Environmental and Social Impact Assessment - Volume 1

Phu Lac 2 Wind Power Project, Binh Thuan Province

5 January 2021

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Thuan Binh Wind Power JSC

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Phu Lac 2 Wind Power Project, Binh Thuan Province

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CONTENTS

List of Tables

List of Figures

Acronyms and Abbreviations

Name	Description
ADB	Asian Development Bank
ASEAN	Association of South East Asian Nations
COD/TOC	Commercial Operation Date
CSP	Services and Productions
CSR	Compensation, Support and Resettlement
DoNRE	Department of Natural Resources and Environment
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EPP	Environmental Protection Plan
ESIA	Social Impact Assessment
ESMP	Environmental and Social Management Plan
EVN	Vietnam Electricity
FS	Feasibility Study
GHG	Greenhouse Gas
IFC	International Finance Corporation
LGV	Large Goods Vehicle
MOIT	Ministry of Industry and Trade
MW	Mega Watt
PCs	People's Committees
PPAs	Power Purchase Agreements
SEA	Strategic Environmental Assessment
SPS	Safeguard Policy Statement
TBW	Thuan Binh Wind Power JSC
UXO	Unexploded ordnance
VEPA	Vietnam Environment Protection Agency
WTG	Wind Turbine Generator

1. INTRODUCTION

1.1 Purpose of the Report

This Environmental and Social Impact Assessment (ESIA) presents an assessment of the potential environmental and social impacts associated with the proposed Phu Lac 2 Wind Power Project in Vietnam.

ERM Vietnam (ERM) was commissioned by Thuan Binh Wind Joint Stock Company (hereinafter as "TBW" or "Client") to undertake an ESIA of the Phu Lac 2 Wind Power Project. The purpose of the ESIA is to inform TBW and their Project partners of the environmental and social impacts associated with the Project and in particular the extent to which the Project aligns with the expectations of the International Finance Corporation (IFC) Performance Standards and associated World Bank Group Environmental, Health and Safety (EHS) Guidelines.

The ESIA assesses the environmental and social impacts based on the agreed scope of baseline data collection and impact assessment and preludes the preparation of an Environmental and Social Management Plan (ESMP).

1.2 Project Background

Phu Lac 2 Wind Power Project (hereinafter as "Phu Lac 2") has installed capacity of 26MW with six turbines situated in a study area of 400.4 ha in Phu Lac commune, Tuy Phong district, Binh Thuan province. This is extension phase of the existing operational Phu Lac 1 Wind Farm with an installed capacity of 24MW and 12 turbines, which has operated since September 2016. At the current stage, it is understood that the Phu Lac 2 Project will only update the Environment Protection Plan chapter in the existing local EIA of Phu Lac 1 Wind Farm project, in compliance with the Vietnamese regulations. No ESIA has been developed for Phu Lac 2. As informed by TBW and IFC, an ESIA was developed by Grontmij for Phu Lac 1 project in 2012, and ongoing environmental and social monitoring reports during the operation of Phu Lac 1 Wind Farm are also made available by the Project Owner.

As to the time of this reporting, the construction of the Project is expected to start by the end of December 2020. The Commercial Operation Date is scheduled in November 2021.

1.3 Environmental and Social Impact Assessment Objective

The objective of this ESIA is to assess the potential impacts of the wind power project on the environment, biodiversity and socio-economic development of affected areas, and to propose measures in order to avoid, reduce or mitigate negative impacts against the applicable standards to support TBW's application for finance from International Lenders.

1.4 Structure of the ESIA

The structure and contents of the ESIA are as follows:

Volume	Chapter	Chapter Title
Executive Summary		
1	1	Introduction
	2	Project Description
	3	Administrative Framework
	4	Impact Assessment Methodology
	5	ESIA Screening and Scoping

Volume	Chapter	Chapter Title
	6	Stakeholder Engagement
2	7	Environmental Baseline
	8	Socio-economic Baseline
3	9	Environmental Impact Assessment
	10	Social Impact Assessment
	11	Unplanned Events
	12	Cumulative Impact Assessment
4	13	Environmental and Social Management Plan

Appendices

2. PROJECT DESCRIPTION

The following section provides a description of the site and project selection process and explores the alternatives to meet the energy demand in Vietnam. It then focuses on the Project assessed in this ESIA including the Project site and associated infrastructure, facilities and project management during construction and operation phases.

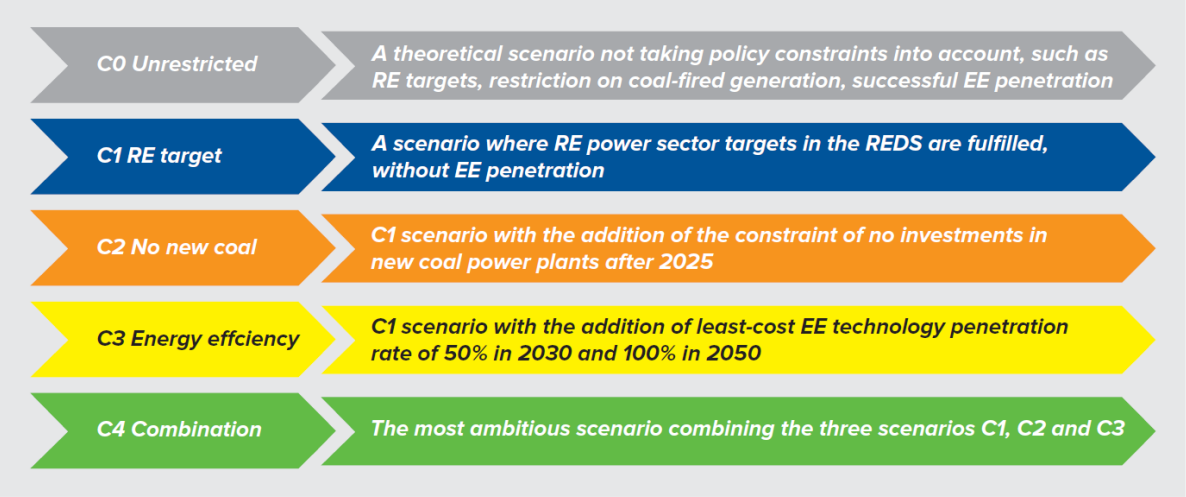
2.1 Project Alternative

An Alternatives Analysis was undertaken through a systematic approach, to identify and analyse alternative options for the Project's development in an effort to best balance economic, environmental and social needs. The purpose of the analysis is to identify the most feasible options for meeting the sustainable development objectives of the Project. IFC PS Guidance Note 1 defines the analysis as:

> "An examination of technically and financially feasible alternatives to the source of such impacts, and documentation of the rationale for selecting the particular course of action proposed."

2.1.1 No Project Scenario

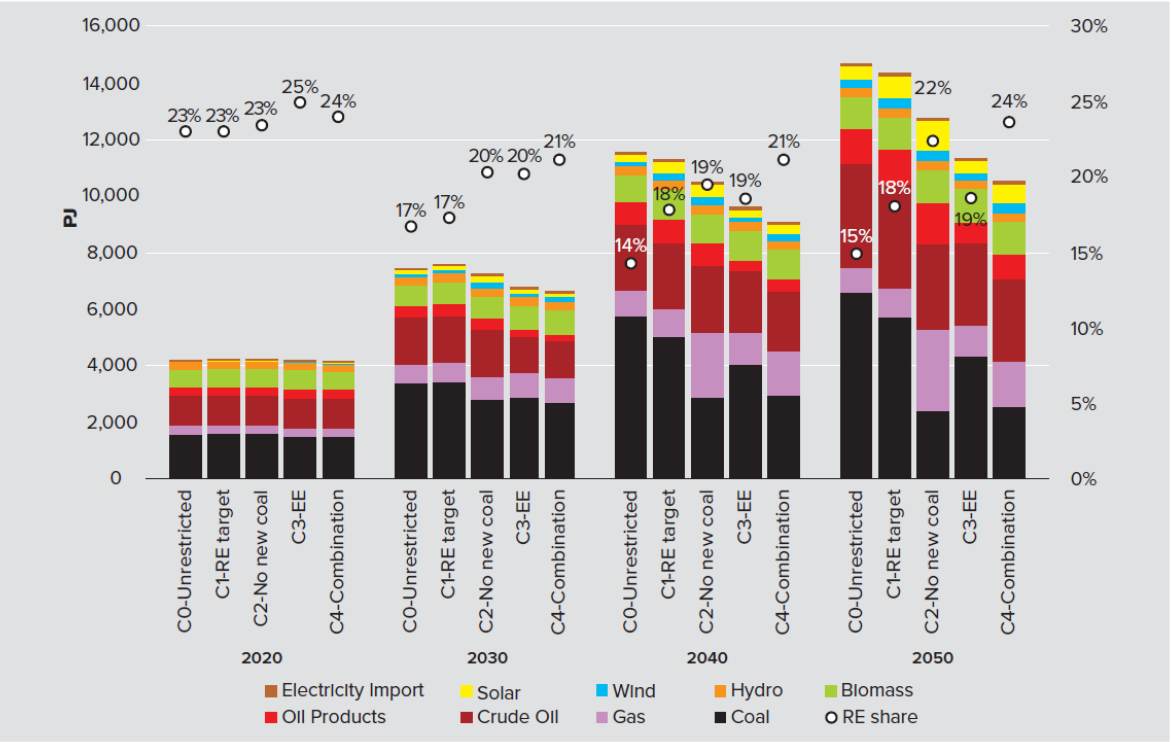
Over the last decades, Vietnam has been one of the fastest growing economies in Asia with a GDP growth rate above 6% per annum. Together with that, the overall power consumption in Viet Nam continues to rise rapidly over the years to fuel the socio-economic development of the country. The Vietnam Energy Outlook Report 2019 (EOR19) presents 05 scenarios (Figure 2.1) for the development of the energy system towards 2050 as follows:



Source: Vietnam Energy Outlook Report 2019

Figure 2.1 The Five Scenarios Analyzed and Compared in the EOR19

The report also presents some findings such as the trend of increasing use of coal continues, but if coal expansion is constrained, this trend can be reversed in 2030. Renewable energy (RE) resources, like wind, solar, hydro and biomass, can supply up to 24% of the primary energy by 2050 (Figure 2.2) and achieve a RE share up to 59% in the power generation. The report also concludes that by 2030, all scenarios show a massive increase in import of coal and oil, and the most effective way to reduce this import dependency is to replace coal-fired power plant projects by the combination of new RE projects and at the same time, increase energy efficiency of existing power plants. One of the key recommendations of the report is RE must be in focus in the coming Power Development Plan Revision 8 to ensure the necessary basis for the RE expansion for the next 10 years, and special attention must be given to wind power which in a least-cost perspective would develop to generate more power than solar in the next 10 years.



Source: Vietnam Energy Outlook Report 2019

Figure 2.2 Total Primary Energy Supply (TPES) and RE Share in TPES across Analyzed Scenarios in the Period 2020-2050

The Government of Vietnam plans for renewable energy to increase from 0.3% in 2016 to 21% of total capacity in 2030. In January 2020, Vietnam Electricity ("EVN"), the state-owned power company of Vietnam, announced its support for the development of wind power to meet the country's renewable energy targets.

As of February 2020, nine wind power projects have reached commercial operations in Vietnam (350 MW), and additional 31 projects (1,645 MW) have signed power purchase agreements ("PPAs") with EVN. EVN has committed to prioritizing the dispatch of maximum capacity from renewable energy and to operate traditional power sources for the purpose of meeting load capacity only.

In order to support for the development of the wind power project, dated 25/11/2015, the Prime Minister has issued the Decision No.2068/QĐ-TTg approving the development strategy of renewable energy of Vietnam by 2030 with a vision to 2050 and dated 18/3/2016, the Prime Minister has issued the Decision No.428/QĐ-TTg approving adjusted the master plan on electricity development in the 2011-2020 period with orientation to 2030, the Decision is clearly indicated:

"Bringing the total current wind power capacity from 140MW to about 800 MW by 2020, about 2,000 MW by 2025 and about 6,000 MW by 2030; increase the proportion of wind power production up to 0.8% in 2020; about 1% in 2025 and 2.1% in 2030".

In this context, should the Project be developed, it will help the country to meet the growing power demand, and on the other hand, contribute significantly to reducing Vietnam's reliance on fossil fuel, especially from imported sources, as well as reducing the GHG emission intensity and air pollution of the country's power sector. Therefore, "No Project Scenario" is not a preferable option.

2.1.2 Alternative Methods of Power Generation

Renewable energy projects have a relatively minor impact on the environment compared to larger thermal power stations. These technologies support economic growth without the social and environmental impacts of most traditional power plants.

Concerns regarding adequate energy supply as a result the intermittent nature of wind power generation reduced with power supplemented by nearby power plants providing a greater capacity to meet energy demands. Table 2.1 provides a comparison between typical power generation methods.

Table 2.1 Comparison of Power Generation Methods

System	Advantage	Disadvantage
Thermal Power	Thermal power station has less initial cost as compared to hydroelectric generating station. It requires less space as compared to the hydroelectric power station. Thus, the cost of generation is less as compared to diesel power station	It pollutes the atmosphere due to production of large amount of smoke and fumes. Maintenance cost is more, and necessary land required for storage of coal and ash.
Hydro Power	Hydropower does not pollute the air like power plants that burn fossil fuels. It relies on the water cycle and is thus a renewable power source.	Hydropower can affect water quality and flow. Hydropower plants can cause low dissolved oxygen levels in the water, a problem that is harmful to riparian (riverbank) habitats and addressed using various aeration techniques, which oxygenate the water. Maintaining minimum flows of water downstream of a hydropower installation is also critical for the survival of riparian habitats. When water is not available, the hydropower plants cannot produce electricity.
Solar Power	Solar power is a renewable source of energy that can be gathered practically anywhere in the world. Solar power plants do not produce any air, water, or noise pollution and do not emit any greenhouse gases. Large-scale power plants can disturb local plant and wildlife due to their size, but compared to fossil fuels, still have a lower environmental footprint. Solar power plants also have less safety risks than fossil fuel plants. Once built, solar power plants have extremely low operating costs, since their major input, sunlight, is free.	Solar panels cannot collect solar energy at night and the amount they collect during the day varies based on the season and time of day. Solar panels are not efficient at converting sunlight to electricity - most solar panels have at best a 20% efficiency rate. In addition, their costs are high.
Wind Power	The main advantages include an unlimited, free, renewable resource (the wind itself), economic value, maintenance cost, and placement of wind harvesting facilities. Primarily, wind is an unlimited, free, renewable resource. Wind is a natural occurrence and harvesting the kinetic energy of wind does not affect currents or wind cycles in any way. Harvesting wind power is a clean, non-polluting way to generate electricity. Unlike thermal power plants, it emits no air pollutants or greenhouse gases. The WTGs generate electricity from wind passing by.	The two major disadvantages of wind power include initial cost and technology immaturity. The presence of WTGs may result in visual impacts and present hazards to flying birds and bats. WTGs may also generate noise emissions.

System	Advantage	Disadvantage
Nuclear Power	A properly functioning nuclear power plant can run uninterrupted for extended periods, resulting in fewer brownouts or other power interruptions. Such facilities do not produce smoke or emit gases, including GHG.A smaller amount of uranium is needed to produce the same amount of energy as coal or oil, which lowers the cost of producing the same amount of energy.	Despite the high level of sophistication of safety systems, human aspect present risks. Nuclear plants have a limited life and the construction costs are high and must be recovered as soon as possible, raising the cost of electricity. Potential pollutants released may include heavy metals, toxic chemicals and radioactive material.

2.2 Project Permitting

The Thuan Binh Wind Power Joint Stock Company (TBW) was approved by the government (Letter No.5113/UBND-KT, 26 August 2008 by the Binh Thuan Province Peoples Committee (PPC)) to conduct survey, wind measurement and feasibility study for wind energy project in the Binh Thuan province. The Project development was approved in the Wind Power Master Plan for Power Development of Binh Thuan province in the period of 2006-2010 with a consideration to 2015 by Ministry of Industry and Trade in Decision No. 2574/QD-BCT dated 28th December 2014.

In the initial investment staging, construction of Phu Lac Wind Farm was proposed, with an estimated total capacity of 50 MW, located on 400,4 ha in Phu Lac commune, Tuy Phong District, Binh Thuan Province, and divided into two stages.

Phu Lac 1 Wind Farm with an installed capacity of 24MW and 12 turbines, which has operated since September 2016. A local EIA for Phu Lac 1 Wind Farm project was prepared following Vietnamese standards approved under Decision No. 3050/QĐ-UBND, dated 31st December 2010 by Binh Thuan Province People's Committee. As informed by TBW and IFC, an ESIA was developed by Grontmij for Phu Lac 1 project in 2012, and ongoing environmental and social monitoring reports during the operation of Phu Lac 1 Wind Farm are also made available by the Project Owner

TBW currently decided to re-prepare another investment project called "Phu Lac 2 Wind Farm" in Phu Lac commune, Tuy Phong District, Binh Thuan Province with capacity of 26 MW. The feasibility study of Phu Lac 2 Wind Farm was prepared by VATEC, a Vietnamese engineering consultancy and got approval by Binh Thuan Province Department of Industry and Trade (DoIT) in the Document No. 2686/SCT-QLD dated 12th October 2020. As letter No. 5020/STNMT-CCBVMT issued by Binh Thuan Province Department of Natural and Environment Resources dated 3rd November 2020, the project owner doesn't need to update local EIA approved in 2010.

The Project received Decision on Investment Policy by the Binh Thuan Province People's Committee in the Document No. 2341/QD-UBND dated 15th August 2016.

Based on local requirements, the project doesn't need permit to start constructing.

Land use for the Project is under appraisal by the Provincial People's Council of Binh Thuan province. Affected land users will be compensated through the regulatory process in Vietnam and in accordance with the IFC Performance Standards.

In May 2009, TBW got approval letter No. 1684/EVN-KH from Vietnam Electricity (EVN), the single buyer of electricity in Vietnam, agreeing to purchase the electricity generated by Phu Lac 2 Wind Farm project, up to a maximum of 50 MW export capacity (24 MW for phase 1 and 26 MW for phase 2).

2.3 Project Location

The location for construction of wind farm is in the Phu Lac Commune, Tuy Phong district, Binh Thuan province. The current status of land use: the total area is about 400.4 ha located in agricultural land, relatively flat terrain. The physical boundaries surrounds of the Project are described as follow:

- To the East : Project is 200 m away from national Highway 1A;
- To the West: Project is bordered with Phong Phu commune;
- To the South: Project is 200 m away from national Highway 1A and Binh Thanh commune; and
- To the North: Project is adjacent to Kalon Song Mao Mountains and the national North-South railway.

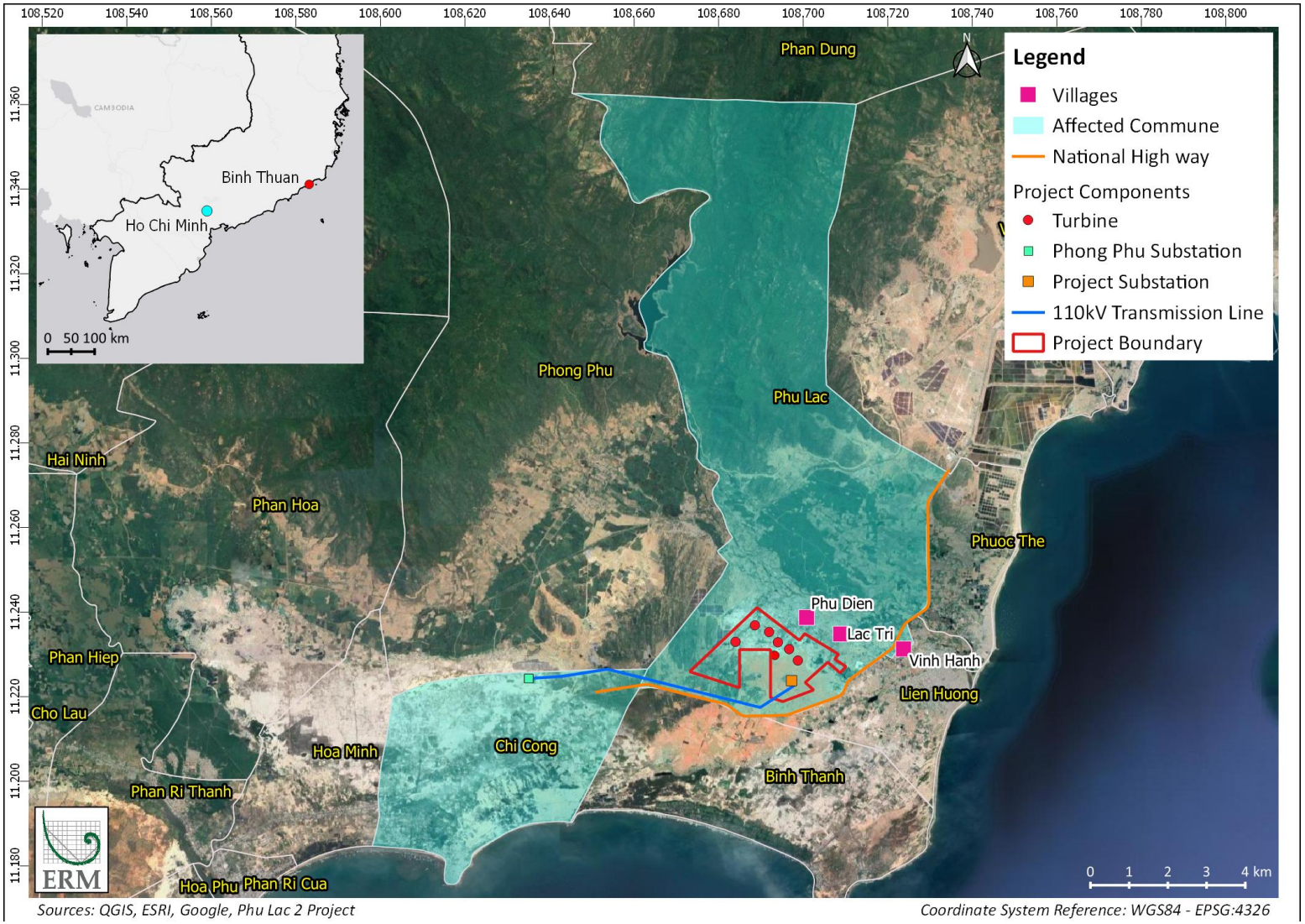


Figure 2.3 Location of Phu Lac 2 Wind Farm Project

2.4 Project Components

Key components of Phu Lac 2 Wind Farm include:

- Six (06) wind turbine towers, with the heights from 125 meters to 130 meters;
- Six (06) wind turbine generators (WTG), capacity of 4.2 MW each (25.2 MW in total);
- 7.8 km underground cable 22kV and 02 outgoing feeders, XLPE;
- A 22/110 kV Step-up substation with capacity of 40 MVA;
- 7.34 km 110 kV single-circuit transmission line using ACSR-185/29 wire to distribute electricity to 110 kV Phong Phu substation.
- Control system, Communication & SCADA;
- 6 km Internal access roads;
- Administration building (shared with Phu Lac 1 wind farm).

A summary of the location of the key Project component is presented in Figure 2.4.

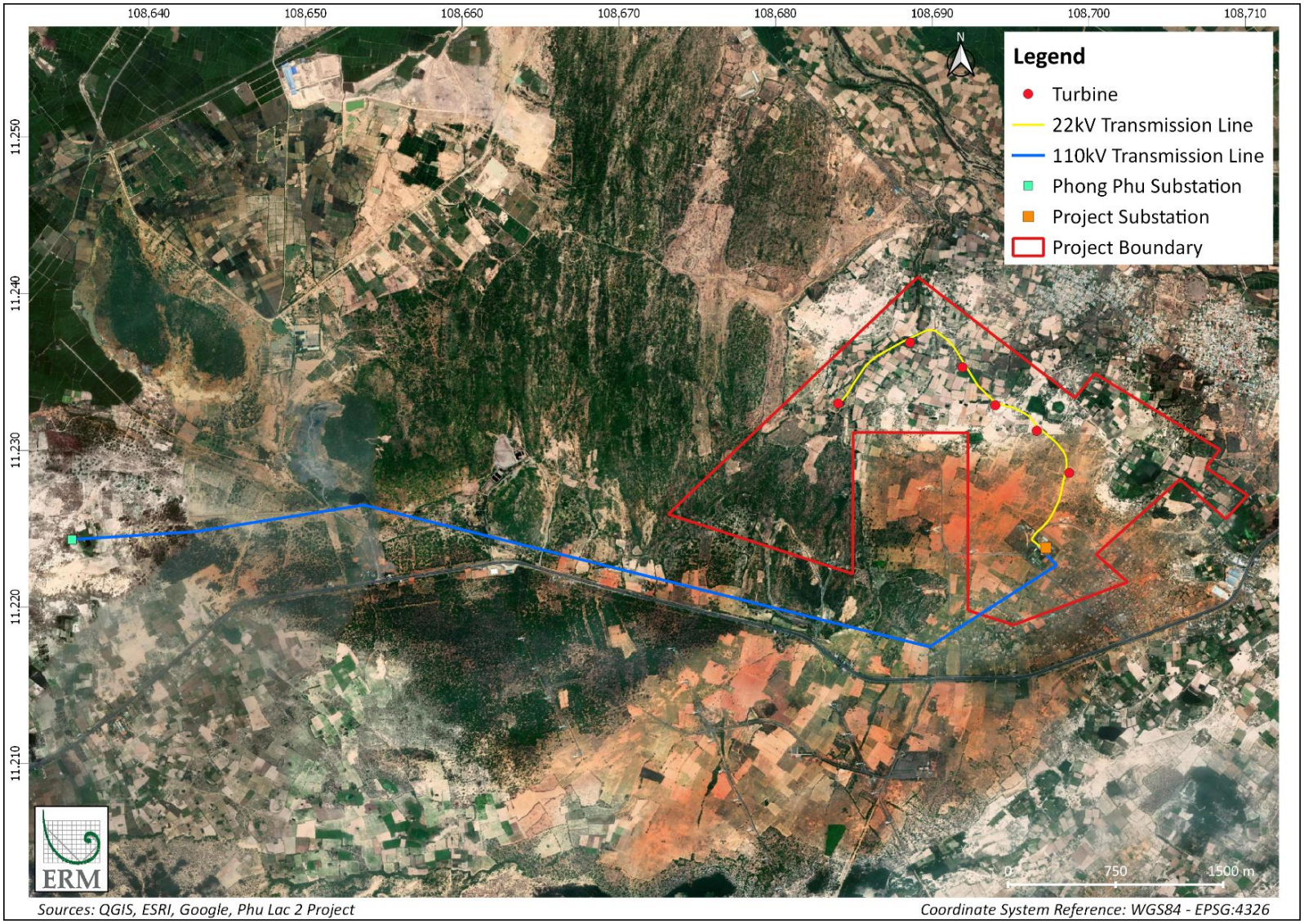


Figure 2.4 Project Layout

Table 2.2 Land Area and Household Affected by the Project Components

Item	Number of items	Total area (m^2)	Estimated number of affected households
Fixed-term land occupation: 61,285 m^2 total			
Turbine foundations	6	3,186	6 households
110kV Substation	-	647	0
Internal roads and 22kV underground cable	1	54,748	29 households 1 organisation (Phu lac Commune People's Committee)
Transmission line foundation	33	2,704	10 households
Temporary land occupation: 27,192 m^2 total			
Laydown area (blades and towers)	7	11,058	11 households
Construction site (Crane installation area)	7	16,134	14 households
7.4km Transmission Line/Safety Corridor (Activities will be restricted on the land under the transmission line and in the safety corridor)			
Transmission line 110kV for connection	1	108,965	17 households

***Note**: some households are impacted by the land acquisition of more than one Project component. The estimated number includes all affected households of each component without removing the same households affected between components.*

Source: TBW, 2020.

