decree through strengthened capacity of relevant Govt. Ministries, Departments and Agencies in effective policy and institutional design, guidance, implementation and enforcement of energy conservation measures.	Timely development and implementation of necessary regulations, circulars, support and control mechanisms and enforcement giving practical effect to existing policies; and greater use of environmental standards to reduce GHG emissions by Year 3.	- EC&EE policy recommendations - Relevant circulars & regulations. - Survey on impact of incentives. - Documentation of EC&EE aspects of national SME development program. - EC&EE Expert Assoc. Reports.. - New environmental standards enforced by NEA.	- Related ministries assist development of relevant circulars and regulations. - Strict enforcement of circulars and regulations on incentives. - MOST and ECCs support capacity building activities. - SMEPC and SMEDD consider EC&EE in SME development.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
1.1 Improvement of EC&EE Awareness and Building Capacity on EC&EE Policy Development.	- 3 national seminars with total of 400 participants held in the first and second years. - 4 training courses held with 100 central and local government officers trained by Year 2 & 3. - 4 study tours conducted during Years 2 and 5. - At least 2 policy papers prepared and 2 policy recommendations on EC&EE proposed by capable policy makers at central and local levels every year starting Year 2.	- Attendance reports and profiles. - Proceedings of each workshop highlighting recommendations for integration of EC&EE in SME development policies. - Training reports. - EC&EE elements incorporated in SME development policies at national and local levels. - Documented contribution by trainees to subsequent project activities. - Documentation of EC&EE policy recommendations.	- Central and local government will involve key policy makers in formulation of SME EC&EE development policies. - Relevant individuals and institutions are interested in EC&EE and SME development, and share relevant knowledge. - Active participation by relevant ministries and local government. - Relevant individuals and appropriate institutions exist abroad that meet study tour requirements.
1.2 Development of Incentive Policies for Supporting EC&EE Investment in SMEs	- Circular on Labeling formulated and approved by MOI by Year 3. - Circular on Tax Incentives & Financial Incentives formulated and submitted to MOF for approval by end-Year 2. - Regulation on SME EC&EE technology transfer formulated and approved by MOST by Year 3.	Documentation of the relevant circulars and regulations.	- Responsible ministries will commit to develop circulars and regulations. - Circulars and regulations on incentives for EC&EE investments in SMEs are strictly enforced.
	- Workshops on the introduction and promotion of new circulars completed by Year 3. - At least 500 SMEs utilize incentives during Years 3 to 5.	- Workshop proceedings. - Survey report on impacts of incentive policies.	- Circulars are approved. - SMEs are interested in utilizing available incentives.
	Recommendations on future enhancements of SME EC&EE policies completed by Year 5.	Documentation of policy recommendations.	Impact assessment reports of new policies are made available.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
1.3 Provision of Technical Assistance for SMEPC and SMEDD to Incorporate EC&EE Program into the National SME Development Support Program	A suitable EC&EE support program highlighting promotion policies for the practice of EC&EE in SMEs is incorporated into the National SME Dev't Program by Year 4.	Documentation of the national SME development program.	SMEPC and SMEDD consider EC&EE as an essential element in SME development programs.
1.4 Establishment and Operation of EC&EE Coordinating Agencies in the SME Sector and Provincial Technical Support Networks	- VECP and ECC capacities and facilities improved by Year 1. - At least 80% of the VECP/ECC trainees substantially contribute to implementation of PECSME activities by Year 2.	Progress report by PMO, VECP and by ECCs.	MOST and ECCs commit to support the capacity building activities of the PECSME project.
	- EC&EE Expert Association established by end-Year 3. - At least 200 EC&EE projects are annually supported by the Expert Association, starting Year 4.	Documentation of the establishment of the association. Annual Reports of the association.	There are sufficient EC&EE experts interested in forming and sustaining an association.
1.5 Supporting Relevant State Agencies in Developing EC&EE Regulations	- Regulations on Energy Efficiency Service Providers' Accreditation drafted and approved by MOI by Year 3. - At least 3EC&EE service providers accredited by DOIs each year starting Year 4.	Documentation of regulations and accreditation.	MOI and DOI will be interested in receiving this assistance.
