



## 1. Project Data

<b>Project ID</b> P103238	<b>Project Name</b> VN-Renewable Energy Development Project	
<b>Country</b> Vietnam	<b>Practice Area(Lead)</b> Energy & Extractives	
<b>L/C/TF Number(s)</b> IDA-45640,TF-98460	<b>Closing Date (Original)</b> 30-Jun-2014	<b>Total Project Cost (USD)</b> 198,289,141.07
<b>Bank Approval Date</b> 05-May-2009	<b>Closing Date (Actual)</b> 30-Jun-2018	
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>
Original Commitment	202,000,000.00	2,272,550.00
Revised Commitment	203,481,808.03	1,524,286.63
Actual	198,289,141.07	1,524,286.63

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## 2. Project Objectives and Components

### a. Objectives

The project development objective (PDO) of the Renewable Energy Development Project (REDP) is "to increase the supply to the national grid of electricity from renewable energy sources, on a commercially, environmentally and socially sustainable basis." (Financing Agreement dated June 16, 2009, Schedule 1, p. 6)



This ICR Review is based on the PDO stated in the Financing Agreement. The Project Appraisal Document (PAD) and the Implementation Completion Report (ICR) state the same objective. (PAD, p. 5; ICR, pp. 1, 10).

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

No

**c. Will a split evaluation be undertaken?**

No

**d. Components**

The project consists of the following parts:

**Component 1. Renewable Energy Investments** (*at appraisal: US\$313.67 million; actual: US\$424.16 million*) This component includes credit support for renewable energy (RE) investments and technical assistance (TA) for investment implementation by the Project Management Board (PMB) for Rural Energy and Renewable Energy of the Ministry of Industry and Trade (MOIT).

**Sub-component 1.1. Credit to Support RE Investment** This sub-component was intended to establish a re-financing facility for commercial loans provided by participating banks (PBs) in support of eligible RE sub-projects up to 30MW developed by private developers. These developers will commit at least 20 percent in equity funding and PBs will provide lending of up to 80 percent of each subproject's total cost.

**Sub-component 1.2. TA for Investment Implementation** This sub-component was intended to strengthen the capacity of: (i) MOIT to review and evaluate RE subproject proposals and re-financing applications; monitor the eligibility of PBs and developers; and oversee subproject implementation; (ii) PBs and private developers to prepare re-financing applications and implement RE-based subprojects; and (iii) MOIT to manage and coordinate REDP implementation, audit REDP accounts, and disseminate knowledge and information regarding RE development.

**Component 2. Regulatory Development** (*at appraisal: US\$1.03 million equivalent; actual: US\$1.49 million*). This component was intended to provide support to MOIT, Electricity Regulatory Authority of Vietnam (ERAV) and other relevant stakeholders to build the regulatory infrastructure for RE development, including to: (i) prepare laws and regulations on RE and carry out studies to support the application of power purchase agreements (PPA) and avoided cost tariff (ACT); (ii) develop mechanisms for the transparent allocation to developers of RE development sites; (iii) formulate technical standards for RE



technologies; and (iv) develop environmental and social safeguard guidelines for the implementation of RE projects.

**Component 3. Pipeline Development** (*at appraisal: US\$3.35 million; actual: US\$0.49 million*) This component was intended to carry out a program to facilitate the large-scale development of RE through: (i) support for the preparation of feasibility studies on potential RE subprojects (except small hydro) through the provision of cost-sharing grants to potential developers; (ii) build the capacity of potential developers of RE subprojects and of financial institutions in regard to analysis of investment risks, implementation of safeguard requirements, formulation of credit policies and appraisal of subprojects, through the provision of small grants to develop training programs; and (iii) carry out strategic studies on systemic barriers to and long-term potential for RE development.

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

##### **Project Cost:**

The total project cost was US\$426.1 million (ICR, p. 2 and p. 47) about a third more than the original project cost estimate of US\$ 318.05 million (PAD, p. 2 and p. 59) due to the increased non-IDA contribution (private developers and local financial institutions) to Component 1 (appraisal US\$113.77 million versus US\$227.85 million actual (ICR, p.47). The greater contribution by the non-IDA sources allowed the project to have additional budget, which was used to finance more MW SHP thus increased the project outputs and impact. Also, there was lower than expected demand for the feasibility studies from private developers despite substantial efforts by MOIT. Under Component 3, a portion of the co-financier Swiss trust fund (US\$0.92 million) was reallocated to Component 2, thus shifting IDA and grant proportions under Components 2 (IDA from 92% to 45%) and 3 (grant from 59% to 43%). (First Restructuring Paper, p. 4 and p. 8)

##### **Project Financing:**

The project was financed with an IDA Credit for US\$202 million (converted from XDR 136.9 million with the exchange rate of US\$1.475 = SDR 1 clarified by the team in August 2019), which was 100% disbursed. The actual XDR disbursement from IDA at project closing was XDR 136.87 million. At appraisal, the co-financing was to be provided by the Australian Agency for International Development (AusAID) for US\$2.28 million. However, the trust fund (TF) did not materialize as Australia shifted its development assistance priorities in the region. The Swiss Confederation through SECO (US\$2.43 million), took over to support REDP implementation on October 26, 2010 (Grant Agreement TF071499, p.1). Consequently, a Grant Agreement for the amount of US\$2.23 million was agreed upon between the World Bank and the



Government of Vietnam (GoV) on December 20, 2010 and became effective on April 25, 2011 (Grant Agreement TF098460, p. 1.)