Phu Lac commune

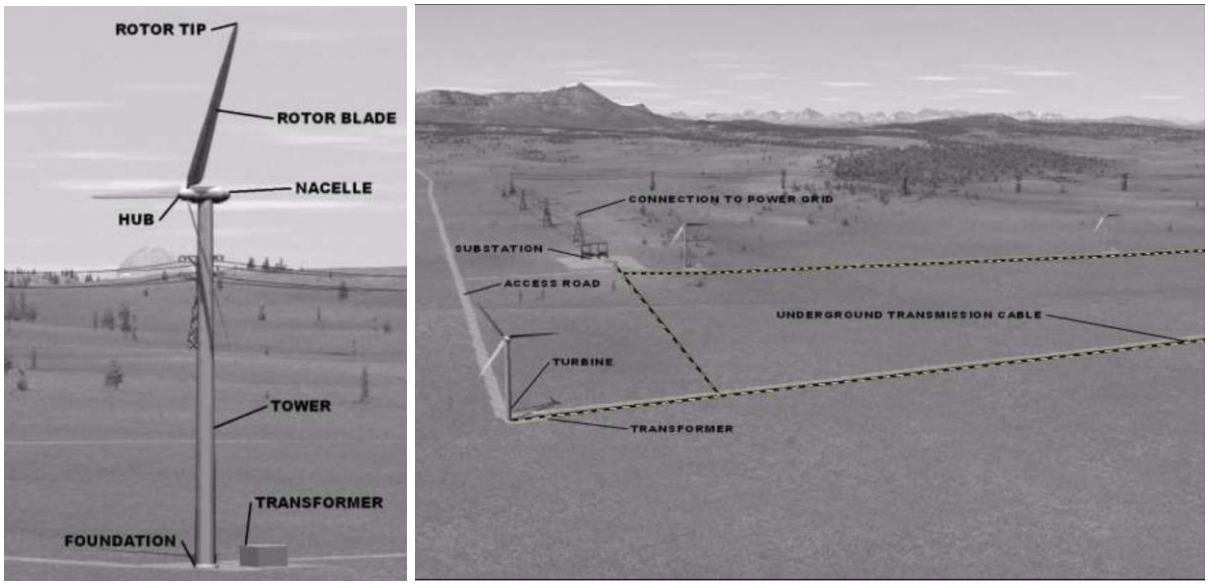
Chi Cong commune

Figure 2.5 Agriculture Land in the Turbine Area (Phu Lac commune) and the Transmission Line (Chi Cong commune)

2.4.1 Detailed Design Elements

Structural elements of a wind energy project include wind turbines, transformers, underground or aboveground collector transmission cables between the wind turbines, substations, and aboveground transmission lines to connect to an existing power grid and access roads (See Figure 2.6 (right) below)

Generally, a wind turbine consists of a foundation, tower, nacelle, rotor blades, a rotor hub, and a transformer, see Figure 2.6 (left) below. The foundation is used to bolt the tower in place. The tower contains the electrical conduits, supports the nacelle, and provides access to the nacelle for maintenance. Typically, three (3) blades are connected to the hub which then connects with the nacelle; the box-like component that sits atop the tower and which most importantly contains the gear box (which steps up the revolutions per minute to a speed suitable for the electrical generator) and the generator (which converts the kinetic energy into electricity).



Source: WBG 2015

Figure 2.6 Typical Structural Components of a Wind Turbine (left), Typical Components of a Wind Farm (right)

2.4.1.1 Wind Turbine

There will be 06 wind turbine towers to be built. The selected turbine model is V150-4.2 manufactured by Vestas Wind Systems A/S (Denmark), with the following specifications:

Table 2.3 Wind Turbine Specification

Description	Unit	Design Data
Rotor		
Wind Turbine Model	-	Vestas V150-4.2
Type	-	3-bladed, horizontal axis
Rated Power	kW	4,200 kW
Hub Height	m	105
Rotor Diameter	m	150
Inflow Angle (vertical)	° (degrees)	8
Blade Length	m	73.7
No. of Blades	-	3
Swept area	m^2	17,671 m2
Cut-in Wind Speed	m/s	3
Cut-out Wind Speed	m/s	22.5
Generator		
Type	-	Asynchronous with cage rotor

Description	Unit	Design Data
Rated Power [P_N]	kW	4450
Frequency [f_N]	Hz	0-100
Voltage, Stator [U_{NS}]	V	3 x 800 (at rated speed)
Number of Poles	-	6
Winding Type	-	Form with VPI (Vacuum Pressurized Impregnation)
Winding Connection	-	Delta
Rated rpm	rpm	1450-1550
Overspeed Limit Acc. to IEC (2 minutes)	rpm	2400
Generator Bearing	-	Hybrid/ceramic
Temperature Sensors, Stator	-	3 PT100 sensors placed at hot spots and 3 as back up
Temperature Sensors, Bearings	-	1 per bearing
Insulation Class	-	H
Enclosure	-	IP54

Source: Performance Specification of V150-4.0/4.2 MW, Vestas 2020.

2.4.1.2 Turbine Tower

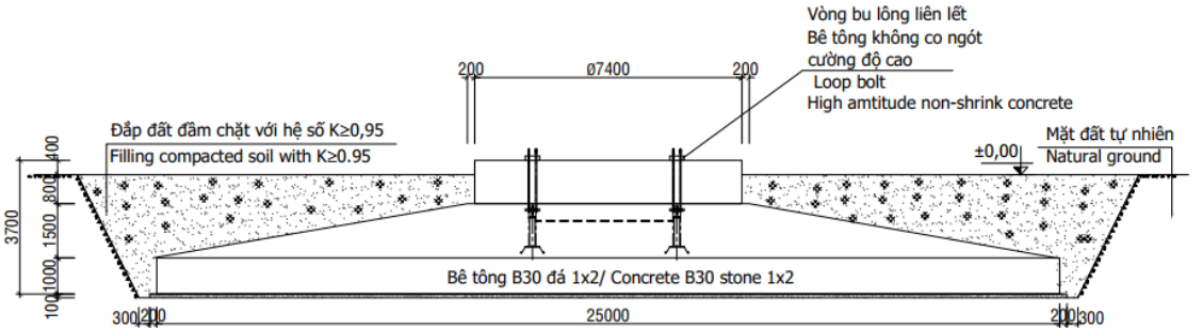
The turbine tower for Phu Lac 2 project will be supplied and imported to Vietnam by the EPC contractor. The tower type is cylindrical/conical tubular tower with flange connections, and is designed with the majority of internal welded connections replaced by magnet supports to create a predominantly smooth-walled tower.

Magnets provide load support in a horizontal direction and internals, such as platforms, ladders, etc., are supported vertically by a mechanical connection. The smooth tower design reduces the required steel thickness, rendering the tower lighter compared to one with all internals welded to the tower shells.

Based on the geological conditions of the Project area, the heights of 06 turbine towers will vary from 125 meters to 130 meters.

2.4.1.3 Turbine foundation

Foundations will be constructed to bolt the tower of the turbine in place. The EPC Contractor will be constructing 06 foundations (one for each turbine), with the diameter of 25 m, made from B30 reinforced concrete, and filled with compacted soil with compactness coefficient K>0.95 up to natural ground level. The structural design of the foundation is shown in Figure 2.7.



Source: TBW 2020

Figure 2.7 Structural Design of Turbine Foundation

2.4.1.4 Transformer and 22 kV transmission line

Wind turbines generate 3-phase electricity at a voltage of 690V, which is not suitable for power transmission. Therefore, each wind turbine generator will be equipped with a 0.69/22 kV transformer to "step up" the voltage to a level sufficient for the wind farm's collector system, and electricity output will be distributed to the internal 7.8 km 22 kV underground transmission line before changing to 110 kV at the substation.

A 22/110 kV – 40 MVA substation will be constructed to connect the wind farm to the 110 kV national grid. The substation is planned as an expansion of the existing substation which is serving Phu Lac 1 wind farm.

2.4.1.5 110 kV Distribution System

The distribution system of the project includes:

- A 22/110 kV Step-up substation with capacity of 40 MVA; and
- A 110 kV single-circuit transmission line using ACSR-185/29 wire, with the length of 7.34 km will be used to distribute electricity to 110 kV Phong Phu substation.

The specifications of 110 kV transmission line are described as below:

Specification	Description
Length	7,340 m
Type	Overhead
Connection point (input)	Busbar of 22/110 kV substation of Phu Lac Wind Farm Phase 2
Connection point (output)	Busbar of 22/110 kV Phong Phu substation
No. of circuit	1
Wire	Aluminum conductor steel reinforced ACSR-185/29
Lightning rod	01 lightning rod associated with optical cable of OPGW-57 (24 optical fibre, ITU-T G.652-compliant)
Insulation	Composite 110 kV with load capacity of 70 kN and 120 kN, IEC-compliant
Column	Free-standing, single circuit, galvanised steel tower columns linked by bolts
Foundation	Using cast-in-place reinforced concrete foundation
Right-of-way	about 15 m (7.5 m on each side of the centreline)

2.4.1.6 Internal Roads of Wind Farm

Internal access roads are used by operation and maintenance staff to travel between the turbines of the wind farm. Electric and optical cables also go underground in parallel with the roads. The roads will also be used to transport building materials and turbine parts in construction phase.

The access roads of Phu Lac 2 wind farm will be designed with the following specifications:

Specification	Description
No. of roads	2 (Road No.1 and Road No. 2)
Length	about 6 km in total
Width	5 m (7.5 m including cable trench)
Grade	VI (TCVN 4054:2005 Highway - Specifications for design)
Design speed	20 kmph
Maximum vertical slope	9 %
Structure	3 layers: 15 cm type-1 crushed stones compact coefficient K98, 15 cm type-2 crushed stone K98 and compacted base K95.

2.4.1.7 Administration Building

No new administration building will be built as the Project will use the existing building of Phu Lac wind farm phase 1. The number of operation and maintenance staff remain unchanged and is kept at 20.

2.4.1.8 Other components

- Supervisory control and data acquisition (SCADA) system;
- Closed-circuit television (CCTV) system;
- Lightning protection system;
- Fire prevention systems;
- Public lighting systems;
- Earthing systems;
- Wind monitoring system with meteorological sensors.

2.5 Project Schedule and Activities

As to the time of this reporting and in accordance with available information, the construction of the project is planning to start by end of December 2020. The commercial operation date is scheduled in November 2021. The project is expected to operate for 25 years. The schedule of the Project development is presented in Table 2.4.

Table 2.4 Project Development Schedule

Phase	Approx. timing
FS, Technical Agreement, PPA Signing	Q3/2020
Land clearance and UXO detection	Sep-Nov 2020
Technical and Construction design	Nov 2020-March 2021

Phase	Approx. timing
Selecting Owner engineer	Q2 2020
Selecting EPC Contractor	Nov 2020
Land compensation	Nov 2020-Jan 2021
Construction permit and Commercial construction of Project	Dec 2020
Civil works	Q4/2020
Procurement, transportation and installation	Q1-Q2/2021
Testing, calibration, reliability test run for substation and WTGs	Q3/2021
COD (Commercial Operation Date)	Oct 2021

Source: TBW, 2020.

2.5.1 Pre-construction Phase

The Pre-Construction activities includes the following:

- Seek construction permit to build the wind farm or permits for the transport of heavy equipment;
- Conduct some field surveys such as geotechnical survey, socio-economic survey, environmental survey;
- Developing operation house and 22/110Kv substation;
- Land acquisition for clearance: The Project Owner will coordinate with local authorities to measure and conduct inventory of loss, then develop the compensation, support and resettlement plan;
- Preparing temporary office and temporary access road; and
- Mobilization of Equipment & Machineries.

In this phase, the identification and purchase of land is a key component of the planning and pre-construction phase. The process of purchasing land can be divided into two phases (a) land verification and (b) purchase of land/land compensation.

2.5.2 Construction Phase

Construction phase activities for the onsite facilities includes:

- Mobilize the manpower;
- Develop New Road & Connect Existing Road;
- Develop the Turbines Foundation;
- Develop O&M Building and Hazardous Waste Area;
- Install underground cable: earthing rod, copper wire, HDPE for WTG;
- Excavate and install conduit manhole, earth bar from transformer to WTG;
- Install MV cable, FO cable from WTG to Transformer;
- Testing and commissioning;

Key milestones within the Construction Schedule are summarised in Figure 2.8.

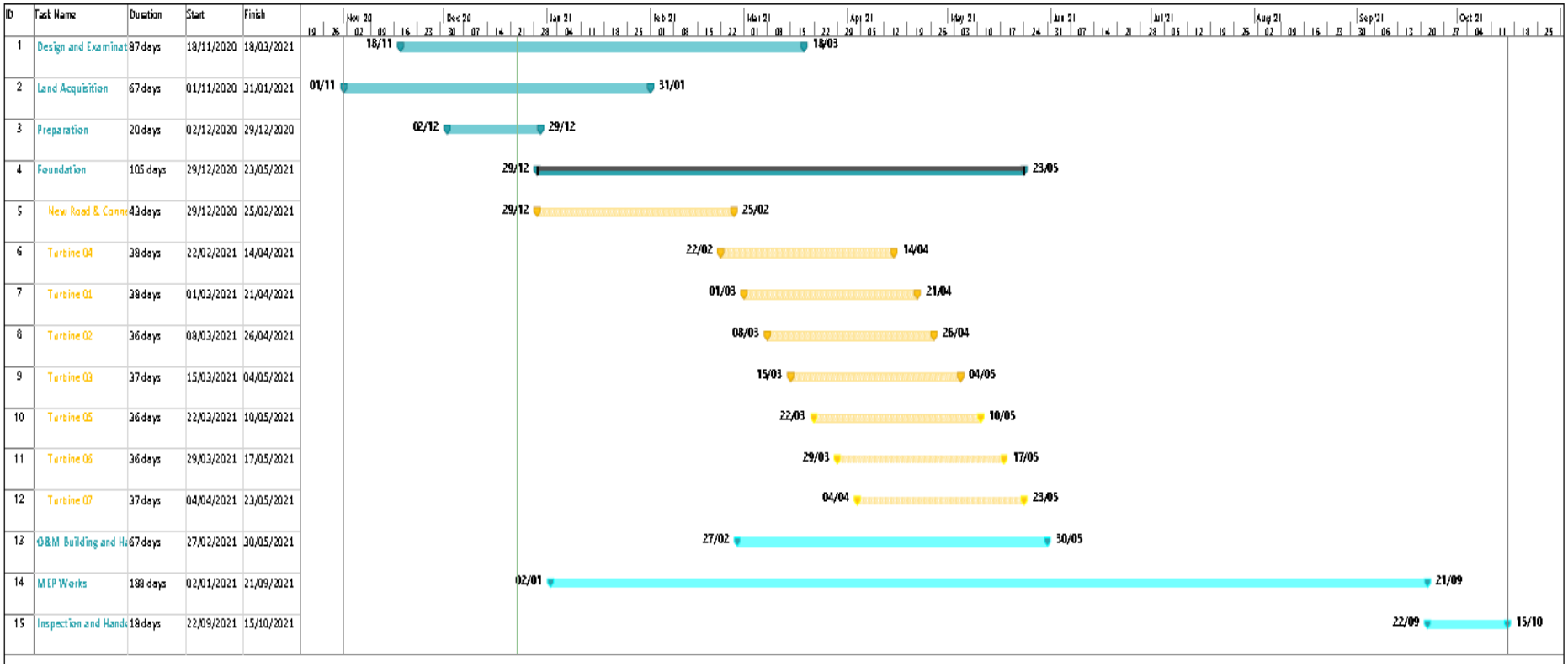


Figure 2.8 Project Construction Schedule

2.5.2.1 Construction of New Road & Connect Existing Road

Because the roads will be used to transport machinery, equipment and materials to the site, the construction of access roads will be prioritized for any wind farm development project.

The work will involve the construction of new internal access roads and connection road from the site to the nearest existing communal roads. Upgrade of existing roads can be necessary to accommodate large goods vehicles.

2.5.2.2 Materials and equipment delivery

WTG parts will be imported from foreign countries, transported by sea and unloaded at Vinh Tan port in Binh Thuan province, then trucked to site via National Highway 1A and communal roads in Phu Lac using LGVs. The travel distance is about 20 km in total. Cranes will be used at port and at project site to unload turbine parts. The transportation route is presented in the figure below.

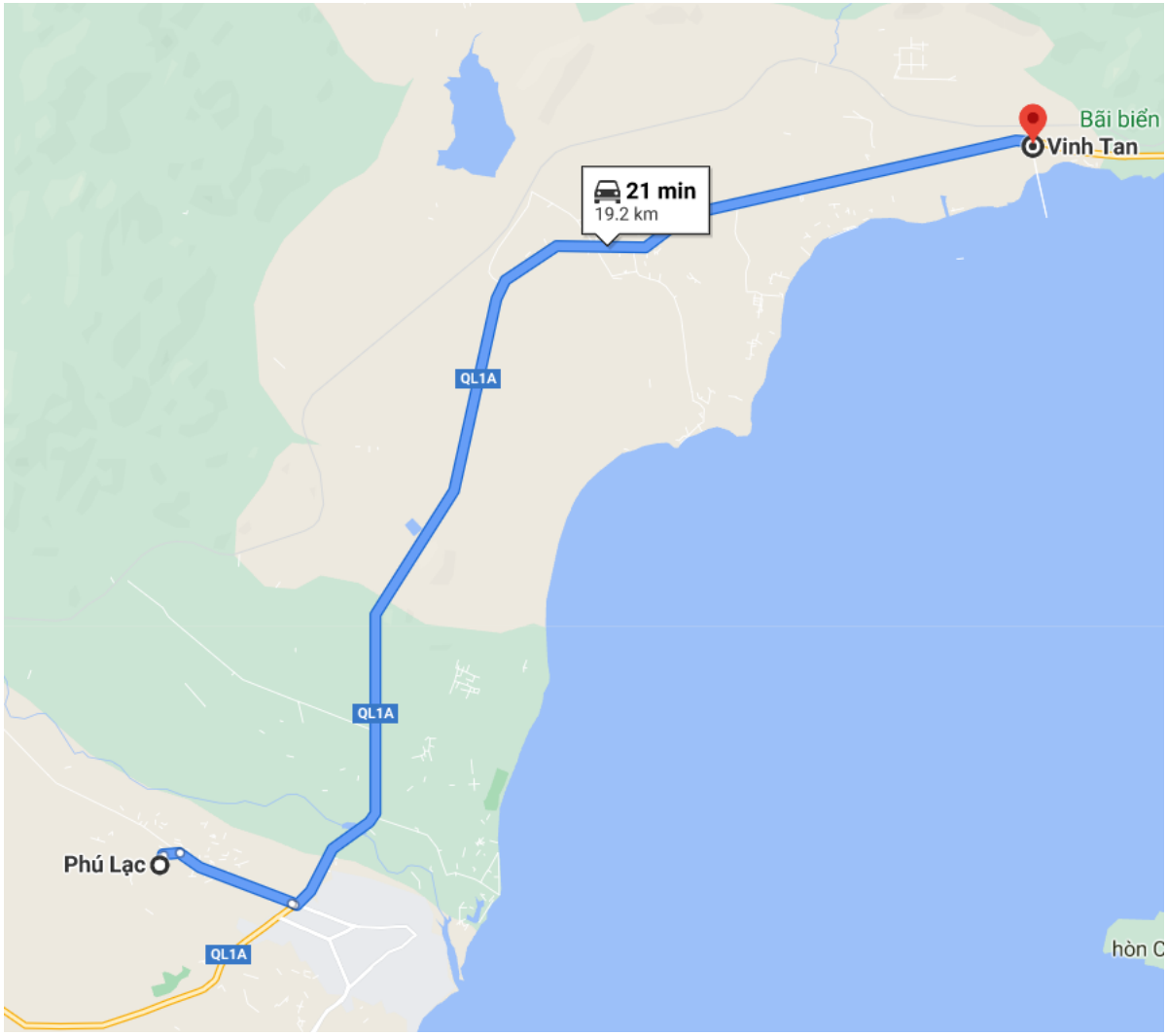


Figure 2.9 Proposed Transportation Route of Turbine Parts

Other electrical materials and equipment will be procured by contractors in Ho Chi Minh City. Building materials, such as cement, stone and sand will be delivered by suppliers in Binh Thuan province or neighbouring localities.

2.5.2.3 Wind turbine foundation

The steel piles are supported by raft foundations of reinforced concrete on natural ground. The position of each wind turbine is located on site using GPS technology.

The construction of wind turbine foundation consists of the following steps:

- Step 1: Locate turbine foundation;
- Step 2: Excavate the foundation and start piling to the design depth. Check overall height after levelling.
- Step 3: Erection of formwork for reinforced concrete. Reinforcement steel is fabricated and framed at the site in accordance with the design drawings. Rust, if any, must be scraped before the steel is used.
- Step 4: Concrete the turbine foundation. The pouring process is divided into batches, combining with the alignment of the linked bolt rings to the correct design level. This process will involve the use of cranes, concrete mixers, concrete pumps, concrete compactors etc.
- Step 5: Carry out concrete maintenance as design and required by regulations.

2.5.2.4 Turbine installation

After completing construction of the wind turbine foundation, the next steps will be to assembly the wind turbine components. Lifting works will begin with the lowest tower subsections. Complete nacelles, with gearboxes and generators already installed, will be lifted onto the tower tops. The rotor blades will be fixed to the hub before being lifted and connected to the nacelle. It is noted that installation of some components cannot occur when the wind speed is greater than 10 m/s due to safety constraints of the cranes.

The key processes required for wind turbine installation are presented in Figure 2.10.

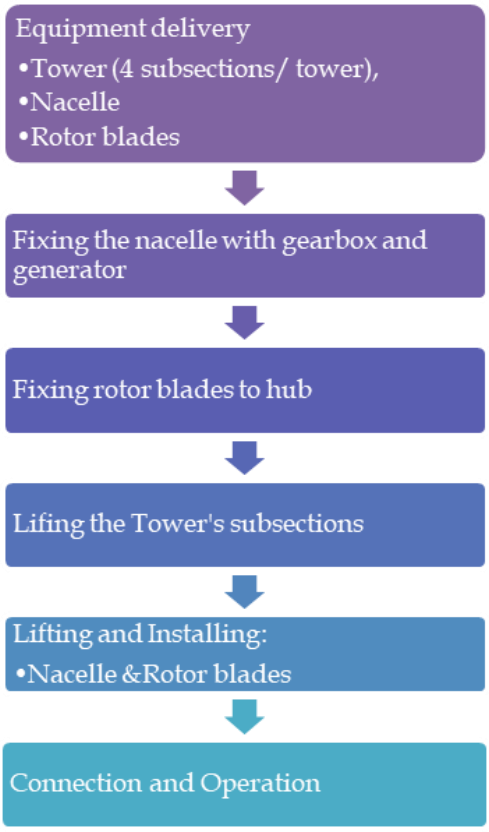


Figure 2.10 Flow Chart of Turbine Installation Process

2.5.2.5 Substation

The expansion of the substation (phase 2) includes but is not limited to the following activities:

- Earthworks:
  - Levelling;
  - Access road;
  - Digging and covering soil.
- Assembly of towers and metal structures:
  - Producing and installing steel components.
- Installation of electrical equipment:
  - Transformers;
  - Outdoor and indoor equipment.

2.5.2.6 Transmission lines

The construction of the transmission lines includes the key the following activities:

- Building the internal access road system connecting the pylons;
- Building the transmission pylons foundation, including:
  - Soil excavation;
  - Installing the reinforced concrete foundation
- Assembling the pylons;
- Installation of insulation and accessories;
- Straining of rope to measure deflection;
- String power lines; and
- Grounding installation work.

2.5.2.7 Power supply

The electricity demand for construction equipment such as welding machines, concrete mixer, electric winch, pumps etc., is estimated to be 100 kW. The electricity will be supplied from the national grid, using an upgraded 22 kV line.