	Direction on regular energy consumption reporting by industrial enterprises is drafted and approved by MOI by Year 2.	Documentation of regulations.	MOI will be interested in receiving this assistance.
1.6 Supporting NEA in Studying and Modifying Environment Standards Related to GHG Emissions	- Recommendations on modification of environmental standards to incorporate EC&EE concerns are completed by Year 4. - 3 new environmental standards influenced by PECSME enforced by NEA by	- Documentation of EC&EE recommendations addressed in environmental standards. - Documentation of new standards recommended by PECSME that are enforced by NEA.	NEA will be interested in receiving this assistance.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
	Year 5.		
2. EC&EE Communications and Awareness Program			
Enhanced SME and public awareness of EC&EE through increased effectiveness and regular updating of an integrated information collection, dissemination and reporting system.	Establishment and operation of an integrated communications strategy that underpins the development of an information system that gathers information from SMEs, development of information, dissemination of information through appropriate range of channels, and working with and through a range of information providers by end-Year 3.	- Completion of Communications Strategy - Progress reports. - Documentation of training materials. - Lists of training participants. - Website hits on EC&EE info. - Evaluation of awareness campaigns. - Report on SME EC&EE projects. - SME energy-use database. - Published leaflets and booklets. - Documentation of info packages. - Assessment of info. packages.	- Stakeholders willing to participate in development of, and "buy-into" into final communications strategy. - Participating organizations join & participate in info. networks. - SMEs are willing to provide energy use and other relevant information. - Government continues info program after project end. - SMEs participate in courses. - EC&EE Champions, EESPs, and ECCs actively participate.
2.1 Development of Communications Strategy	Strategy developed and agreed to by key stakeholders by end Year 1.	Documentation of completion and operation of strategy.	Capability exists or is contracted in to develop strategy.
2.2 Establishment of Information Dissemination Network and Strengthening the Capacity of Organizations Involved in Information Network	Strategy operation reviewed at end of year 2 and findings incorporated in revised overall communications strategy and its operation. Info. network established and relevant participating organizations identified by end-Year 1.	Findings of communications strategy adopted. Progress reports.	Necessary participating organizations are interested in joining network.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
	- 4 comprehensive training courses for participating organizations conducted annually in the first two years. - Substantial contribution by at least 80% of the trainees to the PECSME info. dissemination activities by Year 2.	Documentation of training materials and lists of participants.	Identified information organizations actively participate in the training courses.
	- Study tours for key information network participants conducted in the first and second years. - At least 80% of the study tour participants contribute their learning experiences to PECSME info. dissemination activities by Year 2.	- Reports of study tours. - Evaluation of study tour participant contributions to PECSME.	International organizations are willing to share their experiences.
2.3 Assessment of Awareness of SME and General Public on EC&EE	- Initial surveys on knowledge, attitudes and practices regarding utilization of energy among SMEs completed in Year 1. - Feedback surveys completed by mid-Year 4. - Recommended sustainable EC&EE information dissemination program incorporating recommendations based on SME feedbacks completed by mid-Year 4.	- Survey results (initial and feedback). - Reports on survey results and recommendations. - Documentation of the recommended sustainable information dissemination program post-PECSME.	- SMEs are willing to provide information needed. - Central and local government agencies of GOV continue to implement recommended sustainable info dissemination program post-PECSME.
2.4 Development of SME Energy-Use Database	- SME energy-use database developed by Year 2. - Database is ready and used by SMEs, suppliers and researchers in Year 3.	- Documentation of database. - EC&EE database fully operational and housed in MOI. - Documentation of the number of users of the database.	- The regular reporting of energy consumption by SMEs occurs. - SMEs cooperate in providing information needed. - Information provided is of sufficient quality to be useful.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
2.5 Dissemination of EC&EE Information to SMEs through the Network	Information gathered on EC&EE consultancy availability and specialization, available EC&EE technologies, contact points, financial assistance and regulations formatted and circulated to key stakeholders in information network as well as to ECCs in Year 3.	Documentation of information gathered and disseminated.	- Necessary information is made available. - Relevant organizations are willing to provide timely and high quality information.
	- Internet page on EC&EE information created based on SMEnet (the website of VCCI) and operated by Year 2. - Information posted on the web site regularly updated starting Year 3.	Record of the number of website visitors searching for EC&EE information.	SMEs and participating organizations are willing to provide timely and high quality information.
