The Project for Promoting Investment Market for Energy Efficiency in Industrial Sector in Vietnam

KOICA - World Bank Joint Guidelines on VEEIEs Loan Application

The guidelines, developed in close cooperation and consultation with World Bank, aims to provide the necessary information regarding the loan process of Vietnam Energy Efficiency for Industrial Enterprises (VEEIE) project for industrial enterprises in Vietnam

January 2020

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Abbreviations

EMP	Energy Management Plan
EP	Ethnic Minority Planning
FS	Feasibility Study
ICB	International Competitive Bidding
IDA	International Development Association
IE	Industrial Enterprises
MOIT	Ministry of Industry and Trade
NCB	National Competitive Bidding
NOL	No Objection Letter
RP	Resettlement Plan
OM	Operations Manual
PFI	Participating Bank
PMB	Project Management Board
TA	Technical Assistance
EE	Energy Efficiency
VEEIE	Energy Efficiency for Industrial Enterprises Project
WB	World Bank
FS	Feasibility Study

1. Introduction

These loan application guidelines have been developed in close cooperation with World Bank to provide the necessary information regarding the loan application of the Vietnam Energy Efficiency for Industrial Enterprise (VEEIE) project.

The guidelines have been produced with reference to VEEIE Operations Manual (OM), therefore should be read in conjuction with the manual referenced below

Vietnam Energy Eficiency for Industrail Enterprises Project Operations Manuals by VEEIEs Project Management Board and Ministry of Industry and Trande, Vietnam

1.1 Purpose

These guidelines are designed to clarify criteria, reuiqrements and eligibiligy of the loan granted by the project, thereby ensuring potiental borrowers' better understanding and preparation of the loan application. In particular, this document details the conditions and principles to be applied when the enterprises apply for the loans.

It also speicifies loan approval process as well as key documents to be prepared to help potential applicants meet the requirements for the loan application.

Therefore, this document will guide potential applicants to the most appropriate self preparation for the loan.

1.2 Overview

In the project, participating financial institutions (PFIs) can obtain a 100 million USD loan from IBRD through MOF for energy efficiency 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 of Investment and Development of Vietnam (BIDV)

Industrial enterprises will approach PFIs with subprojects and PFIs will be fully responsible for subprojects appraisal and evaluation taking all associated risks.

The guidelines have been produced based on procedures and requirements set out in the VEEIE OM and information collected from Joint Stock Commercial Bank for Foreign Trade of Vietnam (Vietcombank), Vietnam Joint Stock Commercial Bank for Industry and Trade (Vietinbank), Bank for Investment and Development of Vietnam (BIDV).

The document contains the following contents: (i) the overall process of loan application approval, role and responsibilities of industrial enterprises in the project implementation process, (ii) legal documents, project profile, company financial records and collateral records that industrial enterprises need to prepare in the loan application and (iII) specific guidelines for key documents that IEs are required to submit for appraisal và evaluation from PFIs.

The Guidelines include 4 chapters as below:

- Chapter 1: Introduction
- Chapter 2: VEEIE loan application approval process
- Chapter 3: Loan application checklist
- Chapter 4: Guidelines for key documents in loan application

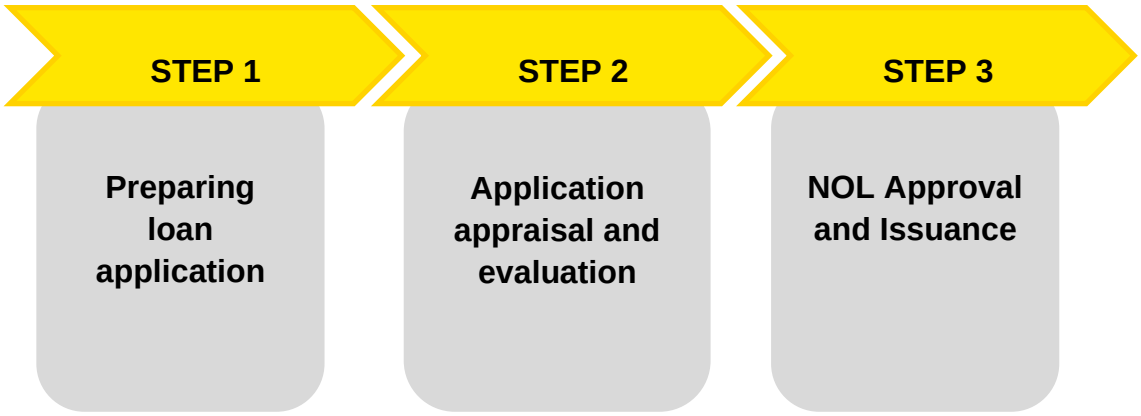
2. VEEIE loan application approval process

For project with total investment cost of less than 500,000 US$ with good quality and PFI demonstrating adequate technical and financial appraisal capacity, post review should be applied. All other projects with total investment cost exceeding 500,000 US$ will follow prior review procedures

