Ministry of Industry and Trade
General Directorate of Energy

Vietnam

Energy Efficiency for Industrial Enterprises Project

Operations Manual

Prepared by

VEEIEs Project Management Board
Ministry of Industry and Trade
Vietnam
(Revised #1)

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Table of Content

Acronyms and Abbreviations

DA	Designated Account
DP	Displaced Person
EIA	Environmental Impact Assessment
EM	Ethnic Minority
EMP	Environment Management Plan
EMPF	Ethnic Minority Planning Framework
EP	Ethnic Minority Plan
ER	Emission Reduction
EPC	Environmental Protection Commitment
ERR	Economic Rate of Return
ERPA	Emission Reduction Purchase Agreement
ESF	Environment Safeguards Framework
GWh	Giga Watt Hour
ICB	International Competitive Bidding
ICR	Implementation Completion Report
IDA	International Development Association
IDC	Interest During Construction
IDP	Institutional Development Plan
kWh	Kilo Watt Hour
LoA	Letter of Approval
MOF	Ministry of Finance
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and Environment
MOU	Memorandum of Understanding
MTR	Mid Term Review
MW	Mega Watt
MWh	Mega Watt Hour
NCB	National Competitive Bidding
NOL	No Objection Letter
NPV	Net Present Value
OM	Operations manual
OP	Operational Policy
PFI	Participating Bank
PC	Power Company
PMB	Project Management Board
PoA	Program of Activities
PPA	Power Purchase Agreement
PPC	Provincial People's Committee
QCBS	Quality and Cost Based Selection
RAD	Refinancing Application Database
RAP	Refinancing Application Package
RE	Renewable Energy
VEEIES	Energy efficiency for industrial enterprises Project
RESPP	Energy efficiency Small Power Producer
RFP	Request for Proposals
RP	Resettlement Plan
RPF	Resettlement Policy Framework
SA	Social Assessment
SBV	State Bank of Vietnam
SLA	Subsidiary Loan Agreement
SPPA	Standard Power Purchase Agreement
TA	Technical Assistance
WB	World Bank

Introduction

The Operations Manual (OM) describes the use of the World Bank (WB) funds for refinancing loans made by the Vietnam Energy Efficiency for Industrial Enterprises Project (VEEIEs) by Participating Banks (PFIs) to eligible enterprises for energy efficiency projects. The OM: (i) sets out the eligibility criteria for refinancing energy efficiency project loans; (ii) describes the procedures PFIs and industrial enterprises need to follow to apply and process refinancing of energy efficiency project loans; (iii) provides formats and templates that need to be used in the application, review, approval, monitoring and reporting process; and (iv) describes the overall refinancing process clearly defining the roles and responsibilities of each participant.

The OM comprises two parts, preceded by a general section. Part A (Refinancing Application Approval) deals with the approval of refinancing applications. Part B (Loan Implementation) deals with the processes after approval of the refinancing application such as disbursement, procurement and monitoring compliance with safeguard policies.

Validity of the Operations Manual

The eligibility for project refinancing by PFIs will be assessed based on procedures and requirements set out in the OM. The OM may be revised and amended during implementation, incorporate lessons learned or add additional requirements. Refinancing eligibility will be assessed based on the latest version of the OM. Parties are advised to check with the Project Management Board (PMB) and the latest version will be available from the PMB's internet site (http://tietkiemnangluong.com.vn/). OM revisions will not impact already approved subprojects.

Project Description

1.1 Project Development Objective and Project Components

The Project Development Objective (PDO) is to improve energy efficiency in Vietnamese industrial sector. The project thereby contributes to achieving the government's energy efficiency and GHG reduction objectives. Project outcome performance indicators include: (1) projected lifetime energy savings (MWh); and (2) number of industrial enterprises benefited from the project. The projected intermediate performance indicators include: (1) total number of direct beneficiaries, of which percentage of female; (2) associated total annual reductions of GHGs (million tons of CO2); (3) number of EE subprojects developed; and (4) cumulative amount of EE investments supported by the project (US$ million);

The project has two components: (a) EE investment lending, where a US$100 million IBRD loan supports EE investments in industrial enterprises through selected participating financial institutions (PFIs); and (b) US$1.7 million IDA loan to provide technical assistance (TA) and capacity building to MOIT, PFIs and industrial enterprises.

The potential Carbon Finance Program (CFP) will be developed in parallel to provide additional financing resources for TA. The CFP will achieve its objectives by contributing to remove barriers and facilitate participation of the industrial sectors in the VEEIEs project.

1.2 Project Implementation arrangements:

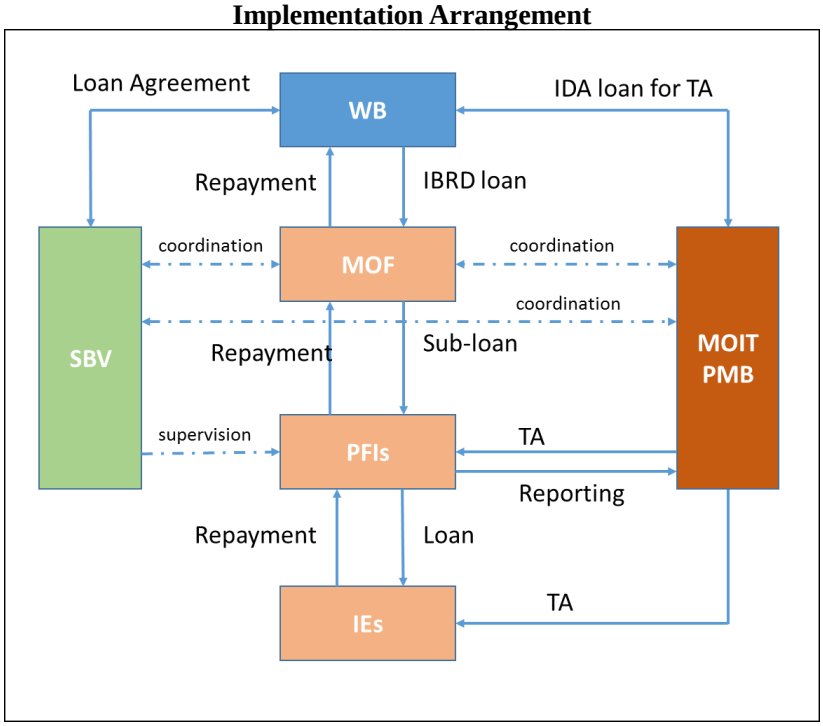
The project will be implemented by Ministry of Industry and Trade (MOIT) and selected PFIs. The Project Management Board (PMB) will be established under MOIT will

implement the project on behalf of MOIT. The PMB has two functions: (i) coordinate and supervise overall project implementation activities, including PFI performances, and (ii) manage all TA activities.

The PFIs will supervise and monitor each industrial enterprise and their subproject(s) to ensure loan repayment and fulfilling all other implementation criteria in line with the terms agreed in their subsidiary loan agreements. Technical, social and environment experts contracted by the PFI will conduct due diligence of subprojects. Project requirements will also impact the loan agreement between the PFIs and enterprises by requiring full adherence to the World Bank environmental and social safeguards policies.

Industrial enterprises will approach PFIs with subprojects and PFIs will be fully responsible for subprojects appraisal and evaluation taking all associated risks. The PMB will identify highly qualified EE consulting service providers to help PFIs on independent review and verification, if necessary. IBRD funding will be routed to PFIs through MOF.

Implementation Arrangement



Roles and Responsibilities of Parties:

The PMB (MOIT) has the following responsibilities:

1. Responsible for overall day-today management and coordination of VEEIE
2. Setting-up and managing of designated account for all VEEIE TA activities (for disbursement of IDA funds);
3. Monitor subprojects for which refinancing has been approved during construction and operation to make sure all requirements are met;
4. Manage the implementation of all VEEIE TA elements;
5. Monitor implementation progress and take corrective measures where needed;
6. Assist PFIs and industrial enterprises on processes and procedures, advice on technical perspectives, when necessary;
7. Review reports submitted to the PMB by PFIs, IEs; Supervise the structure of counterpart fund of PFIs, IEs in the implementation process.
8. Regularly report to MOIT and the WB on project implementation progress;
9. Coordinate with line ministries (MOF, SBV, MPI, OOG) to tackle shortcomings during implementation

PFIs have the following responsibilities:

1. Sign Subsidiary Loan Agreement (SLA) with MOF;
2. Sign Project Agreement with the WB;
3. Appraise EE projects proposed by industrial enterprises to ensure technical, economic and financial viability;
4. Provide loans to industrial enterprises for eligible EE subprojects;
5. Ensure the counterpart fund for implementation of the sub-projects in accordance with the approved project design.
6. Request refinancing of part of the loans provided for eligible EE projects if these projects are believed to meet all refinancing requirements;
7. Bear full credit risk for loans provided to industrial enterprises;
8. Verify that the project for which refinancing is requested meets all refinancing requirements (including safeguards);
9. Submit Refinancing Application Packages to the WB for clearance;
10. Disburse loans to industrial enterprises in line with completed works and contracts signed with suppliers;
11. Monitor subprojects implementation;
12. Repay refinancing loans as specified in the SLA;
13. Report to the PMB as specified in this OM and report the counterpart fund of PFIs in each sub-project;
14. Provide documentation and information to the PMB on an annual basis to enable the PMB to assess whether or not PFI meets minimum criteria to continue participation;
15. Participate in training offered by the PMB and the WB.

Industrial enterprises have the following responsibilities:

1. Prepare Project Document, including: Feasibility Study (FS), and if required Environment Management Plan (EMP), Resettlement Plan (RP), and Ethnic Minority Plan (EP) for submission to the PFI;
2. Ensure that Project Document includes all information and documentation required for the PFI and WB to verify that all refinancing requirements have been met;
3. Ensure the counterpart fund for implementation of the sub-projects in accordance with the approved project design
4. Participate in training offered by the project;
5. Provide feedback when requested by the PMB through questionnaires, evaluation workshops, etc.;
6. Assist PMB in understanding problems and barriers to implementing EE projects;
7. Implement the EMP, the RP, and the EP (if applicable) as specified in these plans;
8. Prepare regular reports specified in OM (procurement plan, financial report, etc.);
9. Obtain WB No Objection for procurement packages over the threshold.

The responsibilities of MOF include:

1. Sign SLAs with PFIs;
2. Verify and sign the applications for withdrawal;
3. Issues disbursement guidelines for the project;
4. Record debt with PFIs based on application for withdrawal in six monthly periods;
5. Assist in restructuring of the project (if needed);
6. Participate, if needed, in discussions with MOIT and the WB throughout the project.

The responsibilities of the WB are:

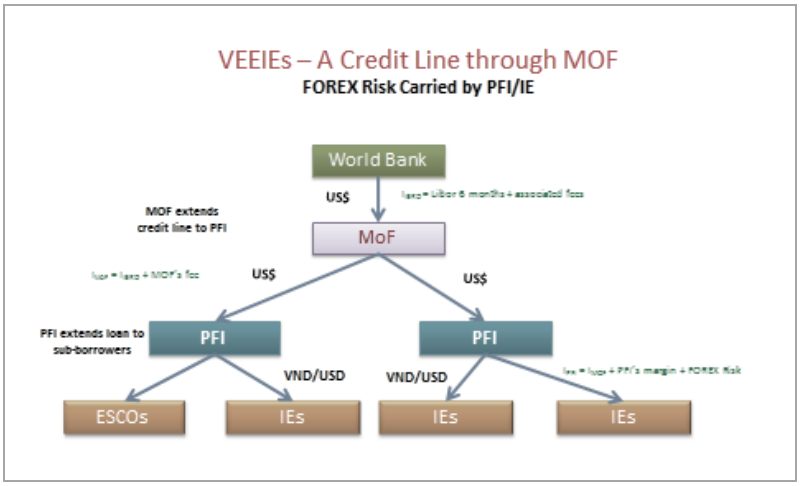
1. Supervision of VEEIE;
2. Provide guidance and advice on the implementation of VEEIE;

3. Review and provide No Objection requests;
4. Review refinancing request packages and check if all refinancing requirements have been met and if so, issue a No objection;
5. Review and make payments for refinancing of loans from WB to PFIs s if requested to do so by the PFIs;
6. Review and provide No objection Letter for International Competitive Bidding (ICB), Quality and Cost Based Selection of Consultant (QCBS) if value exceeds the threshold of prior review;
7. Process requests for revision of the legal agreements if requested

1.3 Financing Mechanism

A Credit Line of US$ 100 million channeled through MOF was agreed between MOIT, MOF and the WB. This financing mechanism is in line with current GoV's regulation on on-lending. With this mechanism, the WB will provide the loan to the Government of Vietnam, represented by MOF. The loan is in USD with standard IBRD term, 10 years maturity. MOF will extend loan to PFIs in USD with the same tenor, the interest rate from MOF to PFIs is the IBRD rate plus a premium (0.25%) charged by MOF for management cost. The PFIs can extend the loan to IEs in USD or VND. If the loan is in VND, the PFIs will carry FOREX risk and the interest rate to IEs shall be determined on commercial basis by adding up the PFIs' margin and their FOREX risk premium. If loan to IEs is in USD, PFIs decide the interest rate to IEs, based on commercial basis by adding margin determined by its cost, subproject risk and sub-borrower's creditworthiness. The loan tenor to IE is agreed between PFI and IE based on type of EE, payback period of subprojects. PFIs can revolve loan according to their lending practices within the 10 year tenor.

Financing Mechanism



1.4 Eligible End-Borrowers

State owned and private IEs are eligible to participate in the financing facility as long as they have no cross-ownership with the PFI providing financing. The project aims to support energy intensive industrial sectors with large energy saving potential. All IEs can participate, regardless the size, if they fulfill minimum demonstrated energy savings.

ESCOs (including leasing companies), that provide a wide range of services to implement EE projects with performance based agreements under which end users pay for services from demonstrated energy savings, are also eligible to participate the financing facility.

1.5 Eligible EE Subprojects

Subproject Technical Eligibility

The major types of EE subprojects eligible for financing under the project include: (a) replacement of inefficient industrial technologies with energy saving technologies such as more efficient industrial boilers, kilns, and heat exchange systems; (b) recovery and utilization of by-product gas, waste heat and pressure; (c) installation of highly efficient mechanical and electrical equipment, including lighting motors, pumps, heating and ventilation equipment; (d) industrial system optimization to reduce energy use; (e) building energy efficiency (residential, commercial, and public buildings), including lighting, HVAC (heating, ventilation, and air conditioning,); building envelope (insulation for roof, walls, windows, doors), renewable energy in buildings (roof-top solar PV, solar water heaters, and heat pump); and (f) other projects agreed by the Bank.

Subproject investment shall be limited to renovation and rehabilitation (adjustment, replacement) of existing physical components and systems with the objective of achieving higher EE. Subproject must demonstrate the minimum energy saving requirement of twenty percent (20%). However, lower energy saving maybe acceptable for specific sectors with advanced energy technologies.

The cash flow benefit arising only from energy savings associated with the subproject, as estimated using the subproject financial projections prepared by the sub-borrower and reviewed by PFIs, shall be adequate to repay the total investment cost of the subproject within a period of ten (10) years. Subproject's economic internal rate of return must be higher than ten percent (10%).

Subproject Social and Environmental Eligibility

The sub-borrower shall have obtained all required environmental approvals from appropriate local, provincial or state environmental authorities and shall make available to PFIs copies of all necessary approval documents.