	- Leaflets and booklets on EC&EE published in Years 1 & 2. - Articles on 3 EC&EE topics published in leading local newspapers and magazines annually. - Information dissemination packages (comprising posters, advertisements, newsletters, small-sized stickers, training books, radio and TV programs) for seven target groups developed and implemented annually from Year 2.	- Published leaflets and booklets. - Documentation of the information packages for the seven target groups. - Report on assessment of information packages.	Stakeholders are interested and willing in participating in the program.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
2.6 EC&EE Advocacy and Awareness Campaigns	Workshops, forums and information exchange meetings conducted by ECCs every 6 months.	- Workshop proceedings. - Seminar proceedings. - Info. exchange meeting minutes. - Evaluation reports on effectiveness of EC&EE awareness campaigns.	EC&EE champions, target groups and ECCs actively participate.
	- 2 Exhibitions of energy efficient equipment conducted by MoST within project duration. - Suppliers successfully use PECSME marking materials to sell their EE equipments.	- Documentation of exhibitions held. - Evaluations by exhibition attendees. - Evaluations by exhibitors. - Exhibition sponsorship obtained.	- Energy efficient equipment suppliers will be interested to participate in these exhibitions. - SMEs will be interested to attend these exhibitions.
2.7 SME Registration of Interest in Obtaining Technical Assistance to Carry out EC&EE	- SME's registration of implementation of EC&EE projects conducted at ECCs starting Year 2 & 3. - At least 500 SMEs are registering to implement EC&EE projects through ECCs during Year 2 & 3.	ECC reports on SME registration of implementation of EC&EE projects.	- ECCs are capable of and willing to undertake this work. - SMEs are willing to register their interest in, and implementation of, EC&EE projects.
3. EC&EE Technical Capacity Development Program			
Improved skills in EC&EE implementation through enhanced training and evaluation	Establishment and operation of integrated and sustainable SME EC&EE training system for trainers, energy consultants, managers and technicians;.	- Lists of certified trainers. - Training material documentation. - Training course evaluations. - Surveys of SMEs. - SME energy use reports. - Energy audit reports.	- Trained trainers participate. - SMEs report energy use. - Technical universities and colleges include EC&EE in engineering curricula.
3.1 Provision of Training for Trainers	- Training materials completed and approved by end-Year 1. - 45 trainers certified by MOST by mid-Year 2. - About 75% of the trained trainers are providing EC&EE training under the project by mid-Year 2.	- Lists of certified trainers. - Documentation of training materials.	Trained trainers will participate in the subsequent training activities of the project.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
	5 trainers from universities and colleges trained abroad.	Documentation of training certifications.	Capable trainers selected to participate in training courses abroad.
3.2 Conduct of SME Training Courses	500 SME managers from selected provinces trained through 1 day-training seminars on benefits of EC&EE by Year 2	Training course reports.	- SMEs are willing to participate in training courses. - Regular energy consumption reporting by SMEs is implemented and is of sufficient quality to be useful.
	- 500 technicians from 500 SMEs in selected provinces in Northern, Central and Southern areas trained on EC&EE techniques and practices by Year 2 & 3. - 10 training courses on bankable EC&EE project design for SMEs conducted starting from Year 2. - At least 500 SMEs are implementing EC&EE techniques and practices from Years 3 to 5. - At least 500 SMEs that participated in the training courses are either implementing or planning to implement EC&EE projects from Years 3 to 5.	- Training course reports. - Survey of SMEs. - Energy Consumption reports submitted by the SMEs to DOI in selected provinces.	
3.3 Development of Sustainable EC&EE Training Programs for Relevant Universities and Colleges	- Design of EC&EE training programs completed by Year 4. At least 3 universities and colleges committed to include EC&EE in their engineering curricula by Year 5.	- Documentation of training programs for universities and colleges. - Documentation of commitments.	- Technical universities and colleges are interested in including EC&EE in their engineering curricula. - Education authorities approve the inclusion of EC&EE in engineering curricula.
3.4 Monitoring and Evaluation of Training Program	Redesign of the training program incorporating recommendations from evaluation findings completed by mid-Year 5.	- Documentation of evaluation reports. - Documentation of the redesigned training program.	