2.1 Prior Review Procedure

Overall procedure

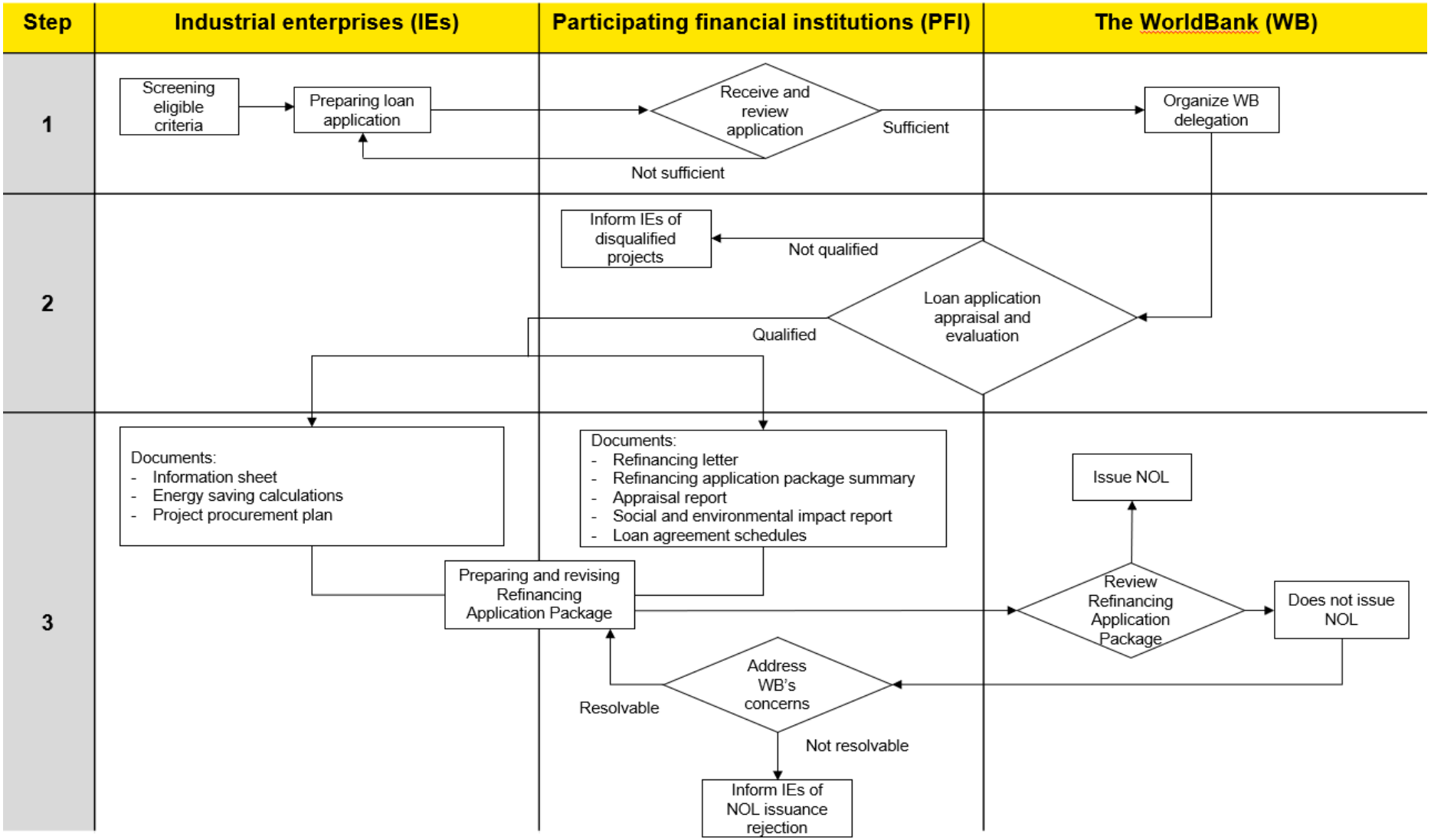
Figure 2-1 Overall prior review procudure



Prior review procedure, VEEIE loan application approval includes 3 main steps: (i) IE prepares loan application and submit to PFI for review; (ii) PFI and WB delegation will carry out appraisal and evaluation of the application and (iii) PFI will submit the loan application to WB for approval and to issue No Objection Letter (NOL).

Specific procedure

Figure 2-2 Specific prior review procudure



Step 1: Screening and preparation for Loan application submission to PFI

Industrial Enterprises that have the need to loan will carry out screening against eligible criteria (Annex 1: Screening form – Operation Manual) for participating in VEEIE. 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).

If the received application is not sufficient, PFIs will request IE to submit complementary documents. If the received application has met all the requirements, PFIs will work with WB delegation to carry out appraisal and evaluation.

Step 2: PFIs and WB carry out application appraisal

WB and PFI will carry out loan application appraisal for subproject Energy efficiency against refinancing requirement (Refinancing application package – Operations Manual). Loan is limited to maximum %80 of total investment cost. If a project meets all the requirement for refinancing, PFIs will coordinate with IEs to complete and prepare Refinancing application package for WB to review and approve.

Step 3: NOL approval and Issuance

Refinanicng application includes Refinancing Request, Refinancing Application Summary and all required attachments for review. If the project submitted meet all the requirements for refinancing then PFI will submit the complete application to WB for NOL. The complete application includes Request for No objection Letter; (ii) Refinancing Application Package and (iii) Refinancing Requirement Checklist.