Subprojects are subject to safeguard screening and compliance with environment and social requirements. The processes and procedures for safeguard screening and implementation is in accordance with safeguard frameworks approved.

1.6 Project Results Framework

Project Name: Vietnam Energy Efficiency for Industrial Enterprises Project (VEEIEs) (P151086)

Results Framework

Project Development Objectives

PDO Statement

The PDO is to improve energy efficiency in Vietnam industrial sector.

These results are at	Project Level

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values					
		YR1	YR2	YR3	YR4	YR5	End Target
Projected lifetime energy savings (MWh) (Core)	0	301,000	1,506,000	3,313,500	5,121,000	6,025,000	6,025,000
Number of IEs adopting improved EE technologies	0	2	4	8	15	25	25

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values					
		YR1	YR2	YR3	YR4	YR5	End Target
Direct Project Beneficiaries (number) (Core)[1]	0	1,891	9,456	20,802	32,148	37,822	37,822
Percentage of female beneficiaries (Percentage) (Sub-type: Supplement)	0	8	10	15	15	15	15
Annual GHG emissions avoided in IEs (tons of CO2 equivalent) (Tones/year)	0	241,500	1,208,500	2,659,000	4,109,500	4,835,000	4,835,000
Number of EE bankable projects developed	0	10	20	40	50	60	60

[1] Figures will based on assessment and will be available before negotiation.

Participating Banks (PFIs)

Only PFIs can obtain refinancing from IBRD loans for EE projects if these projects meet the refinancing requirements. The PFIs selected to participate in the VEEIE are listed below:

- Bank of Foreign Trade of Vietnam (Vietcombank);
- Bank for Investment and Development of Vietnam (BIDV);

The PFIs are required to meet Minimum Criteria to participate, listed below, throughout the project life. MOIT/MOF/SBV and WB will monitor the performance of PFIs against the Minimum Criteria on an annual basis during project implementation.

Minimum Criteria for Continuing Participation

1	**Experiences in EE Financing**
	PFI demonstrate its experience in EE financing by stating number of projects financed and names of projects.
2	**EE Financing Strategy and Pipeline**
	The PFI strategy must include EE financing. The bank must demonstrate a number of EE subproject pipeline, the PFI can only be formally selected and sign the Project Agreement with the WB if it has EE subprojects ready for financing.
3	**Minimum Share Capital**
	The bank must have a minimum chartered capital of [VND 2 trillion]
4	**Minimum Number of Branches**
	The bank must have a minimum of [30] branches (Tier 1) with good geographical coverage in Vietnam
5	**IFRS Accounts**
	The bank must have unqualified audited accounts which are audited by one of the major international firms for the past two years, i.e. [2014 and 2015]. These accounts must be audited to IFRS. All the PFIs should commit to submit IFRS financial statements at the point of loan effectiveness and signing the sub loan agreement (or project agreement). If it is not possible for a PFI to submit their IFRS accounts right after joining the project, they need to submit the accounts - acceptable to the Bank - before receiving funds from the Project.
6	**Compliance with all SBV Regulations**
	The PFI must be licensed by the SBV and be in compliance with all the SBV regulations and banking law.
7	**Corporate Governance**
	The PFI must have in place a management structure with clear segregation of duties between the Supervisory Board and the Management Board as well as a good corporate governance process in full compliance with the requirements of SBV Decree 59/2009/ND-CP (and any subsequent revised versions of this regulation).
8	**Loan Classification and Provisioning**
	The bank must be in compliance with current decision 493 and any subsequence revised version of this regulation (Circular 02) of the SBV in relation to the classification and provisioning of its loan portfolio. (and any subsequent revised versions of this regulation)
9	**Maximum Level of Non-Performing Loans**
	Total nonperforming loans defined as all loans in excess of 90 days overdue must be less than [7%] of the total loan portfolio according to SBV regulations.
10	**Minimum Level of Provisions**
	The PFI must have sufficient provisions in place against non-performing loans of the value of non-performing loans according to SBV regulation.
11	**Shareholders Funds**
	The level of shareholders' funds to total risk weighted assets must be not less than 9% as per the requirements of SBV Circular No. 36/2014/TT-NHNN dated November 20, 2014 and any subsequent revisions
12	**Liquid Assets**
	The bank must have liquid assets in excess of 15% of liquid liabilities as defined in SBV Circular No. 36/2014/TT-NHNN dated November 20, 2014 and any subsequent revisions.
13	**Liquidity**
	Total loans should not be in excess of [80%] of all mobilized funds.
14	**Profitability**
	The bank should have a return on equity of at least 10% in 2015 as well as a return on assets in excess of 0.5%.

If during VEEIE implementation, a PFI cannot meet the Minimum Criteria, it will no longer be eligible to draw down the line of credit under the project. Any sub-projects already funded by such a PFI will continue to be funded by the VEEIE, but no new projects would be eligible for financing until it fulfills again all Minimum Criteria.

If a PFI does not meet all the criteria at some point during project implementation, then it can still participate in the TA component of the VEEIE if it agrees to a time-bound action plan, or Institutional Development Plan (IDP), to again meet the performance benchmarks. The IDP would be specific to each PFI given that each will have unique strategies, strengths and weaknesses. The IDP will be conducted to the satisfaction of and subject to approval by the MOF, SBV, MOIT, and the WB. The IDP would be monitored on a bi-annual basis by the MOF, MOIT, and the WB to ensure progress. If PFI does not reach the eligibility criteria within one year of implementation of the IDP, the PFI will be suspended from the project.

Each PFI signs a SLA with MOF. The SLA includes refinancing requirements and under these SLA, loans for EE projects approved under VEEIE can be refinanced. During project implementation and depending on project needs, MOIT/MOF may decide to select additional PFIs to participate in VEEIE.

Part A. Refinancing Application Approval

Refinancing Terms

PFIs will be in a position to refinance eligible EE projects from the VEEIE Credit Line. PFIs would also commit own funds to each subproject, however, during the project implementation and disbursement process, the accurate rate of counterpart fund of PFIs (about 20% of total loan) for each sub-project is not mandatorily required. Instead of that, the PFIs have to ensure the rate of counterpart fund, about 20% of total loan, for the whole sub-projects lended by the PFI. A maximum of 80% of the amount borrowed by an IE for an eligible EE project from a PFI will be eligible for refinancing under the credit line. The contribution of PFI's funds to each sub-project is encouraged and flexible based on actual conditions, but it is not mandatory. The terms of the refinancing loan from MOF to PFIs are:

- **Currency:** The refinancing loan will be in USD in which the principal amount is to be provided to the PFI under the SLA.
- **Maturity:** The SLA shall include a maturity term of 10 years after effectiveness of VEEIE. The grace period will be 5 years after effectiveness of VEEIE.
- **Repayment:** The PFI will be responsible for the repayment of the loan in line with the schedule set down in the SLA. Repayment of principal will start 5 years after effectiveness of VEEIE.
- **Interest Rate.** The pass-on rate from the MOF to the PFIs will be based on the Libor rate (6 months) plus front-end and commitment fees, and management fee of 0.25% by MOF in accordance with government Decree 78/2010/ND-CP dated 14 July 2010, regulating on-lending offshore funding sources.
- **Condition:** The SLA will include a condition that the right of the PFI to utilize funds under this facility will be suspended upon failure of the PFI to perform any of its obligations under its refinancing SLA or to continue to be in compliance with all the legal and regulatory requirements applicable to its operations.

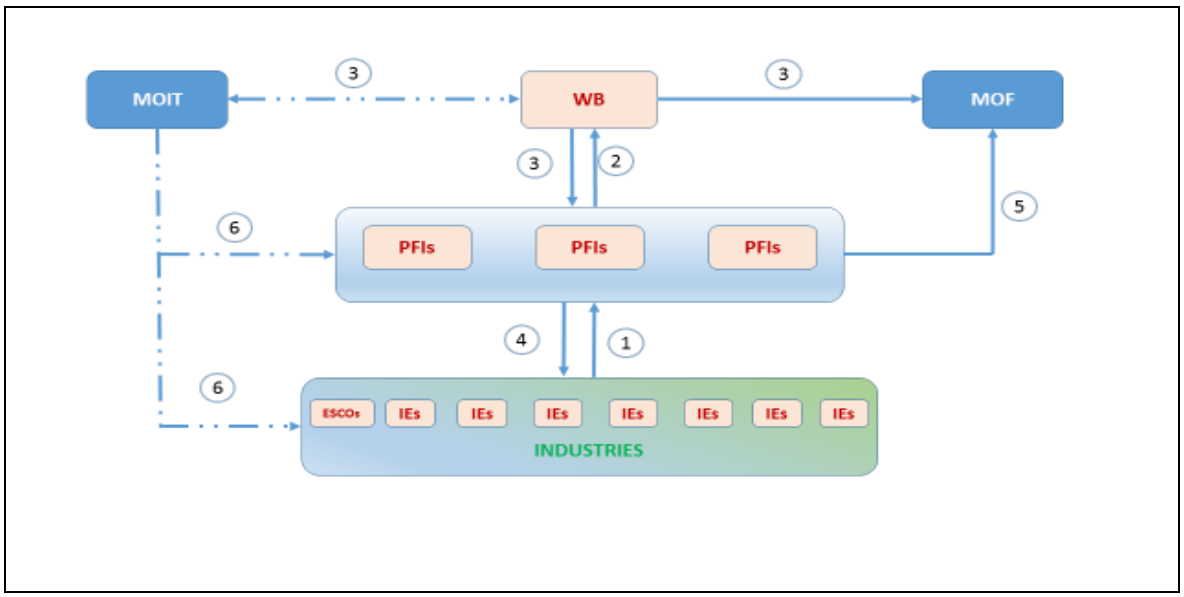
Each PFI will commit to a certain IBRD allocation and disbursement can follow "advance method" or "reimbursement method". Detail disbursement methods and guidance are presented in section 9.

The PFI will be responsible for repayment of all principal and interest on its loan to the MOF and will bear all financial and credit risk (and FX risk in case it on-lend to IEs in VND) associated with the loan. The PFI will supervise and monitor the IE and their subprojects with a view to ensuring repayment of the loan in line with the agreed terms. The loan contract between the PFI and IE will set down the reporting of information on a regular and timely manner as a condition attached to the loan. The PFI will use such reports to assist in the management of its credit exposure and to satisfy reporting requirements to the PMB.

Refinancing Package Review Procedures

The PFI will prepare Financing Plan for each year and submit to WB/MOIT/MOF by January 15 including list of EE subprojects, total investment cost, loan amount of which how much will be financed by IBRD, and IE self-financing amount. The WB will review all first 3 subproject for each PFI regardless the size of the subproject. However, if subproject preparation are in good quality and PFIs demonstrate adequate technical and financial appraisal capacity, post review shall be applied to subprojects having total investment cost of less than US$ 500,000 (five hundred thousand). All other subprojects with total investment cost exceeding US$ 500,000 will follow prior review procedures.

1.7 Prior Review Procedure



Below each step is described in detail. To the extent possible all documents will be in electronic form (soft copies) including scans of signature pages. Hard copies will only be used where needed or if convenient.

Step 1. The IEs will carry out screening against eligible criteria for participating in VEEIE. The eligible criteria include technical, social and environmental criteria. If all eligible criteria are met, the IEs will prepare and submit loan application to the PFIs. Apart from standard requirements using commercial practices, the loan application will include feasibility study, technical design, energy saving calculation (and energy audit if required), procurement plan, economic and financial analysis, environmental and social safeguard documents (if required). A relevant screening form is attached in annex 1.

The technical design and energy saving calculation need to be prepared by qualified engineering institution licensed by the relevant government agency. The project might require an independent engineering firm to verify the project design and energy saving calculation of the subproject.

Step 2. PFIs can obtain refinancing of loans for EE projects if these projects meet a set of refinancing requirements (see Chapter 8 Refinancing Requirements). The refinancing is limited to a maximum of 80% of total investment cost. If project meets all refinancing requirements, the PFI can prepare a Refinancing Application Package consisting of a Refinancing Request (standard letter), Refinancing Application Summary and all required attachments for review. The Refinancing Application Package can be submitted in electric form on a CD or DVD.

If the project for which the refinancing application has been submitted meets all refinancing requirements, the PFI will submit the complete package (in electronic form as far as possible) to the WB for No objection. The complete package consists of: (i) Request for No objection Letter from the PFI to the WB; (ii) Refinancing Application Package; and (iii) PFI Refinancing Requirements Checklist.

Step 3. The WB will thoroughly review the refinancing package submitted for No Objection. There are three possible outcomes:

1. The WB will issue a No objection letter;
2. The WB will issue a conditional No objection Letter;
3. The WB will inform the PFIs that it cannot issue the No objection Letter and will state clearly the reasons why

For Outcome 2, the PFI will make sure that the conditions for No objection are met before approving the refinancing application. For Outcome 3, the PFI will assess what action can be taken to address WB's concerns. If these can be addressed the revised package can be resubmitted for WB review. If these cannot be address the PFI will inform IE accordingly.

The WB commits to review refinancing application package submitted by the PMB within 7 working days of receipt. In case the WB issue a NOL for financing an EE subproject, MOF and MOIT will be copied for information and loan implementation/supervision.

Step 4. If received NOL from the WB, PFIs inform IE that the EE subproject received approval to be refinanced from VEEIEs, and the IE will implement EE loan in accordance with loan agreement and VEEIE requirements. If PFI receive a conditional NOL, PFI will make sure that IE will fulfil conditions for NOL before approving of refinancing application.

Step 5. If a loan application received approval and given NOL by the WB, PFI can disburse the fund from designated account. Detail guideline for disbursement, process and procedures are given in Part B-Loan Implementation.

Step 6. During project implementation, MOIT will supervise implementation of all approved subprojects and ensure that IEs, PFIs implement EE investments in compliance with requirements of VEEIEs.

1.8 Post Review Procedure

If the investment cost of EE subproject to be submitted for financing under VEEIE is equal or less than US$ 500 thousand, the subproject is subject to post review procedure. The subproject will be screened and appraised by PFIs and do not need to go through World Bank no objection process. If the EE subproject meet all requirements, PFI can disburse the fund to the subproject and monitor subproject implementation in accordance with this OM.

The MOIT and the World Bank will carry out post review procedure, twenty percent (20%) of total subprojects that have investment cost equal or less than US$ 500 thousand will be reviewed to verify that all requirements are meet and estimate energy saving performance is accurate. If

any subproject that is not substantially meet the requirements, the disbursed amount must be returned to IBRD designated account.

Refinancing Requirements

The IE and the PFI need to make sure the project for which refinancing is requested meets all requirements and need to provide required documentation to proof compliance. The requirements that must be met are:

1. IE must be eligible
2. EE project must to be eligible
3. Expenditure should have taken place later than July 15, 2016
4. Lending terms to IE must meet VEEIE requirements
5. Procurement follow procurement requirements specified in this OM
6. Project must meet technical requirements;
7. Project must be in line with the Environment Safeguards Framework
8. Project must be in line with the Resettlement Policy Framework
9. Project must be in line with the Ethnic Minority Development Policy Framework
10. Project must meet the economic criteria specified in this OM

1.9 Eligible Borrowers

State owned and private IEs are eligible to participate in project as long as they do not have cross-ownership with the PFI they apply for a loan. The project aims to support IEs with large energy savings potential. All IEs can participate, regardless of size.