### **Borrower Contribution:**

By the time of project closing, the Borrower had contributed US\$148 million which is 231% of its original commitment of US\$63.98 million at the time of project approval.

### **Restructuring:**

The REDP project was approved on May 5, 2009, became effective on September 14, 2009, and closed on June 30, 2018, exactly 4 years after its original closing date of June 30, 2014. The project was restructured twice. The first was on June 5, 2014 (date on Restructuring Paper cover; p. 2 of ICR indicates June 10, 2014), by which time US\$57.1 million had already been disbursed according to Operations Portal detailed disbursement activity list (or 29% of the final disbursement of US\$198.3 million). The second was on June 30, 2016, by which time US\$113.6 million had been disbursed (or 57% of final disbursement amount). Both restructurings were carried out to enable the project to fully meet its development objectives (i.e., change in results framework and safeguard policies triggered) and adapt to changing market conditions (i.e., change in loan closing dates, reallocation between disbursement categories and procurement). The details for each restructuring are described below.

#### 1) Level I Restructuring in 2014:

The first restructuring was needed to enable the project to comply with the Bank safeguard policies and provide a more attractive on-lending mechanism to fully meet its PDO. The project was performing poorly due to the deterioration of macroeconomic conditions and the banking sector in Vietnam in 2011-2013. The government also decided to tighten credit policy and therefore local banks became more conservative and were not willing to provide new loans to small RE investments that were considered risky. The restructuring would provide sufficient time and facilitate the completion of the pipeline subprojects and improve its performance ratings. The changes included: (i) triggering of an additional safeguard policy, OP 7.50: Project on International Waterways; (ii) a two-year extension to the project closing date to June 30, 2016 for the IDA credit and Swiss Grant; (iii) application of the latest World Bank's Procurement and Consultant Guidelines, published by the Bank in January 2011, and removal of thresholds for application of procurement and consultant selection methods and thresholds for the Bank's prior review; (iv) a reallocation of funds between the expenditure categories under the Swiss Grant (from US\$1.90 million to US\$0.98 million); and (v) other minor changes in project implementation arrangements, including removal of the Administrative Unit (AU) and transfer of responsibilities to the PMB. Lastly, the results framework and monitoring was revised to



include a new intermediate indicator on a national renewable energy database and reduced target for the capacity of RE project development from 50 MW to 25 MW due to reduced budget reallocation in (iv). The feasibility study support facility (FSSF) subcomponent under Component 3 was implemented slowly due to lack of interest of private developers in the facility despite substantial efforts by the MOIT. (First Restructuring Paper, p. 1,4 and 7).

## 2) Level II Restructuring in 2016:

The second restructuring was needed to provide additional time for the project to complete the ongoing subprojects and TA activities to meet its development objectives (ICR, p. 13). The changes included: (i) a two-year extension to the IDA credit to June 30, 2018; (ii) a one-year extension of the Swiss Grant to June 30, 2017; (iii) addition of a new eligible expenditures category for training and workshops under the Swiss Grant; and (iv) two revisions of the results framework. The revisions included a) rewording of PDO Results Indicator, from "Percentage of RE projects (small hydro) meeting new environment practices or having benefit sharing scheme", to "Percent of RE projects (small hydro) financed under REDP meeting the new environmental and social practices" ; and b) changes in three Intermediate Results Indicators--two reworded (from "Law on Energy Conservation and Renewable Energy" to "Law on Energy Conservation", and from "Decree on Renewable Energy" to "Renewable Energy Development Strategy") and one dropped ("Proportion of small hydropower projects that adopt new environment or benefit sharing practices") due to redundancy in PDO Results Indicator in a). (2nd Restructuring Paper, pp. 3-4).

## **3. Relevance of Objectives**

### **Rationale**

REDP was a response to the rapidly increasing demand for electricity in Vietnam due to the country's growing gross domestic product (GDP) of over 7 percent at project approval. The government was concerned that if the trend persisted, it would revert the country's dependence on fossil fuel and further digress from its development goals of addressing climate change risks. The country was also in transition to reaching middle-income country and market economy status and therefore the need for a commercially, environmentally and socially sustainable power sector was a government priority.