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
3.5 Conduct of Energy Audits in Selected SMEs	- Evaluation report on SMEs energy utilization performance completed and submitted to MOST by end-Year 2. - 60 energy consultants trained in energy auditing and undertake audits at selected sites by mid-Year 2. - At least 25% of trained consultants carrying out energy audits by Year 3.	- Documentation of energy auditing reports. - Evaluation reports.	- SMEs are aware of EC&EE benefits. - Capable energy consultants are available and are selected to participate in training courses.
4. Energy Efficiency Services Provision Support Program			
Fostering of growing competitive and sustainable energy efficiency services provision industry through enhanced business, engineering and financial skills.	Enhanced commercial energy efficiency service provision (EESP) industry effectively marketing services to SMEs leading to wider use of energy audits; increased uptake of energy audit recommendations, providing specialist services such as enhanced plant design, process integration, energy monitoring and plant commissioning, and establishment and implementation of planned preventive maintenance regimes by Year 3. Improved knowledge of, training in, and R&D support for, local EC&EE equipment supply by Year 3	- EESP training evaluation reports. - Establishment of EESP institutional and legal framework. - Establishment of new EESPs. - Documentation of technical assistance provided to EESPs. - Evaluation of EESP contracts and projects. - Evaluation of EESP service delivery. - Local equipment supply capability reports. - Documentation of R&D program.	- Existing EESPs interested in receiving technical assistance. - Energy consultants, financers, and entrepreneurs interested in forming new EESPs. - EESPs provide reliable and quality energy services. - SMEs become aware of EC&EE benefits of using EESPs. - Local equipment suppliers will be interested in industrial equipment energy performance improvement.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
4.1 EESPs Training Program	- Managers from 15 selected potential EESPs trained on developing business plans and designing energy efficiency service packages by Year 2. - At least 10 EESPs start preparing business plans following the model presented in the training course by Year 3.	- Training evaluation reports. - Documentation of EESP business plans.	EESPs are interested in, and will attend the training programs.
	- 60 consultants from engineering consulting firms trained on EC&EE engineering and financial arrangements for investment projects by Year 2. - At least 75% of trained EESPs financing and implementing EC&EE projects by Year 3. - At least 3 new EESP businesses are legally established during Years 4 and 5. - At least 3 consulting firms incorporate energy efficiency services provision into their business operations each year starting Year 4.	- Training evaluation reports. - Documentation of EESP projects. - Documentation of establishment of new EESPs. - Company reports.	EESPs and engineering consultants are interested in, and will attend, the training programs.
4.2 Development of a Suitable Institutional and Legal Framework for EESP Activities	A suitable institutional and legal framework for EESPs prepared by consultants and submitted to MOI by Year 2	Documentation of institutional and legal framework for EESPs.	Energy consultants, entrepreneurs and financers are interested in energy efficiency service provision businesses.
4.3 Provision of Assistance for EESP Operations	Technical assistance provided to local EESPs in making bankable project proposals, business plans and in securing financing for SME clients by Year 3.	- Documentation of technical assistance. - Progress reports by PMO.	EESPs are willing to receive this technical assistance.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
	Development of EESP energy efficiency engineering design tools and model marketing strategies by Year 3.		
4.4 Supporting the Implementation of Standardized Contracts to Deliver EESP Services to SMEs	A total of 50 EESP contracts for providing energy efficiency services marketed and implemented with SMEs during Year 3 and 5.	- Documentation of signed contracts. - Evaluation report on service delivery.	- SMEs are aware of EC&EE benefits. - EESPs have capacity to provide reliable quality energy services.
4.5 Assessment of Local Capabilities for Energy Efficient Equipment Provision	- Evaluation of capabilities of local EE equipment provision prepared by mid-Year 2. - Recommendation on EE equipment provision development program prepared and submitted to MOST by the end-Year 2.	- Documentation of evaluation reports. - Documentation of recommendations on EE equipment provision development program.	- Local EE equipment providers cooperate and share reliable information on their operations. - Local EE equipment providers are interested in supplying improved EC&EE performance equipment.
