



1. Project Data

Project ID

P116846

Project Name

VN-GEF-Clean Production & Energy Efficiency

Country

Vietnam

Practice Area(Lead)

Energy & Extractives

L/C/TF Number(s)

TF-99859, TF_0-99859

Closing Date (Original)

30-Jun-2016

Total Project Cost (USD)

4,149,407.00

Bank Approval Date

05-Jul-2011

Closing Date (Actual)

30-Jun-2017

IBRD/IDA (USD)
Grants (USD)

Original Commitment

2,374,407.00

2,374,407.00

Revised Commitment

2,373,815.19

2,373,815.19

Actual

2,373,815.19

2,373,815.19

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2. Project Objectives and Components

a. Objectives

As stated in the legal agreement, the objective of the Project is "to strengthen the capacity of the Socialist Republic of Vietnam and other key stakeholders for the effective delivery of the Program, thereby improving energy efficiency and reducing associated greenhouse gas emissions." (Global Environment Facility grant Agreement dated October 21, 2011, Schedule 1, page 4)

"Program" means the Vietnam National Energy Efficiency Program designed to improve energy efficiency and conservation in all sectors of the Recipient's economy and set forth or referred to in the Recipient's



Decision Number 79/2006/QĐ-TTg dated April 14, 2006. (GEF Grant Agreement, p.4 and 10). The Vietnam National Energy Efficiency Program will hereinafter be referred to as the VNEEP.

The project development objective (PDO) as stated in the Project Appraisal Document (PAD) and the Implementation Completion and Results Report (ICR) is to "strengthen the capacity of the Socialist Republic of Vietnam and other key stakeholders for the effective delivery of the national energy efficiency program in key industrial sectors, thereby improving energy efficiency and reducing associated greenhouse gas emissions."

This ICR Review is based on the legal agreement's statement of the project objective, which is the same as that of the PAD and the ICR. Since the project is fully financed by the Global Environment Facility (GEF), the PDO is also the Global Environment Objective (GEO) and there is no separate GEO statement.

The VNEEP was implemented in two phases. The VNEEP-I period ran from 2006 to the end of 2010. A successor Prime Minister Decision number 1427/QĐ-TTg dated 2-October-2012 approved VNEEP-II until the end of 2015.

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Will a split evaluation be undertaken?

No

d. Components

Component 1: Energy Efficiency Action Plans for Key Industrial Sectors. (Estimated cost of US\$3.21 million, of which US\$1.68 is the GEF grant; actual was US\$1.42 million of GEF funds)

This component supported (i) the provision of technical assistance for the formulation of energy efficiency (EE) strategies and action plans for energy-intensive and high growth industrial sectors (such as food/beverage, brick/ceramic, cement, chemicals, paper, and textile), and (ii) the establishment of voluntary agreements (VAs) with pilot enterprises in such sectors including support to government's introduction of policy incentives and dissemination of the results of the program. (GEF Grant Agreement, p.4 and ICR, paragraph 16)

Component 2: Development of Energy Service Providers. (Estimated cost of US\$0.59 million, of which US\$0.49 million was the GEF grant; actual was US\$0.49 million of GEF funds)

This component was intended to support the development of energy service providers and other stakeholders and build their capacity to implement mechanisms for the reduction of energy consumption



and the improvement of EE solutions. (GEF Grant Agreement, p.4 and ICR, paragraph 18)

Component 3: Capacity Building for Program Management and Monitoring and Evaluation.

(Estimated cost of US\$0.35 million, of which US\$0.20 million was the GEF grant; actual was US\$0.46 of GEF funds)

This component would enhance the capacity of the Ministry of Industry and Trade (MoIT) staff to implement, monitor, and evaluate EE projects, programs and policies. (GEF Grant Agreement, p.4 and ICR, paragraph 19)

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Program/Project Cost. At appraisal, the total cost of the program was estimated at \$4.15 million, of which \$2.37 million is funded as a grant from the Global Environment Facility (GEF), and \$1.78 million from the Recipient, part of which will be provided as in-kind contribution. (PAD Data Sheet). At the Actual Closing in June 2017, the total cost was \$3.53 million, of which \$2.37 million is from the GEF as before, a mere \$0.35 million from the Recipient and \$0.80 million from "local sources in the Recipient country" (investments by industrial enterprises). Throughout this document, "\$" refers to US Dollars.