The relevance of the PDOs is high with respect to the current strategies of the Vietnamese government and the Bank. The objectives are fully aligned with the Country Partnership Framework (CPF) for FY2018-2022. REDP's objective of increasing the supply of electricity from RE sources directly address CPF's Focus Area 3 on "ensuring environmental sustainability and resilience" through "promotion of low carbon energy generation, including renewables, and energy efficiency and reduce GHG emissions" (Objective 9). The project's PDOs also address the government's commitment "to invest in RE sources", by



providing financing to small hydropower (SHP) development and addressing readiness gaps in capacity, market participation, and the regulatory and institutional environment.

The REDP was part of a wider WBG engagement supporting the RE sector in Vietnam since 1995. In 2002, a series of projects including the System Efficiency Improvement, Equitization, and Renewables Project approved in 2002 (SEIER, P066396) helped establish the policy and regulatory environment for RE. The Bank also provided analytical work and maintained policy dialogue to the Vietnam energy sector, all of which initiated the country's focus on RE. REDP's objectives continued the WBG's commitment in providing high quality and innovative investments in RE on a scale that is sufficient to have an impact.

## Rating

High

## 4. Achievement of Objectives (Efficacy)

### OBJECTIVE 1

#### Objective

To increase the supply of electricity to the national grid from renewable energy sources.

#### Rationale

#### Theory of Change

The project's Theory of Change (ToC) (ICR, p. 9) indicates that the project's key inputs (IDA credit and TA support) would directly lead to the achievement of the following project outputs: i) new SHPs developed; ii) increased capacity of sector policy makers and practitioners; and iii) enhanced project implementation and monitoring and evaluation. In turn, the outputs, together with technical assistance and institutional strengthening support, would be expected to increase supply of RE to the grid which is critical to Vietnam's renewable energy program. The causal pathway from project inputs to outcomes are straightforward. The outcomes achieved can be attributed directly to the project's interventions.

#### Outputs:



The following major output was achieved by project closing:

269 MW of RE installed capacity were added under REDP against the target of 250 MW. The ICR (Annex 8, p. 55) states that an additional 50.6 MW of installed capacity will be added after the completion of the last three subprojects by March 2019, which will result in a 128 percent achievement of the target.

#### Outcomes:

The target of 960 GWh for electricity supplied to the national grid by RE projects financed under REDP was surpassed by 11 percent. The actual achievement of 1,069 GWh was supplied by the 16 subprojects. All of the commissioned SHPs are reported operating safely and complying with safeguard requirements (ICR, p. 18). The ICR states that this achievement will improve to 1,260 GWh or 31 percent above target after the last three subprojects are completed by March 2019 with a total capacity of 319.6 MW. As of July 2019, the TTL confirmed that two of the subprojects are commercially operating and the construction of the remaining project (Son Tay) was completed, but its commercial operation will commence in August 2019 (delayed from the scheduled date of December 2018).

#### **Rating**

High

## **OBJECTIVE 2**

### **Objective**

To improve commercial sustainability of grid-connected renewable projects.

### **Rationale**

#### Theory of Change

The REDP was the GoV's response to establish a framework for small-scale grid-connected renewable projects to demonstrate the viability of these type of projects to the commercial banking sector, build capacity, and provide incentives among the stakeholders of the sector. The ToC indicates that the project's inputs (IDA credit, TA and grant support) would contribute to the achievement of all of the project outputs, based on some critical assumptions on market conditions and favorable policies implemented by the government. The causal pathways observed through different activities are the following: (i) increasing government capacity and developing a regulatory structure through RE laws and enforcement of



Standardized Power Purchase Agreement (SPPA) and Avoided Cost Tariff (ACT); and (ii) RE pipeline development through feasibility studies on new RE projects and special studies for long-term development of RE projects. These activities can be credibly expected to directly increase the commercial sustainability of RE projects.

#### Outputs:

The following outputs were achieved by project closing:

- 1,500 MW of installed RE capacity under ACT were financed by non-IDA sources (mobilized funds), which were ten times more than the target of 150 MW.
- 272 SPPAs for grid-connected renewables were signed, exceeding the target of 30 SPPAs by more than nine times.
- 80 percent of commissioned subprojects under REDP met the appraised budget, timetable and performance, which surpassed the target of 70 percent.
- A RE development strategy, an integrated National RE database and a New circular on ACT were developed and launched.

#### Outcomes:

**1. The target for electricity supplied to the national grid by grid-connected RE projects using ACT was overachieved by 795 percent.** With an end target of 1,250 GWh/year, the project achieved 11,193 GWh/year of RE supply at project closing. The ICR attributes this achievement to the "boom of SHP development on a commercial basis e.g., commercial lending, the ACT scheme", and the "successful launch and annual updates of the ACT scheme to all SHPs". The ICR (p. 19) included data from ERAV on the annual energy produced using ACT to show an increasing trend from 2010 when REDP was implemented. Under REDP support, the ACT scheme was reviewed, updated and published annually throughout project implementation. The scheme effectively contributed to enhance the regulatory framework and investment readiness for promoting SHPs in Vietnam, especially from the aspects of maintaining transparency, consistency and creditability of policies and improving bankability of SHPs. A demonstration effect of this successful scheme was that the GoV applied a similar mechanism to other technologies such as biomass and waste-to-energy.