The WB commits to review financing application package submitted within 7 working days of receipt. There are 3 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 3, 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 can not be addressed, the PFI will inform IE accordingly

If received approval and NOL from the WB, IE will implement EE loan in accordance with loan agreement and VEEIE requirements.

2.2 Post Review Procedure

If the investment cost of EE subproject to be submitted for financing under VEEIE is qual or less than US$ 500,000, 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 meets 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 preview procedure, twenty percent (20%) of total subprojects that have investment cost equal or less than USS$ 500,000 will be reviewed to verify that all requirements are met and estimation of energy saving performance is accurate. If any subproject that is not substantially meet the requirements, the disbursed amount must be returned to the designated account.

2.3 Role and responsibilities of IE

In the whole process of the project, IE has 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.

3. Loan application checklist

OM has specifically stated refinancing requirements that IEs and PFIs must meet including:

1) IE must be eligible
2) EE project must to be eligible
3) Lending terms to IE must meet VEEIE requirements
4) Procurement follow procurement requirements specified in this OM
5) Project must meet technical requirements
6) Project must be in line with the Environment Safeguards Framework
7) Project must be in line with the Resettlement Policy Framework
8) Project must be in line with the Ethnic Minority Development Policy Framework
9) Project must meet the economic criteria specified in this OM

Loan application must be prepared to provide sufficient information for evaluation in accordance with the above requirements. The first part of this Chapter captures the checklist for required documents under common commercial practise and additional documents for VEEIE requirement.

In the scope of this Guideline, we focus on important documents that does not reflect the general legal or financial status of the company. Because legal and financial documents are saved, maintained and announced on internal regulation. Important documents discussed in this Guideline include: content of the Energy Audit report, content of Feasibility Study report, and Procurement Plan. Document's key contents are demonstrated in the second part of this Chapter, for detailed contents, please see Chapter 4.

3.1 Loan application checklist

Under common commercial practise, the loan application is prepared and submitted by IEs to the PFIs including (i) company profile, (ii) project profile, (iii) financial records and (iv) collateral records are listed in detail below:

Table 3-1 Loan application checklist under common commercial practice

No	Documents
A	**Company profile**
1	Business Establishment Decision (if any)
2	Business Registration Certificate
4	Certificate of business eligibility for conditional industries; Practising license (if required)
6	Company Charter
7	Decision of appointment of the legal representative, authorization persons, Chief accountant
8	Financial Policy
9	Certificate of tax code registration
11	Document of contributing sufficient charter capital according to the business registration (in case of newly establisment)

No	Documents
12	Documents / Resolution of the Board of Shareholders / Board of Directors / Board of Members delegating the legal representative (General Director / Director /etc.) to sign documents relating to borrowing and securing loans (in case of Company Charter does not regulate such authorization)
B	**Project profile**
1	Feasibility Study
2	Energy Audit report
3	Investment Decision of the company
4	Investment decsion/approval of the authorized sate agency (if required by regulation)
5	Construction Permit (if required by regulation)
7	Certificates of Environmental standard compliance/ fire fighting safety, Licence of resources exploitation (if required by regulation)
8	Technical Design and Cost Estimation (if applicable)
15	Report on project implementation progress (if project is on-going)
16	Document verifying sources of investment capital
17	Procurment documents: RFP/ bidding approval/ contractor appointment/ competitive offer (if available)
19	Project cashflow projection
C	**Financial records**
1	Loan request (bank's form)
2	Document/ Resolution of Board of Shareholders / Board of Directors / Board of Members/ or the authorized person of the company on approval of financing option and collateral using plan.
3	Financial statements (Balance sheet, Income Statement, Cashflow statement, Notes to financial statement) for last 3 years
4	Loss recovery plan (in case the company incurs accumulated loss)
5	Outstanding balance of deposits, credits, investments and loans at banks/ financial institutions (international and domestic)
6	List of significant receivables, payables, detailed inventories
D	**Collateral records**
1	Legal evidence for properties ownership/ assets use right
E	**VEEIE's additional requirements**
1	Environment Management Plan (EMP)
2	Ethnic Minority Plan (EP)
3	Resettlement Plan (RP)

3.2 Feasibility Study

This section summaries structure and key contents in Feasibility Study. Detailed contents and form for Feasiblity Study are provided in section 4.1 below.