3-phase 0.4 kV - 160 kVA diesel generators will be arranged near construction sites of turbines to supply electricity for activities which are unable get the electricity from the grid.

2.5.2.8 Water supply

In construction phase, fresh water is required for the following activities:

- Concrete mixing and maintenance;
- Earthworks;
- Vehicle and equipment washing and cleaning;
- Road watering;
- Domestic use of workers.

Construction water will be taken from drilled wells, from communal water supply system, from nearby rivers or streams or existing household wells, and will be treated to meet technical requirements.

Domestic water demand is roughly estimated to be 100 m^3 per day, and will be taken from drilled wells in project area, stored in water tanks and will be treated before use.

2.5.2.9 Waste and wastewater

The amount of construction waste and domestic waste generated in construction phase is estimated to be 0.032 tons and 20 kg per day respectively.

Hazardous waste including spent oil and grease, oil-impregnated cloth, is estimated to be 1,480kg during one year of construction.

All wastes generated on site during construction phase will be managed by the EPC contractor. Construction waste will be recycled. Non-recyclable and hazardous wastes will be collected, treated and disposed by licensed waste treatment contractor. Wastewater will be treated to meet QCVN 14: 2008/BTNMT, Class B before discharging to the common sewer system[1].

2.5.3 Operation Phase

Upon the completion of construction, turbine installation and wiring of the transmission lines, the Project will be tested for operation before entering its operation phase. Electricity generated from the Project will be purchased by the EVN (Vietnam Electricity).

To ensure operation safety, inspection and maintenance will be carried out within 24 days before handover. This process includes check-ups on bolts, lubricant, transmission and clean-ups for machines and transmission lines.

Activities to be carried out during the operation phase includes:

- Scheduled maintenance activities at each WTG location as per the supplier's specifications;
- Routine inspection of all WTGs as per supplier's specifications;
- Operations and maintenance of ancillary facilities such as yards, stores, supervisory control and data acquisition system (SCADA), building facilities;
- Inspection and maintenance of transmission lines;
- Inspection and maintenance of intra-site pathways/ access roads; and
- Recommended ESMP during operation as well as specific management plan (BMP, SEP & LRP).

The wind turbines will operate continuously, provided that wind speeds are suitable, with the exception of downtime required for maintenance activities. For the most part, day-to-day facility operations will be automated through the use of computerized networking systems.

Electricity will be supplied from the 22 kV Ninh Hai line, while water will be supplied from water supply station of Phu Lac commune.

2.5.4 Decommissioning Phase

Execution plan and solution for decommissioning: the investor will be responsible for establishing a management board to plan for decommissioning execution including measures for dismantling, environment recovery plan, safety as well as waste processing.

Execution cost: Implementation costs of the entire dismantling works will be investor's responsibility with funding mainly from either the liquidation of assets or from business operating profit.

[1] Estimated in the same volume and management method as Loi Hai 2 Wind Power Project, since there is no available information.

2.6 Project Sponsor

Phu Lac Wind Farm - phase 2 will be developed by Thuan Binh Wind (TBW) – a member company of REE Group:

- TBW: established in 2009, developer and operator of Phu Lac 1 Wind Farm (24 MW) since 2016
- Current paid up capital: VND 163 billion / US$ 7 million (for Phu Lac 1 WF's development)
- Budget paid up capital: VND 500 billion / US$ 22,5 million (to be fully contributed in 2020 – 2021 to develop Loi Hai 2 Wind Farm and Phu Lac 2 Wind Farm)

Current shareholdings of TBW:

- REE (~50%), Thac Mo Hydro PP (20%), Da Nhim-Ham Thuan-Da Mi Hydro PP (20%), PECC 3 (10%)

A summary of the Project development information is presented in Table 2.5.

Table 2.5 Project Development Information

Phu Lac 2 Wind Power Plant	Information
Sponsor	Thuan Binh Wind
Capacity	29 MW
Location	Phu Lac commune, Tuy Phong district, Binh Thuan province
Project Land Area	400.4 ha
Investment Scheme	Build – Own – Operate (BOO)
PPA Offtaker	EVN
Net electricity output	85 GWh/Year
Capacity Factor	38.8%
Estimated Capex (incl. VAT & interests paid)	VND 984 billion / US$ 40.6 million

Source: TBW, 2020.

2.7 Project Management

Some key agencies involve in project management, including:

- Project owner: Thuan Binh Wind Joint Stock Company;
- EPC Construction unit: Central (Civil Work), Fichtner (Mechanical Electrical Plumbing), VESTAS (Equipment Supplier;
- Operation: Thuan Binh Wind Joint Stock Company
- Maintenance: VESTAS

The current organisation structure for construction process is showed in Figure 2.11.

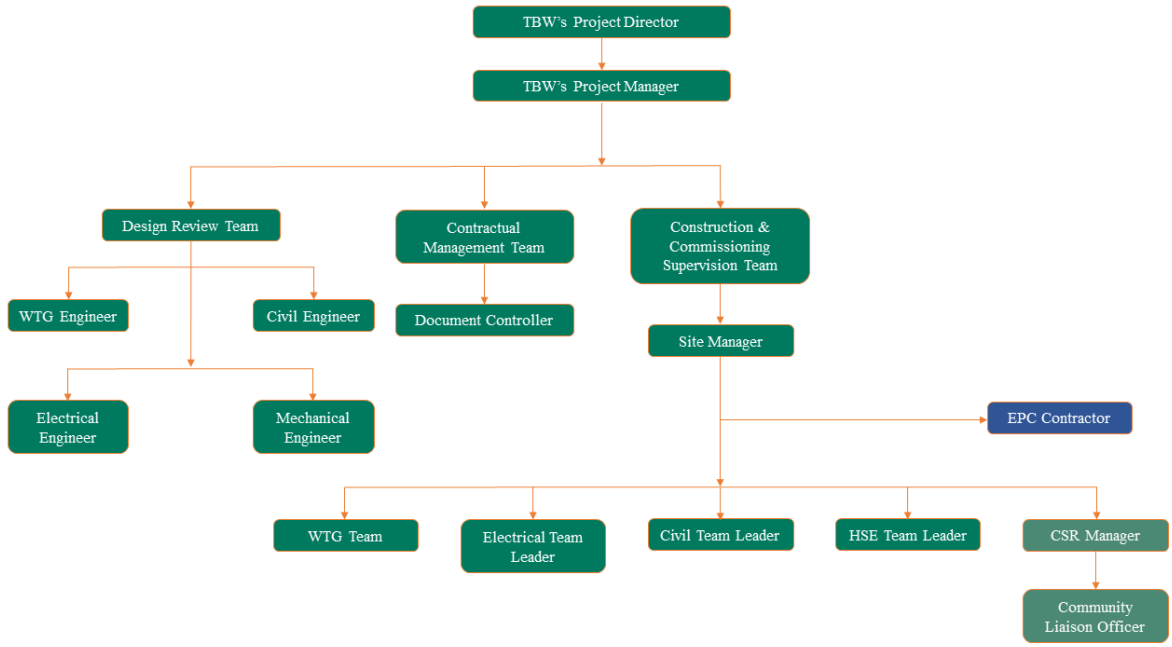


Figure 2.11 Project Management Structure during the Construction Phase

2.8 Employment

Workers can be hired during construction for a short-term contract. During the construction phase, time of most crowded worker gathering is 100 persons. While during the operation process, the number of staffs will be expected around 10 persons. When decommissioning happened, the expected number of workers are 15 persons staying in the worker camp.

3. ADMINISTRATIVE FRAMEWORK

This chapter provides legal and regulatory framework, covering national requirements as well as applicable international treaties, guidelines and standards. The intent of this Chapter is to discuss the regulatory context, which is directly related to environmental compliance, which must be adhered to by all parties involved in the Project throughout the planning, construction and operation.

3.1 Overview

There are two levels of regulatory provisions applicable to the Project. The first is the Vietnamese assessment and approvals process, which must be followed to achieve environmental approval by regulators. Secondly, as the Project proponent seeks to meet international standards, the International Finance Corporation Performance Standards 1-8 (IFC PS) and the World Bank Group EHS Guidelines are also applicable. The primary means of the IFC PS and EHS expectations into the construction and operations phases of the Project is through the preparation of this ESIA.

The Project has obtained regulatory approval for its Environmental Impact Assessment (EIA), however, in applying international standards to the Project there are additional international standards and expectations which the Project will be required to fulfil throughout the construction and operation phases. While some synergies exist between Vietnamese regulatory EIA and ESIA, there are also some key differences which have necessitated the preparation of this ESIA.

3.2 National Regulatory Framework of Vietnam

The various regulatory frameworks that will be adopted for this Project throughout the project implementation process, designed in stages of preparation, construction, operation and other stages of the project are detailed below.

3.2.1 Law on Environmental Protection

The Law on Environmental Protection No. 55/2014/QH13, dated 23rd June, 2014 is the main piece of environmental legislation currently in force in Vietnam. The law assigns national responsibility to environmental strategy, the drafting of regulations and standards and all monitoring to the Ministry of Natural Resources and Environment (MoNRE), and the Vietnam Environment Protection Agency (VEPA). Responsibility for implementation of environmental policy at the local level is assigned to the provincial assemblies through their Department of Natural Resources and Environment (DoNRE).

3.2.2 Environmental Regulations/Standards

3.2.2.1 Regulations

- Decree No. 38/2015/ND-CP dated 24th April, 2015 on waste and scrap management;
- Decree No. 40/2019/ND-CP dated 13th May, 2019 amending a number of articles of decrees that guiding the implementation of the Law on Environmental Protection;
- Decree No. 80/2014/ND-CP dated 06th August, 2014 on the drainage and treatment of wastewater;
- Circular No. 31/2016/TT-BTNMT dated on 14th October 2016 on environmental protection for industrial clusters, concentrations of businesses, service providers, trade villages, and production, commercial and service establishment;
- Circular No. 36/2015/TT-BTNMT dated 30th June, 2015 on hazardous waste management;
- Circular No. 04/2015/TT-BXD dated 03rd April, 2015 Providing guidance on a number of articles of the government Decree No. 80/2014/ND-CP dated 06th August, 2014 on drainage and wastewater treatment;
- Circular No. 08/2017/TT-BXD dated 16th May, 2017 on construction waste management;

- QCVN 03-MT:2015/BTNMT - National Technical Regulation on the allowable limits of heavy metals in the soils;
- QCVN 05:2013/BTNMT - National Technical Regulation on Ambient Air Quality;
- QCVN 06:2009/BTNMT - National Technical Regulation on Hazardous Substances in Ambient Air;
- QCVN 07:2009/BTNMT - National Technical Regulation on Hazardous Waste Thresholds;
- QCVN 08-MT:2015/BTNMT - National Technical Regulation on Surface Water Quality;
- QCVN 09-MT:2015/BTNMT - National Technical Regulation on Ground water Quality;
- QCVN 14:2008/BTNMT - National Technical Regulation on Domestic Wastewater;
- QCVN 40:2011/BTNMT - National Technical Regulation on Industrial Wastewater;
- QCVN 26:2010/BTNMT - National Technical Regulation on Noise.

3.2.3 Environmental Impact Assessment

The Law on Environmental Protection states that all enterprises, as prescribed by the Government within the law, shall conduct a Strategic Environmental Assessment (SEA), an Environmental Impact Assessment (EIA) or Environmental Protection Plan (EPP) and obtain approval prior to the development and operation of a facility. The key EIA regulations are given below:

- The Law on Environmental Protection No. 55/2014/QH13, dated 23rd June, 2014;
- Decree No. 18/2015/ND-CP dated 14th February, 2015 on environmental protection planning, SEA, EIA and EPP;
- Decree No. 19/2015/ND-CP dated 14th February, 2015 detailing the implementation of a number of articles of the law on environmental protection;
- Circular No. 25/2019/TT-BTNMT dated 31st December, 2019 providing detailed regulations for Decree No. 40/2019/ND-CP.

Stakeholder engagement during the EIA process

Decree No. 18/2015/ND-CP dated 14th February 2015 on Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Commitment stipulates that community consultation is a compulsory item in the EIA process and must meet the following criteria:

- **With authorities:** The Project Owner shall send a local EIA report to the People's Committee of the communes where the project is located and the directly affected organisations (e.g. manufactories, co-operatives) together with a written request for opinions of the authorities and organisations. These opinions will be stated in the Public Consultation chapter of the local EIA.
- **With communities:** Consultation with the directly affected communities shall be carried out in the form of a community consultation meeting co-chaired by the project owner and the Fatherland Front and People's Committee of the commune where the project is located. All opinions of audiences attending the meeting must be sufficiently and honestly stated in the meeting minutes. These opinions and meeting minutes then will be described in and attached with the local EIA. Separate community consultation meetings are sometimes conducted for different affected communes.

Vietnam's regulatory EIA process is shown in Figure 3.1 below.

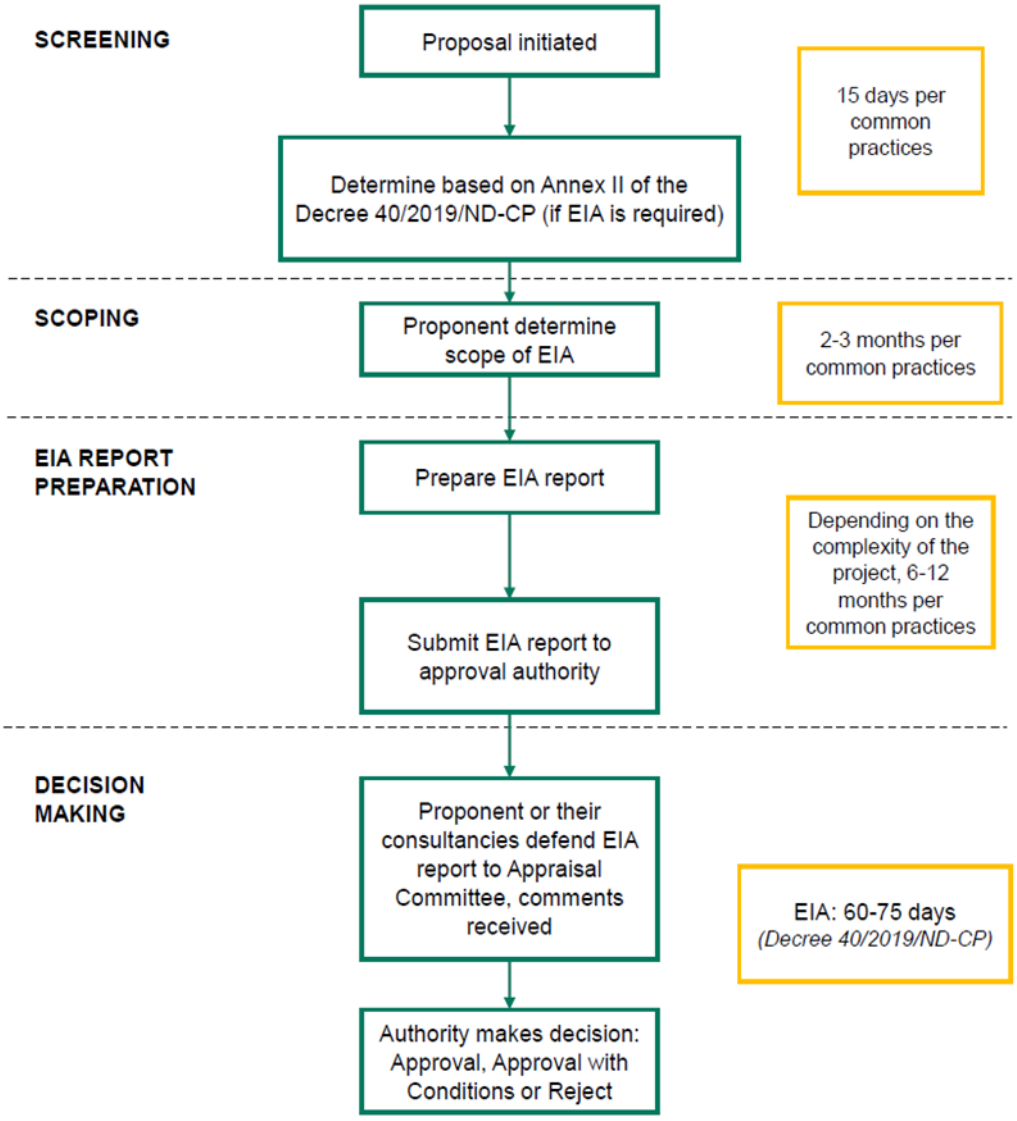


Figure 3.1 Vietnam's Regulatory EIA Process

3.2.4 Law on Forestry 2017 and Law on Biodiversity 2008

The Law on Forestry 2017 regulates the rights and obligations of the forest owners'[2] organisations who are allocated forest in Vietnam for management. They must manage, protect, develop and use the forest sustainably in compliance with forest management regulations, provisions stated herein and other regulations required by relevant law. Those regulations stipulate that forest owners must:

- Comply with regulations on inspection of forest development;
- Return the forest that the State appropriates according to provisions stated herein;
- Conserve forest biodiversity, forest plants and animals;
- Ensure forest fire safety, prevent and eliminate forest pests;

[2] "forest owner" may be an organisation, household, individual or community that is allocated or leased out a forest by the State; allocated or leased out land for afforestation, forest regeneration or development; receives transfer of the forest, receives the forest as a gift or inherits the forest according to regulations of law

- Facilitate management, inspection or actions against violations carried out by a competent state authority; and
- Fulfil financial obligations and other obligations.

3.2.5 Regulations on Land Acquisition, Compensation, Support and Resettlement

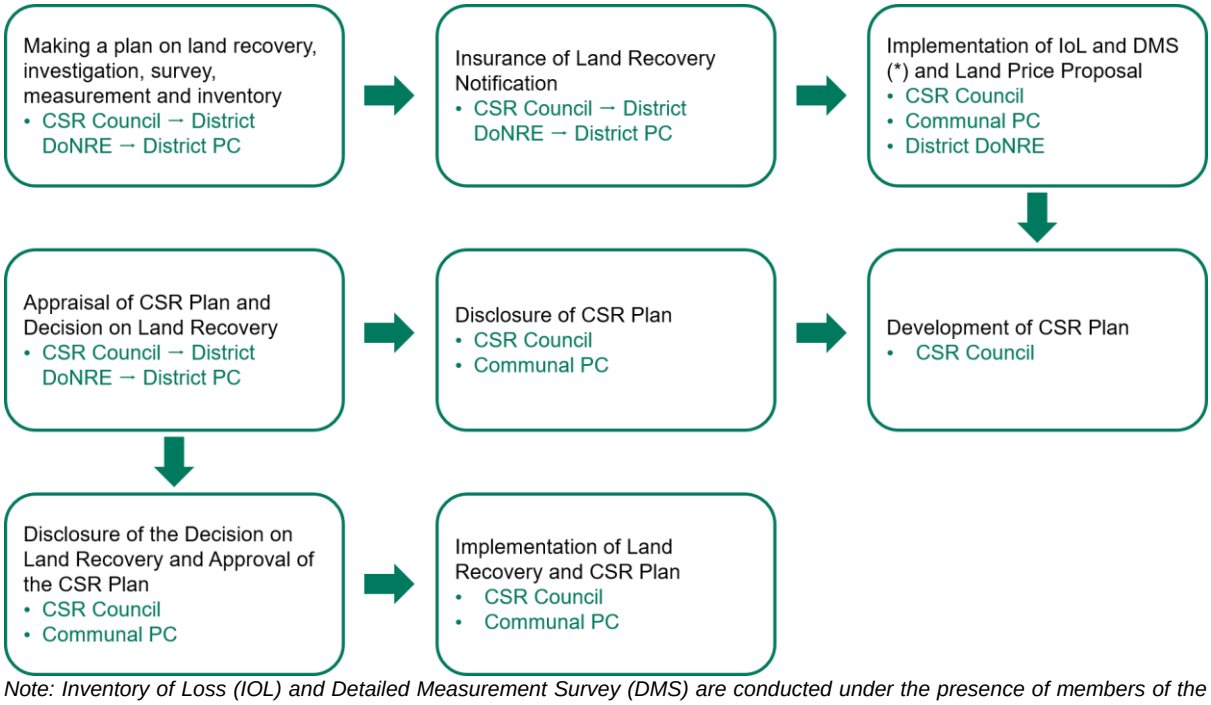
3.2.5.1 National Level

The Land Law No. 45/2013/QH13, dated November 29, 2013 is the existing supreme legal regulation prescribing land use rights and land management in Vietnam, including those of land acquisition, compensation, support and resettlement (CSR). Besides the Land Law, the following regulations apply to the land acquisition, compensation, support, and resettlement process.

- Decree No. 47/2014/ND-CP dated 15 May 2014 of the Government on regulating CSR Policies when land is acquired by the government;
- Decree No. 43/2014/ND-CP dated 15 May 2014 of the Government detailing a number of articles of the Land Law 2013;
- Decree No. 01/2017/ND-CP dated 6 January 2017 of the Government on amendments to the Decrees on the implementation of the Land Law;
- Decree No. 136/2018/ND-CP dated 5 October 2018 amending certain Decrees providing for regulatory requirements for trade and investment in the environment and natural resource sector;
- Decree No. 44/2014/ND-CP dated 15 May 2014 of the Government prescribing Land Prices;
- Circular No. 33/2017/TT-BTNMT dated 29 September 2017 detailing the implementation of Decree No. 01/2017/ND-CP;
- Circular No. 30/2014/TT-BTNMT dated 2 June 2014 of MoNRE regulating documents on land allocation, land lease, land use change and land acquisition; and
- Circular No. 37/2014/TT-BTNMT dated 30 June 2014 of MoNRE detailing regulations on compensation, support, and resettlement upon land expropriation by the state.

3.2.5.2 Provincial Level

A typical land compensation, support and resettlement process that complies with Vietnamese regulation includes the following main steps.



Note: Inventory of Loss (IOL) and Detailed Measurement Survey (DMS) are conducted under the presence of members of the CSR Council and affected household's representative(s). IoL and DMS results will be disclosed to the Project affected persons (PAPs) for review and signature. All DMS results will be collected and sent back to the PC at provincial or district level who is tasked with the CSR process for signing and stamping.

Figure 3.2 Land Compensation, Support and Resettlement Process Required in Vietnam

3.2.6 National Regulations on Electricity

The Law on Electricity No. 28/2004/QH11 dated 3 December 2004, and Decree No. 14/2014/ND-CP dated 26 February 2014 stipulate in detail the implementation of the Law on Electricity, especially regarding electricity safety. Key regulations stipulated in the Decree are as follows:

- For any 110kV lines outside cities and towns, the distance from the highest point of the trees vertically to the height of the lowest conducting line at the state of maximum deflection must not be less than 3m. In any case where the trees are outside the safety corridor of overhead conducting lines and outside cities, towns etc., the distance from any part of tree when the tree falls to any part of line must not be less than 1m. Rice, crops and plants must be planted at least 0.5m from the edge of pole foundation (Article 12);
- Houses and constructional works are permitted to exist within the safety corridor of overhead conducting lines with voltage 110kV if they meet the following conditions: (i) Roof and walls must be made of non-combustible materials; (ii) There must be no obstruction of the entry or exit of the house or works during testing, maintenance and replacement of parts of the high-voltage grid; (iii) The distance from any part of the house or works to the nearest conducting line when the line is at the state of maximum deflection must not be less than 4m; (iv) The electric field intensity must be less than 5kV/m at any point outside the house or works, and one meter from the ground and less than or equal to 1kV/m at any point inside the house and one meter from the ground (Article 13).

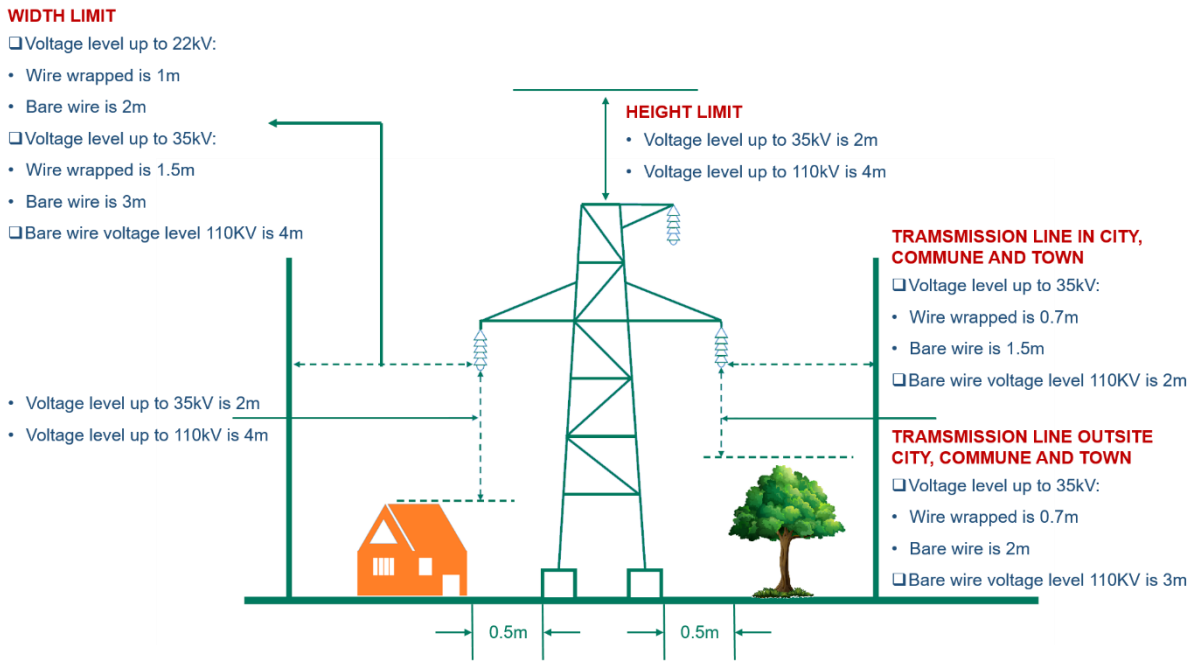


Figure 3.3 Safety Corridor Required for Transmission Lines

- Safety corridor for power station is stipulated as follows (Article 15):

  a. For power stations without wall or fence, the safety corridor is limited by the space surrounding the power station with the distance to the nearest charged objects of the station as specified in the following table:

Voltage	Up to 22 kV	35 kV
Distance	2.0 m	3.0 m

  b. For the power station with fixed wall or fence, the safety corridor is limited to the outmost point of foundation or protection embankment of wall or fence; the height of corridor is from the deepest foundation bottom of the power station to the highest point of the power station plus the vertical safety distance specified at Point c, Clause 1, Article 11 of this Decree; and

  c. For integrated substations or power distribution stations with metal case, the safety corridor is limited to the outer side of metal case.