**2. The successful implementation of the regulatory infrastructure of SHP development resulted in financial gains.** The RE capacity financed using ACT by non-IDA sources exceeded its target 10 times due to: (i) the government's support of SHPs; (ii) requirement to use ACT in all SHPs; and (iii) the increased financing capacities of the SHP market. The project's credit facility provided seed fund to mobilize additional funds from private developers and local banks. With coordination and support from the government,



REDP implemented favorable policies to encourage private sector investments in the sector. The mobilization of private capital in the amount of US\$227.85 million for SHPs from private developers and local banks leveraged IDA credits by 1.13 times, thus sending a signal to the market that banks are refinancing bankable projects. The ICR (p. 18) provided an estimate of 1,500 MW and US\$2 billion invested from private sector-financed SHPs outside of REDP lending. To demonstrate the viability of SHPs to the banking sector, financial benefits such as good production output and relatively generous tariffs from ACT were also achieved (ICR, Annex 9, p. 57). All completed subprojects generated robust revenues and the carbon purchase credits allowed private developers to repay the loans, cover operational costs and achieve profits.

Overall, the project provided proper instruments to address the absence of long financing tenors and the lack of skills and training among sponsors and bankers in assessing small-scale RE development. IEG assigns a high rating because the project significantly achieved this sub-objective through the mobilization of additional financing from the private sector, thus improving the commercial sustainability of small-scale, grid-connected RE projects.

**Rating**  
High

### **OBJECTIVE 3**

#### **Objective**

To improve social and environmental sustainability of grid-connected renewable projects.

#### **Rationale**

#### Theory of Change:

One of the barriers to RE development is the "weakness of private sponsors to develop a site in a technically, socially and environmentally sustainable manner..." (PAD, p. 4). This objective aimed to implement subprojects, through REDP, that are socially and environmentally sustainable. The ToC shows that through grant TA and IDA credit support, together with technical assistance and institutional strengthening inputs, the project could be expected to develop environmental and social guidelines for SHPs as well as technical standards for RE technologies (as outputs) and apply these to all subprojects financed under REDP, which will lead causally to improvements in the sustainability of grid-connected renewable projects (as outcomes).

#### Outputs:



The following outputs were achieved by project closing:

- An environmental guideline for small hydro was approved and launched.
- A social guideline for small hydro was approved and launched.
- The Law on Energy Conservation was passed.
- The Renewable Energy Development Strategy was approved.
- Technical standards for hydro was adopted.

Outcome:

Through TA support, the environmental and social guidelines for SHPs were adopted and applied to all the subprojects (ICR, p. 43). The target of 100% of "RE projects (small hydro) meeting new environment and social best practices" was met fully at project closing. However, the evidence is unclear on the sustainability of these RE projects. One of the results indicators was revised to exclude the "benefit sharing scheme" mechanism which initially served as a proxy for supporting the sustainability objective. There was no operational data disclosed in the ICR or any information on the extent to which these guidelines were mainstreamed and monitored after implementation.

IEG assigns a Substantial rating because all the subprojects fully adopted the social and environmental guidelines by project closing. However, there is a continuing need to monitor the sustainability of grid-connected RE projects beyond the project's closing date. There is a strong likelihood that this monitoring will be carried out given the Government's strategy and continuing donor support.

**Rating**  
Substantial

## Rationale

The project achieved its set of development objectives of increasing the supply of electricity to the national grid from renewable energy sources on a commercially, environmentally and socially sustainable basis. At closing, the project exceeded targets for two of three PDO indicators: (i) Electricity supplied to the grid by grid-connected renewables projects financed under REDP and (ii) Electricity supplied to the grid by grid-connected renewables projects using avoided cost tariff (ACT). The project also, fully met the third indicator: (iii) percentage of renewable energy projects (small hydro) meeting new environmental and social best practices.



## Overall Efficacy Rating

High

### 5. Efficiency

The economic and financial analyses were conducted for the project's RE Investments (Component 1) at appraisal and at project completion. The ICR indicates that of the 5 subprojects used to determine the aggregate ERR at appraisal, only one of the subprojects, Sung Vui, was eventually financed by REDP (the others withdrew from the project).

At project closing, 19 subprojects were refinanced with a total installed capacity of 319.6 MW, capital cost of VND 9,310 billion and average annual generation of 1,268 GWh (Annex 8 of the ICR, p. 55). Out of 19 subprojects, 16 are operational and actual data was used in the analyses while the other 3 ongoing subprojects used the latest available data at the time the ICR was written. An update from the TTL in July 2019 states that two of the 3 subprojects are now operational while the last subproject is further delayed (e.g., Son Tay). The estimated date of commercial operation is in August 2019.