Feasibility Study could be developed including chapters as follow:

Chapter I – General information about the project

- Basic information about the project

Chapter II – Legal bases for preparation of Feasibility Study

- All legislative documents used as bases for preparing FS

Chapter III – Necessity of investment project

- General overview on sectors or industries which the project has impacts on
- Project rationale
- Objectives of the project

Chapter IV – Current operating process and parameters

- Operating and production process
- Data collection and validation methodology
- Measured data analysis

Chapter V – Energy saving solutions

- Applied solutions and technology
- Technology and equipment selection
- Tecnology and equipment technical specifications

Chapter VI – Basic design

- Basic design, construction and installation solutions

Chapter VII – Impacts on environment, society

- Environmental and social impacts

Chapter VIII – Energy saving calculations

- Energy saving analysis and calculation
- GHG emission reduction calculation
- Other benefits

Chapter IX – Total investment, funding structure and financing schedule

- Legal bases for total investment
- Methodlogy for estimation of total investment
- Total investment
- Funding structure

Chapter X – Financial analysis

- Inputs data and financial assumptions
- Financial parameters used for assessment
- Project financial analysis
- Conclusion

Chapter XI – Socio-economic analysis

- Socio-economic costs and benefits
- Socio economic parameters used for assessment
- Socio-economic analysis
- Conclusion

Chapter XII – Project implementation and operation management

- Project phase and timeline
- Form and organization structure of management of project implementation and operation

Chapter XIII – Conclusion and recommendation

3.3 Energy Audit Report

Energy audit report includes contents in accordance with guideline of MOIT in Circular 09/2012/TT-BCT issued on 20 April 2012. This section summarizes the structure and key contents of Energy Audit report. Forms and detailed contents are presented in section 4.2 below:

Energy Audit report has 7 chapters as follows:

Chapter 1: Summary

- Summarize potential findings about energy efficiency, sorted by priority;
- Propose selected solutions that should be invested.

Chapter 2: Introduction

- Summarized introduction about audited establishments
- Audit team
- Overview and the scope of work
- Content of Energy Audit report

Chapter 3: Company's activities

- Development history and status quo
- Operation and production structure

Chapter 4: Description of processes in the technology line

- Production lines
- Potential energy savings

Chapter 5: Energy comsumption and production capacity

- Power and water consumption
- Specifications and characteristics of fuel, energy used

Chapter 6: Financial – Technical Engagement

- Technology, technical and environmental issues
- Solutions and economic assessment

Chapter 7: Energy saving solutions

- Identifying and demonstrating in detail energy saving solutions
- Selection of technical solutions
- Financial, energy and environmental analysis

3.4 Procurement Plan

Procurement plan is used according to form at Section 3, Chapter 4

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, 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

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, thresholds for procurement methods and bank prior review are applied like in the table below.

Table 3-2 Procurement and Bank prior review thresholds

Category	Procurement Thresholds		Prior Review Thresholds	
	Value (USD)	Remarks		Remarks
Work/Supply and Installation				
ICB	>= $20 million		All contracts	Contracts below US$15 million but using ICB subject to post review
NCB	< $20 million		First contract plus all contracts above US$15 million	
Shopping	< $0,2 million		None	
Goods, IT services, Non-consulting services				
ICB	>=$3 million		All contracts	Contracts below US$3 million but using ICB may be subject to post review

Category	Procurement Thresholds		Prior Review Thresholds	
	Value (USD)	Remarks		Remarks
NCB	< $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	
Shopping	< $0,1 million		None	
Consultant services				
CQS	< $0,3 million	Other methods (QBCS, QBS, FBS and LCS) shall be applied for contracts equipvalent 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); **- Methods**: SSS shall be bereflected in Procurement Plan 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

Category	Procurement Thresholds		Prior Review Thresholds	
	Value (USD)	Remarks		Remarks
				specialist may prior review terms or reference, short list, from a technical perspective.

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.

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.

4. Guidelines for key documents in loan application

4.1 Feasibility Study

Chapter I. General information about the project

This chapter summarizes and interpreting basic information about the project, including:
- Project name;
- Name of the competent authority approving the investment (if any) ;
- Location, scale and capacity of the project and measurement of land available for use as the project site;
- Engineering requirements;
- Total estimated investment;
- Investment type;
- Key financial outputs;
- Project timeline;
- Investment incentives and guarantee;
- Other related information.

Chapter II. Legal bases for preparation of Feasibility Study

This chapter lists out legislative documents used as bases for preparing FS, including:
- Decisions and documents of competent regulatory authorities used as referents in steps of preparation, assessment of and decision on investment policies;
- Laws, Decrees and Circulars providing instructions concerning investment industries and sectors in which a project is involved;
- Resolutions and Decisions on approval of relevant planning schemes according to legislative regulations on national planning schemes and plans for socio-economic development, sectoral, industrial, regional and local development plans related to a project (if any);
- Other relevant legislative documents.

Chapter III. Necessity of investment project

This chapter demonstrates the necessity of investing in energy saving project in current socio-economic context

1. General context

- Interpreting general socio-economic contexts of the entire country and/ or locality in the stage of implementation of the project;
- Providing the general overview on sectors or industries proposed by the project, direct and indirect impacts of specialized laws on the project;
- Making the analysis of relevance of the project to relevant planning schemes according to laws on national planning schemes and plans for socio-economic development, sectoral, industrial, regional and local development plans.

2. Project rationale

- Interpreting and analyzing project investment rationale.
- Making judgements about benefits that the project is expected to bring to the entire country and/or locality.

3. Objectives of the project

Determining general and particular objectives of the project in the contexts and rationale analyzed above.

Chapter IV. Current operating process and parameters

Based on collected data, this chapter captures analysis and assessment of operating performance and energy efficiency.