  Houses and constructional works near the safety corridor of power station must ensure no damage to any part of power station; no obstruction to the way in and out, the water supply and drainage system, the safety corridor of underground cable and overhead conduction line, the ventilation system of the power system and no wastewater intrusion causing damage to the electrical works.

- Safety corridor for underground cable is stipulated as follows (Article 14):

The width of corridor is limited by:

  a. The outer side of the cable trench for cables placed in the trench;

  b. Two vertical sides from the outer side of cable shell or outmost cable on both sides of the underground cable for cable placed directly under the ground in the following table:

Type of electric cable	Underground	
	Stable ground	Unstable ground
Distance	1.0 m	1.5 m

The height is from the ground to:

a. Outer side of foundation bottom of cable trench for cable placed in cable trench;

b. The depth is 1.5 m lower than the lowest point of cable shell for cable placed directly in the ground.

Other regulations on electricity in Vietnam include:

- Circular No. 31/2014/TT-BCT dated 02nd October, 2014 regulating details on electrical safety;
- QCVN 25:2016/BYT – National Technical Regulation on Industrial Frequency Electromagnetic Fields – Permissible Exposure Level of Industrial Frequency Electromagnetic Fields in the Workplace; and
- QCVN 21:2016/BYT – National Technical Regulation on High Frequency Electromagnetic - Permissible Exposure Level of High Frequency Electromagnetic Intensity in the Workplace.

3.2.7 National Regulations on Grievances

The Law on Grievance 2011 issued by the National Assembly on 11 November 2011 and taken into effect from the 1 July 2012 shows that the raising of grievances and the settlement of grievances must comply with the law and ensure objectiveness, transparency, democracy, and timeliness. In specific, it provides the framework for grievances and the settlement of grievances against administrative decisions or acts of state administrative agencies; or competent persons in these agencies, grievances and the settlement of grievances. These grievances related to disciplinary decisions against cadres; or civil servants, and reception of citizens, management and supervision of complaint settlement work.

Circular No. 07/2014/TT-TTCP issued by the Government Inspectorate on 31 October 2014 and taken into effect on 15 December 2014 prescribes the process of receiving, categorising, investing, and resolving community grievances.

The Law on Administrative Procedures 2015 issued by the National Assembly on 25 November 2015, and taken into effect on 1 July 2016, prescribes the fundamental principles in administrative procedures; tasks, powers, and responsibilities of procedure-conducting agencies and persons. It also provides rights and obligations of procedure participants and related agencies, organisations, and individuals. Besides, it contains the order and procedures for instituting lawsuits, settling administrative cases, executing administrative judgments and settling complaints, and denunciations in administrative procedures.

The Civil Procedure Code 2015 issued by the National Assembly and taken into effect on the 1 July 2016, provides the basic principles in civil proceedings. It also contains; the order and procedures for initiating lawsuits at the People's Court to settle civil cases such as marriage and family, business, trade, and labour, including grievances on environmental pollution between individuals and organisations.

In addition to these regulations, a grievance procedure has been developed for the Project to receive and resolve Project development activity-related grievances. More details can be found in the Project Stakeholder Engagement Plan (SEP).

3.2.8 National regulations on Occupational Health and Safety (OHS)

The Law No. 84/2015/QH13 on occupational safety and hygiene dated 25 June 2015, deals with occupational hygiene and safety assurance, policies and benefits for victims of occupational accidents and occupational diseases (hereinafter referred to as victims), the rights and obligations of organisations or individuals relating to occupational hygiene and safety, and the roles of regulatory agencies in occupational hygiene and safety.

In addition to this law, a number of Decrees, Circulars, Decisions and Standards have been issued relating to labour rights, health and safety. Decree No. 39/2016/ND-CP dated 15 May 2016 detailing

the implementation of some articles of the Law on occupational safety and sanitation. Decree No. 45/2013/ND-CP, dated 10 May 2013, provides provisions on the Labour Code on OHS. The employer has the responsibility to fully provide employees with the technical equipment required for labour safety and labour sanitation and to improve their working conditions wherever possible. The employee must follow regulations on labour safety, labour sanitation and the labour regulations of the business. All organisations and individuals associated with labour and production must observe national legislations on labour safety, labour sanitation and environmental protection.

3.2.9 National Regulations on Chemicals

The Law No. 06/2007/QH12 sets national requirements on the classification, labelling, packaging, transportation, storage and use of chemicals. For any projects where chemicals listed in Appendix IV of Decree No. 113/2017/ND-CP are used onsite, the project owners are required to (i) develop and implement chemical-related incident prevention and response plans and establish safety distances; or (ii) develop and implement chemical-related incident prevention and response measures. A list of chemicals subject to conditional production or trading, chemicals restricted from production or trading, as well as banned chemicals were provided in Decree No. 77/2016/ND-CP and Decree No. 113/2017/ND-CP. Several circulars under these decrees guide project owners on labelling, packaging, storage and usage of chemicals. TCVN 5507:2002 stipulates the arrangements of hazardous chemical storage.

The Stockholm Convention was signed on 22 May 2001 and entered into force on 17 May 2004 with the aim of protecting human health and the environment from the risks of Persistent Organic Pollutants (POPs). Vietnam ratified the Stockholm Convention on 22 July 2002 and was the 14th party to the Convention. To implement the Stockholm Convention, Vietnam issued the National Implementation Plan for the Stockholm Convention, under Decision No. 184/2006/QD–TTg dated 10 August 2006 pertaining to safety management, minimisation and eventual elimination of POPs in Vietnam. The Decision meets both the requirements of the Stockholm Convention and Vietnam's goal of sustainable development.

3.2.10 National Regulations on Fire Prevention and Fire Fighting

The Law No. 27/2001/QH10 on Fighting and Fire Prevention mandates that every entity has responsibilities in fire prevention and firefighting and that the heads of agencies, organisations and households must support the organisation and regularly inspection of fire prevention and firefighting activities, within the ambit of their respective responsibilities. Fire prevention and firefighting plans for all developments listed in Annex IV of Decree No. 79/2014/ND-CP dated 31 July 2014 of the Government must be prepared, appraised, and approved by the relevant authorities before project construction. To have a fire prevention and firefighting plan approved, a dossier must be prepared and submitted to the Fire Police for appraisal and approval, as specified in Article 15 of Decree No. 79/2014/ND-CP.

3.2.11 National Regulations on Labour Rights

The main legislation in Vietnam relating to labour rights, health and safety is the Labour Code No. 10/2012/QH13 which was issued on 18 June 2012 by the Vietnam National Assembly. It stipulates that everyone has the right to work without discrimination based on sex, nationality, social background, beliefs or religion. Maltreatment of an employee and forced labour in any form are strictly forbidden. The government protects workers through its relevant legislation on employment, apprenticeship, labour contracts, collective labour accord, salary, work and break time, labour discipline, material liability, specific provisions for female workers, minors and other types of workers (elderly workers, disabled workers, highly-skilled professionals and technically-skilled workers, employees working for foreign organisations and individuals in Vietnam, foreigners working in Vietnam and Vietnamese employees working abroad, as well as other types of labour), social insurance, trade unions, and settlement of labour disputes.

Recently Vietnam government has issued an updated version of the current labour code, Labour Code No. 45/2019/QH14 issued on 20th November 2019 will be effective on 1st January 2021.

3.2.12 National Regulations on Ethnic Minorities

- Resolution No. 22/NQ-TW dated 27th November 1989 the Politburo of the Central Committee Communist Party of Vietnam on guidelines and master policies on socio-economic development of mountainous regions;
- Resolution No. 24-NQ/TW by IX Central Committee of the Communist Party of Vietnam dated 12th March 2003 on ethnic minority issues;
- Conclusion No. 65-KL/TW dated 30th October 2019 by the Politburo of the Central Committee Communist Party of Vietnam on continued implementation of Resolution No. 24-NQ/TW;
- Resolution No. 88/2019/QH14 dated 18 November 2019 by the National Assembly on approving the Master Plan of socio-economic development of ethnic minority and mountainous regions in 2021-2030; and
- The Government is formulating the National Target Program of Socio-Economic Development of Ethnic Minority and Mountainous Regions in 2021-2030.

3.3 International Requirement Framework

The Applicable International Standards that will be adopted for this Project are as follows.

3.3.1 Equator Principles IV (2020)

The "Equator Principles 4" [3] which have been adopted by 111 of the world's leading investment banks in 37 countries in developed and developing countries, are based on IFC's Performance Standards, covering the majority of international project finance debt within developed and emerging markets. The EP4 must be implemented by 1 October 2020.

The EPs establish voluntary principles for addressing environmental and social risks and issues in global project finance transactions, including adherence to IFC PS. The EPs are designed to serve as a benchmark for the financial industry to manage social and environmental risks in project financing. They apply to all new project financings with total project capital costs of USD10 million or more, across all industry sectors. Key aspects of the advice addressed in the final EP4 text, include:

- Revision on the approach to Free, Prior and Informed Consent (FPIC) in Designated Countries;
- Strengthened commitments on human rights;
- Recognition of the Paris Agreement and introduction of the Climate Change Risk Assessment for physical and transition risks, aligned with the risk categories of the TCFD (Task Force on Climate Related Financial Disclosure);
- Broadened scope including reduced threshold for Project;
- Related Corporate Loans and named reporting of these transactions. Identification of a lead EPFI to promote consistency in name reporting. Removal of exemption for sovereign borrowers for all Category A Projects; and
- Commitment to develop guidance and undertake training amongst members to successfully implement these new commitments.

[3] Equatorial Principle 4, 2020, retrieved on 4th December 2020, at https://equator-principles.com/wp-content/uploads/2020/05/The-Equator-Principles-July-2020-v2.pdf

The Principles (EPs 1 to 10) are:

- Principle 1: Review and Categorisation;
- Principle 2: Environmental and Social Assessment;
- Principle 3: Applicable Environmental and Social Standards;
- Principle 4: Environmental and Social Management System and Equator Principles Action Plan;
- Principle 5: Stakeholder Engagement;
- Principle 6: Grievance Mechanism;
- Principle 7: Independent Review;
- Principle 8: Covenants;
- Principle 9: Independent Monitoring and Reporting; and
- Principle 10: Reporting and Transparency.

The EP IV can be found on the Equator Principles website[4].

3.3.2 IFC's Performance Standards on Environmental and Social Sustainability (2012)

In April 2006, the IFC, a member of the World Bank Group, released a set of Performance Standards (PS) based upon the original World Bank Group Safeguard Policies, which recognised further the specific issues associated with private sector projects. The IFC PS have been broadened to include issues such as greenhouse gases, human rights, community health, and safety and security. A revised set of PS came into force on January 1, 2012. The complete list of IFC PS is provided in Figure 3.4 and more details can be found on the IFC website[5].

Figure 3.4 IFC Performance Standards

[4] Equatorial Principle 4, 2020, retrieved on 4th December 2020, at https://equator-principles.com/wp-content/uploads/2020/05/The-Equator-Principles-July-2020-v2.pdf

[5] IFC,2012, retrieved on: December 2020, at : http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Sustainability+Framework/Sustainability+Framework+-+2012/Performance+Standards+and+Guidance+Notes+2012/ .

3.3.3 World Bank General EHS Guidelines (2007)

3.3.3.1 General EHS Guidelines

Supplementing the IFC PS are the General EHS Guidelines that were released in April 2007. The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). They are categorised by environment, occupational and community health and safety, and construction and decommissioning. The General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines, which provide guidance to users on EHS issues within specific industry sectors.

3.3.3.2 EHS Guidelines for Electric Power Transmission and Distribution (2007)

The EHS Guidelines for Electric Power Transmission and Distribution include information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas.

The EHS Guidelines for Electric Power Transmissions and Distribution are organised in the following sections:

- Section 1.0 – Industry – Specific Impacts and Management;
- Section 2.0 – Performance Indicators and Monitoring;
- Section 3.0 – References and Additional Sources; and
- Annex A – General Description of Industry Activities provide a description of the facilities and activities associated with the construction and operation of power transmission and distribution projects including:
    - Power Transmission Systems
    - Power Distribution Systems
    - Electrical Substations
    - Rights-of-Way (ROW) Management

Typical components of a power transmission and distribution project are illustrated in Figure 3.5.

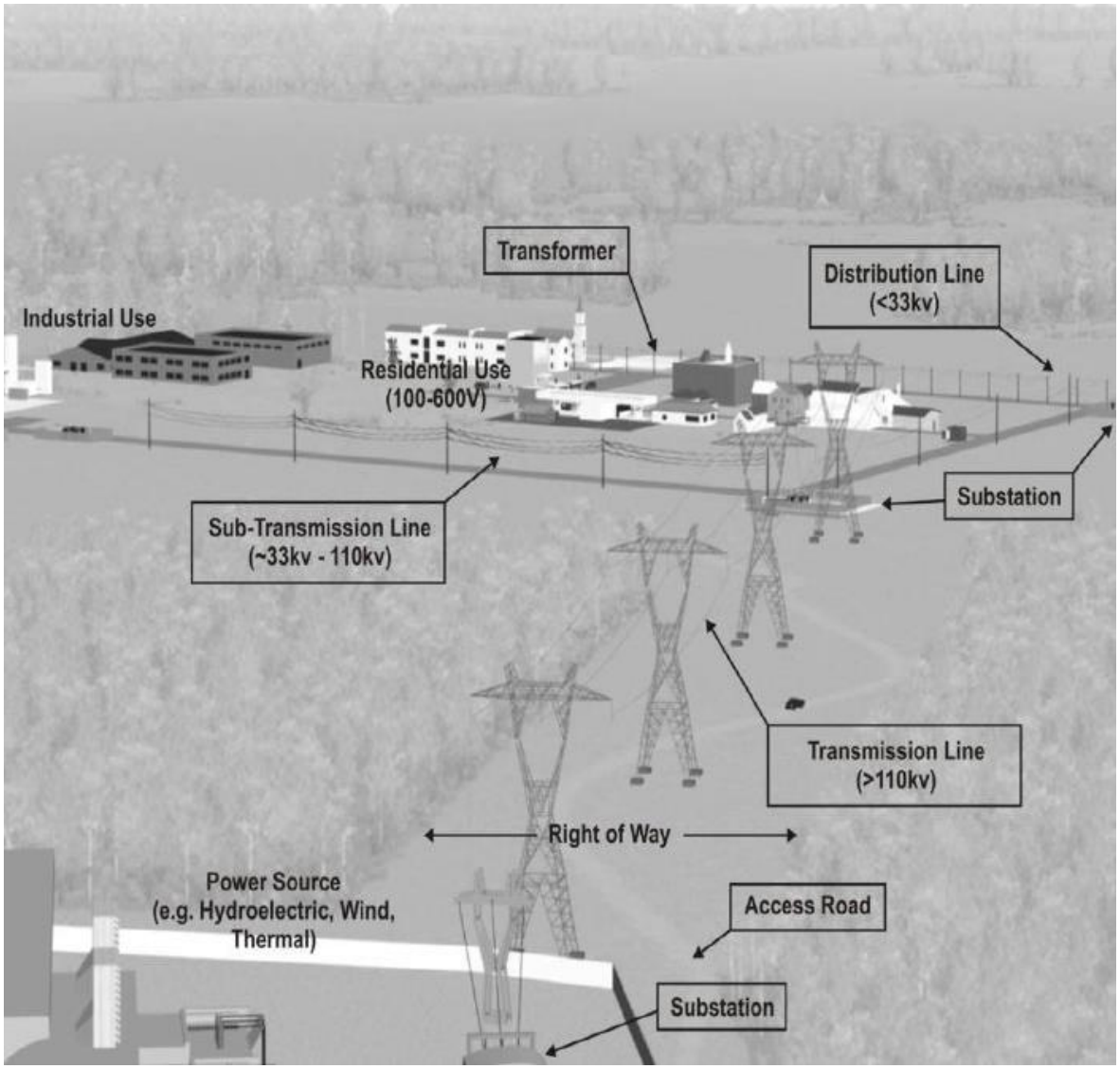


Figure 3.5 Electric Power Transmission and Distribution

3.3.3.3 EHS Guidelines for Wind Energy

The EHS Guidelines for Wind Energy include information relevant to environmental, health, and safety aspects of onshore and offshore wind energy facilities. It should be applied to wind energy facilities from the earliest feasibility assessments, as well as from the time of the environmental impact assessment, and continue to be applied throughout the construction and operational phase.

3.3.4 IFC and EBRD's Guidance Note on Workers' Accommodation: Processes and Standards

This guidance was issued by IFC and EBRD to provide specific and practical guidance on appropriate policies and standards relating to workers' accommodation, which is required in IFC Performance Standard 2 and EBRD Performance Requirement 2.

The Guidance Note on Workers' Accommodation is organised in the following sections:

- Section I: Planning and assessing requirements for workers' accommodation. This section provides guidance on assessing the need for workers' accommodation, assessing potential impacts of workers' accommodation on communities, and types of workers' accommodation; and

- Section II: Standards for and management of workers' accommodation. This section provides instruction on standards applicable to a project, including national/ local standards as well as international standards and good practices on general living facilities; sanitary facilities; canteen, cooking and laundry facilities; and nutrition and food safety.

3.4 International Conventions

3.4.1 The Kyoto Protocol on Climate Change

Vietnam became a signatory to the United Nation Frameworks Convention on Climate Change in 1998 with full accession in 2002. This obligates Vietnam to assure that future development in the country meets the conditions of the Convention. Relevant to this project are the requirements associated with the potential generation of greenhouse gas. Further conditions of relevance include:

- Enhancement of energy efficiency in relevant sectors;
- Protection and enhancement of sinks and reservoirs of greenhouse gases;
- Promotion of sustainable forest management practices, afforestation and reforestation;
- Promotion of sustainable forms of agriculture;
- Implementation of measures to limit and/ or reduce emissions of greenhouse gases; and
- Limitation and/ or reduction in methane emissions.

In 2015, at the 21st Conference of parties in Paris, 196 parties including Vietnam adopted the Paris Agreement. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century. This agreement works on a 5- year cycle of increasingly ambitious climate action carried out by countries. The Prime Minister issued Decision No. 2053/QĐ-TTg dated 28th October 2016 declaring Vietnam's action plan to implement the Paris Agreement on Climate Change. Vietnam has submitted the first updated nationally determined contribution (NDC) in July 2020.

3.4.2 The United Nations Convention on Biodiversity 1992

This Convention seeks to conserve biodiversity and promote its sustainable use. It requires the identification and monitoring of the biodiversity in an area and adopting the necessary conservation measure. Vietnam became party to this Convention on 16th November 1994.

3.4.3 The Basel Convention 1989

This was developed under the auspices of the United Nations Environmental Programme (UNEP) in response to the growing worldwide awareness of the problem of international traffic in hazardous waste. The Basel Convention 1989 is the first and foremost global environmental treaty that strictly regulates the trans-boundary movement of hazardous wastes. It obligates parties to ensure environmentally sound management, especially during the disposal process.

The objectives of the Convention are to:

- Ensure that waste is disposed of as near as possible to the place or source of its generation;
- Reduce trans-boundary waste and where it cannot be avoided, to be disposed of in an environmentally sound and efficient manner; and
- Provide assistance to developing countries in the management of hazardous waste and the generation.
- The Convention places a ban on the export of hazardous waste from Organization for Economic Cooperation and Development (OECD) countries to non-OECD countries.

- Vietnam participated in Basel Convention on 13th March, 1995 and this convention entered into force for Vietnam on 11th June 1995.

3.4.4 International Union for Conservation of Natural and Natural Resources, Red List of Threatened Species

The IUCN Red List, in 1964, was founded in order to provide a comprehensive inventory of the global conservation status of biological species, and to set of precise criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are applicable to all species and all regions of the world. Following the guidelines of the IUCN Red List, Vietnam's Red List was produced in 1992, updated in 2007, and has been an effective guideline for conservation of extinction species in Vietnam.

3.4.5 The United Nations Declaration on the Rights of Indigenous Peoples

The United Nations Declaration on the Rights of Indigenous Peoples was adopted on 13th September, 2007. Currently, the Declaration is the most comprehensive international instrument on the rights of indigenous peoples. It establishes a universal framework of minimum standards for the survival, dignity and well-being of the indigenous peoples of the world and it elaborates on existing human rights standards and fundamental freedoms as they apply to the specific situation of indigenous peoples.

3.4.6 International Covenant on Economic, Cultural and Social Rights

The International Covenant on Economic, Social and Cultural Rights is a multilateral treaty adopted by the United Nations General Assembly on 16th December, 1966 and came in force from 3rd January 1976. It commits its parties to work toward the granting of economic, social, and cultural rights, including labour rights and the right to health, the right to education, and the right to an adequate standard of living.

3.4.7 The International Labour Organization (ILO)-International Labour Standards

The international labour standards developed and adopted by The International Labour Organization (ILO) sets out basic principles and rights at work. They are conventions which are legally binding international treaties that may be ratified by member states. The six fundamental Conventions of ILO which Vietnam has ratified as follow:

- C111 - Discrimination (Employment and Occupation) Convention, 1958 - Convention concerning Discrimination in Respect of Employment and Occupation;
- C138 - Minimum Age Convention, 1973 - Convention concerning Minimum Age for Admission to Employment;
- C182 - Worst Forms of Child Labour Convention, 1999 - Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour;
- C029 - Forced Labour Convention, 1930 - Convention concerning Forced or Compulsory Labour
- C098 - Right to Organize and Collective Bargaining Convention, 1949 - Convention concerning the Application of the Principle(s) of the Right to Organize and to Bargain Collective/y;
- C100 - Equal Remuneration Convention, 1951 - Convention concerning Equal Remuneration for Men and Women Workers for Work of Equal Value.

Vietnam has been a member of ILO since 1994. Afterwards, labour management regulations in Vietnam have also been developed, updated and issued to ensure the alignment with requirements of the above convention. Therefore, local regulations on labour management, together with above conventions are requirements applicable to a project developed in Vietnam.

3.5 Project standards

The maximum permissible limits are defined by comparing values stated in both applicable National Technical Regulations (QCVNs) as well as international applicable standards. The more stringent limits will be considered for the Project compliance.

3.5.1 Ambient air quality

Table 3.1 Project Standards for Ambient Air Quality

Parameter	QCVN 05:2013/BTNMT			WBG General EHS Guideline			Project Standard		
	1-hr average	8-hr average	24-hr average	1-hr average	8-hr average	24-hr average	1-hr average	8-hr average	24-hr average
SO_2	**350**		125			**20**	350		20
CO	**30.000**	**10.000**					30.000	10.000	
NO_2	**200**		**100**	**200**			200		100
O_3	**200**	120			**100**		200	100	
TSP	**300**		**200**				300		200
PM_{10}			150			**50**			50
$PM_{2.5}$			50			**25**			25
Pb			**1.5**						1.5

Note:
All values are given in µg/m3. Blank space means parameter not regulated;
1-year average does not apply because the construction period is expected to last less than this period of time.
Applicable maximum permissible limits for the project are shown in bold

3.5.2 Noise

Table 3.2 Project Standards for Noise Levels

Area	QCVN 26:2010/BTNMT		WBG General EHS Guideline		Project standard	
	6:00 - 21:00	21:00 - 6:00	07:00 - 22:00	22:00 - 07:00	6:00 - 21:00	21:00 - 6:00
Special (Kindergarten, schools, hospital, church, pagoda)	55	45	55	45	55	45
Normal (residential area, hotel, and administrative centre)	70	55	**55**	**45**	55	45
Industrial; commercial.	-	-	**70**	**70**	70	70

Note:
All values are given in dBA for one-hour LAeq;
The time windows of Project Standard are chosen to reflect local context;
The definition of "Residential; institutional; educational area" in General EHS guideline covers both "Special" and "Normal" area of QCVN 26:2010/BTNMT.
Applicable maximum permissible limits for the project are shown in bold

3.5.3 Domestic wastewater

Table 3.3 Project Standard for Treated Domestic Wastewater

Parameter	Unit	QCVN 14:2008/BTNMT (Class B)[1]	WBG General EHS Guideline	Project standard
pH	-	5 - 9	**6 - 9**	6 - 9
BOD_5 (20^0C)	mg/l	50	**30**	30
COD	mg/l	-	**125**	125
Total Suspended Solids	mg/l	100	**50**	50
Total Dissolved Solids	mg/l	**1000**	-	1000
Sulphur (as H_2S)	mg/l	**4.0**	-	4.0
Ammonium (as N)	mg/l	**10**	-	10
Nitrate (NO_3^-) (as N)	mg/l	**50**	-	50
Oil and Grease[2]	mg/l	20	**10**	10
Total surfactants	mg/l	**10**	-	10
Phosphate (PO_4^{3-}) (as P)	mg/l	**10**	-	10
Total Nitrogen	mg/l	-	**10**	10
Total Phosphorous	mg/l	-	**2**	2
Total Coliform Bacteria	MPN[3]/ 100ml	5.000	**400**	400

Note:
(1) Class B for wastewater discharging into water bodies not used for the purpose of domestic water supply;
(2) QCVN 14:2008 defines as "Vegetable Oil and Grease" while General EHS Guideline defines as "Oil and Grease";
(3) MPN: Most probable number.
Applicable maximum permissible limits for the project are shown in bold

4. IMPACT ASSESSMENT METHODOLOGY

4.1 Introduction

This section presents the methodology used to conduct this ESIA, which follows the approach illustrated in Figure 4.1. This ESIA has been undertaken following a systematic process that: evaluates the potential impacts the Project could have on aspects of the physical, biological, social/socio-economic and cultural environment; identifies preliminary measures that the Project will take to avoid, minimise/reduce, mitigate, offset or compensate for potential adverse impacts; and identifies measures to enhance potential positive impacts where possible.