Prior to posting this ICR Review, it was clarified that there were slight changes in the actual costs of the project components compared to those at the appraisal stage, because the savings from the components 1 and 2 were used to conduct additional studies/works under component 3. The client contribution was underestimated as the team cannot properly collect and/or verify the investments made by industrial sectors in responding to the EE circulars. The expected IDA project did not materialize due to the prematurity of the Vietnam EE market. Instead, an IBRD follow-up investment project was approved by the Bank--namely the Vietnam Energy Efficiency for Industrial Enterprises (VEEIE) (P151086)--as reported in the ICR.

It is noteworthy that the request for CEO Endorsement submitted by the World Bank to the GEF Secretariat in April 2011 was more ambitious, showing a project cost of \$29.65 million, comprising the \$2.37 million from the GEF, a Recipient contribution of \$1.78 million, an IDA Climate Change Development Policy Financing (DPF) of \$20 million, and loan or equity contributions from industrial companies of \$5.5 million. Clearly the expected program scope and cost appeared to reduce dramatically between April 2011 and June 2011 (the date of the PAD). The Climate Change DPF was presumably speculative at that time and can also be considered a separate associated project. A separate IDA Vietnam Climate Change and Green Growth DPF (\$63.5 million) was signed in June 2016, with a broader program development objective to (a) improve inter-sectoral coastal planning and public investment finance programming across selected key sectors in support of climate change and green growth action; (b) develop and safeguard selected natural resources services; and (c) promote selected cleaner production systems.

The expected financing from industrial companies did not appear at all in the PAD (although \$0.80 million



in this category did materialize by Actual Closing). Given that the earlier Project Identification Form (PIF) submission to the GEF (on 7-May-2009) indicated an even higher project cost of \$103.87 million (of which \$101.5 million was identified as co-financing), there may have been pressure to keep the appearance of substantial co-financing in place, even though there was obviously no guarantee that this would materialize.

Financing. The appraised amount of Bank finance was the US\$2.37 million GEF grant, as stipulated in the Grant Agreement. The actual disbursement at the Actual Closing was US\$2.37 million from the GEF as before. (ICR, p.2). The actual utilization of the proceeds of the GEF grant varied somewhat from the estimate at appraisal as follows:

Component 1: estimate at appraisal \$1.68 million, actual at closing \$1.42 million

Component 2: estimate at appraisal \$0.59 million, actual at closing \$0.49 million

Component 3: estimate at appraisal \$0.35 million, actual at closing \$0.46 million.

Borrower Contribution. The GEF Grant Agreement does not stipulate that the Recipient was required to make a financial contribution. At appraisal, the Recipient contribution was estimated at US\$1.78 million, part of which was to be provided as in-kind contribution. (PAD Data Sheet). At the Actual Closing in June 2017, a mere US\$0.35 million had been contributed by the Recipient, however an additional US\$0.80 million was invested by industrial enterprises in the Recipient country. (ICR, p.2).

Dates. The project was approved on 05-July-2011 and became effective on 21-Oct-2011. It underwent a mid-term review on 01-October-2014. A 12-month extension was granted moving the closing date from 30-June-2016 to 30-June-2017 to provide additional time to achieve the PDO indicators, monitor and evaluate the Project activities and impacts, and disseminate lessons learned. (ICR, p.10). The project closed on June 30, 2017.

3. Relevance of Objectives

Rationale

Country, Sector and Institutional Context: The very high relevance of EE in Vietnam is evidenced by the fact that energy demand tripled in Vietnam in the decade up to 2010, and at the time was projected to triple again in the decade up to 2020. The fast rise has been driven by sustained periods of rapid gross domestic product (GDP) growth (averaging 7.3 percent per annum during 1990-2010), along with three specific key factors: (a) increasing industrialization; (b) expansion of motorized transport; and (c) increasing household use of modern fuels, especially electricity. These factors have driven the growth in overall energy use at a higher rate than the already fast growth of GDP. The energy intensity of industrial production rose very sharply, from 129 kilogram of oil equivalent (kgoe) per US\$1000 in 1998 to 278 kgoe per US\$1000 in 2008,



in constant prices. The combined industrial fuel and energy use in Vietnam comprised about 48% of the total commercial energy use in 2008, making it a top priority area to achieve the challenging 5-8% EE improvement target of VNEEP-II. (VNEEP-I contained a 3-5% EE improvement target for the period up to 2010). The ICR (paragraphs 1-5) provides a solid description of the context, including good statistical references on energy use in Vietnam from the IEA and other sources.