1. Operating process

Interpreting and describing operating process of each facility and production line.
[Production line/ facility 1]
[Production line/ facility 2]

2. Data collection and validation methodology

- Listing all the sources of collected data.
- Interpreting data processing and validating procedure.
- Limitations (if any)

3. Data analysis

3.1 Design specifications

Table [xx]: Design specifications of the facility

TT	Item	Unit	Designed value
1			
2			
3			
4			
…			

3.2 Measured data:

Table [xx]: Measured data when facility operates stably

TT	Item	Unit	Measured value
1			

2			
3			
4			
…			

3.3 Data analysis:

Based on desined and measured value, FS analyses in detail the operating capacity and operational efficiency of the facilities/ production lines. Make assessments and conclusion about energy efficiency.

Chapter V. Energy saving solution

Based on analysis and assessment about energy efficiency, this chapter interprets and demonstates enenergy saving solutions.

1. Description of energy saving solution

Interpreting energy saving solution based on assessment and conclusion of the previous chapters

2. Technology and equipment selection

- Demonstrating and interpreting techonolgies/ equipments used to improve energy efficiency.
- Based on scale, capacity, and technical standard, demonstrating rationale for selection of techinology/ equipment.
- Providing technical specifications and operation process of selected techonology / equipment.

Chapter VI. Basic design

This chapter captures and interprets basic design including:
- Construction and/ or installation solutions.
- Connection with current operation and management system.

Chapter VII. Impacts on environment, society

This chapter captures general assessment about impacts on environment in accordance with law on environmental protection; impacts on social.

1. Environmental impacts

- Preparing documentation on environmental impact assessment in accordance with law on environmental protection. In case where a project uses natural resources as main inputs (for example, energy, electricity, water, etc.), giving the thorough analysis of impacts of the project on natural resources and actions to be taken to minimize negative impacts.

2. Social impacts

- Interpreting elements affecting society during the project implementation period, such as resettlement support, gender equality, labor or job creation, etc., and measures to minimize negative impacts.

Chapter VIII. Energy saving calculation

This chapter demonsteates all energy saving, GHG reduction calculations and other benefits if the project is implemented.

1. Energy saving calculation:

- Demonstrating and interpreting energy saving evaluation methods.
- Analyzing in detail calculations about current energy consumption and demonstrating the results in the following table.

Table [xx]: Current energy consumption level

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				

- Analyzing in detail calculations about expected energy consumption and demonstrating the results in the following table.

Table [xx]: Expected energy consumption after project implementation

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				

- Analyzing in detail energy saving calculations and demonstrating the results in the following table.

Table [xx]: Energy saving results

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				

- Conclusion about energy efficiency improvement if the project is implemented.

2. Greenhouse gas emission reduction:

- Analyzing in detail emission reduction calculations and demonstrating the results in the following table.

Table [xx]: GHG emission reduction

Activity	Unit	Current emission factor	Emission factor after applyting energy saving solution	Reduction value

3. Other improvement benefits

Demonstrating other improvement benefits (if any) if the project is implemented.

Chapter IX. Total investment, funding structure and financial schedule

Based on interpretations of the seclected technology and technique, this chapter captures total investment and financial schedule of the project.

1. Legal bases for total investment

- Listing out all legislative documents used as bases for estimating total investment.

2. Methodologies for estimating total investment

- Listing and describing all cost in accordance with current regulations.

Table [xx]: Cost item

No	Cost item	Description
1		
2		
3		
….		

3. Total investment

- Based on contruction and/or installation volume and selected technologies and equipments, estimating total investment of the project.

Table [xx]: Total investment

No.	Cost item	Value (before VAT)	Value (including VAT)
1			
2			
3			
….			

4. Funding struture

- Demonstrating and interpreting all funding structure options
- Describing capital mobilization plan according to each option.

Chapter X. Financial analysis

This chapter analyzes project preliminary financial plans and provides conclusion about financial feasibility and efficiency of the project.

1. Financial inputs and assumptions:

Interpreting about:
- Macroeconomic assumptions (e.g: exchange rate, inflation rate, etc.)
- Project assumptions, including:
+ Costs incurred during the life cycle of the project: total investment outlay and costs incurred from exploiting and operating the project during its entire life circle.
+ Revenues and/ or energy savings
+ Funding structure
- Demonstrating other financial inputs and assumptions in the table below

Table [xx]: Financial inputs and assumptions

No.	Fiancial parameters	Financial option 1	Financial option 2	…
1				
2				
3				
….				

2. Financial indices used for assessment

- Net Present Value (NPV)

NPV of a project is the present value of the net cash flow during the entire life cycle of a project. The project will be deemed to achieve the financial efficiency if NPV is positive (>0). NPV is calculated according to the following formula:

$$NPV = \sum_{t=0}^{n} \frac{CF_t}{(1+r)^t}$$

Where:

CF_t = Value of net cash flow refers to the difference between the amount of cash received (cash inflow) and the amount of cash spent (cash outflow) of a project in the t^{th} year;

t = Year in the life cycle of the project (0, 1, 2, ..., n);

n = Number of years during which the project is operated (project contract duration);

r = Discount rate (determined under the instructions of the Ministry of Finance).