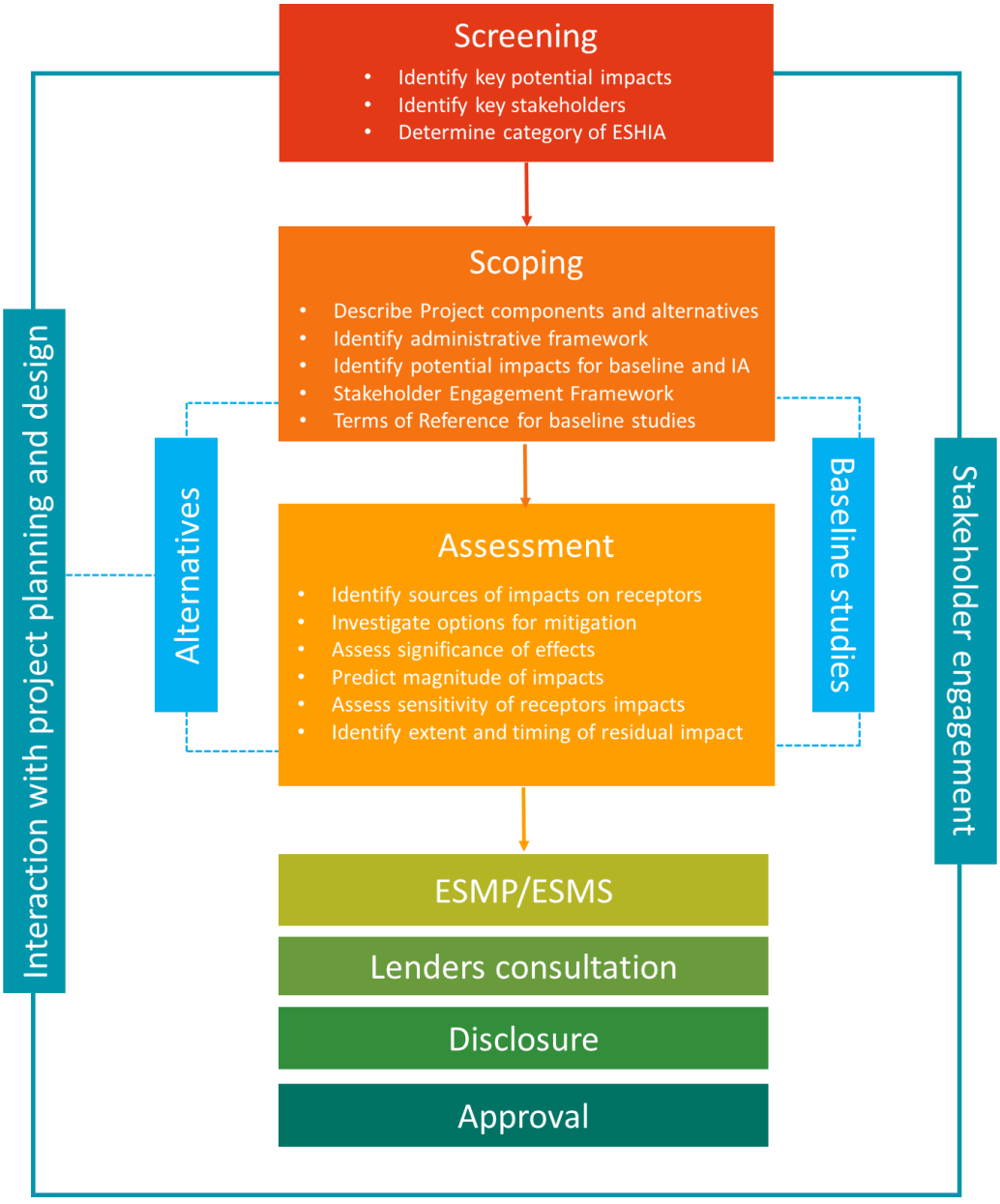


Figure 4.1 Process for Producing an ESIA

This section also details the methodology used for the collection and analysis of primary and secondary data used in this report. Primary and secondary information from the Project Owner, government sources, non-governmental organisations (NGOs) and other Project-related stakeholders have been collected to support the preparation of this report.

4.2 Screening

At the initial stage of this ESIA, preliminary information was provided to aid in the determination of what legal and other requirements should be applied to the Project. This step was completed utilising a high-level description of the Project and its associated facilities.

4.3 Scoping

Scoping has been undertaken to delineate the potential Area of Influence for the Project (and thus the appropriate Study Area), and to identify potential interactions between the Project and environmental and social resources/receptors in the Area of Influence (i.e., identifying the potential impacts that could result from these interactions). It also helped in developing and selecting alternatives to proposed action and in identifying the issues to be considered in this ESIA.

The content of this ESIA report has been prepared according to the output from the scoping process, which is further detailed within Chapter 5.

4.4 Project Description

To set out the scope of the Project features and activities, with particular reference to the aspects which have the potential to impact the environment and social context of the area of interest, a Project Description has been prepared. Details of the Project facilities' design characteristics, as well as planned and possible unplanned Project activities, are provided in Chapter 2 of this ESIA Report.

4.5 Baseline Conditions

To provide the context within which the impacts of the Project can be assessed, a description of physical, biological, social/socio-economic and cultural conditions that would be expected to prevail in the absence of the Project is presented. The Baseline includes information on all resources/receptors that were identified during scoping as having the potential to be significantly affected by the Project.

The baseline characterisation is reported in Chapter 7 and Chapter 8 of the ESIA Report.

4.6 Stakeholder Engagement

An effective ESIA Process will require engagement with relevant stakeholders throughout the key stages. This assists in understanding stakeholder views on the Project and in identifying issues that should be taken into account in the prediction and evaluation of environmental and social impacts.

Details of the Stakeholder Engagement activities that have been undertaken for this Project upto date are presented in Chapter 6 of this ESIA Report.

4.7 Impact Assessment

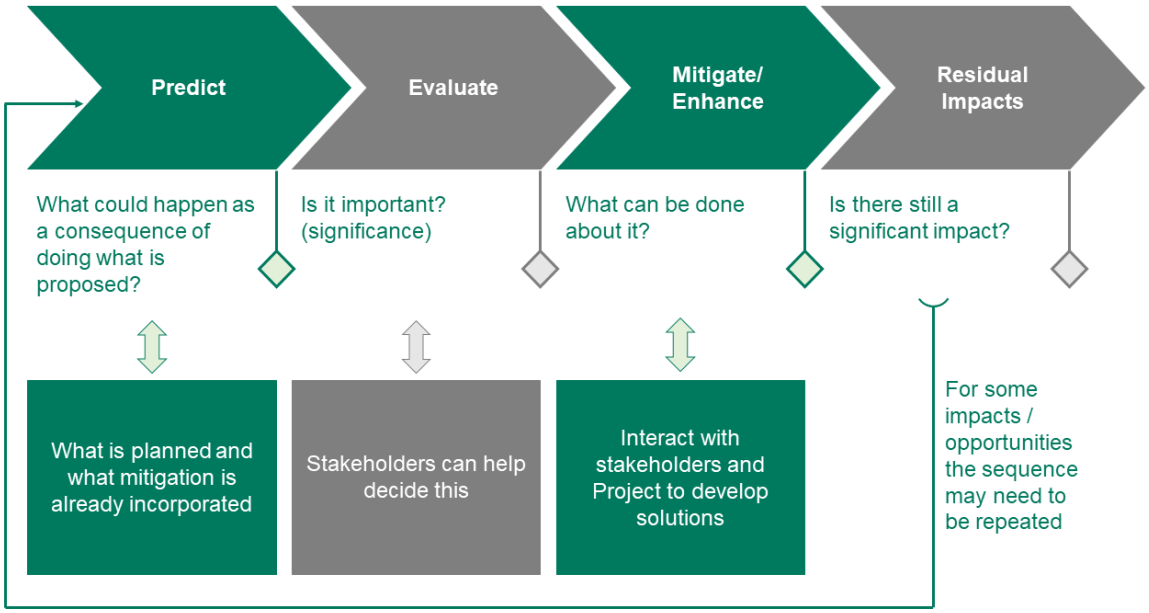
Impact identification and assessment starts with scoping and continues throughout the remainder of the ESIA Process. The main ESIA steps are summarised below and comprise of:

Potential Impact Identification: to determine what could potentially happen to environmental and social resources/receptors as a consequence of the Project and its associated activities;

Impact Evaluation: to evaluate the significance of the predicted environmental and social impacts by considering their magnitude and likelihood of occurrence, and the sensitivity, value and/or importance of the affected resource/receptor;

Management and Mitigation Enhancement Measures: to identify appropriate and justified measures to mitigate potential negative environmental and social impacts and enhance potential positive impacts; and

Residual Impact Evaluation: to evaluate the significance of potential environmental and social impacts assuming an effective implementation of mitigation and enhancement measures.



Source: ERM, 2019

Figure 4.2 IA Process

4.7.1 Prediction of Impacts

Prediction of impacts is essentially an objective exercise to determine what is likely to happen to the environment and social context at the area of interest as a consequence of the Project and its associated activities. From the potentially significant interactions identified during the Scoping phase, the impacts to the various environmental and social resources/receptors are identified and evaluated. The diverse range of potential impacts considered in the ESIA Process typically results in a wide range of prediction methods being used, including quantitative, semi-quantitative and qualitative techniques.

4.7.2 Evaluation of Impacts

Once the identification of potential impacts is complete, each potential impact is described in terms of its various relevant characteristics (e.g. type, scale, duration, frequency, extent). The terminology and designations used to describe impact characteristics are shown in Table 3.1.

Table 4.1 Impact Characteristic Terminology

Characteristic	Definition	Designations
Type	A descriptor indicating the relationship of the potential impact to the Project (in terms of cause and effect).	■ Direct ■ Indirect ■ Induced
Extent	The “reach” of the potential impact (e.g., confined to a small area around the Project footprint, projected for several kilometres, etc.).	■ Local ■ Regional ■ International
Duration	The time period over which a resource / receptor is potentially affected.	■ Temporary ■ Short-term ■ Long-term

Characteristic	Definition	Designations
Scale	The size of the potential impact (e.g. the size of the area with the potential to be damaged or impacted, the fraction of a resource that could potentially be lost or affected, etc.)	[no fixed designations; intended to be a numerical value or a qualitative description of "intensity"]
Frequency	A measure of the constancy or periodicity of the potential impact.	[no fixed designations; intended to be a numerical value or a qualitative description]

The definitions for the type designations are shown in Table 4.2. Definitions for the other designations are resource/receptor-specific, and are discussed in the resource/receptor-specific IA chapters presented later in this ESIA.

Table 4.2 Impact Type Definitions

Type	Definition
Direct	Potential impacts that result from a direct interaction between the Project and a resource/receptor (e.g. between occupation of a plot of land and the habitats which are affected).
Indirect	Potential impacts that follow on from the direct interactions between the Project and its environment as a result of subsequent interactions within the environment (e.g. viability of a species population resulting from loss of part of a habitat as a result of the Project occupying a plot of land).
Induced	Potential impacts that result from other activities (which are not part of the Project) that happen as a consequence of the Project (e.g. influx of camp followers resulting from the importation of a large Project workforce).

The above characteristics and definitions apply to planned and unplanned events. An additional characteristic that pertains only to unplanned events is *likelihood*. The likelihood of an unplanned event occurring is designated using a qualitative scale, as described in Table 4.3.

Table 4.3 Definitions for Likelihood Designations

Likelihood	Definition
Unlikely	The event is unlikely but may occur at some time during normal operating conditions.
Possible	The event is likely to occur at some time during normal operating conditions.
Likely	The event will occur during normal operating conditions (i.e., it is essentially inevitable).

Once impact characteristics are defined, the next step in the IA phase is to assign each potential impact a 'magnitude'. Magnitude is typically a function of some combination (depending on the resource/receptor in question) of the following impact characteristics:

- Extent;
- Duration;
- Scale;
- Frequency; and
- Likelihood (for unplanned event).

Magnitude essentially describes the intensity of the change that is predicted to occur in the resource/receptor as a result of the potential impact. The magnitude designations themselves are universally consistent, but the definitions for these designations vary depending on the resource/receptor. The universal magnitude designations are:

- Positive;
- Negligible;
- Small;
- Medium; and
- Large.

In the case of a potential positive impact, no magnitude designation (aside from 'positive') is assigned. It is considered sufficient for the purpose of the ESIA to indicate that the Project is expected to result in a potential positive impact, without characterising the exact degree of positive change likely to occur.

In the case of potential impacts resulting from unplanned events, the same resource/receptor-specific approach to concluding a magnitude designation is utilised. However, the 'likelihood' factor is considered, together with the other impact characteristics, when assigning a magnitude designation.

In addition to characterising the magnitude of impact, the other principal impact evaluation step is definition of the sensitivity/vulnerability/importance of the impacted resource/receptor. There are a range of factors to be taken into account when defining the sensitivity/vulnerability/importance of the resource/receptor, which may be physical, biological, cultural or human. Other factors may also be considered, such as legal protection, government policy, stakeholder views and economic value. As in the case of magnitude, the sensitivity/vulnerability/importance designations themselves are universally consistent, but the definitions for these designations vary on a resource/receptor basis. The sensitivity/vulnerability/importance designations used herein for all resources/receptors are:

- Low;
- Medium; and
- High.

Once magnitude of impact and sensitivity/vulnerability/importance of resource/receptor have been characterised, the significance can be assigned to each impact. Impact significance is designated using the matrix shown in Table 4.4.

Table 4.4 Impact Significance

		Sensitivity/Vulnerability/Importance of Resource/Receptor		
		Low	**Medium**	**High**
Magnitude of Impact	**Negligible**	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	Large	Moderate	Major	Major

The matrix applies universally to all resources/receptors, and all impacts to these resources/receptors, as the resource/receptor-specific considerations are factored into the assignment of magnitude and sensitivity/vulnerability/importance designations that enter into the matrix. The context for what the various impact significance ratings signify is presented in the box below.

It is important to note that impact prediction and evaluation take into account any embedded controls (i.e., physical or procedural controls that are already planned as part of the Project design, regardless of the results of the ESIA Process). This helps avoid a situation where an impact is assigned a magnitude based on a hypothetical version of the Project that considers none of the embedded controls.

Context of Impact Significance

An impact of **negligible** significance is one where a resource/receptor (including people) will essentially not be affected in any way by a particular activity or the predicted effect is deemed to be 'imperceptible' or is indistinguishable from natural background variations.

An impact of **minor** significance is one where a resource/receptor will experience a noticeable effect, but the impact magnitude is sufficiently small and/or the resource/receptor is of low sensitivity/vulnerability/importance. In either case, the magnitude should be well within applicable standards.

An impact of **moderate** significance has an impact magnitude that is within applicable standards, but falls somewhere in the range from a threshold below which the impact is minor, up to a level that might be just short of breaching a legal limit. Clearly, to design an activity so that its' effects only just avoid breaking a law and/or cause a major impact is not best practice. The emphasis for moderate impacts is therefore on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that impacts of moderate significance have to be reduced to minor, but that moderate impacts are being managed effectively and efficiently.

An impact of **major** significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. An aim of ESIA is to get to a position where the Project does not have any major residual impacts, certainly not ones that would endure into the long-term or extend over a large area. However, for some aspects there maybe be major residual impacts after all practicable mitigation options have been exhausted (i.e., ALARP has been applied). An example might be the visual impact of a facility. It is then the function of regulators and stakeholder to weigh such negative factors against the positive ones, such as employment, in coming to a decision on the Project.

4.7.3 Identification of Mitigation and Enhancement Measures

Once the significance of a potential impact has been characterised, the next step is to evaluate what mitigation and enhancement measures are warranted. For the purposes of this ESIA, ERM has adopted the following Mitigation Hierarchy:

- **Avoid at Source, Reduce at Source**: avoiding or reducing at source through the design of the Project (e.g., avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity);
- **Abate on Site**: add something to the design to abate the impact (e.g., pollution control equipment, traffic controls, perimeter screening and landscaping);
- **Abate at Receptor**: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site);
- **Repair or Remedy**: some impacts involve unavoidable damage to a resource (e.g. agricultural land and forestry due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures; and
- **Compensate in Kind, Compensate Through Other Means**: where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of fisheries access, recreation and amenity space).

The priority in mitigation is to first apply mitigation measures to the source of the potential impact (i.e., to avoid or reduce the magnitude of the potential impact from the associated Project activity), and then to address the resultant effect to the resource/receptor via abatement or compensatory measures or offsets (i.e., to reduce the significance of the effect once all reasonably practicable mitigations have been applied to reduce the impact magnitude).

4.7.4 Residual Impact Evaluation

Once mitigation and enhancement measures are declared, the next step in the ESIA Process is to assign residual impact significance. This is essentially a repeat of the IA steps discussed above, considering the implementation of the proposed mitigation and enhancement measures.

4.7.5 Management, Monitoring and Audit

The final stage of the ESIA Process is defining the basic management and monitoring measures that are needed to identify whether: a) impacts or their associated Project components remain in conformance with applicable standards; and b) mitigation measures are effectively addressing impacts and compensatory measures and offsets are reducing effects to the extent predicted.

A Register of Commitments, which is a summary of all actions the Project Proponent has committed to executing, with respect to environmental/social/health performance for the Project, is also included as part of this Report. The Register of Commitments includes mitigation measures, compensatory measures and offsets, and management and monitoring activities.

4.8 Cumulative Impact

According to IFC Good Practice Handbook (2013), “Cumulative impacts (CI) are those that result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones”. Furthermore, IFC Good Practice Handbook (2013) also mentions that the assessment and management of cumulative impacts is necessary when the Project and other developments under consideration could contribute to generating cumulative impacts on valued environmental and social component.

In order to gain an understanding of the projects overall contribution to impacts, a cumulative impact assessment (CIA) was undertaken. Whilst total cumulative impacts due to multiple projects within a given area should be identified within government- led spatial planning efforts, the Project owner needs to determine the degree to which it is contributing to these overall cumulative impacts. In this regards, the objectives of the CIA are twofold:

- Determine if the cumulative impacts caused by the Project and other existing or predictable future projects would threaten the sustainability of valuable environmental component (VEC) in the area; and
- Develop mitigation measures to prevent unacceptable conditions of VECs. The measures could include additional mitigation measures for Project and also additional mitigation measures for other existing or predictable future projects in the area.

The ESIA and CIA are prepared based on similar logical framework, analytical process and tools. Unlike the ESIA that centres on the Project as a source of impacts, the CIA focuses on VECs under influence from different projects (Figure 4.3). In a CIA, the overall resulting condition of the VEC and its related viability are assessed.

This CIA closely follows the six (6) steps of the IFC Guidance (IFC Good Practice Handbook 2013), as shown in Figure 4.3.

IFC Guidance takes into consideration the limitations that a private developer may face carrying out a CIA as part of an ESIA, or difficulties encountered in compiling such information. The limitations applicable to this CIA include:

- Incomplete information about other projects and activities (e.g. the information is not available in the public domain);
- Uncertainty with respect to the implementation of future projects; and
- Difficulty in establishing thresholds or limits of acceptable change for VECs, and therefore the significance of cumulative impacts.

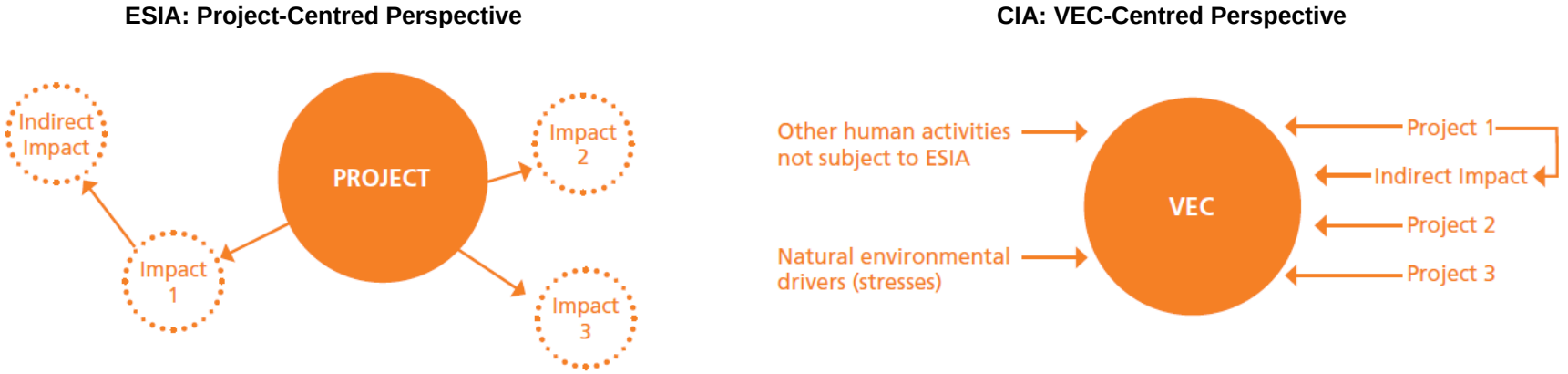


Figure 4.3 ESIA and CIA Analysis (IFC Good Practice Handbook 2013)

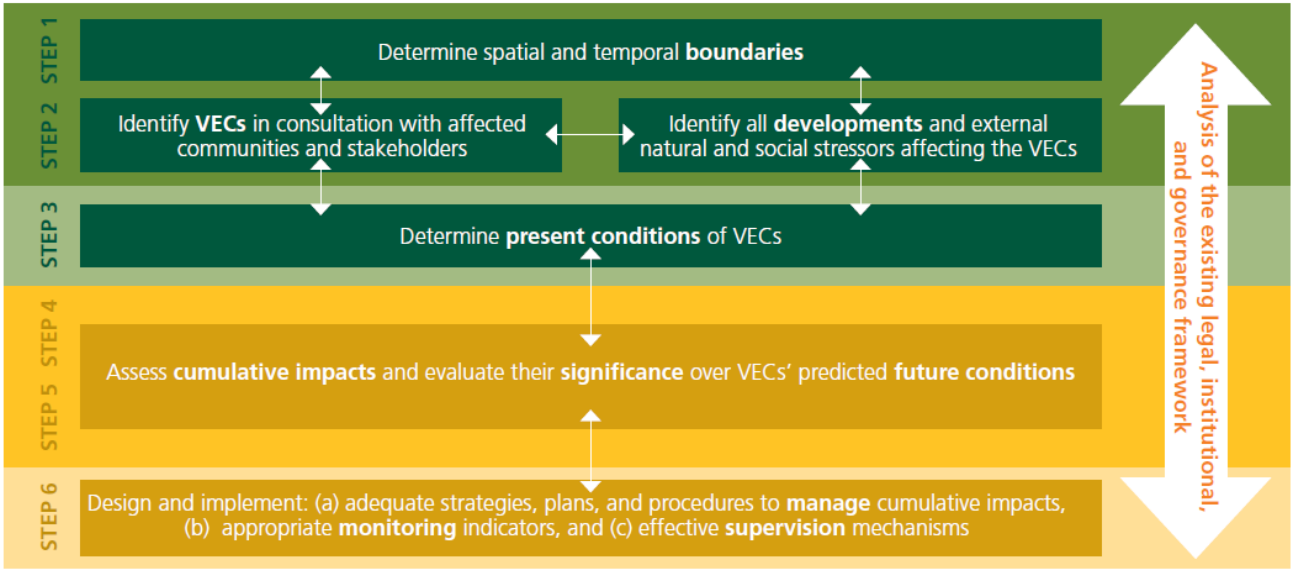


Figure 4.4 Six-Step Approach for CIA (IFC Good Practice Handbook 2013)

4.9 Risk Assessment for Unplanned Events

To evaluate potential impacts from unplanned events, a risk-based approach is used to define: 1) the most likely unplanned events leading to environmental, social and/or community health impacts; and 2) those unplanned events with the most significant potential environmental, social and/or community health impacts overall. Impact significance for unplanned events is therefore determined by evaluating the combination of likelihood and consequence.

4.9.1 Assess the Scale of Consequence

Indicative levels of consequence for potential impacts from unplanned events can be defined for the physical, biological, and social environment as provided in Table 4.5.

Table 4.5 Indicative Levels of Consequence for Potential Impacts from Unplanned Events

	Incidental	Minor	Moderate	Major	Severe
Physical Environment	Impacts such as localised or short term effects or environmental media, meeting all environmental standards	Impacts such as widespread, short-term impacts to environmental media, meeting all environmental standards	Impacts such as widespread, long-term effects on environmental media, meeting all environmental standards	Impacts such as significant, widespread and persistent changes in environmental media OR Exceedance of environmental standards	Exceedance of environmental standards and fine/ prosecution
Biological Environment	Impacts such as localised or short term effects on habitat or species	Impacts such as localised, long term degradation of sensitive habitat or widespread, short-term impacts to habitat or species	Impacts such as localised but irreversible habitat loss or widespread, long-term effects on habitat or species	Impacts such as significant, widespread and persistent changes in habitat or species	Impacts such as persistent reduction in ecosystem function on a landscape scale or significant disruption of a sensitive species.
Social Environment	Slight, temporary, adverse impact on a few individuals	Temporary (<1 year), adverse impacts on community which are within international health standards	Adverse specific impacts on multiple individuals that can be restored in <1 year OR One or more injuries, not severe.	Adverse long-term, multiple impacts at a community level, but restoration possible. OR One or more severe injuries to a member of the public including permanently disabling injuries.	Adverse long-term, varied and diverse impacts at a community level or higher – restoration unlikely. OR Fatalities of public.