ESCOs (including leasing companies), which are companies that provide a wide range of services to implement EE projects with performance based agreements under which the end users pay for these services from demonstrated energy savings, are also eligible to participate in VEEIE.

Only loans for EE projects to eligible IEs/ESCOs can be refinanced. An IE/ESCO is eligibility if:

- IE/ESCO has registered and operated in accordance with respective Vietnam regulations and laws; and if
- IE meets the requirements of the PFI under normal commercial practice for a similar type of loan.

1.10 Eligible Energy Efficiency Subprojects

The major types of EE subprojects eligible for financing under the project include: (a) replacement of inefficient industrial technologies with energy saving technologies such as more efficient industrial boilers, kilns, and heat exchange systems; (b) recovery and utilization of by-product gas, waste heat and pressure; (c) installation of highly efficient mechanical and electrical equipment, including lighting motors, pumps, heating and ventilation equipment; (d) industrial system optimization to reduce energy use; (e) building energy efficiency in industrial sectors, including lighting, HVAC (heating, ventilation, and air conditioning,); building envelope (insulation for roof, walls, windows, doors), renewable energy in buildings (roof-top solar PV, solar water heaters, and heat pump); and (f) other projects agreed by the Bank.

Subproject investment shall be limited to renovation and rehabilitation (adjustment, replacement) of existing physical components and systems with the objective of achieving higher EE. Subproject must demonstrate the minimum energy saving requirement of twenty percent (20%). Lower energy savings may be acceptable for specific sectors with advanced energy technologies.

Es=(Eb – Ea)/Eb * 100%

Es – energy saving, %
Eb – energy consumption before subproject implementation, (kWh, kJ, TOE)
Ea - energy consumption after subproject implementation, (kWh, kJ, TOE)

Annex 2 present several examples of EE subprojects that could generate energy saving.
The cash flow benefit arising only from energy savings associated with the subproject, as estimated using the subproject financial projections prepared by the sub-borrower and reviewed by PFIs, shall be adequate to repay the total investment cost of the subproject within a period of ten (10) years. Subproject's economic internal rate of return must be higher than ten percent (10%). More detail guidelines in economic and financial analysis are presented in annex 2.

1.11 Retroactive Financing

EE subprojects for which the loan agreement between the IE and the PFI has already been signed are eligible for refinancing if loan agreement between the PFI and the IE was signed after **July 15, 2016**. Total retroactive amount will not excess 20 percent of total IBRD loan.

1.12 Terms in Loan Contract between Industrial enterprise and Participating Financial Institution

- **Lending Terms and Tenors**

One of the main objectives of VEEIE is to pass responsibility for commercial financing and credit decisions from Government to the private sector, with limited involvement by MoIT and MOF to determine lending rates. Lending terms and conditions should be negotiated between the PFIs and the sub-borrowers, which is normal practice for private sector borrowing. Loans from MOF to PFIs have a 10 years maturity and are denominated in USD. Loan from PFIs to sub-borrowers can be either in VND or USD in compliance with government regulations. Loan maturity defined by PFIs and sub-borrowers depend on type of EE subprojects, but shall not exceed 10 years.

- **Other Requirements**

EE projects are eligible for refinancing if the loan contract between the IE/ESCOs and the PFIs contains provisions that:

- Require IEs to implement and operate the subproject in accordance with the approved RP, EP and EMP including taking responsibility for its contractors to meet the requirements of the EMP;
- Require IEs to provide PFIs with quarterly update on details of the subproject;
- Enable PFI to obtain from the IEs through appropriate legal means, rights to protect its own interest and that of the Socialist Republic of Vietnam as well as IBRD;
- Require IEs to operate and manage the EE project in line with acceptable technical, financial and management standards;
- Require all goods, civil works and consulting and other services to be financed from the sub-loan are procured in line with the requirements specified in the OM;
- Give PFI the right to inspect by itself or with MOIT and IBRD any goods and the site and any relevant supporting records and information;

- Loan agreement contains a provision to suspend or terminate the right of the IE to use the funds under this loan agreement upon failure of a project to comply with its obligations under the loan agreement.

1.13 Procurement

Loans for EE projects can be refinanced if procurement of goods, services and works follow the procurement procedures specified in the VEEIEs Project Appraisal Document (PAD) and the loan agreement between the State Bank of Vietnam and the World Bank.

For contracts financed in whole or in part by the IBRD Loan or IDA Credit, procurement would be carried out in accordance with: World Bank's Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers dated January 2011, revised July 2014 (the Procurement Guidelines); Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers dated January 2011, revised July 2014 (the Consultant Guidelines); and the provisions stipulated in the Financing Agreement. For contracts procured through National Competitive Bidding (NCB), the additional provisions listed in the Attachment to Schedule 2 of the Financing Agreement will be applicable.

Procurement thresholds and Bank prior review. Procurement under Component 2 will include the following categories: goods, consulting services and works that are not foreseen at the project preparation stage. Thresholds for procurement methods and Bank prior review under this component are presented in the table below. Thresholds and prior review requirements can be changed during project implementation subject to Bank approval.

Thresholds for Procurement Methods and Bank Prior Review

Category	Procurement Thresholds		Prior Review Thresholds	
	Value	Remarks		Remarks
Works/Supply and Installation				
ICB	≥ US$20 million		All contracts	Contracts below US$15 million but using ICB subject to post review
NCB	< US$20 million		First contract plus all contracts above US$15 million	
Shopping	< US$0.2 million		None	
Goods, IT Systems, Non-consulting Services				
ICB	≥ US$3 million		All contracts	Contracts below US$3 million but using ICB may be subject to post review
NCB	< US$3 million	Where goods are not normally available within Vietnam (such as certain electrical equipment, materials and medical equipment), method of procurement will be ICB even if contract value is below threshold.	First contract	

Category	Procurement Thresholds		Prior Review Thresholds	
	Value	Remarks		Remarks
Shopping	< US$0.1 million		None	
Consultant Services				
CQS	< US$0.3 million	Other methods (QCBS, QBS, FBS, and LCS) shall be applied for contracts equivalent or above US$0.3 million and may also be applied for contracts below US$0.3 million.	**Firms**: ≥ US$0.5 million (competitive selection) plus first contract for each method regardless of value. For Single Source Selection (SSS), US$100,000 (Para 3.9 of the Consultant Guidelines, January 2011). **Individuals**: Only in exceptional cases (for competitive selection); for SSS, US$50,000 (Para 5.6 of Consultant Guidelines, January 2011); **SSS** shall be reflected in Procurement Plans with proper justification.	For individual consultants, prior review applies to long-term (project period) and large-value (≥ US$0.2 million) contracts. For legal or procurement work or critical project management consultants, terms of reference and CVs of selected candidates should be prior reviewed but such reviews should not be considered as prior review of the transaction. Audit contracts should be treated as any other contracts and subject to prior review only if value is above threshold. The task team leader/FM specialist may prior review terms of reference, short list, from a technical perspective.
Short list of all national firms	< US$0.5 million	Para 2.7 of the Consultant Guidelines (January 2011). The threshold applies to assignments for which there is adequate local capacity and sufficient number of qualified local firms (such as technical design and construction supervision).		

Note: Direct Contracting for works/goods is normally subject to prior review except small-value contracts (below US$200,000 for works and US$100,000 for goods). The Procurement Plan should indicate Direct Contracting or SSS method with justifications. If justifications are sound, the contracts below the thresholds should be subject to post review.

Procurement under Investment Component (Component 1) will be conducted in accordance with the paragraph 3.13 of the Bank Procurement Guidelines. IEs that borrow the sub-loans will be responsible to implement the procurement activities under their respective sub-loan and the procurement will be conducted as follows:

a) If IEs belong to the public sector, the procurement will conducted similar to project Component 2; and the table above will apply.

b) If EIs belong to private sector, they are encouraged to use open competitive bidding methods; nevertheless, they may use well-established private sector procurement methods or commercial practices acceptable to the Bank. IEs shall not award contracts to their parent or their affiliate companies or controlling shareholders or ineligible government owned enterprises or institutions. Direct Contracting may be used only under the circumstances set forth in Paragraph 3.7 of the Bank Procurement Guidelines. The Bank will review the procurement plan, which is part of the sub-loan application, prepared by each IE. The IEs can choose to use ICB procedures if needed; and in such case the contract will be subject to Bank prior review if its cost is equivalent or more than USD 20 million; other contracts will be subject to the Bank post review.

The private sector and/or commercial practices IEs will use are expected to include (i) open

competitive bidding using a procedure similar to that provided in the national Procurement Law (normally used for large or more technical complex works); (ii) limited bidding procedure; and (iii) shopping based on comparison of minimum 3 quotations or direct contracting with a qualified contractor for small or technically specialized works that due to their technical nature, industrial enterprises wish to outsource.

Procurement supervision and post review by the Bank. Contracts not subject to prior review will be subject to post review. The Bank will carry out procurement post reviews on an annual basis with an initial sampling rate of 20 percent. This rate will be adjusted periodically during project implementation based on the performance of the project IAs. The Bank will also carry out regular procurement supervision missions on a biannual basis. In addition to applicable prior review, the capacity assessment of the PMB and IEs has recommended annual supervision missions to visit the sites to carry out post review of procurement actions. On an annual basis, the PMB will send to the Bank a consolidated list of all contracts for goods, works, and consultants' services awarded under the whole project that are subject to the Bank's post review, including, but not limited to (a) reference number as indicated in the Procurement Plan and a brief description of the contract; (b) estimated cost, (c) procurement method; (d) date of contract award; (e) name of awarded supplier, contractor, or consultant; and (f) final contract value.

1.14 Technical Evaluation of Energy Efficiency Subprojects

Evaluation of eligibility for the IEs' sub-loan applications for financing of EE subprojects is a critical responsibility for the PFIs. The PFIs projects are developed based on the premise that proposed EE sub-projects are economically justified and financially viable. The PFIs' responsibility is only to confirm that the selected sub-projects are financially and technically viable. In addition, PFI will be required to demonstrate that all WB eligibility and safeguards criteria are fulfilled by the IE. To assist PFIs and IEs on technical assessment of EE project, a Technical Evaluation Framework is provided in annex 2.

The Technical Evaluation Framework will be used by PFIs in evaluating individual subprojects that are to be considered for EE lending. The framework defines the contents, procedures and responsibilities for technical evaluation of subprojects, to ensure that:

- Industrial EE projects are in compliance with Vietnamese industrial and technical policies and regulations
- building EE projects are in compliance with or exceed Vietnamese building codes
- projects fully satisfy technical eligibility criteria listed in section 7.2; and
- projects are technically feasible, reliable and efficient contributing to improvements in energy EE and realization of energy savings.

Evaluation processes and procedures

The prospective IE seeking financing for an EE subproject shall submit the Sub-Loan Application to the PFI. Besides the normal PFI information requirements in the sub-loan application, the EE subproject sub-loan application will include the following information: (1) general description of the subproject scope and sub-borrower (2) objective and justification for the subproject (3) summary of subproject technical assessment, (4) baseline energy consumption data and projected subproject energy savings, (5) environmental impact assessment, and status of required government approvals, and (6) estimated subproject investment cost and financing plan.

The PFI will conduct the initial sub-loan review. For the purposes of EE sub-loan application review, the PFI's Review Team may include, among others, an EE expert responsible for technical due diligence and energy savings measurement and verification (M&V), and an

environmental specialist.

Along with other documents that PFI would require that the IE submit at the time of the sub-loan application, it is recommended that the IE submit final copies of the:

- subproject feasibility study,
- government approvals for subproject implementation (if required),
- government environmental approvals, and
- other relevant documents such as a baseline energy audit report.

If the subproject feasibility study is not available in final form, the IE may submit it in a reasonably developed draft form at the time of the sub-loan application. However, the IE should provide final version of feasibility study prior to the start of Preliminary Appraisal.

The PFI Project Team will conduct an initial review of the sub-loan application and hold discussions with the prospective IE to assess whether the subproject complies with the eligibility criteria (see section 7.2), and meets the credit policies and requirements of PFI.

Subproject Feasibility Study

The IE is responsible for preparing the subproject feasibility report package which it will submit to PFI. The IE will submit either a draft or final version of the feasibility report along with the sub-loan application. The IE must submit the final version of the feasibility report to PFI before or during the Preliminary Appraisal stage.

The subproject feasibility study package should consist of (a) subproject technical feasibility assessment, (b) the technical implementation plan, (c) estimated investment costs and its breakdown, (d) pre-subproject baseline energy audit study and expected subproject energy savings, and (e) environmental impact assessment of the subproject and remedial measures (if needed). These various components of the feasibility study may be in the form of one report or several reports; conducted by one party or several parties.

The baseline energy audit and feasibility study shall be conducted by a qualified energy auditor using professional auditing standards. The IE will be required to submit qualifications and credentials of the auditor and the auditing standards used by the auditor.

a. **Subproject technical assessment** – analysis of subproject rationale and benefits; assessment of proposed technical renovation or rehabilitation including evaluation and comparison of the system design alternatives, key technology and process options and equipment choices; reliability, efficiency and compatibility of the new system design, technology, process, equipment and products with existing systems; and expected changes to technical specifications and indicators (of technology, process, equipment, system, product, production capacity) before and after the project.
b. **Subproject implementation plan** – schedule for subproject implementation and various parties who are expected to be involved in subproject implementation; analysis of constraints and challenges to implementation and recommended mitigation measures.
c. **Subproject investment cost** – analysis of various equipment, civil works and consultancy costs associated with subproject, and basis for the cost estimates; evaluation of total investment cost, including interest during construction and contingency costs.
d. **Baseline energy audit and energy savings, if necessary** – study and analysis of energy use by the beneficiary enterprise or by the relevant unit, plant or area of the beneficiary enterprise where the subproject is to be implemented to establish the baseline energy consumption data. Baseline should include data on all forms of energy consumed over an annual period, preferably for the last two years. In addition to the quantities of energy consumed, the average expenditure during the period on each form of energy should be numerated. The expected energy consumption for all forms of energy post subproject implementation and the assumptions which drive these estimates should be detailed.

e. **Measurement and verification approach** - assessment of the measurement and verification plan to assure that it is consistent with generally accepted M&V approach.

1.15 Environmental and Social Management Framework

The sub-projects to be eligible for refinancing under VEEIEs must meet the national regulations and the WBG's safeguard policies. As the subprojects are not identified prior to appraisal, an Environmental and Social Management Framework (ESMF) was developed during the preparation period to guide the subprojects environmental assessment process and ensure the compliance with the national environmental regulations and the Bank's safeguard policies.

The ESMF lays out procedures which includes (i) screening mechanism to namely to exclude ineligible subprojects, (ii) identification of environmental and social impacts associated with the EE project and the mitigation measures; (iii) procedures for preparation and approval/clearance of EA documents per GoV regulations and Bank safeguard policies which include an environment and social due diligence of existing facilities/IEs as part of the ESMF; (iii) monitoring, institutional arrangement and financial sources for ESMF implementation and (iv) public consultation and information disclosure requirements in accordance to the Bank safeguard policies.

The ESMF also detailed protocol for conducting environment and social due diligences of existing facilities that will be supported by the project will be developed at the beginning of project implementation prior to the screening of the first sub-projects.