Alignment with Strategy: The Project was well aligned with the objectives of the Country Partnership Strategy (CPS) for Vietnam from FY07 to FY11, that had a pillar dedicated to the strengthening of natural resources and environment management including (a) promotion of sustainable business practices and use of energy saving equipment and technologies, and (b) improvement of energy system efficiency.

It is also consistent with the successor CPS for Vietnam from FY13 to FY16. WBG support will include a more specific focus on enhanced energy efficiency – including through the development of renewable energy sources, policy actions in the industrial sector, demand-side EE measures (including tariff reforms), providing capital lines and advisory services, as well as awareness raising and strengthening of the regulatory environment, and analysis of low-carbon growth strategies. (CPS 2013-2016, paragraph 69). Given that the project achieved its revised (actual) closing in June 2017, the current Country Partnership Framework (CPF for FY18-FY22) may be relevant. CPF Objective 9 calls for the promotion of low carbon energy generation, including renewables and EE, and reduce GHG emissions.

It is also consistent with the long-standing GEF Focal Area Strategy to promote energy efficient technologies and practices in industrial production and manufacturing processes, among others. EE is a key element of the GEF's climate change objectives.

Rating
High

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

The key expected outcomes of the Project are: (i) strengthened capacity of the Government and other key stakeholders for the effective delivery of the VNEEP; (ii) improved EE; and (iii) reduced GHG emissions associated with the energy savings achieved. The achievement of these outcomes is measured through the set of indicators listed below.

1. PDO-level indicators:

- a) EE action plans adopted and launched in 4 key industry sectors;
- b) Pilot VAs for EE established in 5 enterprises; and
- c) 15 energy service providers (ESPs) trained on and applied advanced energy efficiency concepts.



2. Global Environment Objective (GEO) level results indicators:

- a) Energy savings achieved (360.4 ktoe);
- b) CO₂ emission reductions associated with energy savings achieved (1.25 MtCO₂).

Two longer-term objectives will be considered separately in line with the GEO-level results indicators. This is consistent with the published Results Chain (ICR, paragraph 8).

Objective 1 is to achieve energy savings.

Rationale Outputs

1. EE action plans and EE circulars (regulations incorporating energy consumption benchmarks and EE measures) were issued by MoIT for four targeted industrial sectors. Specifically, EE circulars were issued for three industrial sectors (chemicals, beverages and plastics) before the actual closing date, and for a fourth sector (pulp and paper) five months after the closing date. It was indicated in the ICR (paragraph 30) that these four sectors accounted for about 28% of the country's total energy consumption. Separately, Prime Minister Decision 1427/QĐ-TTg dated 2-October-2012 set benchmarks for the steel, cement, and textile and apparel industries to achieve at least a 10% improvement in the EE of unit production by the end of 2015, including through the replacement of low-performing equipment and the application of advanced technical standards and norms.

2. The pilot VA program with seven industrial enterprises was launched by MoIT in December 2016, six months before the actual closing of the project. Although there was clearly not enough time during the project timeframe to demonstrate the effectiveness of the pilot mechanism, it can be confirmed that the pilot program was "established", including by evidence on the VNEEP website (www.vneec.gov.vn) announcing the launch of the program and the first workshop in January 2017.

3. More than 75 staff from 30 ESPs were trained on and applied advanced energy efficiency concepts. (ICR, paragraph 32). A survey of ESPs was conducted regarding the usefulness of the training. (ICR, Annex 6). On the basis of the positive assessments by the ESPs, it would seem reasonable to assume that at least the targeted quantum of 15 of these ESPs actually applied advanced EE concepts resulting from the training. In addition, ESCO/ESP training was delivered to various government agencies and banking institutions.

[Per the ICR in footnote 17, an ESCO is a commercial business providing a broad range of energy solutions including designs and implementation of energy savings projects, retrofitting, energy conservation, energy infrastructure outsourcing, power generation and energy supply, and risk management in order to help customers improve energy efficiency].