The leverage ratio of REDP is 113% (US\$227.84 million was leveraged by US\$202 million IDA credits), which is double the leverage ratio estimated at appraisal of 56% (US\$113.77 million to be leveraged by US\$202 million IDA credit). The enhanced reliability of the enabling policy and tariff environment for SHPs through the ACT, and the increased confidence and capacity of PBs in financing SHPs, both contributed to the project's efficiency.

### Economic Analysis

Cost-benefit analysis was conducted at appraisal. Sensitivity analyses were also conducted based on: (i) risks to economic returns stemming from high construction costs, low oil prices and low energy generation; and (ii) consideration of the project's environmental benefits. *Ex ante*, all subprojects were found to be economically viable. Another economic analysis through the use of Monte Carlo simulation was used to calculate the ERR and the results showed that the risk of missing the hurdle rate when environmental benefits are included is less than 2% for each subproject. Both approaches concluded that the economic returns for the 5 subprojects were significantly above the hurdle rate, and robust with respect to the main uncertainties.

At the time of appraisal, the ERR for the first cohort of 5 subprojects was 17.3 percent. When GHG reduction benefits were included, the ERR was 20.8 percent and the NPV was US\$15.7 million. At project closing, the



ERR for the 19 REDP subprojects was 20.7 percent and the NPV was US\$315.9 million using the 10 percent hurdle rate set by MOIT. When GHG reduction benefits were included, the ERR increased to 24.2 percent.

Since Sung Vui was the only subproject implemented from the 5 subprojects at appraisal, an economic and financial analysis was also conducted separately on Sung Vui (ICR, p. 50). The subproject resulted in an ERR of 18.6 percent at completion, slightly higher than the 18.2 percent ERR at appraisal.

## **Financial Analysis**

At appraisal, the financial analysis used constant 2008 prices. The assumptions included: (i) carbon revenues at US\$15 per ton CO<sub>2</sub>, (ii) 20-year life, (iii) carbon emission reduction tax at 2 percent, (iv) the GoV's tax concessions are taken into account as income tax liability, (v) revenues at the published ACT; and (vi) O&M costs at 1.5 percent per year of the investment cost. It was also assumed that each of these subprojects was likely to be representative of further projects submitted for refinancing (PAD, p. 14).

The methodology used ex-ante and ex-post are similar, with the latter using actual costs and generated energy in the calculation. The updated ACT and carbon emission factor were also used to strengthen the ex-post analysis. The financial analysis results shows Sung Vui and a cohort of subprojects (ICR, Annex 4, p. 49). At project closing, Sung Vui's FIRR was 16.9 percent and its NPV was US\$6.86 million compared to its appraisal figures of 15.5 percent and US\$6.36 million, respectively. The cohort of projects as a whole, including Sung Vui had an FIRR of 20.8 percent and NPV of US\$93.3 million at project closing, compared to an FIRR of 14.6 percent and NPV of US\$12.13 million at project appraisal (PAD, p. 14).

## **Operational and Administrative Efficiency**

The ICR on p. 22 lists some key features of REDP design and implementation such as: (i) active participation of local PBs through the FI lending instrument; (ii) defined responsibilities between the project management (pipeline identification) and the PBs (who provided loans to the SHPs thus absorbing credit risks); and (iii) investors who were eager to learn and implement the otherwise risky technology effectively in terms of procurement and management. However, factors such as: (i) change of co-financiers; (ii) reallocation of funds during project implementation; (iii) project cost overruns; and (iv) implementation delays due to macroeconomic downturns and multiple reorganizations, constrained project efficiency specifically, in subproject pipeline development and approval of subproject loans, thus affecting the overall achievement of project objectives.



Efficiency is rated Substantial, on the basis of the project’s economic and financial rates of return. The project’s implementation, however, was delayed by four years, which required two closing date extensions. This shortcoming is taken into account in determining the project’s overall outcome rating in Section 6 below.

## 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	✓	17.30	16.99 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	20.70	94.54 <input type="checkbox"/> Not Applicable

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

## 6. Outcome

The relevance of the project’s objectives is rated **high**: increasing RE investments remains a priority in the Bank, country and sector strategies at project closing. The project’s efficacy in achieving its objectives is also **high**: the project fully achieved or exceeded its set of objectives. The project’s efficiency is **substantial**, when considering its economic and financial rates of return and administrative delays and cost overruns. The project’s implementation, however, was delayed by four years, which required two closing date extensions--one to respond to exogenous market failures and the second was an uptake to meet the project objectives and indicators. Based on the harmonized OPCS and IEG definitions as stated in IEG’s guidelines and the Bank’s ICR preparation guidelines dated September 27, 2018, the overall project outcome is rated **highly satisfactory**.