4.6 Evaluation of Energy Performance of Industrial Equipment	- Evaluation of energy performance of locally produced industrial equipment prepared by end-Year 2. - Identification of energy performance improvement potential for locally produced industrial equipment completed and submitted to MOST by end-Year 2.	- Documentation of evaluation reports. - Documentation of identification of potential improvements.	Local industrial equipment providers are interested in improving the energy performance of industrial equipment.
4.7 Technical Capacity Building for Local Equipment Manufacturers/Fabricators	- Training courses on high efficiency equipment design and production technologies for local manufacturers/fabricators conducted by Year 3. - At least 3 manufacturers are either implementing or planning to invest in production of high-energy efficient equipment.	- Training course reports. - Survey of local equipment manufacturers/fabricators.	Local equipment manufacturers/fabricators are willing to participate in training courses.
4.8 Design of a Sustainable	An R & D program supported by	Documentation of the program.	Local equipment

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
EC&EE Research and Development Program	local equipment manufacturers/fabricators and MoST completed by mid-Year 4.		manufacturers/fabricators express their interest and are interested in financial support.
5. EC&EE Financing Support Program			
Increased financial system willingness to lend to SMEs for EC&EE projects through enhanced knowledge of EC&EE and greater skills in preparing and evaluating loan applications	Mobilization of finance for SME EC&EE investments through loan guarantee fund by year 2, and development of a sustainable EC&EE project financing system by year 5.	- Seminar materials developed. - Training courses' evaluation. - Information page on VCCI website. - Publication of brochures/guides. - EC&EE SME loans made.	- Financial institutions interested in, send capable staff to training, and extend credit to SME sector. - VCCI supports activities. - Existing environmental funds provide funding for EC&EE.
5.1 Increasing Banking and Finance Sector's Awareness of Benefits of EC&EE Projects	- 5 seminars on risks and benefits, and evaluation of, EC&EE projects for banks and financing institutions completed by Year 2. - At least 9 banks/FIs are providing loans for EC&EE projects to SMEs by Year 3.	- Documentation of seminar materials. - Documentation on SME loans made to EC&EE projects.	Banks/Financial institutions are interested in providing financing for EC&EE projects of SMEs.
	Enhanced skills of trained banking staff of 9 banks/FIs on EC&EE loan appraisals by Year 3.	Documentation of training course materials and training evaluation reports.	Banking institutions send appropriate staff to training courses.
	Technical service network is established by PECSME to help banks and financial institutions evaluate EC&EE projects by mid-Year 2.	- Documentation of the establishment of the network. - Progress reports of technical service network's operation.	Banking/Financial institutions are aware of this service availability.
5.2 Facilitating SMEs to Access Financing for EC&EE Projects	10,000 brochures/guides on sources of financing, loan guarantees, tax policies and bank requirements for EC&EE investments published and circulated to SMEs and each target group by Year 2.	Publication of brochures/guides by the project.	Financial incentives for EC&EE investments of SMEs are enforced.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
	- 5 annual roundtable discussions between banks and SMEs are conducted from Year 2. - At least 50 loan agreements are discussed in each round table meeting starting Year 2.	- Minutes of round table discussions. - Documentation on SME loans made for EC&EE projects.	Banks/Financial institutions are willing to extend credit to SME sector EC&EE investment projects.
5.3 Mobilisation of Guarantee Funding Mechanism	The existing guarantee fund in the Bank of Commerce and Industry is expanded and operated to support EC&EE investments by Year 2.	Documentation of the official establishment of the guarantee fund.	Financial institutions are interested in participating in the financing scheme.
	The guarantee operation regulation formulated and approved by Year 2.	Documentation of regulation.	
	Criteria for guarantee fund completed and enforced by Year 2.	Documentation of criteria used in the guarantee fund.	
5.4 Provision of Technical Assistance for Existing Development and Environment Funds to Provide Funding for EC&EE Investments	- EC&EE projects are considered as specific priority target group for existing environment funds by Year 3. - At least 20 EC&EE projects funded by these funds annually starting mid-Year 3.	- Annual reports of the environment funds. - Documentation of funding of SME EC&EE projects by the environment funds.	Managers of existing environmental funds are interested in providing funding for EC&EE activities in SMEs.