Outcomes



1. Although the VNEEP ended at the end of 2015, the capacity the MoIT related to industrial EE policy and regulation appears to have been modestly enhanced despite understaffing, constrained internal funding and a recent reorganization of MoIT (ICR, paragraph 78). MoIT's potential inability to sustain and enhance the capacity created through the Project represents the main risk to the development outcome of the Project. (ICR, paragraph 77).

2. Energy savings were calculated to be greater than the target value (360.4 ktoe). The energy savings are calculated as 469.7 ktoe, comprising 429.2 ktoe from the adoption of the EE action plans and circulars, 18.2 ktoe from the VA pilot program with industries, and 12.3 ktoe resulting from the trainings. Almost all the energy savings are attributed to the adoption of the EE action plans and circulars. The first circular linked to the Project was issued for the chemicals industry around the end of 2013, and it was assumed that the GEO impact of the Project began to materialize from 2015. (ICR, paragraph 34). These results are characterized as indirect, since the Project itself is basically TA with no directly financed investment component of its own.

Two larger follow-on investment projects have already been approved, building on the achievements of the Project. These are "Vietnam Energy Efficiency for Industrial Enterprises" (P151086) with \$100 million IBRD loan, and "Scaling Up Energy Efficiency for Industrial Enterprises in Vietnam" (P164938) with \$75 million from the Green Climate Fund (ICR, paragraph 52). Very substantial energy savings are expected to be achieved, far exceeding those attributable to this Project alone. It is gratifying to see the clear connection between this preparatory TA Project and the larger follow-on investment project.

3. Given the late start of the pilot VA mechanism being piloted with the seven industrial enterprises, no meaningful results could reasonably be demonstrated regarding energy savings. To be fair, the demonstration of meaningful results from this specific initiative was not a pre-identified outcome of the Project prior to its closing date (it was only required to "establish" the pilot VA program). The efficacy of this approach should be clearly demonstrated one way or another during the follow-on investment projects that propose to scale it up. It is acknowledged in the ICR (paragraph 54) that a combination of measures will be needed to achieve meaningful energy savings in industry, and this is the focus of the follow-on investment projects.

It may be relevant for Vietnam in the future that highly ambitious and coercive EE enforcement measures have been implemented effectively in China during the last five years that include shutting down inefficient and polluting industrial enterprises (particularly inefficient industrial users of coal). Vietnam is at a much earlier stage of industrial development and environmental degradation than China. Per the "Vietnam 2035" report (111771-VN), Vietnam aspires to achieve upper-middle income status by 2035, at least 20 years behind China. Given the likely trajectory of future economic and industrial growth in Vietnam, some of the lessons learned from China's recent successes with improving industrial EE could be particularly relevant for Vietnam in the future.

Rating
Substantial



Objective 2

Objective

Achieve CO₂ emission reductions (associated with the energy savings achieved). This addresses the long-term environmental outcome from the viewpoint of the GEF mandate to achieve global environmental benefits.

Rationale

Outputs

1. EE action plans and EE circulars (regulations incorporating energy consumption benchmarks and EE measures) were issued by MoIT for four targeted industrial sectors.
2. The pilot VA program with seven industrial enterprises was launched in December 2016, six months before the actual closing of the project.
3. More than 75 staff from 30 ESPs were trained on and applied advanced energy efficiency concepts.

Outcomes

1. Although the VNEEP ended at the end of 2015, the capacity the MoIT related to industrial EE policy and regulation appears to have been modestly enhanced despite understaffing, constrained internal funding and a recent reorganization of MoIT.
2. GHG emission reductions were calculated to be greater than the target value (that was 1,254 kt CO₂e). The methodology identified in the "Manual for Calculating GHG Benefits of GEF Projects: Energy Efficiency and Renewable Energy Projects" was used. (ICR, paragraph 33). The calculated GHG emission savings are 2,283 kt CO₂e, comprising 2,099 kt CO₂e from the adoption of the EE action plans and circulars, 92 kt CO₂e from the VA pilot program with industries, and 91 kt CO₂e resulting from the trainings. Almost all the GHG emission savings are attributed to the adoption of the EE action plans and circulars. These results are characterized as indirect, since the Project itself is basically TA with no directly financed investment component of its own.

According to the World Bank database, Vietnam had a relatively low GHG emission level of 1.8 metric tons CO₂e per capita for 2014, however this is expected to rise rapidly as the economy continues to grow.

Rating

Substantial



Rationale

As stated in the ICR (paragraph 38), the Project met all PDO level indicators and is also likely to achieve the target GEO outcome indicators (energy savings and associated GHG emission reduction).