### a. Outcome Rating

Highly Satisfactory

## 7. Risk to Development Outcome

The project received strong support from the government including MOIT's active involvement from preparation, throughout implementation, and beyond project closing. MOIT remains supportive of scaling up renewables on a commercially, environmentally and socially sustainable manner and has provided additional technical support and dissemination practices through the project. Adequate arrangements have been in



place since project appraisal and were adjusted appropriately during implementation. Although external factors such as a financial crisis and environmental safeguard issues have stalled the project's progress, it eventually caught up to meet or exceed its targets. As of July 2019, all but one of the 19 subprojects are fully operational. The last subproject (Son Tay) has been completed and is scheduled to commence operations in August 2019, i.e., an additional 73 GWh of electricity supply and 18 MW installed capacity. In sum, the project development outcomes are likely to be maintained and continue to contribute to the project's overarching objectives.

### Institutional Risk

The project was contingent on the readiness of the MOIT at project initiation and the adequacy of the enabling business and policy environment. Ensuring the subproject pipeline was important for REDP and during preparation, TA targeted to project stakeholders mitigated this risk in the project's design. Due to the restructuring of the MOIT, which affected project implementation and caused inefficiencies, the main risk to REDP's development outcome is institutional support. The slow disbursements indicate insufficient institutional capacity despite numerous capacity building activities.

## 8. Assessment of Bank Performance

### a. Quality-at-Entry

With close partnership between the Bank and the GoV and the project's strategic relevance to the country's development priorities, the Bank worked effectively in designing a flagship project that addressed significant barriers to the development of RE. The Bank performed sufficient due diligence, and also recognized the gaps in institutional capacity and the enabling environment, in order for the project to achieve its objectives. The components were adequate in achieving these objectives. The ICR (p. 26) included sufficient detail on soundness of project design and a candid assessment of the project risks, some of which were underestimated during project preparation. For example, involvement of the banking sector was a significant risk because local banks were mainly interested in large-scale energy projects. The PAD also provided sufficient background and context on both renewable energy and banking sectors. The choice of the FIL instrument was appropriate given the planned on-lending activities that were instrumental in achieving the PDOs. However, there were some minor shortcomings. Despite the unexpected reorganization of the MOIT which subsequently affected project implementation, the expertise and knowledge capacity of the implementing agency, especially on credit lines, were underestimated at project design. The number of TA activities were deemed necessary by the project team. However, the ICR (p.27) states, "there was a lack of realism in the REDP design regarding the capacity of MOIT to achieve a large scale-up for pipeline development", which supports the quality-at-entry rating of **satisfactory**.



## Quality-at-Entry Rating

Satisfactory

### b. Quality of supervision

The core Bank team based in Hanoi carried an additional 50 ad-hoc technical missions (ICR, p. 32) to support the client in addressing issues that arose during the 10-year project implementation. The supervision remained focused on the project's progress toward its objectives and development impact throughout the life of the project through effective monitoring and evaluation. For example, the Bank team worked closely with the MOIT to review project design and address bottlenecks to make the credit facility more attractive to PBs and developers during the economic downturn. On-lending terms and conditions, disbursement and withdrawal application procedures and institutional agreements were addressed. The Bank team also recognized the subproject complexity and limited awareness of the capacity of the project developers and PBs. As a result, there were no large-scale resettlements; moreover, the loss of land for agriculture and tree crops, and the related sources of income, were compensable. The Bank team also addressed the poor safeguard compliance early and implemented property remedy action plans through the restructurings. Training on safeguards was provided to the PMB, PBs, the developers and contractors to enhance their capacity. Overall, the Bank team's close partnership with the GoV allowed for easy access to information, and led to timely decisions and cooperation among stakeholders. The quality of Bank supervision is rated **highly satisfactory**.

## Quality of Supervision Rating

Highly Satisfactory

## Overall Bank Performance Rating

Satisfactory

## 9. M&E Design, Implementation, & Utilization

### a. M&E Design

The M&E design included complex qualitative and quantitative indicators with three PDO indicators and 16 intermediate results indicators without much variation from appraisal. However, given the project's theory of change, many of those indicators do not appear to be causally or directly linked to the achievement of the PDO. Some are adequate and quantifiable indicators (i.e., energy output, installed capacity), potentially overlapping (generation capacity constructed or rehabilitated), and ambiguous/difficult to measure (institutional improvement indicators such as updating of ACT, adoption of standards). None of the indicators had a baseline. PMB was responsible for the performance monitoring and data reporting.



## **b. M&E Implementation**

Data collection was reported to the PMB from each PB and subproject regularly, which were then submitted to the Bank semi-annually. All the indicators included in the results framework were measured and collected with minimal delays. However, some were unclear in terms of reliability and quality. Comparators were not utilized, and the development impact was unclear for most of the data collected despite having full-time staff and consultants monitoring on a daily basis. There were also no targeted beneficiaries and the sustainability of the M&E functions and processes is uncertain after project closing.