- Internal Rate of Return (IRR)

This index indicates profits of a project, exclusive of the capital mobilization structure. IRR will be the discount rate (r) if NPV margin = 0, and may be calculated by solving the following equation:

$$NPV = \sum_{t=0}^{n} \frac{CF_t}{(1+IRR)^t} = 0$$

Where: CF_t, t and n are the same as the above-stated NPV calculation formula.

For the purpose of assessment of the financial feasibility of a project, after being calculated, IRR needs to be compared with the following values: (i) Weighted Average Cost of Capital (WACC); (ii) IRR of other similar projects or those in the same sectors; (iii) Minimum expected IRR of potential investors in projects – through conducting market tests during the project research and preparation period. A project will be deemed financially feasible if IRR is greater than the (i) value and matches (ii) and (iii) values.

- Payback period (PP)

$$\boldsymbol{Payback\ period} = \frac{\boldsymbol{Initial\ investment\ cost}}{\boldsymbol{Yearly\ energy\ cost\ savings}}$$

[Based on particular conditions of each project, FS can add indices measuring the feasibility of a financial plan under the instructions of the Ministry of Finance.]

3. Financial analysis

Table [xx]: Financial analysis results

No.	Financial parameters	Financial option 1	Financial option 2	…
1				
2				
3				
….				

4. Conclusion

Based on analyses referred to above, this section demonstrates conclusions on the financial feasibility of the project.

Example of financial assumptions and financial analysis results

Table 1: Financial assumptions

No.	*Financial parameters*	*Option 1: Commercial loan*	*Option 2: Energy saving loan project*
1	*Equity/Debt Ratio*	*30/70*	*30/70*
2	*Interest rate*	*10.5%*	*7.5%*
3	*Debt tenor*	*60 months*	*60 months*
4	*Grace period*	*6 months*	*6 months*
5	*Project life*	*10 years*	
6	*Cost of equity*	*14%*	
8	*Discounted rate*	*10%*	
7	*Electricity price*	*1231 VND/ kWh*	

Table 2: Financial analysis results

No.	*Financial parameter*	*Option 1: Commercial loan*	*Option 2: Energy saving loan project*

1	*Project NPV*	*86.3 billion VND*	
2	*Project IRR*	*29.6%*	
3	*Project payback period (PP)*	*3.5 year*	*4 year*
4	*Equity IRR*	*45.9%*	*49.3%*
5	*Weighted average cost of capita (WACC)*	*11.6%*	*9.5%*
6	*Debt service coverage ratio (DSCR)*	*1,84*	*1,93*

The tables above should only be taken as illustrative example. Based on specific project, FS could determine and add other assumptions and indices.

Chapter XI. Socio-economic analysis

1. Determining socio-economic costs and benefits

Determining in detail all socio-economic costs and benefits of the project classified by the following groups of elements:

- Group of elements that are quantifiable and convertible into monetary value (may be used for calculation of socio-economic efficiency indices of the project according to the instructions given in the section below).

- Group of elements that may be quantified but cannot be valuated (e.g. Benefits obtained owing to environmental improvements and those obtained due to enhancement of the economic growth and creation of more jobs, etc.).

- Group of qualitative elements (e.g. Benefits gained due to the increased connectivity between manufacturing areas and hubs that consume and improve the living standards of people residing within the project site, etc.).

2. Socio-economic indices used for assessment

- Economic Net Present Value (ENPV

ENPV is defined as the difference between benefits and costs arising in a computation period, which is converted into the present value. The project will be deemed to achieve the socio-economic efficiency if ENPV is positive (>0). NPV is calculated according to the following formula:

$$ENPV = B - C = \sum_{t=0}^{n} \frac{B_t}{(1+r_e)^t} - \sum_{t=0}^{n} \frac{C_t}{(1+r_e)^t}$$

Where:

B_t = Benefit of the t^{th} year;

C_t = Cost of the t^{th} year;

t = Year in the life cycle of the project (0, 1, 2, ..., n);

n = Number of years during which the project is operated (project contract duration);

r_e = Economic discount rate of the project4.

- Benefit-cost ratio (BCR)

BCR refers to the ratio of total benefit generated from investments to total cost incurred from investment in and operation of the project, which is converted into the present value. The project will be deemed to achieve the socio-economic efficiency if BCR is greater than 1 (>1). BCR is calculated according to the following formula:

$$BCR = \frac{B}{C} = \frac{\sum_{t=0}^{n} \frac{B_t}{(1+r_e)^t}}{\sum_{t=0}^{n} \frac{C_t}{(1+r_e)^t}}$$

Where: B_t, C_t, t, n and r_e are the same as the above-stated ENPV calculation formula.

- Economic Internal Rate of Return (EIRR)

EIRR refers to the maximum economic discount rate at which a project recovers its investment and operational costs, and breaks even. EIRR will equal the discount rate (r_e) if ENPV = 0 and will be calculated by solving the following equation:

$$ENPV = \sum_{t=0}^{n} \frac{B_t}{(1+EIRR)^t} - \sum_{t=0}^{n} \frac{C_t}{(1+EIRR)^t} = 0$$

Where: Bt, Ct, t and n are the same as the above-stated ENPV calculation formula.