The ESMF also refer to the Interim Guidelines on the Application of safeguard Policies for TA activities in Bank-financed Projects and TA activities will be screened against the Interim Guidelines.
As the subprojects are not identified prior to appraisal
The ESMF has been cleared by the Bank and adopted by MOIT. The ESMF is an living document and could be updated during project implementation with the Bank's clearance. The ESMF is an integrated part of the Project Operation Manual and shall be followed during the project implementation to ensure that the project investments are complied with the Bank safeguard polciies and national environmental regulations. Detailed on the ESMF is in the approved document by MOIT.

1.16 Resettlement Policy Framework

Most of these subprojects will be located within the existing premises of industrial facilities and will not require additional land acquisition. However, the resettlement policy framework (RPF) is prepared to ensure that implementation of land acquisition and resettlement for those subprojects will follow relevant national laws and regulations and comply with the safeguard policies of the World Bank

The RPF establishes policies, principles and procedures to be followed by potential energy efficiency subprojects. It will be applied to relevant EE subprojects and activities if subsequent stages of project design or implementation are to cause involuntary land acquisition, leading to relocation of loss of shelter, loss of assets or access to assets, or loss of income sources or means of livelihood or other involuntary restrictions on access to land or other resources which could adversely affect income, living standards, etc. and social safety of affected people. In addition, all non-Bank funded activities that in the judgment of the Bank are (i) directly and significantly related to the Bank-assisted project; (ii) necessary to achieve its objectives as set forth in the project documents; and (iii) carried out, or planned to be carried out, contemporaneously with the project, are subject to the applicability of this RPF.

In case, the subproject is part of the existing facilities that may already have involved land acquisition or resettlement, and relevant documentations on these issues are available, the subproject is also recognized as eligible. Subsequently, due diligence review/audit of existing

facilities for any social legacy issues are only required to identify the additional actions to ensure conformity with the national regulations and the WB's safeguard policies.

Principle, policy and detail guidance are presented in the RPF in the annex.

Preparation and Clearance of Resettlement Plan during Project Implementation

During subproject preparation, developers, based on land acquisition requirements, carry out preliminary screening to identify the types and extent of impacts. Once it is determined that land acquisition, impacts up to or more than 10% of productive assets or any associated impacts is essential to complete any project activities, resettlement planning should begin. The scope and level of detail of the resettlement plan vary with the magnitude and complexity of resettlement.

The overall responsibility for preparation and implementation of any RPs rests with developers of individual subprojects. The subproject owner will carry out a census survey to identify and enumerate all displaced persons, and a socioeconomic survey to determine the range and scope of adverse impacts in the affected area. The census survey must cover 100% of the persons to be displaced; the socioeconomic survey may be undertaken on a sample basis.

Based on accurate baseline census survey and social economic survey, the RP (full resettlement plan or abbreviated resettlement plan) will be prepared in accordance with the policy principles and planning and implementation arrangements set forth in this RPF (see Annex 1 for guidance of full and abbreviated RP preparation), and established appropriate mitigation measures as appropriate for all categories of adverse impacts. Each RP will include, among others: description of the subproject; census and baseline socioeconomic characteristics of the DPs; details of impacts on assets, livelihood and incomes; eligibility; valuation and compensation for losses; suggested mitigation measures; site selection, site preparation and relocation, where necessary; income rehabilitation measures; Grievance Redress mechanism; implementation schedule; and estimated resettlement cost.

Draft version of RPs will be prepared by IEs and reviewed by PFIs, PMBs and be submitted to the Bank for review and clearance before the subproject appraisal. Activities described under the RPs will only be implemented after the Bank has found acceptable the respective resettlement instruments and the governmental competent agencies have approved it. The compensation, resettlement and rehabilitation activities will be completed before awarding the contracts of civil works under each sub-project. All resettlement plans are subject to public consultation and must be disclosed per requirement in the Bank's policy.

Consultation, Participation and Disclosure

To promote active project engagement and adaptation to changed living circumstances, displaced persons should be provided with opportunities to participate in planning and implementation. At minimum, displaced persons should be consulted on preferences and concerns during the resettlement planning process. All displaced persons are to be informed regarding potential impacts and proposed mitigation measures, including compensation rates. Participation and consultation activities will be continuously conducted throughout various phases of the RPs implementation (e.g. planning, implementation, monitoring). The consultation methods will be tailored to each targeted group, including (but not limited to) participatory rapid appraisal, stakeholder consultations through site and household visits, public meetings, focus group discussions and the household socioeconomic survey. The participation of women in consultation process will be prioritized. The RP will include a dedicated section with more detailed description on strategy/plan for consultation, participation and disclosure.

Local authorities, affected communities will also be informed about the project proposal, its objectives and proposed activities, at an early stage of project preparation. The key discussion

points will be focused on the development needs and priorities of local locality and their perception toward the project objectives. As required in OP 4.12, The RP will be disclosed, in a manner and location accessible to displaced persons while in draft, and subsequently disclosed again following finalization. To the extent possible, the implementing agencies will made social safeguard instruments publically available through newspaper, leaflets, local radio to ensure a wide access to this information.

PMB is responsible for establishing and maintaining suitable tools/instruments to ensure that all activities related to consultation, participation and disclosure will be properly tracked and documented.

Supervision, Monitoring and Evaluation

In addition to internal project monitoring arrangements, the project owner will ensure that RP implementation will be monitored by a qualified agency independent of project implementing agencies. The RP should establish the scope and frequency of monitoring activities. External monitoring reports will be prepared for simultaneous submission to the project office and the Bank.

A RP cannot be considered complete until completion audit or survey confirms that all entitlements have been received by beneficiaries and livelihood restoration is progressing on schedule. If possible, (internal/external) monitoring activities of RPs could be considered to be combined with similar action under Ethnic Minority Development Plan of same subproject.

1.17 Ethnic Minority Planning Framework

This EMPF establishes policies, principles and procedures to be followed by potential energy efficiency subprojects, and provides a framework for the required information dissemination and consultation process and formulation of Ethnic Minority Development Plans (EMDPs) for subprojects in order to ensure cultural, economic and social benefits of affected people. This EMPF will be applied to all relevant energy efficiency subprojects and activities if subsequent stages of project design or implementation are to presence of ethnic minorities or their collective attachment to land/natural resources in the subproject areas.

The main objective of the EMPF is to ensure that the development process fosters full respect for their dignity, human rights, cultural uniqueness and that ethnic minorities do not suffer adverse impacts during the development process and they will receive culturally-compatible social and economic benefits. The EMPF provides a framework for not only mitigate, but ensure benefits among the EMs of impacts and based on the free, prior and informed consultations with affected ethnic minority people. The EMPF ensures: (a) how to avoid potential adverse impacts on ethnic minority communities; or (b) when potentially adverse impacts on ethnic minority peoples are unavoidable, be minimized, mitigated, or compensated; and (c) ensure that EMs receive social and economic benefits in a culturally appropriate manner and inclusive in both gender and intergenerational terms, and obtain broad community support for the proposed sub-projects.

Consultation and Information Disclosure

Consultation activities will be continuously conducted throughout various stages of the project implementation (e.g. planning, implementation, monitoring). During these processes, public information and consultation will be conducted to gather information for assessing the project resettlement impacts and to provide recommendations on possible alternative technical options to reduce and/or mitigate potential negative resettlement impacts on local population and to

proactively address issues or problems that may emerge during implementation. Local authorities, affected communities and EMs will be informed about the project proposal, its objectives and proposed activities, at an early stage of project preparation. The key discussion points will be focused on the development needs and priorities of local locality and their perception toward the project objectives. EMs will also be consulted on project potential impacts and possible measures to reduce potential negative impacts, and improve benefits for local people. (see Table 3 for further information)

Meaningful consultation will be conducted through open public consultation to achieve the following objectives: (i) involvement of EMs and stakeholders in resettlement planning and enable them to participate in the assessment of impacts and risks; (ii) participation in making decision that affects their lives; (iii) transparency in information of benefits and entitlements and (iv) understanding the role of stakeholders and EMs in the application of OP 4.10. The consultation methods will be tailored to each targeted group, including (but not limited to) participatory rapid appraisal, stakeholder consultations through site and household visits, public meetings, focus group discussions and the household socioeconomic survey.

The consultation process confirms that affected EM communities (i) broadly support project objectives; (ii) are aware of project benefits, and believe them to be culturally appropriate; (iii) have had sufficient opportunity to identify their preferences and constraints, as relate to compensation and resettlement as well as environmental issues. For Energy Efficiency for Industrial Enterprises Project, a two-step consultation process is designed to ensure the compliance with the Indigenous People Policy (OP4.10) of the World Bank:

- During the project preparation, consultations with EM groups through free, prior and informed consultations to obtain their broad support. Responsible staff of Implementing Agencies (IAs) and commune' authorities identify potentially affected EM communities and conduct consultations. Women of EM communities will be encouraged to join the consultation. Topics of group discussions include project information; potential impacts and proposed mitigation measures; concerns and question of ethnic minority people (EMs); and their broad support the project.
- During the project implementation, consultations with EMs groups to obtain information on the particular needs, challenges and any potential areas where additional support and/or different kind of support may be required. IAs will ensure that all EMs groups are included in the consultation process and that the consultations are conducted in an interactive way, promoting open discussion.

At subproject level, the respective EMDP will define specific actions defining how each EMs will be fully informed and consulted by the project management unit and the relevant unit of District Peoples' Committee (DPC) and/or Communes Peoples' Committees (CPC). The participation of women in consultation process will be prioritized. Implementing Agencies (IAs) are responsible for establishing and maintaining suitable tools/instruments to ensure that all activities related to consultation, participation and disclosure will be properly tracked and documented.

Per requirement of OP 4.10, the Vietnamese version of this EMPF and all EMDPs will be available to the public at the PFIs, PMBs, project sites and VDIC in Vietnam before and after it is approved by the Government. The English version of all EMPF and EMDPs will be disclosed in VDIC in Vietnam and in the InfoShop in Washington, D.C. both before and after they are approved by relevant authorities. All social safeguard instruments will also be made available at relevant websites. To the extent possible, the PMB will made social safeguard instruments publically available through newspaper, leaflets, local radio to ensure a wide access to this

information.

Consultation Schedule for EMDP

No.	Task	Responsible person	Material & forms
1	Inform ethnic minority commune leaders and local authorities about the sub-project	IEs or consultants	Project brochure (IEs to provide sample)
2	Conduct screening to determine types and numbers of ethnic minority households living in area of zone of influence of subproject.	IE or IE's Consultants	Provide Screening/EM Inventory Form
3	Request EM commune leaders, local authorities to help with completing Screening/EM Inventory	IEs, PFIs	Official letter
4	Undertake social impact assessment ethnic minority households in zone of influence/area of subproject. Conduct focus group discussions with three separate groups of ethnic minorities as part of SA: leaders; men; and women	IE or IE's Consultants	SIA Form
5	Analyze and write up findings of SA	IE or IE's Consultants	SIA Form
6	Meet EM leaders and members and discuss findings of SA	IE or IE's Consultants	
7	Prepare Action Plan with local authorities, ethnic minority representatives and their leaders	IE or IE's Consultants	Action Plan Form
8	Meet with designed Engineers to discuss feedback from the commune and use information to design and mitigation measures	IE or IE's Consultants	
9	Send all Inventories, SAs, Action Plans to PFIs	IEs	
10	Summarize information and submit to IDA/World Bank. Important – the reports should be submitted with submission of its proposed subproject Program.	PFIs	
11	Monitor implementation of Ethnic Minority Action Plan	IEs, PFIs, Local authorities, Representatives of EM, Independent Monitors for RP implementation.	Monitoring Reports

Monitoring and Evaluation

To ensure that the EMDPs are transparently implemented and complies with the EMPF and the World Bank's Indigenous People Policy (OP4.10), a monitoring and evaluation mechanism is necessarily established for all project components throughout the process of the project implementation. Monitoring and evaluation is a continuous process. The PMB will be in charge of the internal monitoring and an external agency recruited by PMB will be in charge of the independent monitoring and evaluation. To the extent possible, PMB will consider to integrate

the internal and external monitoring required under OP 4.10 into similar task under OP 4.12. The findings of both RP monitoring and EMDP monitoring should be included in one report to submit to the PMB and PFIs and the WB for review.

Internal monitoring will be monthly conducted by the PMB, with the following objectives:

- ensure that all negative impacts of the subprojects on EMs are mitigated, minimized or compensated in compliance with EMDP under this EMPF;
- ensure that measures of benefit maximization and adverse impact mitigation are implemented in culturally appropriate way for ethnic peoples;
- identify whether free, prior and informed consultations for ethnic people communities are conducted in culturally appropriate manner or not;
- determine if complaint procedures are followed the EMPF and propose solutions if there are pending issues;
- conform with relocation and land clearance and construction commencement to ensure that affected EMs have been provided with compensation, allowance, and relocation satisfactorily before construction commencement.

The external monitoring will be conducted by an external agency specialized in the social science. Key indicators of external monitoring and evaluation are presented as follow:

- Public consultation and awareness of project benefits, resettlement policy and entitlements of affected EM (if relevant);
- Level of satisfaction of affected EMs with provisions and implementation of EMDP;
- Grievance redress mechanism (documentation, process, resolution);
- Effectiveness and sustainability of entitlements and income rehabilitation measures for affected EMs;
- Gender impacts and strategy;
- Capacity of affected EMs to restore/re-establish livelihoods and living standards. Special attention provided to severely affected and vulnerable households;
- Resettlement impacts caused during construction activities;
- Participation of affected EMs in EMDP planning, updating and implementation;
- Institutional capacity, internal monitoring and reporting; and
- Channeling of government funds for compensation payment and allowances for severely affected EMs if any.

1.18 Economic Criteria

Since subprojects benefit from sovereign guarantees that are provided by the Government of Vietnam to the Bank, project IEs must demonstrate that the economic rate of return (ERR) is not lower than the hurdle rate established by the Government, presently 10%. The Bank also requires that projects financed by the Bank provide economic returns that is not lower than the hurdle rate.

To standardize the calculation of the ERR, an economic analysis template and guidelines will be developed. The spreadsheet and economic analysis guidelines can be downloaded from the PMB VEEIEs website (http://www.vneep.moit.gov.vn). or will be available from the PMB.

In order to verify the economic return, IE should complete the financial analysis spreadsheet provided by the PMB VEEIEs ((http://www.vneep.moit.gov.vn) and receive no-objection by the Bank. This should be completed *in addition* to whatever is required by the PFI as part of the

PFI's normal commercial due diligence procedures.

Refinancing Application Package

To request refinancing of a loan for an EE project, PFIs must submit a Refinancing Application Package to the Bank. The Refinancing Application Package consists of:

1. A Refinancing Request (standard letter)
2. The Refinancing Application Summary (RAS)
3. All required attachments (including, but not limited to: (i) PFI's Due Diligence Report; (ii) Sub-project documents including Feasibility Study, EMP, RP, EP; (iii) Procurement Plan; and (iv) Draft or Signed Loan Agreement Between PFI and industrial enterprise)

The Refinancing Application Package, including all attachments, must, to the extent possible, be submitted in electronic form (by e-mail or on CD-ROM or DVD-ROM). Documents that cannot be submitted in electronic form can be submitted as hard copies.

Part B. Loan Implementation

Part B of the OM deals with procedures after the refinancing of a loan has been approved. This includes disbursement procedures, procurement, monitoring of compliance with safeguard policies, repayment procedures, reporting and auditing.