4.9.2 Assess the Likelihood

For the purposes of assessment, the likelihood of an unplanned event occurring can be classified as follows:

1- Remote, not known in the industry;

2- Very unlikely, known of in the industry;

3- Unlikely, may occur once or more in life of the Project;

4- Likely, may occur once or twice per year;

5- Expected, may occur more than twice per year.

4.9.3 Assess the Significance

The consequences and likelihood of potential unplanned events are combined to determine the overall impact significance using the risk matrix shown in Table 4.6.

For potential impacts that are determined to have an impact significance of Moderate or Major, risk reduction measures are identified; these can include measures that reduce the likelihood of the event from occurring (i.e. preventive barriers), those that reduce the consequences on sensitive receptors/resources if the event were to occur (i.e. mitigation or recovery measures), and those that affect the likelihood and consequence.

Table 4.6 Risk Matrix for Potential Unplanned Events

		Likelihood of Occurrence				
		1	2	3	4	5
Consequence	Incidental	Negligible	Negligible	Negligible	Negligible	Negligible
	Minor	Negligible	Minor	Minor	Minor	Moderate
	Moderate	Minor	Minor	Moderate	Moderate	Major
	Major	Moderate	Moderate	Major	Major	Major
	Severe	Major	Major	Major	Major	Major

5. ESIA SCREENING AND SCOPING

ESIA screening and scoping forms the basis of identifying important environmental and social impacts to be assessed in the ESIA and ideally, avoids detailed assessment of impacts which are deemed unlikely to be of significance or which can be easily addressed through implementation of appropriate management or mitigation measures.

ESIA screening and scoping forms the basis of identifying important environmental and social impacts to be assessed in the ESIA and ideally, avoids detailed assessment of impacts which are deemed unlikely to be of significance or which can be easily addressed through implementation of appropriate management or mitigation measures.

5.1 Objective

To identify environmental and social risks that are relevant to the Project, the Client completed a Feasibility Study and a local regulatory EIA, which was approved by Ninh Thuan DONRE in August 2017. Upon checking the latest draft local EIA against international standards, multiple gaps have been identified. ERM Vietnam was commissioned to start the current ESIA on November 2020, supplementing gaps within previous studies and impact assessments to align with the expectations of various international standards. The developer has prepared a previous ESIA back in 2017 which was prepared by Vatec, same that we have used as reference in this 2020 ESIA.

The ESIA has been prepared to target only the important environmental and social risks, in specifically selected areas, which fall out of the scope of the regulatory EIA process, or those impacts, which are considered likely to be significant in the context of the Project.

In relation to this Project, this primarily applies to the following:

- The social and environment impact assessment conducted during the EIA will be updated in ESIA to update to show impact happened at the current stage;
- A Critical Habitat Assessment (CHA) is required under IFC PS6 and this assessment will be completed by using available biodiversity data. Recommendation to conduct the CHA is due to insufficient data in previous ESIA. Based on the CHA, specific management plan on Biodiversity Management Plan (BMP) is designed. Avifauna survey is conducted to understand specific management plan for bats and birds species. These considerations are updated in this ESIA;
- Consideration of CIs, associated facilities and non-routine events are not assessed in the existing EIA. These considerations are updated in this ESIA; and
- Consideration of impacts to indigenous peoples and cultural heritage are not considered within the EIA. These considerations are updated in this ESIA.

Based on the level of Project information provided by developer and available during the desktop information assessment, ERM has a reasonable level of confidence regarding the important environmental and social interactions that have been identified and presented within this Section.

5.2 Scoping Results

Based on the preliminary environmental and social review for this Project and Chapter 5 of ESIA report, Phu Lac 2 Wind Power Project could be classified as Category B project in accordance with the IFC categorisation system[6]. This ESIA is prepared based on the requirement of category B are project activities with potential limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.

[6] Details of the Categorisation assessment is in Chapter 5 of the ESIA.

The rationale for considering **Category B** for the Project includes:

- The Project will be constructed on flat agricultural land. There is a nearby protected area to the project location that might be impacted;
- No households will be relocated as the result of land acquisition for the Project development. Approximately 39 households affected due to land acquisition, they will experience economical displacement. Detail is discussed in Chapter 10-Social Impact Assessment;
- No displacement impact on Cham people;
- The impacts are generally site-specific and impacts will be contained within the Project boundary.

The initial stage of the ESIA is the scoping assessment, which results in a scoping report that identifies a screening of potential Project impacts, using information provided by the Client (e.g. EIA and Feasibility Study) and Project area mapping assessment. Details of the scoping study for the Project are presented in Section 5.3 below.

5.3 Scope of the Assessment

The aim is to focus the assessment on those that have a reasonable potential to experience significant impacts, which the Project Owner should seek to avoid through the Project design. Scoping also aims to identify key data gaps and ways to fill those gaps.

The ESIA and the scoping study cover all phases of development including pre-construction, construction and operation activities for the entire 26 MW development. A scoping site visit was conducted to confirm the environmental and social receptors identified in the mapping assessment in November 2020. Key sensitive receptors of the Project were defined to inform the key aspects covered in the IA.

Based on ERM's initial understanding of the site, primary and secondary baseline data review, activities (both planned and unplanned) associated with the Project and associated facilities during construction and operation phases have been considered with respect to their potential to interact with environmental and social resources/receptors. The following section details the methodology and results.

5.4 Project Area of Influence (AOI)

The AOI varies depending on the nature of the project and receptor. Under the IFC PS1 definition, an AOI would include the physical boundary of a project's activities as the core area, plus a wider buffer zone covering access to the project and any natural or community receptors which may be affected by the project.

For this Project, the appropriate AOI has been extended to cover construction and operation of the Project facilities as discussed in Section 2.4. It should be noted that the AOI for a particular resource/receptor may vary depending on the nature of the change caused by Project activities and the type of effect being considered, but in each case it is defined as including the entire area likely to experience significant impacts. As such, the AOI will be discussed in terms of the specific environmental/ social aspects (e.g., biodiversity, social, noise) being impacted.

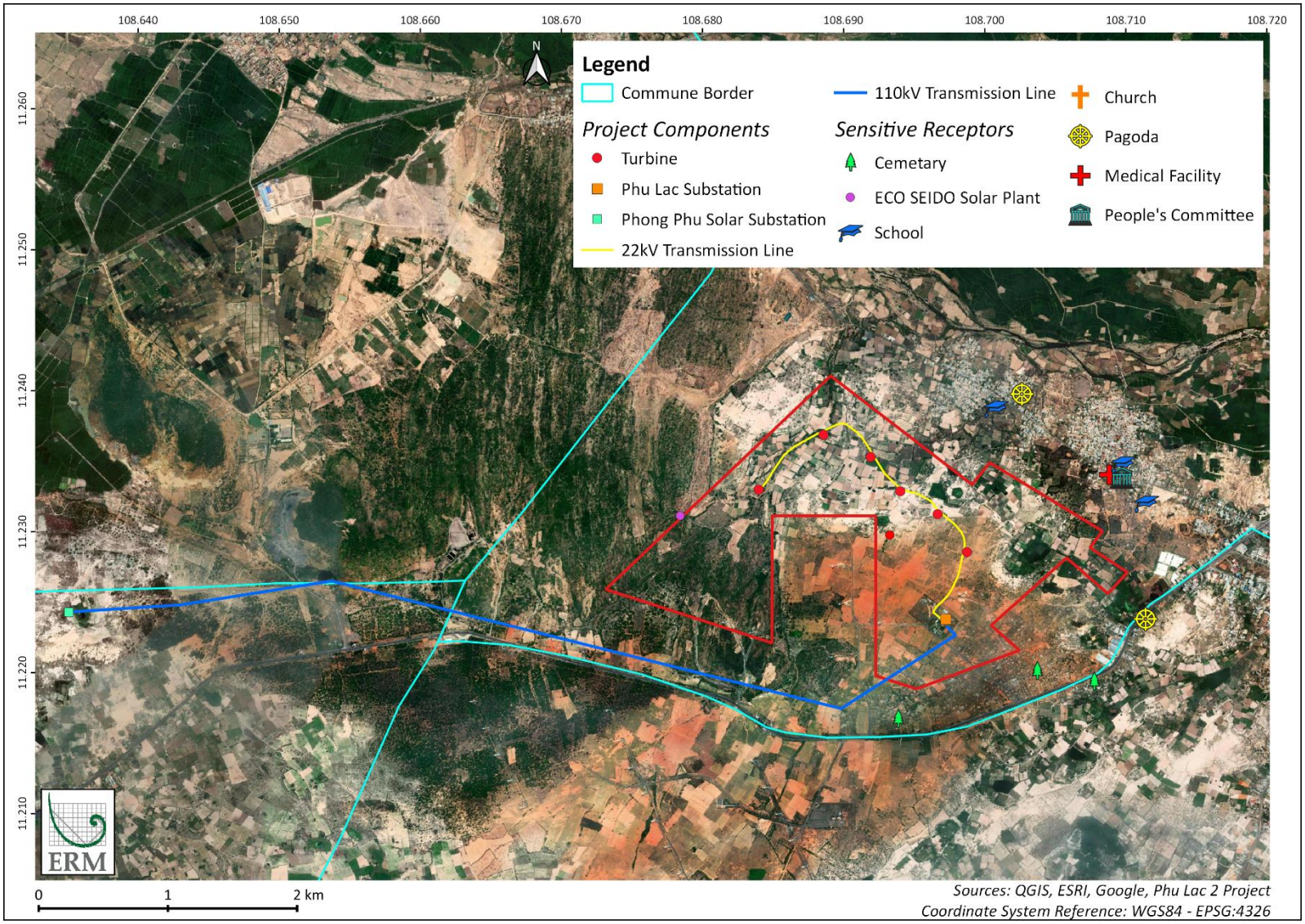


Figure 5.1 Sensitive Receptors (Social and Environmental Impact)

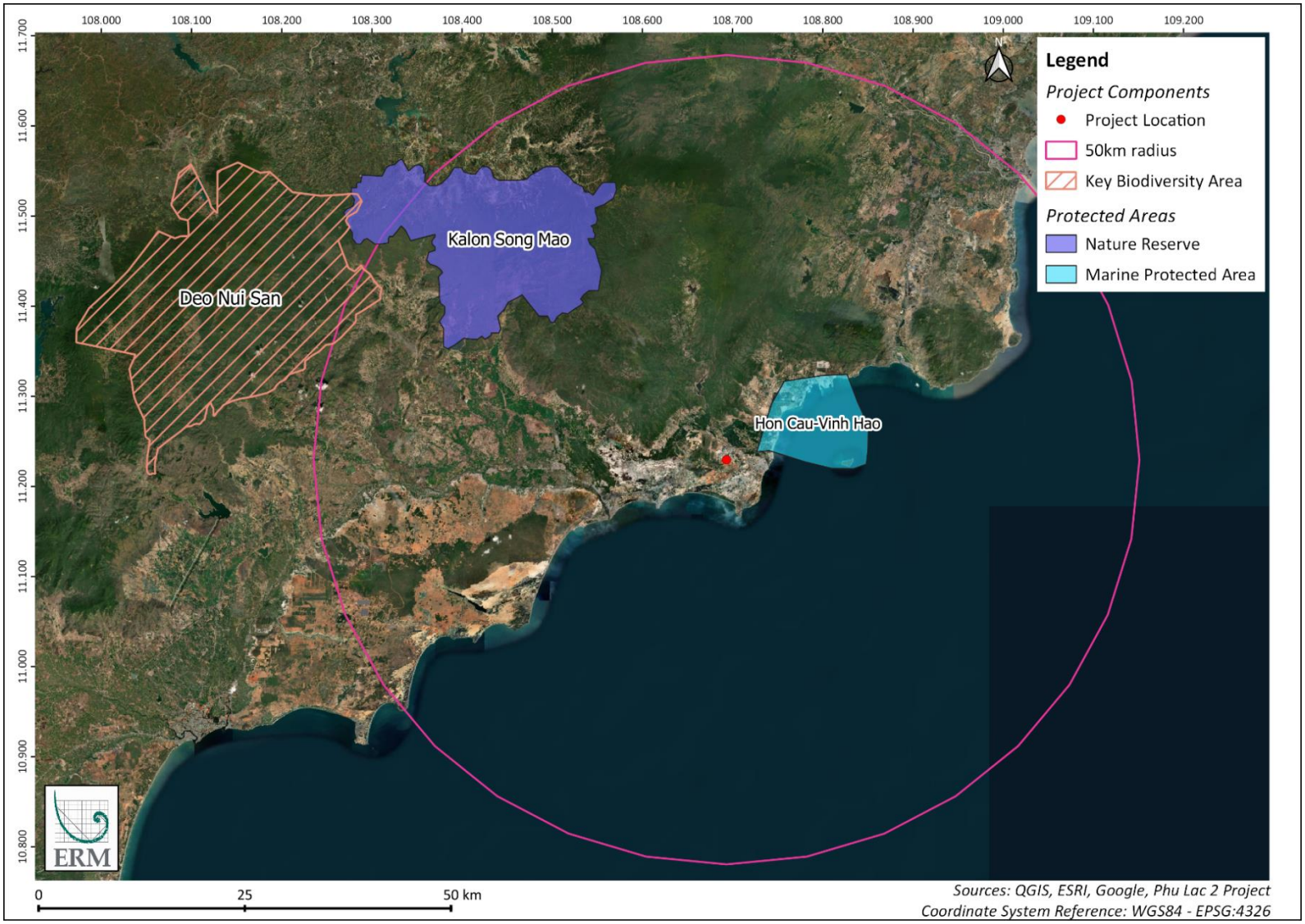


Figure 5.2 Sensitive Receptors (Ecological Impact)

5.5 Potential Interactions

Following the determination of AOI, the Potential Interactions Matrix (PIM) is used as a tool to support a methodological identification of potential interactions of each Project activity and the resources/receptors within the AOI. This PIM comprises two axis: project activities and receptors. The Project activities during the construction phase and operation phase are listed down the vertical axis while the environmental and socio-economic receptors are listed across the horizontal axis of the matrix. Each resulting cell on the PIM thus represents a potential interaction between a Project activity and a resource or receptor. Note that the potential interactions identified in the PIM may change as new information becomes available.

Potential impacts have been classified in one of the three categories:

- **No interaction**: where the Project is unlikely to interact with the resource or receptor. These impacts are illustrated as white cells in the PIM and will be “scope out” of further consideration in the impact assessment process.
- **Interaction likely, but not likely to be significant**: where there is likely to be an interaction but resultant impact is unlikely to change baseline conditions in an appreciable/detectable way. Those interactions that are grey cells in the PIM and are also “scope out” or integrated into major interactions, but the IA report may include a discussion that presents the evidence basis used to justify the basis upon which this decision was made.
- **Significant interaction**: where there is likely to be an interaction and the resultant impact has a reasonable potential to cause significant effect on the resource or receptor. Those cells shaded black in the PIC and are retained for further consideration in the ESIA process.

Table 5.1 Potential Interactions Matrix

PROJECT PHASES AND ACTIVITIES	ENVIRONMENT								SOCIAL									
	Air Quality	Greenhouse gas	Noise and Vibration	Hydrology, Soils and Erosion	Marine Water Quality	Freshwater Quality	Terrestrial Fauna and Flora	Avian fauna	Livelihoods	Land use	Infrastructure and Public Services	Community Health and Safety	Occupational Health and Safety	Land and Marine Traffic	Tourism	Visual Amenity	Cultural Heritage	Economy and Employment
Pre-Construction																		
Land acquisition									■	■							▒	▒
Construction																		
Labour influx											▒	■	■	▒				▓
Land preparation and civil works	■		■	▒		▒	■		▒	■		■	▒	▒				▓
WTG piling and foundation	▒		■	▒		▒				▒		▒	■					
Construction of substation, transmission line and laydown area and office	▒	▒	■			▒	▒		▒	▒			■			▒	▒	▓
Operation of associated facilities such as the concrete batching plant.	▒		▒			■	▒			▒			▒					
Construction water use				▒							▒							
Transportation of equipment, workers and materials	▒	▒	■								■	■	■	■			▒	▓
WTG installation			■								▓	▒	■			▒		
Waste and wastewater from construction activities and from workers' activities						■	▒				▒	■						
Hazardous materials storage and handling				▒		▒	▒			▒		▒	▒					

PROJECT PHASES AND ACTIVITIES	ENVIRONMENT								SOCIAL									
	Air Quality	Greenhouse gas	Noise and Vibration	Hydrology, Soils and Erosion	Marine Water Quality	Freshwater Quality	Terrestrial Fauna and Flora	Avian fauna	Livelihoods	Land use	Infrastructure and Public Services	Community Health and Safety	Occupational Health and Safety	Land and Marine Traffic	Tourism	Visual Amenity	Cultural Heritage	Economy and Employment
Operation																		
Labour influx																		
WTG operation (including shadow flicker) and inspection and maintenance																		
Waste, emissions (including electromagnetic interference) and discharge generation, handling and disposal																		
Presence of the turbine																		
Unplanned Events																		
Fire and explosion, including Unexploded Ordnance (UXO)																		
Floods, Storm, Earth quake																		
Spillage of fuel, oil, chemicals and hazardous materials																		
Blade throw																		

Key Consideration

Scope out

Scoped Out or integrated with other major interactions

Further Consideration in Impact Assessment

Interaction likely to lead to Potential Positive Impacts

Table 5.2 Preliminary Interaction Matrix

Interactions		Justification for Expectation of Potential Impacts	Applicable Performance Standards
Activities/Hazards	**Receptors/Resource**		
Pre-Construction Phase			
Land acquisition	Livelihoods	■ The land acquisition process will not cause physical displacement. This livelihood change is caused by change of land use from agricultural land to project components.	PS5
	Land use Cultural Heritage	■ Location surrounding project location will experience land use change from rice field, perennial tree, seasonal agriculture, irrigation area, and community access road. All of these land types will be converted into project components. ■ The land acquisition process for transmission line might impact the cemetery in the project location	PS5 & PS 8
	Economy and Employment	■ As economic displacement will impact productive land such as rice field, perennial tree and seasonal agriculture.	PS5
Construction Phase			
Labour influx	Infrastructure and public services	■ Pressure on the local infrastructure and public services. ■ Increase of traffic volume during construction due to transportation of workers, equipment and construction materials.	PS4
	Community health and safety	■ Transmission potential of communicable diseases; ■ Introduce antisocial and new lifestyles and habit to local community; ■ Conflict between local people (Cham) and migrant community (other ethnicities) due to different culture ■ Potential gender based violence due to increase number of migrant worker and men working in construction site	PS2, PS4 and PS 7
	Economy and employment	■ Increase local employment and income;	PS2 and PS5

Interactions		Justification for Expectation of Potential Impacts	Applicable Performance Standards
Activities/Hazards	**Receptors/Resource**		
		■ Community discontent due to high expectation to be hired as unskilled worker; ■ Provide temporary direct employment for the Project and induced employment; ■ Potential violation of recruitment process (discrimination, unequal payment, child labour, gender inequality) ■ Reduction of economic opportunities to local business when the worker demobilisation happened by the end of construction;	
Land preparation and civil works	Air quality	■ Land preparation and civil works will cause the increase of dust levels in the atmosphere, thus, affect the air quality of the locality.	PS3 and PS4
	Noise and vibrations	■ Land preparation and civil works will involve the use of heavy machines and equipment and will cause elevated noise and vibration levels in the construction sites and nearby areas.	PS3 and PS4
	Terrestrial Fauna and Flora	■ Land preparation will cause displacement of and disturbance to terrestrial fauna and flora.	PS3 and PS4
	Hydrology, soil and erosion	■ The activities will occur mainly around turbine foundations, and impact of excavation and construction works to soil and erosion will be minimal	PS3 and PS4
	Freshwater quality	■ The activities will occur mainly around turbine foundations, and impact of excavation and construction works to freshwater quality will be minimal.	PS3 and PS4
	Livelihoods	■ Disturbance to agricultural production due to land use changes (agricultural land change into project components). ■ Some other livelihood opportunities might appear as a result for the project construction process. ■ Ethnic minority settlement and agricultural area in Phu Lac commune	PS5 and PS 7
	Community health and safety	■ Some health and safety impacts are expected to happen due to land clearance, ground work, and civil work around the proximity of wind turbine before and during constructing the WTG foundation.	PS 4

Interactions		Justification for Expectation of Potential Impacts	Applicable Performance Standards
Activities/Hazards	**Receptors/Resource**		
WTG piling and foundation	Noise and vibrations	■ The piling and foundation works will involve the use of heavy machines and equipment and will cause elevated noise and vibration levels in the construction sites and nearby areas. ■ Increased noise and vibration levels may also disturb terrestrial fauna.	PS3 and PS4
	Air Quality	■ Adverse effect on ambient air quality and human health due to the mechanical generation of coarse dust particles (2.5 - 20 µm) distributed by wind; ■ Dust deposition and/or visible dust plumes can cause nuisance, affecting local amenities and quality of life; and ■ Dust deposition and/or visible dust plumes can cause nuisance affecting local amenities and quality of life.	PS3 and PS4
	Freshwater quality	■ The impact will be assessed together with other construction activities in general	PS3 and PS4
	Community health and safety	■ Continues vibration, noise, emission may influence disruption to mental health and wellbeing of people residing near by the turbine.	PS 4
	Occupational health and safety	■ Some health and safety impacts are expected to happen due to ground work, and civil work in the project area and around the proximity of wind turbine during constructing the WTG foundation, such as increase number of potential occupational hazard to workers especially unskilled worker.	PS 2
Construction of substation, transmission line and laydown area and admin building	Noise and vibrations Cultural Heritage	■ The construction of substation, transmission line, laydown area and admin building will involve the use of heavy machines and equipment and will cause elevated noise and vibration levels in the construction sites and nearby areas, which can cause the nuisance. ■ Increased noise and vibration levels may also disturb terrestrial fauna and nearby cultural heritage.	PS3, PS4, PS6, PS 8
	Air Quality	■ The activities will occur in some scattered sites, and the impact on air quality will be minimal.	PS3 and PS4

Interactions		Justification for Expectation of Potential Impacts	Applicable Performance Standards
Activities/Hazards	**Receptors/Resource**		
	Greenhouse gas	■ The impact will be assessed together with other construction activities in general.	PS3 and PS4
	Freshwater quality Terrestrial fauna and flora	■ Surface sediment runoff affects to freshwater quality and terrestrial (aquatic) fauna and flora.	PS3, PS4 and PS6
	Livelihoods	■ Access limitation to enter certain agricultural area due to land use conversion into project component will impact community income ■ Construction of transmission line will establish safety corridor which will restrict some livelihood activities such as growing tree or developing house within 4 m horizontal width and 4 m height.	PS 5
	Occupational health and safety	■ Accidents, injuries, fatalities and safety risk may arise from inappropriate working or unsafe condition, fatigue, lack of H&S training, insufficient PPE, and equipment failure.	PS 2
Operation of associated facilities such as the concrete batching plant	Freshwater quality	■ If concrete is produced on site in a batching plant, the highly alkaline wastewater and surface sediment runoff from the plant can negatively affect water quality of the receiver.	PS3 and PS4
	Noise and vibrations	■ Noise will be generated during the operation of the associated facilities	PS3 and PS4
	Air Quality	■ Mainly dust generation affects human receptors and terrestrial ecology	PS3 and PS4
	Terrestrial fauna and flora	■ The impact will be assessed together with other construction activities in general	PS 6
Construction water use	Hydrology, soil and erosion	■ The construction water will be taken from Ba Rau reservoir. However, due to the demand is quite small, the impact on hydrology regime will be minimal.	PS3 and PS4
	Infrastructure and public services	■ The water supply for domestic use will be taken from Phu Lac water supply station. However, due to small number of workers (15 people), the impact on current public services will be minimal.	PS3 and PS4

Interactions		Justification for Expectation of Potential Impacts	Applicable Performance Standards
Activities/Hazards	**Receptors/Resource**		
Transportation of equipment, workers and materials	Air Quality	■ Dust and other emission from vehicle operation will be generated during the transportation.	PS3 and PS4
	Noise and vibrations Cultural Heritage	■ The transportation of equipment and materials will involve the use of heavy trucks and will cause elevated noise and vibration in communities and cultural heritage location along the route such as local roads of Phu Lac commune and National Highway 1A section passing Cam Ranh city.	PS3, PS4, and PS 8
	Infrastructure and public services	■ The transportation of equipment and materials, especially oversized cargo, will increase pressure on the current infrastructure of the localities along the route, particularly Cam Ranh port, the National Highway 1A section from Cam Ranh port to the project site and communal roads of Phu Lac commune.	PS3 and PS4
	Community health and safety	■ The movement of project vehicles will increase the risk of traffic collision in localities, considering that National Highway 1A is the main highway of the country with high traffic volume.	PS4
	Occupational health and safety	■ Impacts on worker rights, occupational health and safety due to recruitment and employment of construction workers, higher risk activities, use of vehicles/heavy equipment and worker's accommodation	PS2
	Land and marine traffic	■ The transportation of equipment and materials, especially oversized cargo, will likely cause some disruption to the local traffic at Cam Ranh port and major junctions along the route.	PS4
WTG installation	Noise and vibrations	■ The installation of WTG will cause elevated noise levels. Due to the continuity of the work, the installation will likely occur even during the night time.	PS3 and PS4
	Community health and safety	■ Risk of injury to local community entering construction area with unauthorised access where heavy equipment and hazardous material stored. ■ Community settlement or activities within 300 m distance from WTG installation may expose to risk of equipment failure during installation process.	PS 2 and PS 4