Several indicators were adjusted during the restructurings to respond to changing environments and to capture results more carefully and accurately. These included E&S PDO target, RE Development Strategy, adoption of technical standards for SHPs, E&S guidelines, national RE database, capacity of pipeline of RE subprojects target, number of improved or new training courses offered on a cost-sharing basis target.

## **c. M&E Utilization**

M&E findings and project performance were communicated to the relevant stakeholders during supervision and were used to make timely decisions and adapt to changing market conditions. For example, the first restructuring included a more attractive and fully market-based on-lending mechanism in order to attract PBs and developers since the macroeconomic sector has improved dramatically. M&E data was used throughout the project implementation and some indicator targets were appropriately adjusted through the project restructurings (e.g., capacity of pipeline of RE subprojects from 50MW to 25MW). However, the M&E data could have been more actively utilized by adjusting target indicators that were exceeded by the mid-term review (MTR) to reflect the increasingly favorable market conditions.

While there were some weaknesses in the design of the indicators, the collection and utilization of M&E data was satisfactory, leading to an overall rating of Substantial for M&E quality. However, concrete measures are needed to sustain M&E after project closing.

### **M&E Quality Rating**

Substantial

## **10. Other Issues**



## a. Safeguards

The project triggered the following safeguard policies:

- Environmental Assessment (OP/BP/GP 4.01)
- Involuntary Resettlement (OP/BP 4.12)
- Indigenous Peoples (OP 4.10)
- Safety of Dams (OP/BP 4.37)
- Projects on International Waterways (OP/BP/GP 7.50)

**Environmental Assessment (OP/BP/GP 4.01):** REDP was classified as a Category FI project, which was appropriate for a lending operation to provide on-lending to commercial banks to finance small scale RE subprojects. IEG raised with the project team the following question that was unclear from the ICR: Even though the project was an FIL instrument, the IEG ICR Review Guidelines (page 65, Box 14.1) do stipulate that for Category FI projects, “the financial intermediary must screen each subproject proposed for financing and classify it into any one of the three categories: A, B, or C”. The ICR did not disclose this information, hence IEG wanted to verify if such classification was completed. The project team clarified that: “...during the project implementation the Developers were in charge of the screening to categorize the subprojects into A, B, or C category in line with the requirements and guidance provided in the project Environmental Safeguards Framework (ESG), and submitted to the Participating Banks (FIs) for review and verification. The FIs then were responsible for verifying the information to ensure that it was in compliance with ESG requirements using the screening checklist developed in the ESG and to assess if the Developers had met all REDP submission requirements. The screening was then further submitted to the PMB under MOIT and the WB for further review and approval. Throughout the project screening, all of subprojects were classified as B category subprojects.”

Further, Environmental Management Plans (EMP), Resettlement Plans (RP) and Ethnic Minority Plans (EP) were prepared by the beneficiaries and were submitted to the Bank team. Overall, the project experienced poor compliance with the environmental safeguard policy in the first few subprojects (ICR, p. 31). A remedy action plan was quickly put together for the subprojects that included capacity building for the stakeholders and a more tightened monitoring and supervision by the PMB and the Bank team. In addition to the action plan, a study on cumulative impacts assessment was undertaken by the Bank to identify and develop mitigation measures for accumulated impacts caused by SHPs cascades. The ICR (p. 31) mentioned that the environmental safeguard compliance remained a challenge for the project, although at less intensity due to the proactivity of mitigation measures in place.

**Involuntary Resettlement (OP/BP 4.12):** Based on previous experience and assessment of private sector SHPs, the MOIT prepared a Resettlement Policy Framework (RPF) and an Ethnic Minority Policy Framework, which were applied to all subprojects under REDP. The RPF conforms to this safeguard policy. Given the nature of SHPs, the project implementation did not involve significant resettlement and no



adverse socioeconomic impacts were recorded. The project reallocated less than 50 households and approximately 2,500 households were affected in terms of loss of land for agriculture and tree crops, and related sources of income. The land acquisition, compensation, livelihood restoration and ethnic minority development complied with the RPs and EMDPs. A grievance redress mechanism (GRM) was designed and adopted for the communities as well (ICR, p. 30). No major issues arose during project implementation, but minor issues such as late compensations, implementation of EMDP, and reporting and documentation were identified on time and addressed properly by the developers.

**Indigenous Peoples (OP 4.10):** The EMPF also conforms to the Indigenous People policy by ensuring the development of subprojects that fully respect the dignity, human rights, economies and culture of affected ethnic minority people.

**Safety of Dams (OP/BP 4.37):** In terms of dam safety, the Safety of Dams safeguard was applied for some of the subprojects. A Dam Safety Panel (DSP) was formed to review and advise the PMB on matters relative to the safety of new large dams or high hazard dams. Dam safety and technical aspects were closely supervised and verified by the dam safety panel at both appraisal and implementation stages. All completed subprojects were reported operating safely following sound operation procedures meeting the technical requirements and complying with safeguard requirements (ICR, p. 18).