Disbursement Procedures and Financial Management Requirements

1.19 Disbursement Procedures

The project will use the following disbursement methods

- *Reimbursement.* The Bank reimburses borrower for expenditures eligible for financing pursuant to the Loan and Financing Agreement ('eligible expenditures') that the borrower has pre-financed from its own resources.
- *Advance*. Use of the advance method to the PFIs, if deemed justified, will be based on demand from selected PFIs.

1.20 Reimbursement Method

After receiving information that refinancing of the submitted project has been approved and withdrawals by the IE exceeded a certain amount, the PFI can request repayment from MOF of a portion of the loan provided to the industrial enterprise.

The payment from Bank for all Requests for Payment for a subproject shall not exceed 80% of the proven payment of investment cost to the IE for the subproject. PFIs will apply for reimbursement quarterly or when the pre-financed amount by the PFI reaches $500,000 equivalent, whichever sooner.

The PFI can request in one request for payment, reimbursement for loans disbursed to IEs of more than one subproject. The PFI submits the request for payment to MOF, the request shall include the following documentation:

1. Withdrawal Application (WA) for eligible expenditure for reimbursement ; and
2. Copies of payment instructions from PFIs to industrial enterprises or industrial enterprises' contractors and (ii) the confirmation of the industrial enterprises that the payments were made in relation to their loans.

The MOF will check WA and the submitted documents for each subproject for which payment is requested if the PFI indeed disbursed loan payments to IE which projects have been approved for refinancing and if the reimbursement is still within the limit of 80% of the investment cost. The payment request will also be checked against the annual disbursement plan for the subproject. After reviewing documents, MOF will sign WA and send it to Bank for payment. The procedure for requesting payment of refinancing is schematically given in Figure 6.

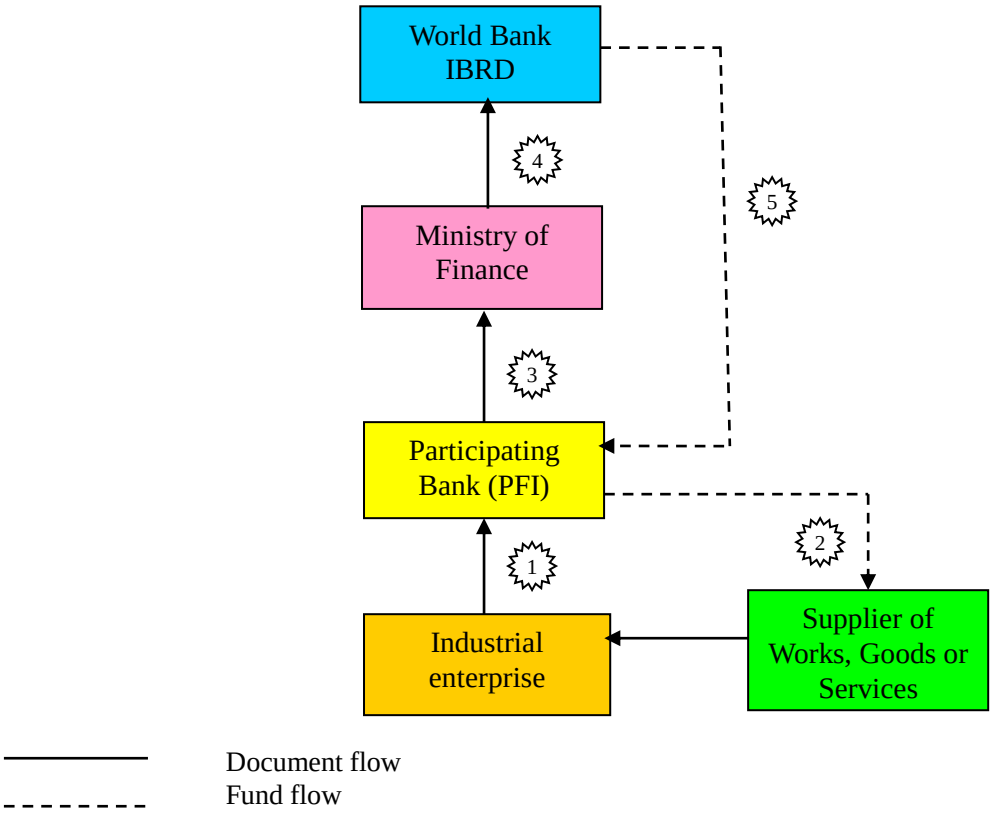


Figure 6. Schematic presentation refinancing payment

Step 1. The industrial enterprise requests the PFI to withdraw from the energy efficiency project loan for payment of subprojects cost.

Step 2. The PFI approves the withdrawal and pays the withdrawal amount either to the industrial enterprise, to the supplier of works, goods or services, or to both a part of the withdrawal amount (this is up to the PFI).

Step 3 The PFIs prepares WA for reimbursement with supporting documents and send to MOF for endorsement/verification and signature.

Step 4 The MOF reviews the request and supporting documents and if there are no problems, endorses the WA, sign WA and send to WB for reimbursement. The review by the MOF will be within 5 working days after receipt of the request.

Step 5. WB will disburse the monies to the PFI.

The Disbursement Deadline Date will be four months after the Closing Date of VEEIE.

1.21 Advance Method

To provide flexibility for project implementation, if requested advance disbursement method would be agreed to provide funds to the PFIs so that it may finance expected project expenditures as they are incurred. The PFIs can only use the funds advanced by the Bank for eligible project expenditures. An designated account will be opened and managed at each PFI. The World Bank will disburse advance into the designated account. A fixed ceiling amount of US$ 20 million will be applied to each designated account for the credit line.

1.22 Disbursement Plan

Each PFIs will prepare the annual disbursement plan for each approved subproject and submit them to WB, MOIT and MOF by January 30 of each year. Template of disbursement plan is attached in Annex 3.

In case there is any change in the disbursement plan, PFIs will update the plans and send to WB/MOF/MOIT.

1.23 Financial Reporting

Quarterly Interim Financial Reports: For VEEIE, each PFI is required to submit to the WB/MOIT a quarterly Interim Financial Report (IFR) within 30 days of the end of the semester, i.e. January 31; 30 April; July 31; 31 December. The IFRs are based on Aligned Monitoring Tools (AMT) which is regulated under the Decision 803 of the Ministry of Planning and Investment. The IFRs for the PFIs include the following forms (with the reference number as indicated in the AMT package).

- IFR 1.1: Sources and Uses of Funds by expenditure category;
- Form 4: Disbursement of ODA fund (by component);
- Form 6: Disbursement of Counterpart Fund (by component);

The templates of the above reports will be available from the VEEIE internet site. The IFRs are not required to be audited.

Annual Project Financial Statements: Each PFI will prepare annual financial statements covering project components and activities for which they are responsible. The financial statements must be prepared on a modified cash basis in accordance with generally accepted accounting principles. PMB will consolidate the data from relevant reports based on annual financial statement of the PFIs. The Project Financial Statements will consist of:

- A Statement of Sources and Uses of Funds/Cash Receipts and Payments which recognizes all cash receipts, cash payments and cash balances controlled by the entity; and separately identify payments by third parties on behalf of the entity.
- The Accounting Policies Adopted and Explanatory Notes. The explanatory notes should be presented in a systematic manner with items on the Statement of Cash Receipts and Payments being cross referenced to any related information in the notes. Examples of this information include a summary of fixed assets by category of assets, and a schedule of credit / grant withdrawals, listing individual withdrawal applications; and
- A Management Assertion that Bank funds have been expended in accordance with the intended purposes as specified in the relevant legal agreements (Financing Agreement and Subsidiary Loan Agreements).

The annual project financial statements are required to be audited and submitted to the Bank within 6 months of the end of each financial year.

1.24 Audit Requirements

Audit of Project Financial Statements: The project consolidated financial statements will be audited annually in accordance with international auditing standards and acceptable terms of reference. The auditors are contracted and paid for by the PMB. The PMB will appoint independent auditors acceptable to WB. The cost of the audit will be borne by the PMB. The auditors' reports will be made available to WB within six months after the close of the fiscal year. Each audit report will have a single audit opinion covering Project Accounts and Designated Accounts (including adequacy of IFRs for disbursement purposes). The auditor will also provide a management letter addressing internal control weaknesses of the implementing agencies.

Audit of PFI Entity Financial Statements: All PFIs will be required to submit auditor reports and audited entity financial statements annually to WB within six months of close of fiscal year.

The financial statements to be audited will be prepared in accordance with international auditing standards which will be audited in accordance with international auditing standards by an independent auditor acceptable to WB and under similarly acceptable TOR. Annual financial statements and audit reports will be made available to the public through websites of the MOIT and PFIs.

Procurement

PFIs and IEs are required to implement the project in accordance with procurement requirements specified in section 7.5. MOIT and the Bank will supervise and monitor procurement performance of the project. For each subproject under component 1, IE will prepare procurement plan and submit to PFIs together with financing application. The Bank will review and clear procurement plan for each EE subproject with total investment cost more than US$ 500 thousand. Procurement plan template is in annex 4.

Procurement Supervision and Post-review by the Bank: Contracts not subject to prior-review will be subject to post-review. The Bank will carry out procurement post review on annual basis with an initial sampling rate of twenty percent. This rate will be adjusted periodically during project implementation based on the performance of the project implementing agencies. The Bank will also carry out regular procurement supervision missions on a bi-annual basis. In addition to applicable prior review, the capacity assessment of the PMB and EIs has recommended annual supervision missions to visit the sites to carry out post review of procurement actions. On an annual basis, PMB will send to the Bank, a consolidated list of all contracts for goods, works and consultants' services awarded under the whole Project that are subject to the Bank's post-review, including but not limited to: (i) reference number as indicated in the Procurement Plan and a brief description of the contract; (ii) estimated cost, (iii) procurement method; (iv) date of contract award; (v) name of awarded supplier, contractor or consultant; and (vi) final contract value.

Monitoring Compliance with Safeguard Policies

During implementation of the subprojects refinanced under VEEIE, compliance with the safeguard plans will be monitored. This may include the following.

1. Environment Management Plan
2. Resettlement Plan
3. Ethnic Minorities Plan

Quarterly Reports

Each PFI will prepare quarterly progress reports. The quarterly progress reports will contain a section on safeguard monitoring. Further details on contents and checklists, are provided in the respective safeguard frameworks or OMs.

External Monitoring and Verification

The PMB will each year contract an Independent Monitoring Consultant(s) (IMC) which will undertake overall assessment of compliance with the safeguard plans. The IMC visits will occur annually, except during the early start-up period when bi-annual visits may be more appropriate. Checklists for IMC activities are included in the respective safeguard frameworks or OMs.

Non Compliance

Non-compliance with the safeguard frameworks is taken very seriously. Non-compliance must be reported by the PMB to the WB immediately. The PMB, in consultation with the WB will

take required action on a case by case basis.

Repayment Procedures

PFIs repay the refinancing loan to MOF according to the provisions in the Subsidiary Loan Agreement.

Progress Reporting

This chapter describes the reporting requirements of different actors:

- Industrial enterprises
- PFIs
- PMB/MOIT
- MOF

Progress reports must be prepared on a quarterly basis.

IEs must prepare quarterly progress reports. These IE Progress Reports must be submitted to the PFIs who provided the loan for the subproject. A PFI must carefully review the IE Progress Report and obtain additional inputs or clarifications from IEs where needed. Based on the IE Progress Reports, the PFI will prepare a PFI Progress Report. This is a simply and brief introduction/summary for all projects for which refinancing from VEEIEs have been obtained, with attached all IE Progress Reports. The PFI must submit the PFI Progress Report to the PMB/MOIT.

The PMB/MOIT will review the PFI Progress Reports and obtain additional inputs or clarifications from the PFIs if needed. Based on the PFI Progress Reports, the PMB/MOIT will prepare an overall VEEIE Loan Implementation Progress Reports. This is a brief introduction/summary, a section on issues and remedies and attached all PFI Progress Reports. The PMB/MOIT must submit the VEEIE Loan Implementation Progress Report to the Bank with a copy to MOF.

- IEs must submit the Industrial enterprises Progress Report to the PFI latest: on January 15; April 15; July 15; and October 15
- PFIs must submit the PFI Progress Report to the PMB/MOIT latest on January 31; April 30; July 31 and October 31.

The PMB/MOIT must submit the VEEIE Loan Implementation Progress Report to the Bank latest on February 15; May 15; August 15 and November 15.

World Bank Supervision and Evaluation

The Bank will prior review at least the 3 Refinancing Application Package from each PFI. The prior review requirement will continue until the Bank is satisfied that the established review process is working well and that projects proposed for refinancing by the PFIs indeed meet all requirements. Once the Bank informed the PFI(s) in writing that no longer prior review is required for a certain PFI, refinancing applications will be subject to post review only.

The Bank will monitor implementation progress and discuss with the PMB and MOIT actions needed in case progress is slower than expected.

Twice a year the Bank will conduct a formal supervision mission. Approximately 30 months after effectiveness, the Bank will undertake a Mid Term Review.

Vietnam

ENERGY EFFICIENCY for INDUSTRIAL ENTERPRISES PROJECT

Operations Manual

ANNEXES

Prepared by

Project Management Board
Ministry of Industry and Trade
Vietnam

April 2017
Hanoi

Annex 1: Screening Form

Eligibility Criteria	Yes/No	Comments
1. Sub-borrower is an industrial enterprise, or ESCO?		
2. Sub-borrower has cross-ownership with PFI?		
3. Subproject is a retrofit, renovation/rehabilitation project (not a greenfield project)?		
4. Subproject demonstrates minimum 20% energy saving?		
5. Subproject energy savings investment payback period is less than 10 years?		
6. Subproject has received required government environmental approvals		
7. Subproject has an environmental category rating of A, B or C		
8. If subproject is category B, subproject has completed an EMP which have been approved by the environmental authorities		
9. If subproject plant recently acquired any land areas for its current operation	Yes	A due diligence review needs to be prepared in accordance with Resettlement Policy Framework;
10. If subproject implementation involve any potential land acquisition and resettlement outside the existing premises of the plant	Yes	A Resettlement Action Plan needs to be prepared in accordance with the Resettlement Policy Framework.
11. If subproject implementation involve any potential ethnic and minorities communities	Yes	An Ethnic Minority Development Plan needs to be prepared.
12. Subproject will not directly result in involuntary workforce dismissal		

Annex 2: Technical Evaluation Framework

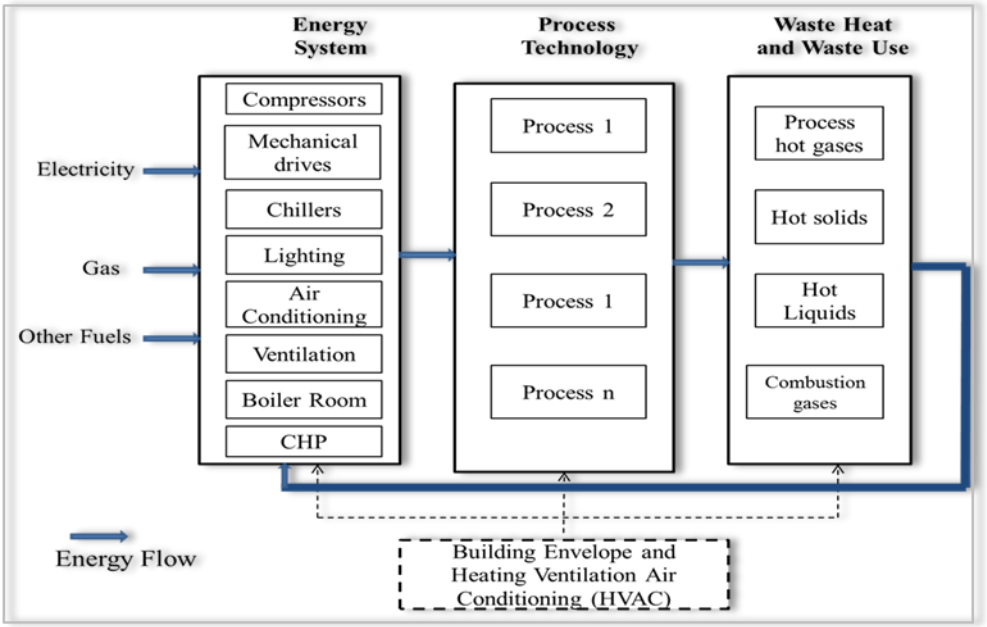
The technical framework aims to assist PFIs and IEs in identifying EE subprojects, evaluating and appraisal of EE investment. The framework will consist of the following contents:

- Energy efficiency Subprojects;
- Subproject Screening;
- Scope of Subproject Evaluation;
- Energy Saving Calculation and Verification;
- Economic and Financial Analysis;
- Subproject Feasibility Study.