Interactions		Justification for Expectation of Potential Impacts	Applicable Performance Standards
Activities/Hazards	**Receptors/Resource**		
	Occupational health and safety	■ Accidents, injuries, fatalities and safety risk may arise from inappropriate working or unsafe condition, fatigue, lack of H&S training, insufficient PPE, and equipment failure.	PS 2 and PS 4
Waste and wastewater from construction activities and from workers' activities	Freshwater quality	■ Storm water, domestic and construction waste and wastewater will affect freshwater quality bodies in or near project area, such as Dai Hoa river.	PS3
	Community Health and Safety	■ The construction of wind turbines and other project components will generate solid waste, wastewater and hazardous waste, and will affect local health and hygiene condition.	PS4
Operation Phase			
Labour influx	Affected community and worker during construction	■ Demobilisation/retrenchment process happened in the beginning of operation phase. ■ Reduction of working opportunities will reduce income to local economy. ■ Available working opportunity only available for small number skilled worker, which will limit working opportunity for local unskilled worker.	PS2
WTG operation (including shadow flicker) and inspection and maintenance	Greenhouse gas	■ No CO_2 is released into the atmosphere when electricity is generated with wind turbines.	PS3
	Noise and vibrations	■ The operation of WTG will cause elevated noise levels at receptors near the wind farm.	PS3 and PS4
	Avifauna	■ The operation of WTG can increase mortality of birds and bats as the result of collision and barotrauma - internal injuries caused by exposure to rapid pressure changes near the trailing edges of moving blades.	PS6
	Community Health and Safety	■ Longer term of exposure to shadow flicker will effect to annoyance and disturbance which lead to stress.	PS4

Interactions		Justification for Expectation of Potential Impacts	Applicable Performance Standards
Activities/Hazards	**Receptors/Resource**		
	Visual amenity	■ Visual impacts will be on the residents in the farming watching houses and people who do farming in the agriculture land nearby the Project site. ■ The Project area being rural and may make the turbines visually noticeable from a distance within the valley and may be a transient impact on the people traversing through the National road nearby	PS4
Waste, emissions (including electromagnetic interference) and discharge generation, handling and disposal	Community Health and Safety	■ Research on the effects of Electric and Magnetic Fields on an individual's health has been inconclusive. Nonetheless, health concerns remain with the general public.	PS4
Presence of the turbine	Tourism	■ As experienced from other wind farm projects in Vietnam, the location with presence of wind farm will likely become a tourist attraction and a favourite place for photography enthusiasts.	PS5
	Visual amenity	■ Although highly subject to personal perspective, the presence of wind farm may bring some concern about their effect on perceived scenic quality.	PS4
	Economy and employment	■ As more and more people visit the wind farm, there will be an increase on the demand for accommodation and other services associated with tourism activities.	PS5
Unplanned Events			
Fire and explosion, including Unexploded Ordnance (UXO)	Occupational Health and Safety	■ Fire and explosion can cause significant human injuries and property damages, but if happen, the extent will be limited within project area, and will affect project workers/staff only. ■ The explosion from UXO may cause land use changes and pose as safety issues within project boundary.	PS 2 and PS 4
	Infrastructure and public services	■ If fire happens at turbines or substation, local power transmission system will likely be affected.	PS 4
	Soil and groundwater quality	■ Spillage of hazardous materials will cause contamination of soil and groundwater.	PS3 and PS4

Interactions		Justification for Expectation of Potential Impacts	Applicable Performance Standards
Activities/Hazards	**Receptors/Resource**		
Spillage of fuel, oil, chemicals and hazardous materials	Infrastructure and public services	■ The spills can end up in common sewer system and clean-up activities might be necessary	PS3 and PS4
Blade throw	Community Health and Safety	■ Rotor failure may result in blade throws that can endanger people living/working close to the wind farm.	PS4
Flood, storm, earth quake	Community Health and Safety Occupational Health and Safety	■ Natural hazard may exacerbate and trigger all the above mentioned and posed risk to affected community surrounding the project location as well as worker during construction and operation.	PS 2 and PS4

6. STAKEHOLDER ENGAGEMENT

6.1 Stakeholder Analysis

6.1.1 Stakeholder Identification

During the recent stakeholder engagement as part of the ESIA and ESMP process, a list of stakeholders was developed by taking into account the following considerations:

- Potential Project's impacts[7] during its life cycle;
- Type of stakeholder engagement mandated by laws and Project standards;
- Potential people/organisations (directly and indirectly) affected by potential impacts in the Project's area of influence; and
- Vulnerable groups[8] requiring special engagement efforts.

6.1.2 Stakeholder Categorisation

After stakeholders had been identified and grouped, the stakeholders were categorised based on their concerns regarding the Project development activities. These categories were:

- **Environmental** – this includes concerns regarding the alteration of current environmental baseline conditions such as emissions and local air quality, elevated noise/disturbance levels, damage to and depletion of ecological systems, generation and disposal of waste, and impacts on the aesthetic value of the environment.
- **Social** – this includes concerns about livelihoods, agricultural activities, religious issues, relocation of graves, change in land use and occupation from agriculture to something new, community health and safety, employment of temporary/ local/foreign workforce, labour safety, right of way/retention of access for communities, visual impacts, shadow flicker impacts, utility requirements, infrastructure requirements, and supply of materials.
- **Technical** – this includes concerns about issues related to feasibility, Project design, transmission line route, emergency preparedness, knowledge sharing, and project management issues.

6.1.3 Ranking of Stakeholder's Interest and Influence

To define stakeholder relationships, vulnerability, interest in and influence on Project activities, stakeholders were assessed and mapped. Mapping was done according to influence, interest, and the degree of potential impact based on the stakeholder mapping matrix as demonstrated in Figure 6.1. Since the interest and influence of the stakeholder and list of stakeholders will be changed over the course of Project development, the stakeholder analysis should be updated to reflect the change.

[7] Refer to Chapter Social Impact Assessment of ESIA Phu Lac 2

[8] Vulnerable groups/ households are defined as meeting at least one of the following criteria: poor or near-poor households certified by the Government; Female-headed households; households with orphans or abandoned children; Households with an elderly person above the age of 60 living alone; households with an elderly person from 80 years old without social welfare or insurance; households with a physically disabled member; households with a mentally disabled member incapable of work; households with a member with HIV/AIDS and unable to work; households with a single parent from a poor household who are raising children under the age of 16, or children aged 16-18 and attending school; and households with an illiterate breadwinner

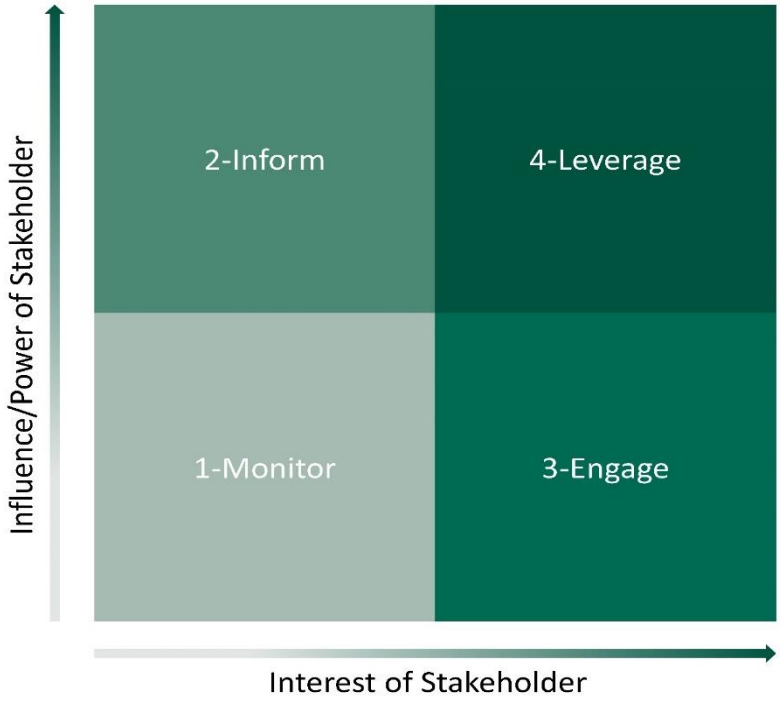


Figure 6.1 Stakeholder Mapping Matrix

The stakeholder mapping matrix is a tool which assists in identifying where stakeholders stand depending on their influence and interest. The influence and interest of stakeholders can be classified as low or high.

A definition of each group based on the stakeholder mapping matrix in Figure 6.1 can be summarised as follows:

1. **Monitor**: *low influence and low interest*. Typically, this group includes those who have limited interest and influence on the Project including the media and non-governmental organisations (NGOs).
2. **Inform**: *high influence and low interest*. From an impact assessment perspective, these are stakeholders that have the potential to influence Project outcomes but may not have a specific interest in impact assessment related issues. Stakeholders in this group should be kept informed on the progress of the Project development and usually include statutory consultees.
3. **Engage**: *low influence and high interest*. This group is also an important group and includes those groups or organisations that are not adversely affected, but whose interests determine them as stakeholders. As such, this group should be kept engaged and the Project should maintain an open channel of communications with this group throughout Project phases. Typically this group would include local communities not directly affected by the Project and authorities who have limited influence on the Project.
4. **Leverage**: *high influence and high interest*. This group of stakeholders is often the most important to the Project as they have the ability to influence Project outcomes and also have a high level of interest in aspects of impact assessment. Stakeholders in this group should be engaged throughout the ESIA, and for many of these stakeholders beyond the ESIA and during construction and operation stages of the Project. This group of stakeholders would typically include statutory approval bodies and affected communities.

The results of stakeholder identification and categorisation are summarised in Table 6.1.

Table 6.1 Stakeholder Analysis (at the time of reporting[9])

Categories	Stakeholders	Concerns			Influence	Interest	Level of Influence and Interest
		Environment	Social	Technical			
Local communities	Communities within the Project area who would be economically displaced due to the land acquisition of the Project: Phu Dien village of Phu Lac commune who do cropping on their land; Lien Huong town communities who do cropping on Lac Tri village land of Phu Lac commune and Lien Huong town communities who do cropping on Chi Cong commune land	✓	✓		High	High	4-Leverage
	Cham ethnic minority within the Project area who would be affected due to the Project construction activities	✓	✓		Low	High	3-Engage
Government and local government bodies	*National Authorities*						
	Ministry of Industry and Trade	✓	✓	✓	High	Low	2-Inform
	Provincial Authorities						
	People Committee of Binh Thuan Province	✓	✓	✓	High	High	4-Leverage
	Department of Natural Resources and Environment of Binh Thuan Province (Binh Thuan DoNRE)	✓	✓	✓	High	High	

[9] Since the Interest and Influence of the stakeholder and list of stakeholder will be changed over the time of the Project development, the stakeholder analysis should be updated to reflect the change.

Categories	Stakeholders	Concerns			Influence	Interest	Level of Influence and Interest
		Environment	Social	Technical			
	Department of Labour, Invalid and Social of Binh Thuan Province (Binh Thuan DoLISA)		✓		High	High	
	Department of Industry and Trade of Binh Thuan Province	✓	✓	✓	High	High	
	Department of Transport of Binh Thuan Province		✓	✓	High	High	
	Department of Agriculture and Rural Development of Binh Thuan Province (Binh Thuan DARD)	✓	✓		Low	High	3-Engage
	Department of Culture, Sport and Tourism of Binh Thuan Province (Binh Thuan DoCST)	✓	✓		Low	High	
	Department of Planning and Investment of Binh Thuan Province (Binh Thuan DoPI)	✓	✓	✓	Low	High	
	Department of Industry and Trade of Binh Thuan Province	✓	✓	✓	Low	High	
	Department of Construction of Binh Thuan Province	✓		✓	Low	Low	1-Monitor
	Department of Finance of Binh Thuan Province		✓		Low	Low	
	District Authorities						
	People's Committee (PC) of Tuy Phong district including Fatherland Front of Tuy Phong district	✓	✓	✓	High	High	4-Leverage
	Committee of Ethnic Minority Affairs at district level	✓	✓		High	High	
	Division of Natural Resources and Environment of Tuy Phong district	✓	✓	✓	Low	High	3-Engage
	Division of Labour, Invalid and Social of Tuy Phong district	✓	✓		Low	High	

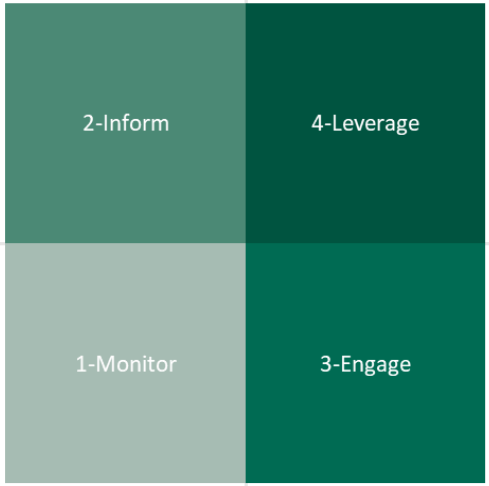
Categories	Stakeholders	Concerns			Influence	Interest	Level of Influence and Interest
		Environment	Social	Technical			
	Division of Agriculture and Rural Development of Tuy Phong district		✓		Low	High	
	Commune Authorities						
	People's Committee and Fatherland Front of Phu Lac and Chi Cong commune	✓	✓	✓	High	High	4-Leverage
	Unions (i.e. Farmers' Union, Women's Union and Youth Union), police and health facility staff of affected communes (Phu Lac and Chi Cong communes)	✓	✓		Low	High	3-Engage
Economically Interested Parties and Business Partners	Da Nhim – Ham Thuan – Da Mi Hydro Power Joint Stock Company	✓	✓	✓	High	High	4-Leverage
	Thac Mo Hydro Power Joint Stock Company	✓	✓	✓	High	High	
	Refrigeration Electrical Engineering Corporation (REE)	✓	✓	✓	High	High	
	Power Engineering Consulting Joint Stock Company 3	✓	✓	✓	High	High	
	Individual shareholder	✓	✓	✓	High	High	
	Central Power Corporation (EVNCPC)	✓	✓	✓	High	High	
	Vietnam Electricity (EVN)	✓	✓	✓	High	High	
	Lenders	✓	✓	✓	High	High	
	Vestas Wind Technology Vietnam LLC	✓	✓	✓	Low	High	3-Engage

Categories	Stakeholders	Concerns			Influence	Interest	Level of Influence and Interest
		Environment	Social	Technical			
Contractors and suppliers	Central Construction Joint Stock Company	✓	✓	✓	Low	High	
	Fichtner GmbH & Co. KG	✓	✓	✓	Low	High	
	Other contractors and suppliers	✓	✓	✓	Low	High	
Neighbour Private Sector Bodies	Eco Seido Solar Farm Project at Phu Lac commune (in operation)	✓	✓	✓	Low	High	3-Engage
	Phong Phu Solar Farm at Phong Phu commune (in operation)	✓	✓	✓	Low	High	
	Binh Thanh Wind Farm at Binh Thanh commune (in operation)	✓	✓	✓	Low	High	
	Vinh Hao Mineral Water Company in Vinh Son commune	✓	✓	✓	Low	High	
Academic groups	Academic groups that will participate in project reviews in the project development	✓	✓	✓	Low	Low	1-Monitor
Non-governmental organisations (NGOs)	NGOs that might be interested in the project development and its potential impacts	✓	✓	✓	Low	Low	1-Monitor
Media	Provincial media (i.e. Binh Thuan Newspaper)	✓	✓	✓	Low	Low	1-Monitor
	National media (i.e. Tuoi Tre News, Thanh Nien)	✓	✓	✓	Low	Low	1-Monitor

6.1.4 Stakeholder Engagement Strategies

- Make use of interest by informing in low risk area;
- Keep informed and consulted in interest area; and
- The Project will be responsive for direct requests for further information

- Inform and consult in interest areas by formal communications such as meetings or letters, writing documents;
- Involve in governance and decision-making; and
- Keep ongoing engagement and collaborative working in areas of mutual interest



- Inform via public communications (for example through the Project web site and press communications);
- The Project will be responsive for direct requests for further information and engagement if the stakeholders ask to be consulted; and
- Monitor for their feedback

- Keep engaged and consulted regularly;
- Seek to obtain their support and technical guidance;
- The Project aim to be proactive in its communications, providing information and seeking views at regular intervals; and.
- Fluid ongoing two-way information flow.

Figure 6.2 Stakeholder Engagement Strategies

6.2 Stakeholder Engagement to Date

6.2.1 Stakeholder Engagement during EIA Process and 2017 ESIA Process

During the local EIA development, The Project Owner sent the community consultation request letter[10] to the Fatherland Front [11] of Phu Lac affected commune and received their feedbacks and recommendations. Table 6.2 stated the comments and response from the Fatherland Front of Phu Lac commune and the Project Owner, respectively. The corresponding minutes of meetings with detailed discussion as well as full lists of meeting participants are attached in Appendix A.

Table 6.2 Consultation Records during EIA Process

Feedbacks from Fatherland Front of Phu Lac commune
The Fatherland Front of Phu Lac Commune agreed on: ■ The content of adverse impacts on natural resources and socio-economic stated in EIA; and ■ The feasibility and convincing of mitigation measures to minimise these adverse impacts; *Recommendations:* ■ Commit to fully implement mitigation measures that have been stated in EIA; ■ Strengthen the relationship with local authorities closely to facilitate local engagement and management during the Project implementation; ■ Strictly comply with the national environmental standards; ■ Monitor and solve any issues related to environmental pollution occurred by the Project's activities; and ■ Ensure the traffic safety during the Project's transportation of equipment and facilities.
Response from the Project Owner
The Project Owner committed to: ■ Implement the mitigation measures on natural resources and socio-economic stated in EIA; ■ Implement the environmental protection measures during the construction phase; ■ Manage the impacts associated with migrant workers and health, safety and security; ■ Comply with national environmental standards on environmental protection (e.g. dust and emissions, noise, water quality, domestic waste and hazardous waste); and ■ Be responsible for any environmental issues legally.

6.2.2 Stakeholder Engagement during 2020 ESIA Process

6.2.3 Meeting with Authorities

From November 12 to November 13, 2020, the Project Owner and the Project's Consultant - ERM Vietnam Company Limited (ERM), have conducted meetings with regulatory bodies from district, and commune levels to:

[10] Letter No. 5020/STNMT-CCBVMT dated November 03, 2020 issued by Binh Thuan DONRE

[11] According to Law No. 75/2015/QH13 dated June 9, 2015 on Vietnamese Fatherland Front, Vietnamese Fatherland Front is the political base of people's power, representing and protecting lawful rights and interests of the people; gathering and bringing into play strength of national solidarity, exercising democracy and reinforcing social unanimity; participating in the construction of the Communist Party, State and people's external relation activities making a contribution toward the construction and protection of the Fatherland.

- Develop a baseline analysis of the current socio - economic conditions and future socio-economic development plans of the Project area; and
- Obtain their opinions and concerns on the development of the Project.

A summary of discussions and concerns generated in the course of the Project Owner's engagement with authorities during the ESIA process is provided in Table 6.3 below.

Table 6.3 Summary of Stakeholder Engagement with Authorities & Relevant Organisations - ESIA

No.	Stakeholders	Meeting Date	Topics Covered in the Interviews and Meetings
1.	Phu Lac commune People's Committee	30th September 2020	■ Update the authority about Project development progress and current status of the ESIA; ■ Obtain updated socio-economic data/information including infrastructure and public services development of the commune, health, livelihoods and employment of the people in the commune; ■ Obtain feedback/perceptions on the Project development; ■ Ask for permission and support from the People's Committee to conduct key informant interviews.
2	Tuy Phong district PC	12 November 2020	■ Update about Project progress and current status of the ESIA; ■ Obtain up to date socio-economic data such as infrastructure and public services, health, livelihoods, and employment of people in the commune; ■ Obtain feedback or perceptions about the Project development;
3	Forest Ranger Sub-division (FRD) of Tuy Phong district	12 November 2020	■ Update about Project progress and current status of the ESIA; ■ Situation of forest management and use in the Project area; ■ Find out livelihood activities of people in protection forest areas; and ■ Public places of worship and beliefs of the local people in the protection forest area.
4	■ Chi Cong and Phu Lac communes ■ Lien Huong commune-level town	■ 13 November 2020	■ Update about Project progress and current status of the ESIA; ■ Obtain up to date socio-economic data such as infrastructure and public services , health, livelihoods, and employment of people in the commune; ■ Gain feedback or perceptions about the Project development; ■ Obtain acceptance and support from the People's Committee to conduct the household survey in the area.

Figure 6.3 Meetings with Local Authorities during ESIA Development

6.2.4 Engagement with Local Communities

Simultaneously with an authority meeting, the Project team and ERM organised multiple engagement activities at the local community level on November 13 to 15, 2020 to collect the updated socio-economic baseline data and local communities' opinions and concerns on the development of the Project.

6.2.4.1 Types of Engagement

The consultations were in the form of focus group discussions (FGD), and household surveys as discussed below.

6.2.4.1.1 Focus Group Discussions (FGDs)

Focus Group Discussions (FGDs) were chosen as a tool to elicit households' subjective attitudes and experiences and were conducted by grouping together people with similar livelihood profiles or household economic conditions. ERM completed five FGDs including:

- one ethnic minority group (Cham people) who represented the majority population of Lac Tri village, Phu Lac commune;
- one vulnerable group of Phu Lac commune;
- one women group of Phu Lac commune; and
- two farmer groups in both Lien Huong and Phu Lac communes.

The five FGDs were conducted with a total of 46 participants. Female and male participation ratio was equally (52% versus 48%, respectively). Each discussion involved a heterogeneous group of eight to 11 people with distinctive backgrounds in terms of age, gender, and economic and social status in order to obtain an inclusive perspective and objective reporting.

6.2.4.2 Household Surveys

Household surveys provided a wider range of more detailed information on a population of 149 households in Lien Huong, Phong Phu, and Phu Lac communes, Tuy Phong district where the Project components will be located and/or impact on local communities. Notably, 33 out of 149 surveyed households is affected by the Project's land acquisition.

Primary data from the 149 household surveys were used to integrate the socio-economic baseline section of the ESIA report and to propose livelihood restoration and community development plans of the Project.

Topics of engagement from FGDs, and household surveys are summarised Table 6.4.

Table 6.4 Summary of Stakeholder Engagement Activities with Local Communities during ESIA Process

Interviewed Group	Organisations	Topics covered in the interview meetings
FGD	■ one ethnic minority group; ■ one vulnerable group; ■ one women group; and ■ two farmer groups.	Each group will have different question design, in general, the following information was collected from the interviewed groups: ■ Demographic information of the households participated in the FGD; ■ Housing and land (i.e. land use and land tenure); ■ Education background (i.e. education level of members in the surveyed households); ■ Health status/profile and health care practice; ■ Livelihoods including main livelihoods; area for farming; irrigation; difficulties in farming, and fishing; ■ Income from their main livelihoods (aquaculture farming, plantation and husbandry) and their expenditures; ■ Vulnerable status (i.e. who by virtue of gender, ethnicity, age, physical or mental disability, economic disadvantage, or social status that may be more adversely affected by the Project development); ■ Potential impact due to the Project construction and operation activities. ■ Access to and availability of public facilities (i.e. electricity, water supply, etc.); and ■ Acknowledge on the development of the Project and its engagement activities.
Household Survey	149 households (HHs) includes: ■ 34 households from Lien Huong commune; ■ 2 households from Phong	The questionnaire of the household interview was designed to collect the following: ■ Family status and demographics; ■ Education background (i.e. education level of members in the surveyed households); ■ Occupation, livelihood, and status; ■ Health profile of household members being interviewed;

Interviewed Group	Organisations	Topics covered in the interview meetings
	Phu commune; and ■ 113 households from Phu Lac commune.	■ Economic conditions (i.e. condition of household assets and utilities, income and expenditure [seasonal income is also accounted for]); ■ Current condition of local public services and infrastructure including road, electricity and water supply, waste management, market, education and healthcare, as well as the household's access to such services; ■ Vulnerability status (i.e. people who may be more adversely affected by the Project by virtue of gender, ethnicity, age, physical or mental disability, economic disadvantage, or social status); and ■ Acknowledge and concerns about the Project's activities.

Figure 6.4 FDGs and Household Surveys during the ESIA Development

6.2.5 Project Acknowledgement of Local Communities

During the ESIA development, social perception survey and consultations were undertaken to assess the awareness of local people about the Project. The perception of local people was also collected via the 05 FGDs and 04 KIIs with local representatives. According to the household survey, there are 45 interviewees reported that they knew about the Project, account for 30%. The survey also reveals that verbally exchange among the community and the local authority are the two mains of communication channels for the project information, approximately at 60% and 18% respectively. Most of the feedbacks from the surveyed people are about concerns on the Project impact, particular with the livelihood and income impacts, as well as about the shortage of agricultural land if they will lose their lands due to the Project. Especially, some landowners who have agricultural lands near the national highway showed their strong response to the unexpected land acquisition and they need to have a transparent and appropriate process in negotiation.

6.2.6 Feedback from the Interviewed Authorities and Community

The concerns of local authorities and people regarding environmental, health, social and economic issues relating to the Project collected from the aforementioned engagement activities are summarised below.

6.2.6.1 Authorities

Table 6.5 Feedback from Local Authorities during ESIA Engagement

Concerns	Tuy Phong dictrict PC	Chi Cong commune PC	Phu Lac commune PC	Lien Huong commune PC
Environment				
Dust, noise pollution	✓		✓	
Health				
Community health, safety and security	✓		✓	
Social, economic, cultural issues				
Loss of agricultural land and adverse impacts on agricultural production (cultivation and husbandry)		✓	✓	✓
Land acquisition and compensation process		✓		
Technical issues				
Damage the local road system due to construction work			✓	

6.2.6.2 Communities

Among 149 surveyed respondents[12], the majority (122 respondents or 69%) express their concerns about the Project while the others have no concern about it (24 respondents or 14%) or are not clear about Project impacts (30 respondents or 17%) due to their lack of information about the Project (see

[12] one respondent choose more than one criteria

Figure 6.5). Main concerns of local communities focus on land loss (35.8%), leading to affect their livelihood income (17%).