The project will be deemed to achieve the socio-economic efficiency if EIRR is greater than the Social Discount Rate (SDR): EIRR > SDR. SDR is defined according to regulations in each industry. In the absence of specific regulations, the entity preparing FSR may adopt SDR=10% or may suggest using other value by giving proper explanations about its selection.

3. Socio-economic analysis

Table [xx]: Socio-economic analysis results

No.	Socio-eonomic parameters	Financial option 1	Financial option 2	…
1	ENPV			
2	BCR			
3	EIRR			

- Analyzing other groups of elements

4. Conclusion

Based on the analysis made above, in this section, FS should give conclusions on the socio-economic efficiency of the project.

In case of lack of prerequisites for determination of cost and benefit elements which may be quantified and converted into monetary values as a basis for calculation of indices measuring the socio-economic efficiency of the project, FS should give conclusions on the socio-economic efficiency of the project based on other remaining elements.

Chapter XII. Project implementation and operation management

This chapter captures the preliminary implementation and operation plan of the project.

1. Project phase and timeline:

- Demonstrating and interpreting project phases.

- Demonstrating preliminary timeline for implementation and operation.

2. Form and organization structure of management of project implementation and operation:

- Interpreting form and organization structure of management over specific periods of time, the method of cooperation with project's stakeholders

- Interpreting tasks to be performed in the process of management of implementation of the project and methods of supervision of the quality of project construction, installation, operation,...

- Determining indices measuring the quality of the project in term of project implementation and operation including: technical, operational, environmental, social, financial and implementation progress issues, etc.

Chapter XIII. Conclusions and recommendations

This chapter captures main conclusions and recommendations that have been analyzed above to determine if the project is appropriate and feasible to be implemented.

4.2 Energy Audit Report

Chapter 1. Summary

Main content of chapter 1 is to consolidate all survey results, findings and evaluation of audit team about recommended energy saving opportunities. Energy saving opportunities are sorted by priority, to help companies select solutions to be implemented respectively. Despite being brief, the report must demonstrate a complete picture of potential energy saving findings gathered from energy auditing activities. The key matters of this chapter need to be mentioned include:

Energy saving potential

Summarize energy saving potential with the recommended solutions, presented by categories in table below

Table 1: Energy saving potetial and investment cost estimation

No.	Solutions	Energy saving		Estimated investment (103 VND)	Cost savings (103đ/year)	Payback period (year)
		Electricity (MWh/year)	Fuel (T/year)			
1						
2						
3						
	…….					
	Total					

- Implementation capability of energy saving solutions, projects (brief presentation)
- Propose implementation plan

Chapter 2: Introduction

This chapter introduces and describes the scope of work including: name and address of the audited establishment, the audit team, name of each member, list of measuring devices used in the survey at the establishment.

- Energy audited establishments and auditing team
- Name of the energy audited company, address;
- Energy auditing time
- Member of energy audit team
- Scope of energy audit: audit the entire company/a few departments, ect
- Measuring methods and devices

Present all procedures to implement energy audit and the content of audit. List of measuring devices is presented in Table 2

Table 2: List of devices used in energy audit

No	Name of measuring device	Code	Number	Country of origin
1				
2				
3				
4				
…				

Chaper 3: Company's activities

This chapter describes the activities of the establishment: describe briefly about the characteristics of the company, business sector, main product, annual energy consumption. The main content of this chapter is to introduce types of energy usage graph, compare energy consumption level of the establishment with technical regulations, premilinarily evaluate potential energy savings, characteristics/ benefits and drawbacks in energy consumption of the establishment.

- Development process of the company and current situation
- Operating mode and production level

Material consumption and total production of the establishment are presented in Table 3

Table 3: Total production of the company year…

No	Category	Unit	Value
I	Actual material consumption year…		
1			
2			
….			
II	Actual main production year…		
1			
2			
….			

Total working time of areas/factories using energy is presented in Table 4

Table 4: Annual operation time of areas/factories using energy

No.	Areas/Factories	Operation time (hour/year)
1		

2		
….		

Chapter 4: Description of processes in the technology line

Description of technologies includes technology model describing activities in the operation line presented in the form of a “black box”, material and energy flow at the input/output of each box. The goal of this chapter is to describe the operational procedure and identify sections that use energy inefficiently. These findings are extracted from observations in the survey time at the location, discussion with engineers, technicians, operation worker, analysis of data collected from record books of the establishments and collected data recorded on the meters.

- Processes in the technology line/number of production factories
- Describing entirely main technology processes/production line of factories
- Potential energy savings found at each process accordingly

Chapter 5: Energy consumption and production capacity

This chapter describes input energy supplying capability and energy requirements of all equipments/system that consume energy in the establishment. Description of equipment includes examined result, evaluation; ineffective operational processses as identified above

- Supply and consume electricity
- Principle model of energy supplying system
- Electricity price was applied in accordance with price list year …(presented in table 5)

Table 5. Electricity price per hour year….

No.	Category	Electricity price (đ/kW.h)	Applied hour
1	Normal hour		
2	Rush hour		
3	Off-peak hour		
4	Average electricity price		

- Current electricity consumption and cost of electricity each month (year…) presented in Table 6.