1. Energy Efficiency Subprojects

EE and energy-saving technologies vary by industrial subsectors but potential energy-saving measures include (a) energy systems: upgrading boilers and switching fuels, using cogeneration facilities and electric-driven systems, including compressed air systems, electric chillers, machinery, and lighting; (b) process technology: upgrading and replacing equipment, machinery, and facilities; and (c) waste heat and waste use: use of waste heat (of hot/warm gases, liquids and solids) and burning combustible waste (gases, liquids, solids). Use of RE sources to decrease fuel and/or electricity consumption in IEs may also be considered. Investments may include (a) cogeneration facilities or process furnaces and stoves and (b) solar water heaters for sanitary hot/warm preparation. Figure 2.1 depicts the energy flows and investment in typical IEs

Figure 2.1. Potential EE Measures



Types of EE Investments in IEs as seen in the about figure includes three major categories: (i) energy systems; (ii) process technology; and (iii) waste heat and waste use.

- *Investments in energy systems* related to boiler upgrading and fuel switching, use of co-generation facilities, electric driven systems including compressed air systems, electric chillers, machinery and lighting; heat piping (steam, water) and associated equipment;
- *Investments in process technology* related to upgrading and replacement of equipment, machinery and facilities; and/or

- *Investments in waste heat and waste use* related to the utilization of waste heat (of hot/warm gases, liquids and solids) and burning of combustible waste (gases, liquids, solids) when harmful pollution can be effectively controlled.

Typical Energy Efficiency Investments in Energy Systems

	BOILER ROOM with associated pipe system (steam, water, condensate)	**Please Select**
A.1	Switching fuels from those that are expensive to ones that are less costly (including combustible waste and biomass)	
A.2	Replacing or adjusting fuel burners	
A.3	Improving the control & instrument system (C&I), particularly flue-gas, oxygen-based combustion control	
A.4	Thermal insulation of boiler shells, distribution piping, fittings and connecting parts, tanks, heat exchangers and other equipment	
A.5	Replacing poorly or non-functioning steam headers	
A.6	Replacing or repairing regulating and stop valves (eg. in case of leaks)	
A.7	Redesigning and removing needless pipes in the distribution system (to simplify system)	
A.8	Salvaging boiler flue gases heat	
A.9	Installing condensate return system	
A.10	Automatic blow down (fully automatic, timer based, etc.)	
A.11	Salvaging waste heat from boiler blow down	
A.12	Feed water and return condensate pre-heating before entering the boiler	
A.13	Chemical treatment of feed water and condensate before entering the boiler	
A.14	Distributed boilers instead of one centralized boiler (within distributed production facilities)	
A.15	Installing heat (hot water) accumulators to run boilers at nominal capacity as long as possible	
A.16	Installing steam accumulators where there is a substantial change in steam demand in short time periods (to equalize steam boiler operations regardless of demand and achieve maximum possible efficiency)	
A.17	Replacing oversized (compared to actual demand) or warn out, outdated and non-reliable boilers	
A.18	Replacing oversized steam piping where there is significantly reduced steam demand (consumption),to reduce heat losses in steam distribution	
A.19	Replacing existing with new condensing boilers (reducing heat losses with flue gases due to lower flue gas temperature at the stack), particularly when natural gas is the fuel	
	ELECTRIC ENERGY SYSTEMS – COMPRESSED AIR SYSTEM	
A.20	Reducing forced pressure to the minimum required	
A.21	Larger pre-cooling on inlet air	
A.22	Replacing inlet and outlet air filters	
A.23	Reducing air leaks in compressed air distribution systems	
A.24	Salvaging air heat and using it for space heating or pre-drying process, etc.	
A.25	Separating the part of compressed air piping not in use	
A.26	Cleaning inlet air to meet required (design) cleanness and installing high performance treatments for specific applications	
A.27	Installing separate compressors in parts of the system with very different compressed air demand (than in major part of the system)	
A.28	Using blowers instead of compressors for providing low pressure air	
A.29	Completely replacing warn out, outdated air compressed systems, particularly air compressors, controls and instruments	

	COMBINED HEAT AND POWER PRODUCTION (CHP) - COGENERATION	Please Select
A.30	Co-generation of heat and power based on different technologies firing natural gas	
A.31	Co-generation of heat and power based on synthetic gases like biogas (digesters), agricultural and industrial waste, biomass, etc.	
A.32	Tri-generation when heat and cooling demand exists (eg. the beverage industry: heating demand for pasteurization, cooling/chilling of water for CO2 better absorption; electric chillers replaced with absorption chillers run by heat from co-generation facility)	

Energy Efficiency Investments in Process Technology

	DRYING FACILITIES	Please Select
B.1	Improving controls and instruments	
B.2	Improving thermal insulation of shell	
B.3	Installing synchronous burners	
B.4	Fuel switching	
B.5	Salvaging waste heat	
B.6	Refurbishing and upgrading facilities	
B.7	Improving fuel supply installations	
B.8	Installing equipment for moisture separation	
B.9	Improving air (flue gases) recirculation	
B.10	Replacing inefficient, warn out drying facilities	
	ELECTRICITY-SAVING MEASURES	
B.11	Switching to night tariffs for some parts of production facilities	
B.12	Correcting the power factor	
B.13	Reorganizing the production process to avoid peak capacity overflow	
B.14	Upgrading/replacing electricity metering devices	
B.15	Replacing electric drives with new variable speed drives (frequency regulation) or installing variable speed drives at existing rotation equipment (fans, pumps, compressors, etc) operating with variable regimes (fluid flows)	
B.16	Replacing inefficient electric drives with modern energy-efficient electric drives	
	MAIN PROCESS TECHNOLOGY	
B.17	Improving controls and instruments (C & I)	
B.18	Replacing inefficient equipment of the process technology	
B.19	Salvaging waste heat (gains from the process) to use for space heating, process heating etc.	
B.20	Switching fuels (energy) (eg. coal replaced by gas in brick factories)	
B.21	Replacing main process technology	
	BUILDINGS -Envelope Improved Heating, Ventilation, Air Conditioning (HVAC), and Lighting	
	(1) SPACE HEATING	
B.22	Installing thermal insulation of equipment, distribution piping, fittings and valves located outdoors	
B.23	Improving temperature controls (three-way valves, regulators, temperature sensors, thermostat, electric drives) and heating in accordance with sliding heating curves	
B.24	Applying zone temperature regulations	
B.25	Installing thermostat-based temperature regulations in separate zones	
B.26	Installing local temperature controls at radiators (thermostatic valves)	
B.27	Improving heating system (heat substations, redesigning piping, replacing risers and other valves, etc).	

B.28	Installing heat pumps	
B.29	Switching fuels form more to less expensive, particularly electricity in space-heating with other sources	
B.30	Using renewable energy sources for space-heating (geothermal energy, solar thermal, biomass, etc)	
B.31	Switching from steam to hot water space-heating	
	(2) MECHANICAL VENTILATION AND AIR CONDITIONING	
B.32	Zone temperature regulations	
B.33	Waste heat recuperation systems	
B.34	Installing roof fans	
B.35	Using natural ventilation when possible	
B.36	Ventilating during the night	
B.37	Installing demand side systems in HVACs	
B.38	Applying absorption cooling methods	
B.39	Using renewable energy sources	
	(3) LIGHTING	
B.40	Installing automatic lighting system (timer operated or other)	
B.41	Installing natural light sensors for on/off switches	
B.42	Removing unnecessary lights	
B.43	Replacing incandescent bulbs with more efficient ones (flu pipes, high pressure sodium bulbs, metal halogen bulbs)	
B.44	Moving sensors for on/off switches (empty room, no moving, and vice versa)	

Energy Efficiency Investments in Waste Heat and Waste Use

	WASTE HEAT AND WASTE USE	**Please Select**
C.1	Burning combustible waste (gases, liquids, solids) without harmful pollutants or where pollution can be effectively controlled (boilers, furnaces, stoves – in boilers and co-generation facilities and/or furnaces and stoves in process technology)	
C.2	Salvaging waste heat using regular heat exchangers when waste gases or liquids are not abrasive or corrosive (pre-heating of condensate, feed water, combustion air, use in HVAC systems or main process technology)	
C.3	Salvaging waste heat of abrasive or corrosive fluids (gases, liquids) using ceramic or other special heat exchangers and using heat as set out in C.2	
C.4	Using latent steam heat to change pressure (in condensate return system).	
C.5	Collecting, separating, cleaning (if needed) condensate from steam systems and returning it to boilers or a co-generating energy system (reducing condensate losses)	

Other Energy Efficiency Investments

D1	To be specified by sub-borrower	

Eligible subproject criteria: Subproject investment shall be limited to renovation and rehabilitation (adjustment, replacement) of existing physical components and systems with the objective of achieving higher energy efficiency. Subproject must demonstrate the minimum energy saving requirement of twenty percent (20%). Lower energy saving may be acceptable for specific sectors with advanced energy technologies.

The cash flow benefit arising from energy savings associated with the subproject, as estimated using the subproject financial projections prepared by the sub-borrower and reviewed by PFIs, shall be adequate to repay the total investment cost of the subproject within a period of ten (10) years. Subproject's economic internal rate of return must be higher than ten percent (10%).

The sub-borrower shall have obtained all required environmental approvals from the appropriate local, provincial or state environmental authorities and shall make available to PFIs copies of all necessary approval documents.

In addition, subprojects are subject to safeguard screening and compliance with environment and social requirements. The processes and procedures for safeguard screening and safeguard implementation is in accordance with safeguard frameworks set out in relevant annex.

2. Subproject Screening

Subproject screening is responsibilities of the enterprises and the PFIs.

The prospective sub-borrower seeking financing for an EE subproject shall submit the application to the PFI. Besides the normal PFI information requirements in the sub-loan application, the energy efficiency subproject sub-loan application will include the following information: (1) general description of the subproject scope and sub-borrower (2) objective and justification for the subproject, (3) summary of subproject technical assessment, (4) baseline energy consumption data and projected subproject energy savings, (5) environmental impact assessment, and status of required government approvals, and (6) estimated subproject investment cost and financing plan.

The PFI will conduct the initial sub-loan review. For the purposes of energy efficiency sub-loan application review, PFI may include, among others, an energy efficiency expert responsible for technical due diligence and energy savings measurement and verification (M&V), and an environmental specialist.

Along with other documents that PFI would require that the sub-borrower submit at the time of the sub-loan application, it is recommended that the sub-borrower submit final copies of the:

- subproject feasibility study,
- government approvals for subproject implementation,
- government environmental approvals, and
- other relevant documents such as a baseline energy audit report.

If the subproject feasibility study is not available in final form, the sub-borrower may submit it in a reasonably developed draft form at the time of the sub-loan application. However, the sub-borrower should provide the final version of the feasibility study prior to the start of appraisal. The PFI will conduct an initial review of the sub-loan application and hold discussions with the prospective sub-borrower to assess whether the subproject complies with the eligibility criteria, and meets the credit policies and requirements of PFI. The PFI will complete an Introductory Review Report based on its initial review and will include a section in the Report with respect to compliance with the eligibility criteria.

3. Scope of Technical Evaluation

During appraisal, the PFI will conduct technical evaluation of subproject. Once relevant documents are received from the sub-borrower, PFI will perform subproject technical evaluation with the assistance of a technical expert, an energy auditior, and an environmental specialist.

Industrial subprojects – For industrial projects, the technical expert should have satisfactory engineering and systems knowledge regarding the industry and the energy efficiency technology or system which will be implemented under the subproject. The energy auditing expert should have adequate experience in conducting industrial energy efficiency project baseline development and assessment of energy efficiency measures. The environmental specialist should possess expertise in assessing environmental impact of industrial projects, and have knowledge of government rules, requirements and processes for environmental approvals.

ESCO subprojects – For ESCO projects, the technical expert should have satisfactory engineering and systems knowledge regarding the type of customer of the ESCO and the energy efficiency technology or system which will be implemented under the subproject. The energy auditing expert should have adequate experience in conducting energy efficiency project baseline development and assessment of energy efficiency measures in the market sector represented by the customer. The environmental specialist should possess expertise in assessing environmental impact of projects in the end-user's market sector, and have knowledge of government rules, requirements and processes for environmental approvals.

Building subprojects – For building projects, the technical expert should have satisfactory engineering and systems knowledge regarding building energy use and the energy efficiency technologies or systems which will be implemented under the subproject. The energy auditing expert should have adequate experience in conducting EE project baseline development and assessment of energy efficiency measures in buildings. The environmental specialist should possess expertise in assessing environmental impact of projects in the buildings sector, and have knowledge of government rules, requirements and processes for environmental approvals.

If any of the required expertise is not available within the PFI, the PFI will hire external experts (individual consultants or firms) with relevant technical experience and knowledge to conduct the technical evaluation. The technical experts will also participate and contribute in the financial analysis process as well as the subproject supervision and reporting practices.

During the technical evaluation, the technical experts will evaluate the following:

a) Ensuring subproject complies fully (i) for industrial projects, with the existing industrial and technological policies and regulations; and (ii) for building projects, with the appropriate building codes, standards and regulations.

b) Ensuring technical eligibility criteria for the subproject as established are fully satisfied:
   - Define and determine the technical and physical boundary and components of the subproject within the sub-borrower's overall production system or building;
   - Confirm if the subproject investment is limited to renovation and rehabilitation of existing physical component(s) and system(s);
   - Confirm that, as stipulated in Chapter 3, the energy savings payback period on the subproject investment is less than 10 years based on the cash flow benefits derived from energy savings associated with the subproject.