Overall Efficacy Rating

Substantial

5. Efficiency

After the Project became effective on 21-October-2011, there was a delay of about a year in establishing a fully functional Project Management Unit (PMU). The Project suffered implementation delays due to, *inter alia*, the prolonged vacancy of senior management positions in the PMU. The Project was also affected by MoIT's internal reorganization launched in 2012, which was shortly after the Project's approval. (ICR, paragraphs 58-59). The Project required a one-year extension to allow for additional time to implement outstanding activities to meet the PDO indicator targets, monitor/evaluate its impacts for scaling-up by the Government in the future, and completion of the dissemination and marketing activities. (ICR, Annex 3). Three of the four circulars were issued by the MoIT before the actual closing date, and the fourth was issued in November 2017, five months after the final closing date.

Although no economic or financial analysis was done at the time of Project appraisal, a cost-benefit analysis (presented in Annex 4 of the ICR) was completed to assess the economic value of the Project. The analysis shows that the Project results in net economic benefits when the global environmental benefits are considered. These economic benefits are driven by the valuation of the carbon emissions reduction, which is based on the social cost of carbon values recommended for World Bank projects. The economic net present value (EPNV) is equivalent to US\$8.6 million, which is equivalent to an economic internal rate of return (EIRR) of 153 percent.

It is noted in the ICR (paragraph 56) that the implementation period of the VNEEP (2006-2015) ended before the launch of critical capacity building initiatives under the Project, and Government funding to implement energy efficiency actions was reduced after the VNEEP ended. It is likely that this had a knock-on effect on the level of financing from industrial enterprises, where only \$0.80 million materialized instead of the expected \$5.5 million.

Efficiency Rating

Substantial



a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

| | Rate Available? | Point value (%) | *Coverage/Scope (%) |
|--------------|-----------------|-----------------|---|
| Appraisal | | 0 | 0 <input type="checkbox"/> Not Applicable |
| ICR Estimate | ✓ | 153.00 | 0 <input checked="" type="checkbox"/> Not Applicable |

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The key expected outcome elements of the Project are: (i) strengthened capacity of the Government and other key stakeholders for the effective delivery of the VNEEP; (ii) improved energy efficiency; and (iii) reduced GHG emissions associated with the energy savings achieved. It is noteworthy that the GEF grant has enabled larger investment projects that should decisively scale up industrial EE measures in Vietnam. In spite of the shortcomings observed and the resulting implementation delays requiring a time extension, the Project put a modest GEF grant of \$2.37 million to very good use, paving the way for the preparation of larger scale and higher impact follow-on investment projects. The follow-on investment projects include an agreement by Vietnam to take a \$100 million IBRD loan for scaling up industrial EE, and the provision of \$75 million of support from the Green Climate Fund to be used for partial credit guarantees to facilitate Vietnamese bank loans to industrial enterprises for EE improvement measures. This Project clearly played a positive and timely role in these developments by enabling the passage of key industry sector regulations that should propel future investments in EE on a larger scale.

a. Outcome Rating

Satisfactory

7. Risk to Development Outcome

Lack of enforcement of EE regulations – There is a risk that industrial enterprises, particularly those facing expensive technology upgrades to improve EE, will exhibit a low level of progress towards EE improvement. The efficacy of the VA approach remains to be assessed. There is no mechanism currently in place to enforce the provisions of the industrial EE regulations, and more specifically the circulars. The follow-on investment projects (P151086 and P164938) will provide additional support and financial instruments to scale up EE investments by industrial enterprises.

Government capacity constraint - Weak MoIT capacity to support EE measures is evidenced by the delays encountered during the Project due to inadequate staffing and expertise. While legislation and targets remain



in place, the VNEEP ended in 2015 at the end of its second 5-year phase. The follow-on IBRD investment project “Vietnam Energy Efficiency for Industrial Enterprises” (P151086) will provide additional TA and capacity building to the MoIT to strengthen policies and institutional capacity.

Potential macroeconomic setbacks – Unfavorable macroeconomic developments could lessen the incentives for EE investments. On the other hand, such developments might reduce overall energy consumption and emissions, as seen during the global financial crisis of 2008-2009. Over a longer time horizon, a positive economic growth trajectory seems highly likely given the exemplary economic track record of the last 20 years and the strengthening of the relevant institutional capacity and regulatory environment. The Project focused on important enabling activities that will remain highly relevant to achieving the development outcome.