**Projects on International Waterways (OP/BP/GP 7.50):** Lastly, the policy on International Waterways was triggered at the first restructuring because of the locations of three SHPs, Nam Hoa 1, Nam Hoa 2, and Hoa Phu, being on a tributary of an international waterway.

## **b. Fiduciary Compliance**

### Financial Management

At appraisal (PAD, p. 14), financial management (FM) assessments were completed and concluded that the project has adequate FM arrangements acceptable by the Bank. MOIT and BIDV have sufficient staff capacity and experience with other WB funded investment projects and have performed satisfactorily. All PBs were required to have accounts audited to IFRS. The overall FM risk rating assigned at appraisal was Moderate. At project closing, FM arrangements were sound and audited reports were normally submitted on time by the PMB except unqualified audited interim financial reports were 6-9 months late due to the complexity and lengthy process of consolidating data and assessment to the report (ICR, p. 31).



Procurement

The project followed clear procurement regulations and received sufficient training from the PMB and the Bank team. A procurement specialist provided guidance and monitoring in the bid preparations and evaluations. The ICR (p. 31) reported that no cases of fraud and corruption were detected. At the first project restructuring, an application of up-to-date World Bank Procurement and Consultant Guidelines and the removal of thresholds for application of procurement and consultant selection were added to reflect the current situation and developments during project implementation.

Disbursement

The PBs have adequate staff capacity but still needed training on Bank FM requirements and disbursement procedures. Disbursement fell behind due to lengthy review of reimbursable applications by the PMB and the delay in submission of reimbursable applications by PBs which impacted implementation of subprojects.

**c. Unintended impacts (Positive or Negative)**

None.

**d. Other**

None.

**11. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Satisfactory	Highly Satisfactory	Based on the harmonized OPCS and IEG guidelines, the overall project outcome is rated highly satisfactory since REDP met or exceeded its objectives and indicators. IEG recognized the



			first restructuring was a response to exogenous market failures and the second restructuring was an uptake and response to the unforeseen implementation delays due to reorganization of the MOIT.
Bank Performance	Highly Satisfactory	Satisfactory	The Quality-at-Entry is rated Satisfactory and the Quality of Supervision is rated Highly Satisfactory. According to the IEG guidelines, the lower of the two ratings determines the rating of overall Bank Performance.
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

## 12. Lessons

The following lessons are derived from the ICR (p. 33) with some adaptation of language:

**1. A country’s enabling policy and regulatory environment is a prerequisite to successful project implementation.** Due to the timely implementation of the ACT and SPPA, the project achieved favorable results. The project subsequently provided regular updates of the ACT, which provided transparency and confidence for the private developers to invest in RE development.

**2. The project design and stakeholders’ capacity should be complementary when determining the level of project complexity and role for TA.** The project implementation period was underestimated, thus the TA was significantly delayed in the initial years of the project and showed first signs of activity only 6 years after project approval. PMB's capacity was constrained and had difficulty implementing the numerous and complex TA activities. The Bank team's close supervision as the PMB went through institutional changes made the difference in achieving the favorable results.

**3. The role of the private sector was instrumental in the project's achievement of commercial sustainability.** Initially, it was difficult for the private sector to access financial resources to develop small-scale RE projects. Undercapitalization issues and few long-term sources of funding make it difficult for domestic lenders in the long term. Because of the knowledge and capacity created by the



REDP, PBs subsequently financed an additional 1,500 MW of private sector-financed SHPs outside of the REDP lending envelope.

### 13. Assessment Recommended?

No

### 14. Comments on Quality of ICR

The ICR provided valuable lessons and ample evidence to merit the sub-ratings given. The use of annexes presented additional useful information to support the project's achievements. The key factors that affected implementation and outcomes were thoroughly discussed. The ICR was candid and summarized key findings well. The lessons were based directly on the project's implementation experience and were adequately supported by the detailed assessment provided in the ICR. The ICR generally followed the guidelines in regards to ratings and performance assessment. However, there were some minor shortcomings in the completeness of data and information in regards to the Quality of M&E. The complex ToC was constructed to illustrate the causal pathways from the inputs to the outcomes, but some were unclear on how the outputs are likely to lead to the immediate outcomes.

Other minor inaccuracies of the ICR include: (i) a mismatch of original project cost of US\$320.3 million (ICR, p. 2) and US\$ 318.05 million in Annex 3. (ICR, p. 47); (ii) the second PDO indicator on Annex 1 showed actual of 11,139 instead of 11,193 GWh/year; and (iii) the total annual output (GWh) for the 16 completed subprojects totaled 1,064 GWh (Annex 8. List of SHPs financed by REDP, p. 55) not 1,609 GWh as reported in the report.

#### a. Quality of ICR Rating Substantial