Table 6. Monthly electricity consumption and electricity cost by invoices of the establishment

Month	Electricity per hour (kW.h)			Total (kW.h)	Electricity price at three points (10^3 dong/ kW.h)			Total electricity cost (10^3Dong)
	Normal	Rush	Off-peak		Normal	Rush	Off-peak	
January								
…								

December								
Year								
Proportion %								

- Fuel supply and consumption

Current fuel consumption (year ….) is presented in Table 7 and Table 8.

Table 7. Cost of energy consumption year ….

Name of fuel 1		Name of fuel 2		Name of fuel 3		Total cost (10^3D/year)
Weight (T/year)	Cost	Weight (T/year)	Cost	Weight (T/year)	Cost	

Table 8. Fuel consumption by month in year (…..)

Month	Unit	Fuel 1		Fuel 2		Fuel 3	
		Weight	Cost (10^3Dong)	Weight	Cost (10^3Dong)	Weight	Cost (10^3Dong)
January							
February							
…							
December							
Total							

- Pneumatic supply and consumption

- Water supply and consumption

Table 9: Water consumption year ….

Month	Unit	Usage amount	Water source
January	m^3		
February	m^3		
…	m^3		
December	m^3		

Total	m^3		

Chapter 6: Financial – Technical engagement

This chapter presents the technical, financial framework and engagements. The content includes tables about the main technical parameter and price of the used energy, analysis and detection of energy saving potentials.

- Compare actual current operation of equipments/system with the initial design (if this document is available) and/or measure at the field, identify the reason which cause the differences
- Identify areas that require more indepth research, if required;
- Identify energy saving potentials and prove its rationale (provide calculation of possible energy saving potentials and detail description in the Appendix);
- List out energy saving solutions
- Investment cost to implement those solutions (provide findings, detail cost calculation, figures, blueprints in the Appendix with reffered number)
- Compare solution plans with each energy saving potential, select the suitable plan;
- The basic financial engagements
- Types of price and cost with the base year is (year…)
- Price and cost based on the exchange rate 1USD=…VND
- Energy and standards

Table 10 summarizes all engagements about energy and current energy using situation. Fuel cost and fuel usage level are collected from documents, energy invoices of the audited company. CO2 emission is the average factor that can be referenced, used for calculation if needed.

Table 10. Energy engagements and standards

Fuel type and standard	Unit	Heat treatment/unit		CO^2 emission	
		MJ/unit	KWh	Kg/GJ	Kg/MWh
Hard fuel					
Coal	kg				
coal antracite	kg				
Wood	m^3				
Liquid fuel					
Oil DO (ρ=0.86 kg/d m^3)	Liter				
Oil FO (ρ=0.94 kg/dm3)	Kg				
Gas fuel					
Natural gas	m3				

Liquefied Petroleum Gas (LPG)	Kg				
Electricity	MWh	3600			

- Evaluate energy saving solutions
- Evaluate energy saving solutions by parameter:
- Energy saved by thermal unit (kJ or kWh)
- Energy save by natural unit (ton, liter, m^3)
- Energy cost saved annually (10^3 Dong/year)
- Investment cost to implement energy saving solutions (10^3 Dong)
- Simple payback (year)

$$\textit{Simple payback} = \frac{\textit{Initial Investment Cost [thousand Dong]}}{\textit{Cost saving yearly [thousand Dong/year]}} \textit{ [year]}$$

Company's policy on using energy

- Limitation
- Discussion about current fuel usage strategy of the company
- Propose long-term strategy

Foundation for energy audit team to propose energy usage strategy:

- Fuel price and changing trend of fuel price in the future;
- Available fuel in Vietnam and exploit potential;
- Fuel transport cost;
- Allowed limitation of pollution in emission at present and in the future;
- Vietnam's strategy on reducing environment pollution
- Trend in developing technology to burn oil, coal and waste treatment

Chapter 7. Energy saving solutions

This chapter summarizes energy saving solutions including detailed technical description and saving estimation of energy saving potentials

- Providing excel spreadsheets to calculate, assess selected solutions, including necessary specifications and data in Appendix.
- Proposing implementation plan
- Proposing participating parties to implement the plan, identify disadvantages, advantages; solutions to tackle disadvantages
- Consolidating investment cost and payback

Managing and constructing energy consumption level after implementing solutions

- Proposing energy management organization (for example energy manager/energy management faculty in the company, identify roles and responsibility of energy manager/energy management department, propose installing meters at necessary positions, etc)
- Identify sustainable energy management strategy (policy, long-term, mid-term and short-term objectives of the company about using energy, financial policy, develop human resource, provide training, encouraging policies for workers to save energy, etc)

Recommendations

- Summarize recommendations systematically
- Summarize in group contents about energy saving solutions in natural order/department order/method order or in group of no investment required /low investment/high investement solutions.

4.3 Procurement Plan

1. **Procurement Plan for Service Package**

Bảng 4-1 Procurement Plan template for Service Package

Ref	Description	Cost Estimate incl. VAT(USD)	Package No.	Funding source	Seclection 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**

Bảng 4-2 Procurement Plan template 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

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