8. Assessment of Bank Performance

a. Quality-at-Entry

The design of the Project was simple, clearly articulated, and had strong linkages to the Government’s development priorities and the Bank’s engagement strategy in the country. The low capacity of the implementing agency was adequately identified among the key risks threatening the achievement of the development outcome of the Project.

The Project design relied extensively on the assumption that existing measures regarding data collection, compilation, and dissemination were adequate for the needs of the Project, which affected the quality of the M&E of the Project. Little or no consideration was given to potential challenges in accessing good quality energy consumption data, and in a timely manner. (ICR, paragraphs 56, 57).

Quality-at-Entry Rating

Moderately Satisfactory

b. Quality of supervision

The Project benefited from the continuity in the World Bank’s supervision personnel. The World Bank’s Task Team Leader at closing was part of the Project preparation team, and involved in its implementation since inception. Similarly, the core members were based in Vietnam, and remained involved in the Project throughout closing. This continued presence allowed of the establishment of strong relationships with MoIT’s implementation team, and helped maintain the momentum. (ICR, paragraph 64).

Quality of Supervision Rating

Moderately Satisfactory



Overall Bank Performance Rating

Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

The Theory of Change linking the Project activities and the PDO and GEO outcomes and long-term outcomes is clear and well mapped in the ICR (paragraph 8). Critical assumptions supporting linkages between outputs and outcomes are indicated, particularly that the government has adequate enforcement capacity, participating enterprises are incentivized to meet the targets, ESPs have adequate technical and financing capacity to drive EE investments, and EE data collection is of good quality and accurate. All the outputs are clearly linked to the Project objective to strengthen the capacity of the Government and other key stakeholders for the effective delivery of the VNEEP, thereby improving energy efficiency and reducing associated greenhouse gas emissions.

PDO and intermediate level results indicators are provided in Annex 1 to the PAD. The units of measure are “number of action plans”, “number of pilot enterprises”, “number of ESPs”, “number of industry sector reports”, and “number of TA reports”. Quality or effectiveness-related measures were not included. The GEO units of measure are “ktoe” (kilotons of oil equivalent) of energy savings and “kt CO₂e” for GHG emission reductions associated with energy savings achieved.

MoIT, through its Energy Efficiency and Conservation Office (EECO), had responsibility for the overall M&E systems, including regular collection of data. MoIT has established a Project Management Unit (PMU) within EECO to undertake the day-to-day and overall coordination, supervision and management of the Project. (PAD, paragraphs 20 and 21). The PMU was primarily responsible for the collection and analysis of data required to assess the progress towards achieving results. It was supported by an external consultant, whose scope of work was to (i) develop an M&E methodology and an associated action plan; (ii) support data collection and verify the accuracy of data received from third parties; and (iii) evaluate the Project achievements relative to intended outcomes and impacts.

b. M&E Implementation

The situation is clearly laid out in the ICR (paragraphs 66-71). A M&E framework was not put in place until the fifth year of the Project, when an external M&E consultant was hired in October 2015. Until then, the PMU staff relied on alternative record keeping systems to provide input data regarding implementation progress, and thus progress related to the achievement of outputs could only be generated during the fifth year of implementation, apparently too late to inform decision making. In addition, the utilization of the impact evaluation tool was challenged by the unavailability of the relevant data required to assess the achievement of the GEO indicators.



The units of measure for the PDO and intermediate indicators were the number of deliverables (number of action plans, etc), and these are obviously very easy to measure. The GEO indicators are indirect given the Project is only TA, and their quantification is subject to a wide variation of potentially plausible assumptions over time. For example, measuring the impact of a policy action on industrial energy savings and associated GHG emission reductions cannot be an exact science.