   The energy savings payback period shall be calculated as:

   Energy savings payback period = Total Subproject Investment Cost /Average annual cash flow from energy savings.

c) Review and evaluate the technical competency (such as evidence of proven successes, credential and certificates, official test results, etc) of designer, constructor, installer, equipment manufacturer, etc. as appropriate;

d) Evaluate and compare the system designing alternatives, key technology and process options and equipment choices presented in the feasibility study report; verify the rationale for the selection of system design, technology, process, equipments, and products; evaluate the technological compatibility with existing systems; review and verify the changes of technical specifications and indicators (of technology, process, equipment, system, product, production capacity) before and after the subproject;

e) Review and verify the baseline (before the subproject) energy efficiency and consumption scenario within the subproject boundary (see section 4);

f) Identify and verify the projected overall EE improvements and energy savings after the subproject, as well as key components of energy efficiency improvements and energy savings in terms of technology, process and equipment, (see section 4);

g) Review and verify the technical risks and risk-mitigation measures;

h) Review and verify the feasibility of technical implementation plan;

i) Review and verify estimated subproject investment cost (incl. analysis of cost components)

The technical evaluation will be exercised through reviewing the feasibility study report, energy auditing report, other relevant documents, as well as field visits and interviews. The technical experts will make at least one field visit to the site of the subproject during the early stage of appraisal process, interview key technical participants in the subproject (sub-borrower's technical management, contractor of feasibility report, energy auditor, etc); and contact other key parties (constructors, equipment manufacturers, technology providers) if necessary. The findings of the technical evaluation will be included in the Appraisal Report.

4. Energy Saving Calculation and Verification

Energy Consumption of Sub-borrower PRIOR energy efficiency investment				
1. Annual Electricity Consumption				
Electricity Consumption	MWh/year			
2. Annual Fuel Consumption		**Total Consumption**	**kWh Conversion Factor**	**Consumption in MWh**
Natural Gas	Thousand cubic meter/year			
Heavy Fuel Oil	Ton/year			
Light Fuel Oil	Thousand liters/year			
Liquefied Petroleum Gas	Kg/year			
Diesel	Thousand liters/year			
Gasoline	Thousand liters/year			
Cole	Ton/year			
Hard and Brown Coal	Ton/year			
Lignite	Ton/year			
Other fuels: [Specify]	*[enter unit]*			
Total Energy Consumption in MWh/year				

Energy Consumption of Sub-borrower AFTER energy efficiency investment				
1. Annual Electricity Consumption				
Electricity Consumption	MWh/year			

2. Annual Fuel Consumption		Total Consumption	kWh Conversion Factor	Consumption in MWh
Natural Gas	Thousand cubic meter/year			
Heavy Fuel Oil	Ton/year			
Light Fuel Oil	Thousand liters/year			
Liquefied Petroleum Gas	Kg/year			
Diesel	Thousand liters/year			
Gasoline	Thousand liters/year			
Cole	Ton/year			
Hard and Brown Coal	Ton/year			
Lignite	Ton/year			
Other fuels: [Specify]	*[enter unit]*			
Total Energy Consumption in MWh/year				

ANNUAL ENERGY SAVINGS				
1. Annual Electricity Consumption				
Electricity Consumption	MWh/year			
2. Annual Fuel Consumption		**Total Savings**	**kWh Conversion Factor**	**Savings in MWh**
Natural Gas	Thousand cubic meter/year			
Heavy Fuel Oil	Ton/year			
Light Fuel Oil	Thousand liters/year			
Liquefied Petroleum Gas	Kg/year			
Diesel	Thousand liters/year			
Gasoline	Thousand liters/year			
Cole	Ton/year			
Hard and Brown Coal	Ton/year			
Lignite	Ton/year			
Other fuels: [Specify]	*[enter unit]*			
Total Energy Savings in MWh/year				
Total Annual Energy Savings in percentages				
Annual CO2 reductions in tons				

5. Economic and Financial Analysis

Borrowers should complete the financial analysis spreadsheet provided by the [PMU] in order for no-objection to be considered by the World Bank. This should be completed *in addition* to whatever is required by the PFI as part of the PFI's normal commercial due diligence procedures.

Table 1: Macroeconomic assumptions
Project proponents should enter their expectations for Vietnamese and US$ inflation, and foreign exchange depreciation. In the default, FOREX depreciation is based on the ratio of US$ and VND inflation. Proponents should not override this formula unless they can justify the consistency of any alternative. This will be evaluated carefully in the event that the project proponent assumes FOREX risk by borrowing in US$.

Table 2: Project assumptions
Project assumptions are entered in the columns of this table, marked [1], [2], . . etc. The set of values is selected in cell F22, and the data that will actually be for a calculation will appear in column F. Column F contains formulas, which should not overwritten! The following should be noted:

Debt
The model is set up of loan denominated in either US$, VND or both: the fraction of total debt in $US is entered in row [8]. The relevant interest rates and loan repayments are

VND Fuel price escalation
In rows [25]-[31], enter the base year price paid by the borrower for fuels, together with the assumed rate of price escalation.

If you do not want to assume a constant escalation rate, future prices can be entered directly in rows [7], [15] and [19] in Table 3, over-writing the formulae with data values.

Project proponents may base their expectations of future international and Vietnamese oil and coal prices, and electricity tariff expectations according to their own judgements. In the case of electricity prices, project proponents should note that future tariff reforms may introduce a capacity charge, so the benefit of an electricity saving measure may only avoid the variable charge, which may be less than the current energy-only tariff.

In this matter project proponents may be guided by the most recent consultants report on electricity tariff reform, which derives a variable charge of around 1,250 VND/kWh as an indicative level.

Table 4: Profit/loss statement
The default assumption is straight line deprecation over 20 years, with the depreciable value equal to the total capital cost (as entered in row [2] of table 2). No accelerated depreciation is considered. In this table, you may overwrite the depreciation period, or enter some other depreciable value if needed (in rows [11] and [12] of Table 4. Alternatively, with some other depreciation methodology, or with special depreciation provisions, the depreciation allowances can be entered directly in row [6].

No particular tax concessions are assumed in the default calculation, so the entire net income

Table 5: debt service
The calculations assume repayment of principal in constant annual instalments. In the event some other methodology is agreed with project proponents commercial bank, the schedule for principal repayments can be entered in row [4] and row [11], overriding the default shown here.

IDC is calculated in the usual way (as interest on the average annual balance). Again, the formulae in the green-shaded cells in rows [6] and [14] can be overridden with any actual values.

If IDC is capitalised (i.e. included in the total loan amount), then that should be noted in the corresponding entry in Table 2 – rows [3] and [4]. If either of these is entered as non-zero, then

there is no IDC calculation in Table 5.

Do not disturb or erase the entries in row 8 of the sheet {model}. These are used in the calculation of principal repayments in table 5!

Energy Savings Payback Period Calculation:

All eligible subprojects need to ensure that the expected cash flow derived from energy savings associated with the subproject is adequate to repay the subproject investment cost (including interest during construction) within ten years, based on a simple payback period (PBP) formula discussed below. The energy savings payback period shall be calculated as:

$$\textbf{Energy savings payback period} = \frac{\textbf{Total Subproject Investment Cost}}{\textbf{Average annual cash flow from energy savings}}$$

Industrial subprojects

For industrial subprojects the annual cash flow from energy savings is that part of the subproject total annual cash flow (including all benefits and costs) that is derived solely from energy savings. A subproject might have non-energy related benefits and costs which would not be included in this calculation.

Annual cash flow from energy savings =
[(Pa/Pb) x two-year average annual energy spending before the subproject] – [estimated annual energy spending after the subproject]

Where, Pa = annual production (output) expected after the subproject; and
Pb = two-year average annual production (output) before the subproject

Further, the *average annual cash flow from energy savings* will be the average of such savings over the first ten years once the subproject has been fully implemented and operational. Annual cash flow benefit (loss) due to energy efficiency improvements associated with the subproject should be calculated as the expected amount of energy saved due to the subproject in a given year multiplied by the expected average energy sale or purchase price for the sub-borrower during that year for each type of energy saved (electricity, coal use, etc.). If the subproject receives carbon financing, then the benefits from carbon credits should also be included as a benefit derived from energy savings.

The sub-borrower will submit actual historical physical quantities and prices for energy consumed, and for output production for the previous two years (if possible and where applicable), and will also provide projections for output production and energy spending (both quantity and price for each energy type) for at least the next ten years. The PFI appraisal team may modify the projections based on their technical and financial assessment. The appraisal team will calculate the energy savings payback period to ensure that the requirement for subproject energy savings payback period of less than 10 years be met.

Subproject Example: Rehabilitation of Polyvinyl Alcohol (PVA) Production Line

A subproject is intended to improve the enterprise's EEby rehabilitating its (a) PVA production line, (b) air cooling system, and (c) combined heat & power (CHP) plant to make use of recovered waste heat for increasing power generation and thereby reducing its power purchase from the grid.

Key assumptions for financial projections include:

- Total investment cost: 50 million yuan

- Annual reduction in electricity purchased from grid: 4 GWh. Assuming the Company pays tariff of 0.4 yuan/kWh, then it benefits from reduced electricity expenses of 1.6 million yuan annually
- Annual incremental subproject operating and maintenance costs (fixed plus variable): 2.0 million yuan (4% of total investment cost)
- Annual steam savings of 150,000 ton, which results in reduction in coal use for steam production of 15,000 tons. Assuming coal price of 500 yuan/ton, it results in coal savings of 7.5 million yuan annually
- Non-energy related savings: the subproject is also expected to reduce the amount of water that requires recycling and condensing, resulting in annual benefits of 5.3 million yuan
- Increased power generation from recovered waste heat and avoided coal use for steam generation from the subproject is expected to reduce carbon emissions by 50,000 tons annually
- Assumed carbon credit market value: US$10/ton, resulting in annual carbon credit benefits of approximately 3.9 million yuan (assuming exchange rate of 7.8yuan/US$)
- Economic life of the plant: 20 years

Years	**-1**	**1**	**2**	**3-----**	**--------20**
Subproject Benefits (million yuan)					
Electricity savings		1.6	1.6	1.6	1.6
Steam production savings		7.5	7.5	7.5	7.5
Carbon credits		3.9	3.9	3.9	3.9
Non-energy: water savings		5.3	5.3	5.3	5.3
Subproject Costs (million yuan)					
Investment costs	- 50.0				
Operational costs		-2.0	-2.0	-2.0	-2.0
Subproject Cash Flow (million yuan)					
Without carbon credits	-50.0	12.4	12.4	12.4	12.4
With carbon credits	-50.0	16.3	16.3	16.3	16.3
Energy savings cash flow (million yuan)					
Without carbon credits		7.1	7.1	7.1	7.1
With carbon credits		11.0	11.0	11.0	11.0

In the above example, the energy savings cash flow is lower than the total subproject cash flow as the subproject also provides savings in terms of reduced water intake. Further, if the subproject can take advantage of carbon finance, then it will help boost both cash flows related to energy savings and total subproject cash flow.

Here, the total investment cost = 50 million yuan[2]
Average annual energy savings cash flow without carbon credits = 7.1 million yuan
Average annual energy savings cash flow with carbon credits = 11.0 million yuan

Thus,
Energy savings payback period without carbon credit benefits = 50/7.1 = 7.04 years, and
Energy savings payback period with carbon credit benefits = 50/11.0 = 4.55 years

Both are less than the 10 year maximum payback period threshold and hence meet the energy savings payback period eligibility requirement.

[2] *Even if subproject investment is spread over multiple years, take the undiscounted total investment cost for this calculation.*

ESCO subprojects

For ESCO subprojects, the annual cash flow from energy savings is the part of the subproject total annual cash flow (including all benefits and costs) to the ESCO based on the energy performance contract between the ESCO and the customer. A subproject might have non-energy related benefits and costs which would not be included in this calculation.

Subproject Example – Energy Efficiency in Steel Plant

In this subproject example an ESCO is working with a steel plant to improve energy efficiency by installing three measures:

- Generation of power from waste heat
- VFD on fan motor
- Rehabilitation of cooling tower

These measures are summarized below:

Serial No.	Description	Technologies Used	Investment Cost	% Savings	Energy Savings	Cost Savings	Simple Payback
1	Power from waste heat	Waste heat recovery	70 million	-	37 million kWh	22 million Yuan	3.2 years
2	VFD for fan motors	VFD	16 million	35%	8 million kWh	4.8 million Yuan	3.7 years
3	Cooling tower rehab	Rehabilitation	7 million	20%	2.5 million kWh	1.5 million Yuan	4.7 years
Total	**-**	**-**	**93 million**	**-**	**70.7 million kWh**	**28.3 million Yuan**	**3.3 years**

For the ESCO subprojects, two payback numbers can be calculated. The first is subproject payback, which is calculated as the ratio of the total project investment to the average annual energy savings. The second is the simple payback to the ESCO, which is calculated as the ratio of the total project investment to the energy savings cash flow to the ESCO. As can be seen from the Table above, this energy efficiency subproject has total estimated investment costs of 93 million Yuan and estimated energy cost savings of 28.3 million Yuan, yielding a subproject simple payback of 3.3 years.

The following describes the structure of the ESCO subproject:

- The ESCO signs a 7 year performance contract with the customer under which the ESCO receives 75% of the savings and the customer retains 25%.
- The ESCO invests 30% of the project cost as equity and borrows the remaining funds from the bank
- The term of the loan is 7 years and the interest rate is 12%.

The subproject financial analysis is shown below:

	Year										
	1	2	3	4	5	6	7	8	9	---	20
Sub-project Investment	93.0										
ESCO Equity Investment	27.9										
ESCO Bank Loan	65.1										
Sub-project Benefits - Customer											
Energy Savings	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	---	28.3
Share of Savings to Customer	7.1	7.1	7.1	7.1	7.1	7.1	7.1	28.3	28.3	---	28.3
Sub-project Benefits - ESCO											
Share of Savings to ESCO	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	---	21.2
Debt Service (7 years @ 12%)	13.8	13.8	13.8	13.8	13.8	13.8	13.8	0.0	0.0	---	0.0
Net Cash Flow to ESCO	7.4	7.4	7.4	7.4	7.4	7.4	7.4	0.0	0.0	---	0.0
Project Simple Payback	3.3										
ESCO Simple Payback before financing	4.4										
ESCO Simple Payback after financing	3.8										
Ratio of Sub-project Savings to Debt Service	2.1										
Ratio of ESCO Cash Flow to Debt Service	1.5										

The financial analysis indicates the following:

- The annual energy savings are 28.3 million Yuan
- The share of the energy savings to the customer is 7.1 million Yuan for the first 7 years and 28.3 million Yuan thereafter.
- The share of the energy savings to the ESCO is 21.2 million Yuan for 7 years
- The debt service payment from the ESCO is 13.8 million Yuan for 7 years.
- The subproject simple payback is 3.3 years.
- The ESCO simple payback before financing (calculated as total investment of 93 million divided by ESCO energy savings cash flow of 21.2 million) is 4.4 years.
- The ESCO simple payback after financing (calculated as ESCO equity investment of 27.9 million divided by net cash flow after debt service of 7.4 million) is 3.8 years.

In summary,

- The ratio of subproject energy savings to debt service is 2.1.
- The ratio of ESCO cash flow from energy savings to debt service is 1.5.

Both of these ratios and the payback meet the specified energy savings thresholds.

Building subprojects

For building subprojects, the annual cash flow from energy savings is that part of the subproject total annual cash flow (including all benefits and costs) that is derived solely from the building energy savings. A subproject might have non-energy related benefits and costs which would not be included in this calculation.