5.5 Evaluation of Established Financing Mechanisms	Evaluation of the effectiveness and viability of financing mechanisms completed by mid-Year 5.	Documentation of evaluation report.	Established financing mechanisms participate in evaluation.
	Recommendation on a sustainable financing program is completed by end-Year 5.	Documentation of recommendation on a sustainable financing program.	Established financing mechanisms participate in documentation.
6. EC&EE Demonstration Program			

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
Increased credibility of EC&EE through successfully implemented and evaluated demonstration projects	Demonstration of EC&EE management, operational and technology improvements in credible, monitored and evaluated projects completed by mid-Year 3, leading to 500 SME EC&EE investment projects presented to banks for loans from mid-Year 3.	- Demo project evaluation reports. - Documentation of implemented SME EC&EE projects. - Project progress reports. - Final project report.	- Supportive demonstration sites. - Financial institutions ready to provide EC&EE financing. - 500 replication SMEs commit to implement EC&EE investments.
6.1 Conduct of Comprehensive Techno-Economic Feasibility Analyses of Potential EC&EE Investment Projects	- Review of previous feasibility studies, as well as those during the PDF-B exercise) completed by mid-Year 1. - 10 investment projects selected by mid-Year 1.	- Evaluation reports of all projects reviewed. - Review reports for the selected projects.	SMEs are willing to cooperate in reviewing processes.
6.2 Identification and Evaluation of Demonstration Requirements	Criteria for selection of demonstration projects developed by the end-Year 1.	Documentation of selection criteria.	
6.3 Identification and Implementation of Removal of Demonstration Project Barriers	Financial assistance for demonstration investment proposals secured and arranged by mid-Year 2.	Documentation of financing arrangements for demonstration projects.	Financial institutions are ready and able to provide financing for demonstration EC&EE investments.
6.4 Establishment of Baseline Data for Demonstration Sites	Baseline data for demonstration sites established by Year 2.	Documentation of baseline data.	Demonstration sites provide energy use and other necessary data.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
6.5 Implementation of Demonstration Projects	- Design and bidding completed by the end of Year 1. - Equipment procurement and delivery at each site completed well within project time line. - Equipment and support facilities installed and completed within project timeline. - Installation and commissioning of each demonstration project completed well within project time line. - Demonstration site owners are satisfied with the technical assistance provided during facility start-up.	- Progress and evaluation reports. - Documentation of equipment supply proposals, approved bids, procurement, shipment, delivery and acceptance, and physical installation at demonstration sites. - Documentation of equipment design, installations and support facilities. Inspection and reports on completed facilities. Inspection reports, as well as the commissioning reports. - Documentation of technical services provided during facility start-up and initial operations.	Management of the 10 demonstration sites fully supports (especially financially) the implementation of the demonstration EC&EE projects.
	Training for demonstration project operating personnel completed by mid-Year 2.	Training materials produced.	Workers are capable of learning the necessary new operating skills.
	- Evaluation reports for each demonstration project highlighting operating and economic performance completed by Year 3. - Host demo sites report bi-annually the energy and GHG reduction impacts of their respective projects. - Survey of energy savings from demonstration projects conducted annually starting Year 3.	- Documentation of each technical and economic performance evaluation report. - Bi-annual reports submitted by demonstration site owners. - Survey reports including the survey evaluation reports.	Monitoring activities are fully supported by SME managers.
6.6 Monitoring and Evaluation of Demonstration Projects	- 3 national workshops presenting demonstration program results organized at Northern, Central and Southern areas by mid-Year 3	- Proceedings of the workshops highlighting the papers presented, issues discussed, and recommendations made. - Documentation of technical	All managers of demonstration sites commit to share experiences.

Project Strategy	Success Indicators	Means of Gauging Success	Assumptions
	- Documented evaluation of the operation of the demonstration program completed by end of project.	and economic performance evaluation reports. - Documentation of implemented EC&EE projects.	
6.7 Provision of Technical Assistance for Implementation of 500 EC&EE Investments	- Implementation of 500 EC&EE investments through guarantee and energy service delivery mechanism started mid-3rd year. - Increased annual collective energy savings from EC&EE projects of SMEs in the country bringing up the total to 136.1 KTOE by end of project.	- Progress report. - Final project report.	All relevant SMEs commit to participate in the program