While not linked to the Project, it is noteworthy that a substantial World Bank-supported effort involving IEG is currently underway to help the Vietnamese government build its own M&E programs. This includes building capacity to implement projects in a results-oriented way, and in a systematic rather than ad-hoc approach.

c. M&E Utilization

The M&E system (and particularly the output monitoring tool) was not properly in place until the final year of the project. This impeded the calculation of energy savings and associated GHG emission reductions. However the Project outputs that generate the savings and reductions were largely not in place until the end of the Project. One circular that was published midway through the Project was the basis for essentially all of the calculated energy savings and associated GHG emission reductions.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

The Project was classified as Category C at the time of appraisal as it was expected to have minimal or no adverse environmental impacts. The Project did not include feasibility studies or downstream investments, or finance demonstration projects.

b. Fiduciary Compliance

The first financial audit reports were rejected by the Bank due to unacceptable quality, and were subsequently revised to the Bank's satisfaction. Payment delays and slow disbursements were also identified during the



financial management supervision missions. Procurement activities and disbursements were slow during the first years of implementation. By Project closing, the fiduciary arrangements met the basic requirements in terms of staffing, accounting system, internal controls, financial reporting and auditing. (ICR, paragraph 73).

c. Unintended impacts (Positive or Negative)

In the ICR, paragraph 54, it is noted that contribution of the VA program was modest, and based on interviews with enterprises and industry associations, the program would have had a greater impact if the Government had provided appropriate support and incentives such as mandatory technical specifications, financial incentives, access to financing etc.

d. Other

11. Ratings

| Ratings | ICR | IEG | Reason for Disagreements/Comment |
|------------------|-------------------------|-------------------------|----------------------------------|
| Outcome | Satisfactory | Satisfactory | --- |
| Bank Performance | Moderately Satisfactory | Moderately Satisfactory | --- |
| Quality of M&E | Modest | Modest | --- |
| Quality of ICR | | High | --- |

12. Lessons

In the ICR, lessons and recommendations are provided in paragraphs 80 to 86, of which the main ones are quoted below:

- (1) Targeted policy-based interventions are effective ways to build stakeholder capacity, strengthen the sector dialogue and gather the analytical data required to design larger-scale follow-up interventions.
- (2) Lack of supporting financing mechanisms is a barrier to the scale-up of EE actions, especially for entities that have a weak financing capacity and limited access to capital markets.
- (3) Lack of adequate measuring, reporting, and verification (MRV) systems at the national level weaken the ability to monitor and enforce laws and regulations and potentially undermine the long-term effectiveness of policy interventions.
- (4) Timely design and implementation of the M&E framework is critical to the monitoring of project progress and the assessment of project outcomes.



In paragraph 84, the ICR notes that VAs constitute an innovative approach for promoting EE, but that they have a limited impact on EE improvement, and that parallel support mechanisms and incentives should be provided to VA enterprises to maximize the impact of the VA approach. IEG notes that the pilot VA program was not officially launched until December 2016, six months before the actual closing of the Project, and so it appears rather premature to opine on its effectiveness. The follow-on EE investment projects will support additional measures including financial incentives to scale up the VA approach in industrial sectors. The impact of the VA approach therefore remains to be tested. A larger question therefore remains as to whether this will be an effective approach over the long term. Course correction may be needed over time as the extent of demonstrated results becomes clear, with a possible need to move to a mandatory enforcement approach, for example as recently seen in China.

IEG also notes that the Project result indicators did not specify any criteria for the appropriate or minimum level of EE ambition of the MoIT's industry action plans and circulars (e.g. minimum 10% improvement of EE per unit of production in a specified time period). Attention to this could be warranted, given that they constitute key sector regulations that will drive the progress of EE improvements in the relevant industrial sectors. IEG does acknowledge the result measurement challenges posed by a Project such as this that is basically TA that is supporting an EE transformation in a rapidly evolving and highly competitive industrial ecosystem and a relatively weak institutional and regulatory environment.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR was quite comprehensive, well reasoned and well written. Results were neatly summarized in tabular form (ICR, paragraph 28). Good attention was paid to formulating and mapping the Theory of Change. Substantial relevant detail was provided on the reasons for issues and delays that were encountered, including the long delay in setting up the M&E system. Overall, a convincing case was made that the Project provided valuable assistance to MoIT and was likely the catalyst in issuing four EE action plans and circulars covering a large swath of Vietnamese industry. The work related to ESPs and VAs might be more tentative regarding evidence of effectiveness, but these issues were well covered in the ICR and anyhow these efforts will be scaled up in the follow-on investment projects. Further explanation could have been given on what measures the Bank team took to try to expedite the Project, and why the expected \$1.78 million of Government co-financing did not materialize. Only \$0.35 million was indicated to have materialized by the actual closing date.

a. Quality of ICR Rating



High