Subproject Example – Building Energy Efficiency

This project consists of 3 different energy efficiency measures in a large office complex:

- Lighting retrofit
- Air conditioning system improvement
- VFDs on pumps and fans

These measures are summarized below:

Serial No.	Description	Technologies Used	Investment Cost	Energy Savings	Cost Savings	Simple Payback	Measure Life

1	Lighting	CFLs, T-5 lamps; LED exit signes	2.5 million	2 million kWh	1.2 million Yuan	2.1 years	5 years
2	Air conditioning	Chiller replacement, & Controls	15 million	5 million kWh	3.0 million Yuan	5.0 years	15 years
3	Pumps and fans	Rehabilitation	6 million	2.5 million kWh	1.5 million Yuan	3.8 years	10 years
Total	**-**	**-**	**23.5 million**	**10.5 million kWh**	**5.7 million Yuan**	**4.1 years**	**-**

For the building subprojects, the subproject payback is calculated as the ratio of the total project investment to the average annual energy savings.

As can be seen from the Table above, this building energy efficiency subproject has total estimated investment costs of 23.5 million Yuan and estimated energy cost savings of 5.7 million Yuan, yielding a subproject simple payback of 4.1 years. The following describes the structure of the subproject financing:

- The sub-borrower invests 30% of the project cost as equity and borrows the remaining funds from the bank
- The term of the loan is 7 years and the interest rate is 12%.

The subproject financial analysis is shown below:

	Year															
	1	2	3	4	5	6	7	8	9	9	10	11	12	13	14	15
Sub-project Investment	23.5															
Sub-borrower Equity Investment	7.1															
Sub-project Bank Loan	16.5															
Net Energy Savings Cash Flow																
Lighting	1.2	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Air conditioning	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Pumos and Fans	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0
Total	5.7	5.7	5.7	5.7	5.7	4.5	4.5	4.5	4.5	4.5	4.5	3.0	3.0	3.0	3.0	3.0
Debt Service (7 years @ 12%)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Energy Cost Savings - Life of Loan	5.4															
Project Simple Payback	**4.4**															
Ratio of Sub-project Savings to Debt Service	**1.5**															

The financial analysis indicates the following:

- The annual energy savings are 5.7 million Yuan for the first 5 years, 4.5 million for the next 5 years and 3.0 million for the next 5 years
- The debt service payment from the sub-borrower is 3.5 million Yuan for 7 years.
- The average energy savings cash flow over the 7 years of debt service is 5.4 million Yuan
- The subproject simple payback (calculated as the subproject investment divided by the average energy savings cash flow) is 4.4 years.
- The ratio of subproject average energy savings to debt service is 1.5

Both of the required ratio and the payback meet the specified energy savings thresholds.

6. Energy Efficiency Subproject Feasibility Study

The sub-borrower is responsible for preparing the subproject feasibility report package which it will submit to PFI. The sub-borrower will submit either a draft or final version of the feasibility report along with the sub-loan application. The sub-borrower must submit the final version of the feasibility report to PFI before or during the Appraisal stage.

The subproject feasibility study package should consist of (a) subproject technical feasibility assessment, (b) the technical implementation plan, (c) estimated investment costs and its breakdown, (d) pre-subproject baseline energy audit study and expected subproject energy savings, and (e) environmental impact assessment of the subproject and remedial measures (if needed). These various components of the feasibility study may be in the form of one report or several reports; conducted by one party or several parties.

For ESCO projects and building energy efficiency projects, an additional requirement is that the baseline energy audit and feasibility study be conducted by a qualified energy auditor using professional auditing standards. The sub-borrower will be required to submit information in the qualifications and credentials of the auditor and the auditing standards used by the auditor.

Subproject technical assessment – analysis of subproject rationale and benefits; assessment of proposed technical renovation or rehabilitation including evaluation and comparison of the system design alternatives, key technology and process options and equipment choices; reliability, efficiency and compatibility of the new system design, technology, process, equipments and products with existing systems; and expected changes to technical specifications and indicators (of technology, process, equipment, system, product, production capacity) before and after the project.

Subproject implementation plan – schedule for subproject implementation and the various parties who are expected to be involved in subproject implementation; and analysis of constraints and challenges to implementation and recommended mitigation measures.

Subproject investment cost – analysis of various equipment, civil works and consultancy costs associated with the subproject, and basis for the cost estimates; evaluation of total investment cost, including interest during construction and contingency costs.

Baseline energy audit and energy savings, if necessary – study and analysis of energy use by the beneficiary enterprise or by the relevant unit, plant or area of the beneficiary enterprise where the subproject is to be implemented to establish the baseline energy consumption data. Baseline should include data on all forms of energy consumed over an annual period, preferably for the last two years. In addition to the quantities of energy consumed, the average expenditure during the period on each form of energy should be numerated. The expected energy consumption for all forms of energy post subproject implementation and the assumptions which drive these estimates should be detailed.

Measurement and verification approach - assessment of the measurement and verification plan to assure that it is consistent with generally accepted M&V approach.

Attachment: Appraisal Report Guideline

The following guideline has been prepared to assist the Appraisal Team with the preparation of the Appraisal Report.

I. Sub-Borrower Description

- Type of sub-borrower (such as industrial enterprises, ESCOs, building owners and municipal government end users)
- Industrial enterprises:
  - Comprehensive introduction of the sub-borrower: years of operation, registered

capital, operational scale, industry position, etc.

- Organizational structure and management of the sub-borrower: organizational structure, list of Board of Directors and senior management committee, financial and information management, etc.
- Relationship between the sub-borrower and PFI: past loan issuance, repayments, existing credit line; relationship with other financial institutions.

- ESCOs
  - Introduction to the sub-borrower: years in operation, registered capital, operational scale, position among the ESCO industry, etc.
  - Organizational structure and management of the sub-borrower: organizational structure, list of Board of Directors and senior management committee, financial and information management, etc.
  - Relationship between the sub-borrower and PFI: past loan issuance, repayments, existing credit line; relationship with other financial institutions.
  - Description of host enterprises: type of business, years of operation, registered capital, and organizational structure and management.
- Buildings owners/end users/heating & cooling system operators:
  - Type of sub-borrower (building owner, municipal end user, school/hospital. district heating or cooling operator)
  - Description of project facility (or facilities)
  - Date constructed
  - Location: address and description of surrounding area (e.g. type of buildings -- residential, commercial, or government buildings)
  - Organization and management structure of the sub-borrower, including Board of Directors and/or management structure,
  - Relationship between the sub-borrower and PFI: past loan issuance, repayments, existing credit line; relationship with other financial institutions.

II. Sub-Borrower Business and Financial Evaluation

A. For industry Sub-borrowers

- Evaluation of sub-borrower's major industry indicators, trends, prospects and market position; evaluation of sub-borrower management strength and corporate governance structure; analysis of key business risks
- Analysis of state guidance and policy for the industry; the guidance and policy of PFI for the industry
- Financial status of the sub-borrower: review based on comprehensive analysis of sub-borrower financial statements – capital structure, operating margins, sales growth, debt service coverage, liquidity analysis, etc.

B. For ESCO Sub-borrowers

- Evaluation of the sub-borrower's market position, customer base, prior experience, prior performance in executing ESCO projects, management strength and corporate governance structure; analysis of key business risks
- Review of state guidance and policy for the ESCO industry; the guidance and policy of PFI for the industry
- Financial review of the sub-borrower: based on comprehensive analysis of sub-borrower

financial statements – capital structure, operating margins, sales growth, debt service coverage, liquidity analysis, etc.

- Audited financial statements for the past 3 years
- Prior Project Experience of ESCO (in a tabular format as shown in Table F-2)
    - Experience doing similar projects
    - Performance of those projects
    - References for those projects

ESCO PRIOR PERFORMANCE INFORMATION

End-user Name	
End-user Contact Info.	
Type of Facility	
Year of Installation	
Brief Description of Project	
Technologies Installed	
Total Implementation Cost	
Total Loan Amount	
Name of Lender	
Term of Loan	
Estimated Energy Savings/Yr.	
Actual Energy Savings/Yr.	
How Measured	
Energy Cost Savings/Yr.	
Other Cost Savings/Yr.	
Total Cost Savings/Yr.	
% of Savings to ESCO	
Estimated Cash Flow to ESCO/Yr.	
Actual Cash Flow to ESCO/Yr.	
Loan Repayment/Yr.	
Ratio of Cash Flow/Loan Pmt.	
Length of Performance Contract	

C. For Building Owner Sub-borrowers

- Evaluation of sub-borrower's major market sector indicators, trends, prospects and market position; evaluation of sub-borrower management strength and corporate governance structure; analysis of key business risks
- Analysis of state guidance and policy for the market sector; the guidance and policy of PFI for the industry

- Financial status of the sub-borrower: review based on comprehensive analysis of sub-borrower financial statements – capital structure, operating margins, sales growth, debt service coverage, liquidity analysis, etc.
- Experience of sub-borrower in similar projects
    - Type of facility
    - Brief description
    - Technologies installed
    - Implementation cost
    - Savings achieved

III. Subproject Description

A. For All Sub-borrowers

- Description of proposed subproject,
- Summary of subproject investment cost, financing plan and proposed sub-loan amount
- Listing of subproject energy efficiency measures (EEMs) – using the format in Table 4-2

Table 4-2: SUBPROJECT ENERGY EFFICIENCY MEASURES

Serial No.	Description	Technologies Used	Investment Cost	% Savings	Energy Savings	Cost Savings	Simple Payback
1							
2							
3							
4							
5							
Total	-	-		-			

- Copy of Feasibility Study report, and Statement of qualifications of the organization who did Feasibility Study; and
- If necessary, Baseline Energy Audit, Statement of qualifications and credential of the energy auditor, and Statement of the auditing standards used by the energy auditor in conducting the Baseline Energy Audit

B. Additional Information Required for ESCO Sub-borrowers

- Copy of signed Energy Performance Contract between ESCO and end user
- Descriptions of key provisions of contract
    - Description of any performance/savings guarantees provided
    - Description of any share of savings provisions
    - Description of method for measuring and verifying performance and savings
- Identification of Subcontractors, including Engineering-Procurement- Construction partner and brief write up of their capabilities and experience on similar projects

- Description of method used to select subcontractors
- Information on end user
    - Type of business
    - Years in business
    - 3 years of audited financials
    - Description of due diligence performed by ESCO
    - Statement of why the ESCO believes the end user will continue in business during the term of the loan.

IV. Subproject Technical Assessment

- Based on the subproject feasibility report prepared by the sub-borrower
- Review of the subproject, including details on the renovation and rehabilitation being undertaken, technologies to be used, capacity for implementation, subproject location, description of subproject facility, projected outputs and subproject timeline
- Evaluation of the rationale for the selected technical design/approach; confirmation of the reliability and efficiency of the technology, and its performance in other projects;
- Evaluation on the projected technical and energy efficiency performances, and analysis of energy savings expected from the subproject
- Confirmation of compliance with technical eligibility criteria

V. Subproject Financial Evaluation

A. For All Sub-borrowers

- Analysis of financial viability of the subproject - calculation of financial internal rate of return (FIRR) on the investment
- Analysis of impact on the sub-borrower's profitability, cash flows and balance sheet

B. Additional Evaluation for ESCO Sub-borrowers

- Analysis of the impact on the net cash flows and profitability of the end-user over the life of the sub-loan
- Total Cost including interest during construction
- Performance contract terms: debt service payment, energy saving split between ESCO and end user; ESCO cash flow
- Level of any energy savings guarantees and how the security backing such guarantees
- Estimated Energy Savings and Energy Cost Savings – year-by-year
- Estimated Other Cost Savings – year-by-year
- Estimated Total Cost Savings – year-by-year
- Share of Savings to ESCO - year-by-year
- Share of Savings to End User - year-by-year
- Amount of Debt
- Debt Service Cost - year-by-year
- M & V cost - year-by-year
- Ratio of Total Cost Saving to Debt Service - year-by-year

- Ratio of ESCO Total Cost Savings to Debt Service - year-by-year
- Proposed Measurement and Verification (M&V) Methodology

VI. Subproject Costs, Financing Plan and Repayment

- Details of subproject costs by component, with breakdown of foreign and VND costs with appropriate price and physical contingencies, incremental working capital requirements, and interest cost during construction
- Inclusion of the bases and assumptions for cost estimates (feasibility studies, budget/supplier quotations, date of base estimates, etc.)
- Analysis of financing sources for the subproject, including amount of funding and reliability of funding from each source
- PFI contribution to the total sub-loan amount requested for the subproject
- Analysis of the authenticity of the borrowing purposes and its background, including the authenticity of loan category, purpose and compliance situation and its background; and
- Analysis of repayment plan, sources and risks.
  - Monthly expected savings
  - Monthly expected debt service payment and term of loan
  - Percent of debt service by month compared to savings by month
  - Host enterprises sustainability: whether stay in business.

VII. Analysis of collateral and guarantee

- Analysis of the guarantor, including its operation and financial and credit situation;
- Analysis of the collateral/pledge, including the basic profile, legality, validity, assessed value, and calculation of the collateral/pledge
- For ESCO projects, analysis of the energy performance contract between the ESCO and the end-user, the savings being projected, and the related measurement and verification (M&V) to be used to confirm the performance and assure sustainability

VIII. Environmental Impact Assessment and Resettlement Policy Assessment

- Description of any environmental and social impacts of the subproject and remedial measures required or envisaged.
- Confirmation of required government approvals, environment category ratings, EIA Table (if required)
- Confirmation of compliance with environmental eligibility criteria.
- Confirmation whether the Resettlement Policy Framework will be triggered for the proposed sub-project;
- Confirmation the types of resettlement instruments will be required to prepare following the RPF for the proposed sub-project;
- Confirmation the compliance of required government approvals for recent land acquisition and satisfactory RAP by following RPF for the proposed land acquisition activities under the sub-project.

IX. Procurement

- Description of the main packages of goods to be procured, with assessment of contracting arrangements, methods of, and likely sources of supply
- Description of imported equipment: rationale of imported equipment, performance

characteristics of imported equipment

- Commercial contracts: suppliers, commercial value, terms of the contract, payment means and conditions
- Confirmation that sub-borrower will comply with the procurement framework.

X. Conclusion

- Proposed sub-borrower credit rating
- Suggested terms of the sub-loan: loan amount, maturity, interest rate
- Issues for internal discussion

Annex 3: Disbursement plan

Vietnam Energy Efficiency for Industrial Enterprises Project

Disbursement Projection

Name of Bank:

IBRD Commitment (US$ million):

Year					
	Total planned withdraw (US$m)	Disbursement plan			
		Quarter 1 (US$m)	Quarter 2 (US$m)	Quarter 3 (US$m)	Quarter 4 (US$m)
2017					
2018					
2019					
2020					
2021					
2022					

Annex 4: Procurement Plan Template

1. Procurement Plan for Service Package

Ref.	Description	Cost Estimate incl. VAT (USD)	Package No.	Funding Source	Selection Method (QCBS, CQS, ICS and etc.)	Type of Contract	Review by WB (Prior or Post)	Issuance of REOI	Issuance of RFP	Proposal Submission	Contract Signing	Contract Start	Contract Duration (months)

2. Procurement plan for Goods and Works

Ref.	Description	Cost Estimate incl. VAT (USD)	Package No.	Funding Source	Procurement Method (ICB, NCB, SH, etc.)	Type of Contract	Review by WB (Prior or Post)	Issuance of IFB	Issuance of RFQ/BD	Bid/quotation submission	Contract Signing	Contract Start	Contract duration

Annex 5: Environment and Social Management Framework

Annex 6: Resettlement Policy Framework

Annex 7: Ethnics and Minority Development Policy Framework