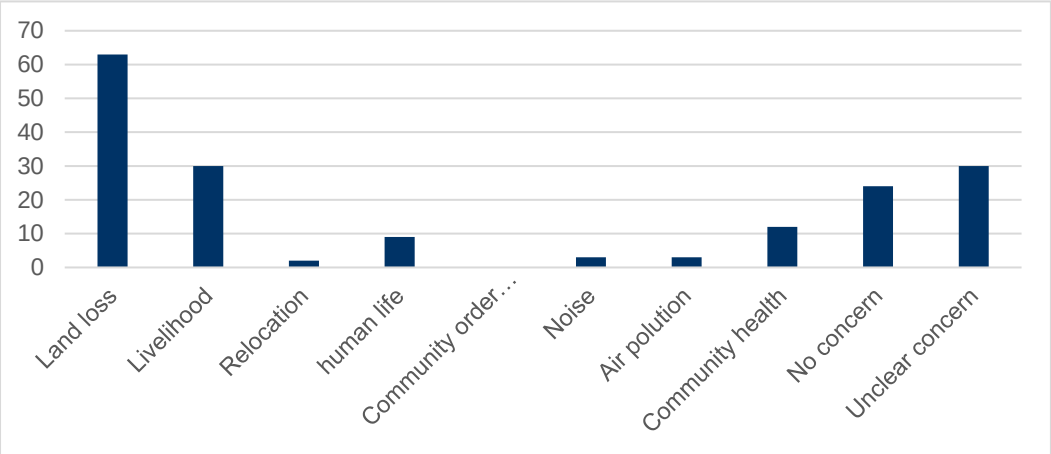


Figure 6.5 Feedback from Household Interviews during ESIA Engagement

According to the FGDs participants, most of these impacts are related to construction activities, which are inevitable but manageable through certain social and environmentally friendly practices. These impacts can be well taken care of at an early stage through proper engineering designs and adherence to best construction practices. This assessment should also include safety considerations for the workers in the site and related facilities, but nearby residents, especially those who live close to ancillary facilities like laydown areas and access road.

Compared to the environmental impacts of conventional energy sources, wind power's environmental impact on land-based activities is relatively minor.

In principle, there are claims that sub-audible sound may cause health effects, but some studies have not found sufficient evidence to support those claims. However, most of the Phu Lac residents do not experience annoyance from the existing wind turbine sound of Phase 1 because these turbines are quite far from their houses.

Table 6.6 provides information about the impact levels of Phu Lac project to the affected households (AHs), up to 59% AHs stated that they have no answer or mild impact , 12% AHs estimated they would have moderate impact, compared with approximately 28% AHs suppose that they will experience profound impact by the project.

FGDs conducted with affected communities uncovered some significant concerns about the development of the Project. Each type of livelihood led to different concerns. Overall, the 06 FGDs indicate that participants want further information about the Project, proper compensation for land acquisition.

Table 6.6 Levels of Impact of Phu Lac Project to Surveyed Affected Households

Levels of impacts	Impact on livelihoods	
	Number of households	**Percentage**
No answer/ Do not know	88	59%
Minor impact	2	1%
Moderate impact	18	12%
Major impact	41	28%
Total	**149**	**100%**

Source: Socio-economic survey conducted by ERM, 2020

6.2.7 Recommendations from the Interviewed Authorities and Communities

The key topics arising from the above meetings were in relation to queries regarding how the Project would benefit local communities in regards to employment opportunities and training for affected peoples, and how the development would affect the environment and human health. During the engagement, the Project team emphasised that the ESIA process had been looking at all potential effects of the Project on environmental and social aspects; the results of stakeholder engagement activities would be used to influence the design of the project and mitigation measures would be recommended to minimise any potentially negative effects. Summary of recommendations from the interviewed parties is outlined in Table 6.7below:

Table 6.7 Recommendations from Local Authorities and Communities

Recommendations from the relevant authorities during ESIA Process	Recommendations from Local Communities during ESIA Process
■ Should develop more programs apart from those that the government is currently sponsoring such as scholarship support, health checking; ■ Encourage to consult with relevant authorities to find the suitable plant for the wind power poles area; ■ Pay more attention to poor households after the clearance compensation process ■ Create long term jobs, and ■ Prefer to recruit local labors, including minority people.	■ Create more job training and micro/small business training ■ Support livelihood development ■ Introduce more job opportunities ■ Provide capital investment ■ Support husbandry development ■ Have traning for farmers ■ Have seedling support ■ Keep the land for grave apart from the project

6.3 Incorporating Stakeholder's Feedback into the ESIA

The major concerns and suggestions of the local authorities and local people focused on:

- Social issues: livelihood restoration, compensation payment, community development, future agricultural activities of local people depending on the land, different categories of APs including those without land use rights certificates;
- Environment, Health and Safety (EHS) issues: environmental mitigation and management measures for noise, dust and waste; and
- Project management: grievance mechanism, issues related to resettlement site and local recruitment.

Based on the interviews and observations during the site visit, these three concerns were recognised as key issues required to be taken into account in the ESIA. The assessment to abovementioned issues will be included as follow:

- Key social issues will be included in Social Impact Assessment of the ESIA.
- In terms of compensation payment, the compensation will be calculated based on the land and assets price and supporting allowance issued by the Binh Thuan Province. The compensation process is being conducted by the Land Fund Development Centre (LFDC) of Tuy Phong district. As regulated by the relevant Vietnam law the Project Owner is involved in the CSR process with a role of financing and monitoring. However, to comply with IFC PS 5, the Project Owner is required to play a role of collaborating with the LFDC (to the extent permitted by the agency), to achieve outcomes that are consistent with IFC PS5. In the public consultation that was performed during the preparation of ESIA, this topic was communicated to the affected communities by the Project.

- EHS issues, particularly those pertaining to noise, traffic and worker management, will be assessed quantitatively within the ESIA and appropriate mitigation measures developed.
- Stakeholder perception survey will be conducted again during the construction phase by the Project Owner to listen to the stakeholders' concern.

The outcomes of these assessments, alongside project management issues will be incorporated throughout the Environmental and Social Management Plan, the Stakeholder Engagement Plan, and Grievance Procedure. Suggestions from the stakeholders on mitigation measures for environmental impacts will be incorporated into the Environmental and Social Management Plan, where appropriate.

APPENDIX A MINUTES OF MEETINGS

Minute of Meeting

Project	0575020 Phu Lac 2 Wind Farm
Subject	**Engagement Meeting with authorities of Tuy Phong District**
Date	12th November 2020
Location	The office of Tuy Phong District People's Committee
Attendees	• Tuy Phong District People's Committee • Thuan Binh Windpower JSC • ERM *(List of attendees attached with this minute of meeting)*

ERM opened the meeting with the purpose of this discussion, introduced the participants, and expressed its role in the creation of an Environmental and Social Impact Assessment (ESIA) following international guidelines as well as briefed through the provided questionnaire.

Thuan Binh Windpower JSC updated the Project development progress and extended its consideration on the management of environmental and social aspects of the Project.

The following documents were obtained:

1. Data provided by authorities based on ERM's questionnaire
2. Meeting attendance list

General

- For people who claimed the land, they do not have a red book. According to the policy, the commune People's Committees are assigned to consider the legality, if they use it continuously without any disputes, they will compensate normally as if they have a red book.
- The government considers land origin based on the process specified in the government's Decree 01.
- Phu Lac has 3 villages: Phu Dien (all Kinh people), Lac Tri (all Cham people follow the Ba La Mon religion), Vinh Hanh (the Ba Ni religion).

Program - Policy

- Regarding agriculture, the district has a rural vocational training program. Every year, the district sets targets on vocational training, job seeking and social policies. The Social Policy Bank also provides general support for people in the district, but they do not have a special program for households whose land is acquired, only support for poor households whose land is acquired.
- Foreign NGOs: Belgian project to improve sanitation and respond to climate change. https://vietnam.diplomatie.belgium.be/vi/development-cooperation/cooperation-programme
- Ocean plastic waste project is invested by Binh Thuan province in coordination with UNDP https://www.vn.undp.org/content/vietnam/vi/home/presscenter/pressreleases/integrating-resources-for-the-reduction-of-ocean-waste-in-binh-t.html

Infrastructure

- Weather

  The sun has increased in the last 3 years, the weather forecast is 31 degrees but it feels like 36-37 degrees.

  The influence of storms and tropical depressions on Tuy Phong coast in Phuoc The commune, Lien Huong town.

  The local government has give no less than 1 billion VND for climate change prevention workshop experts.
- Water Supply

- Tuy Phong district uses tap water of two factories including Phong Phu with capacity of 20000 cubic meters / day (the main plant supplying 70% of water for the whole district), Vinh Hao water plant with capacity of 5000m3 / day (supplying water for Vinh Hao and

Vinh Tan communes). These two plants basically provide enough water for the district's people, but if the dry season occurs frequently, there is still a shortage of water.

- In the last 3 years the district has had a dry season, but factories still provide enough water. They have expanded and upgraded lakes of Long Song River, Da Bac lake (mainly for production). They will continue to upgrade the water plant in 2021 - 2025.
- Water shortage still occurs sometimes, village 1C in Vinh Hao commune has a water shortage due to being too far away and water cannot be reached. The dry season in the locality starts from December to May or June of the following year.
- Irrigation system for Phu Lac commune is more convenient than Chi Cong commune because it benefits from Song Long River lake. At present, Chi Cong commune does not have an irrigation system, they have to use natural water, wells.

• Irrigation

- The project area does not have irrigation systems, only dig ponds and underground water.

• Waste treatment

- Tuy Phong district has slag yard for operation of Vinh Tan thermal power plant.
- Tuy Phong district has only 2 wastewater systems in Phan Ri town (funded by the Belgian NGO) and Lien Huong town (also sponsored by the Belgian NGO).
- Normally, the local people have a septic system or dump in the productive land
- To treat solid waste, medical waste, the district government signs contracts with private companies to send them to Dong Nai or Binh Duong for treatment.
- Domestic waste in Tuy Phong district does not have an immediate treatment system. For many years this has been transported by public service, twice a day. As for collectors, people collect to 1 place specified by the locality. In Tuy Phong district, there is 1 landfill disposal site (funded by Belgium). Currently there is no investment outside the state budget.
- There are 3 garbage collection units in the district area including service cooperative in Vinh Hao and Vinh Tan communes and district public service.

Livelihood

- Related documents will be provided by the Department of Agriculture and Rural Development.

Cultural heritage - historic sites

- Lac Tri village has five places of worship. When they die, they put a little brain in a jar to bury in the ground to worship. There is a grave area to bury and worship. The rest of the body is burned.

- The Chăm people speak two languages. The two religions of Ba La Mon and Ba Ni are not getting along with each other, but lately, it has been somewhat better. If you have difficulty doing the survey, you should meet the village head or the eldest monk (who specializes in worshiping in the temple). Each village will have one elder monk. The cemetery is a taboo area that should not be visited. Should not call the Chăm people the "Chàm".
- Local authorities often join the Cham New Year's Eve
- The Chăm people in Lac Tri village have a high level of education, willing to mortgage or sell their houses for their children to go to school.
- The Chăm people often create more other types of livelihood to earn more income besides farming
- The Chăm people follow the matriarchy

Comments

- The investor must expedite the process of measuring and implementing the project on schedule, due to prolonged impact on people's land, unable to cultivate.
- The project owner is required to give priority to support people who lose land.
- For example, Vinh Tan Thermal Power has spent money to train people in Tuy Phong district to work at the factory (recruiting 100 trainees to send to other local for training and bear all the training costs). Besides, the number of self-study and return to work is also available.
- The project owner should coordinate closely and synchronously with the land clearance implementation unit.
- In the process of land clearance, the project owner should have programs outside of the general government policy to provide maximum support to the people affected by the project (scholarship support, medical examination, should not support by money because they will use it up)
- During the construction process, leveling problems will occur, using land-scooping machines often encroach on residential land, should consider the local agreements, to avoid security and order violations.
- Try to return the land status as before the project construction.
- Support research on planting specific trees under wind power poles. People abandon land under wind power a lot due to soil quality change.
- Should arrange a few Chăm people to work on the project, have skills, or be a guard.

LIST OF PARTICIPANTS – AUTHORITY MEETINGS
DANH SÁCH THAM DỰ CUỘC HỌP
Phu Lac 2 Wind Farm Project – Dự án Điện gió Phú Lạc 2

Date Ngày	12/11/2020
Venue Địa điểm họp	Ủy ban nhân dân huyện Tuy Phong
Topics Nội dung họp	Tham vấn cộng đồng và khảo sát tình hình kinh tế xã hội

Name Họ tên	**Position/Job and Organization** Chức vụ/Công việc và Cơ quan công tác	**Phone number** Số điện thoại	**Email**
Nguyễn Đức Duy	Phòng đầu tư	0937 854 147	
Ung Bửu Lịch	Phòng tài chính	0903 839 795	
Lê Tuấn Phương	Giám đốc trung tâm quỹ đất	0941 514 940	
Nguyễn Đăng Quang	Trưởng phòng TN - MT	0918 872 323	
Trì Thanh Phương	Phòng dân tộc	0989 297 653	
Đặng Quốc Hùng	Phòng NN & PTNT	0933 543 473	
Nguyễn Văn Trường	Công ty Thuận Bình	0964 266 677	
Nguyễn Phong Danh	Công ty Thuận Bình	0332 876 556	
Nguyễn Thanh Truyền	Công ty Thuận Bình	0768 707 406	
Trần Minh	IFC	0904 166 288	

Minute of Meeting

Project	0575020 Phu Lac 2 Wind Farm
Subject	**Engagement Meeting with Forest Protection County of Tuy Phong District**
Date	12th November 2020
Location	The office of Forest Protection County of Tuy Phong district
Attendees	• Forest Protection County of Tuy Phong district • Thuan Binh Windpower JSC • ERM *(List of attendees attached with this minute of meeting)*

ERM opened the meeting with the purpose of this discussion, introduced the participants, and expressed its role in the creation of an Environmental and Social Impact Assessment (ESIA) following international guidelines as well as briefed through the provided questionnaire.

Thuan Binh Windpower JSC updated the Project development progress and extended its consideration on the management of environmental and social aspects of the Project.

The following documents were obtained:

1. Data provided by authorities based on ERM's questionnaire
2. Meeting attendance list

- Part of the transmission line going through the protection forest area which is under the management and protection of the Tuy Phong Protection Forest Management Board. This transmission line section include two poles, and these two poles are located within the area of the protection forest.
- The Tuy Phong Protection Forest Management Board has a contract with local people to grow casuarina (with the height of more than 20 meters) and acacia (with the height of around 6 - 7 meters) in the area since 2006 and pay them annually for looking after the trees. The forest was grown with the purpose of shielding sand and prevent the desertification. As such, no harvesting activities for the trees within this area.
- As confirmed with the Forest Protection County of Tuy Phong district who is the local based office of the Tuy Phong Protection Forest Management Board that, there are no either wild animals or lizards in the forest. About 6 – 7 years ago, there were muntjac but they no longer exist because people travel a lot in the area as well as the appearance of the Solar plant (Solarcom) just nearby the forest.

LIST OF PARTICIPANTS – AUTHORITY MEETINGS
DANH SÁCH THAM DỰ CUỘC HỌP
Phu Lac 2 Wind Farm Project – Dự án Điện gió Phú Lạc 2

Date Ngày	12/11/2020
Venue Địa điểm họp	Hạt kiểm lâm huyện Tuy Phong
Topics Nội dung họp	Tham vấn cộng đồng và khảo sát tình hình kinh tế xã hội

Name Họ tên	**Position/Job and Organization** Chức vụ/Công việc và Cơ quan công tác	**Phone number** Số điện thoại	**Email**
Đặng Duy Long	Quản lý bảo vệ rừng	0979 794 010	
Nguyễn Văn Trường	Công ty Thuận Bình	0964 266 677	
Nguyễn Phong Danh	Công ty Thuận Bình	0332 876 556	
Nguyễn Thanh Truyền	Công ty Thuận Bình	0768 707 406	
Trần Minh	IFC	0904 166 288	

Minute of Meeting

Project	0575020 Phu Lac 2 Wind Farm
Subject	**Engagement Meeting with authorities of Chi Cong commune**
Date	13th November 2020
Location	The office of Chi Cong commune People's committee
Attendees	• Chi Cong commune People's committee • Thuan Binh Windpower JSC • ERM *(List of attendees attached with this minute of meeting)*

ERM opened the meeting with the purpose of this discussion, introduced the participants, and expressed its role in the creation of an Environmental and Social Impact Assessment (ESIA) following international guidelines as well as briefed through the provided questionnaire.

Thuan Binh Windpower JSC updated the Project development progress and extended its consideration on the management of environmental and social aspects of the Project.

The following documents were obtained:

1. Data provided by authorities based on ERM's questionnaire
2. Meeting attendance list

General

- The people in Chi Cong commune live mainly near the sea.
- The commune is in the process of building a new countryside.

Livelihood

- The people of Lien Huong town come to cultivate in Chi Cong commune, the area adjacent to the Phong Phu solar power plant.
- The strength of the locality, including 70%, is gathering, processing fish and aquaculture (shrimp farming). Besides, salt making with area of 6.2 ha, but it does not provide much income. In recent years it has not been effective, so some people have switched to other industries.
- Fishing industry in the location has 459 boats, large and small, but according to the regulations, the district manages 77 ships with cruise supervision, 94 fishing boats with 15 meters wide or above.
- Besides, planting dragon fruit is also a key branch of the commune. About 5 years ago, dragon fruit cultivation was very popular. The price of dragon fruit here varies from time to time, for example: this month (November) the price is very high, there is not enough quantity for sale due to the off season. Dragon fruit with red flesh has a higher value than white flesh. Dragon fruit gardens need to have camps or non-permanent houses to look after and take care of garden.
- Besides, people also raise cattle (sheep) in the commune.
- In summary, 2 main occupations are dragon fruit and aquaculture, with households doing both jobs.

Comments

- If the pole foundation is recovered about 100 square meters, it will not affect much, as long as the local people do not plant tall perennial trees.
- It's potentially that there is a household that will plant dragon fruit in the area of the Project.

LIST OF PARTICIPANTS – AUTHORITY MEETINGS
DANH SÁCH THAM DỰ CUỘC HỌP
Phu Lac 2 Wind Farm Project – Dự án Điện gió Phú Lạc 2

Date Ngày	12/11/2020
Venue Địa điểm họp	Ủy ban nhân dân xã Chí Công
Topics Nội dung họp	Tham vấn cộng đồng và khảo sát tình hình kinh tế xã hội

Name Họ tên	**Position/Job and Organization** Chức vụ/Công việc và Cơ quan công tác	**Phone number** Số điện thoại	**Email**
Dương Công Nhựt	Phó chủ tịch xã	0918 783587	

Minute of Meeting

Project	0575020 Phu Lac 2 Wind Farm
Subject	**Engagement Meeting with authorities of Phu lac commune**
Date	13th November 2020
Location	The office of Phu Lac commune People's committee
Attendees	• Phu Lac commune People's committee • Thuan Binh Windpower JSC • ERM *(List of attendees attached with this minute of meeting)*

ERM opened the meeting with the purpose of this discussion, introduced the participants, and expressed its role in the creation of an Environmental and Social Impact Assessment (ESIA) following international guidelines as well as briefed through the provided questionnaire.

Thuan Binh Windpower JSC updated the Project development progress and extended its consideration on the management of environmental and social aspects of the Project.

The following documents were obtained:

1. Data provided by authorities based on ERM's questionnaire
2. Meeting attendance list

General

- There are a number of households with land of grandparents left in the project transmission line area.
- Sometimes people in Phu Lac commune also work as hired labour.
- Owners of the land here have clear certificates, land use rights, no disputes or problems. People in Lien Huong town who come to cultivate also have certificates, but they do not have red books.
- The wind power planning area has about 200 households of residential land in Phu Dien village.
- The government allocates land according to the average population and reclaimed:
    - Phu Dien village: 1,400 square meters per person
    - Lac Tri village: 700 square meters per person
    - Vinh Hanh village: 700 square meters per person
- The time of land allocation started from 1989 to 1992.
- A household is allocated the most land of 5,000 square meters, with an average of 3,000 square meters per household.
- The land in the project area is cropland.
- Tuy Phong purple onion is also a famous brand.
- If the project acquires land, they do not have land for production and no land to buy.
- There is no trade, small business.
- Farmers who cultivate rice have time off the crop, while growing other type of crops does not have time off so they do not work elsewhere.
- Middle-aged people (8x) in the locality have land, and young people (9x) do not have land, so they have to work as hired labour in other localities, often as hired labour in agriculture (preliminary onion processing and being paid by day), general worker, factory worker, many different occupations (young worker).
- They often work as hired labour at Nha Be Garment Company (Phu Lac commune, adjacent to the wind power plant), Vinh Hao water plant, Vinh Tan thermal power plant.
- The long-term plan of the local government is not to change careers, still work in agriculture.
- Nha Be Garment Company recruits garment workers. Many women participate here, about 300 people or more. But then, they stop due to low benefits, average income in a month is only 4.5-5 million, and some months are lower (3 million). Production situation in recent years has also gone up, orders are also stable.
- The road in the area is not in really good condition, not much concrete surface on the road.

Agriculture

- The main agricultural crops in the commune are onions, beans, hibiscus, apples (small quantity). In which, apple tree is counted as perennial tree. There is also mango tree.
- More than 100 hectares of land for stable production, onions are planted 2 to 3 crops / year
- The majority of income is from onions, beans, and cauliflower. This industry existed from the past, before the liberation, so it was stable. Onions and beans have been grown here for more than 20 years
- Every year, people will sow varieties to green onions and beans in April and May
- People in Phu Dien village focus mainly on agriculture, this sector contributes 70% to people's income.
- The area of Lac Tri village that borders Phu Dien village has no trees.
- There are 6 households in the 100-hectare plan growing many beans.
- There are many people in Lien Huong town who come to cultivate in Lac Tri village, the type of crop and time as in Phu Dien village (planting onions, beans, hibiscus and sowing in April or May).
- The price of the onion depends on the year, now it is 25,000 – 30,000 VND per kilogram which is the high price, the profit is about 10 million VND per 1000 square meter per crop, there are usually 2 crops per year. 1000 square meters get about 1 ton of onion.
- After planting onions, people will replace it and plant beans (3 months), there is time for the land to rest and to restore. In short, there are 3 main crops a year.
- Beans cost over 40,000 VND per kilogram, with little profit. 1000 m^2 get about 7 to 8 million VND, the price is not high compared to onion but more stable.
- Hibiscus are dried and then traders come to buy, the price is about 38,000 to 45,000 VND per kilogram, easy to make, low cost, 1 crop per year, lower profit, it planted with natural water, it does not need water so much so there is no need for an irrigation system.
- People do not get seeds back but buy new seeds. In April or May, they get seeds from Ho Chi Minh City, and in September and October they will get seeds from Phan Rang.
- They often use organic manure. Use pesticides depending on the season and weather. Only spray it many times in bad weather, extreme sunlight or heavy rain.
- They improve the soil quality by fertilizing the soil with manure. The climate is not in a good condition this year, affecting agriculture, and onions.
- Irrigation system: digging ponds, wells by themselves (depth is about 5 - 6 meters), sometimes people spend 500 - 1000 square meters to dig ponds. Households take initiative in irrigation water so that there is less flooding with good water management.

- People raising their cattle in a captive form, not roaming, drinking water from wells and ponds. There is no big farming facilities, not many household has a lot of capital to raise cows. Poor households in Lac Tri village have capital support from the state to raise cows,
- In Phu Dien village, there are 2 households receiving this support.
- In Phu Lac commune, there are about 2-3 households raising chickens in a household scale (from 100 to 200 children) and 5-6 households raising 20-30 chickens.
- Previously, Phu Lac 1 area did not have people from Phu Dien village, only people in Lien Huong town, they were not compensated due to unstable farming land. They only s received support for reclamation. However, their trees are compensated.
- If the land acquisition will affect the family cemetery, there is no problem. The project will need to discuss this with the owner.
- Recently, when implementing some projects such as ECO Seido (built in 2018, operating in 2019), there are no cases of conflict, in that project there are foreign experts, unskilled workers who are local people. Less than 20 people are foreigners, the number of immigrants is also small, mainly local workers.

Policy

- There is no agricultural support policy for people, people have their own capital.
- The commune has training and technical guidance.
- The government provides support for job change funding (5 million VND per household to buy tools to support agricultural production), the state has no land (policy for poor ethnic minorities is on program 2085).
- Project 1956 supports vocational training, learning to grow dragon fruit (planting techniques), primary sewing (for 3 months, learning by doing).
- 30 thousand VND a day is the support money for people going to school, tuition fees are paid by the government, this class has been from 2010 to now.
- There are many training courses (techniques of growing grapes, apples, dragon fruits, providing knowledge about avian influenza, breeding techniques for cows, goats and sheep) including a total of 9 classes, each class has 30 students and for all people. Every year, the commune has a training target, the state supports 50,000 VND / trainee.
- Before 2015, there was an English training class (according to project 1956).
- There are also land dependent households who are not compensated or have no support program
- The support here is only the supports from the state, no non-governmental organizations.

Environment

- Garbage collected to the factory.

Education

- 3 secondary school students in the whole commune drop out of school by 2020.
- Kindergarten and Primary school has received 100% graduate rate.

Culture

- Chăm people have a custom of cutting the skull of the dead into coins (9 pieces for female and 7 pieces for male) to worship, the rest of the body will be burned.
- Culture is maintained every year.
- Katê festival, most local people participate in Lac Tri village.

Comments

- They are worry that transporting materials in the construction phase may causes damage to roads and create dust. People will complain leading to conflicts, transport roads with low load capacity might not be repaired then big trucks can broke the electricity wires.
- The noise from wind turbine is very rare.
- If there is compensation, people in Phu Dien village should have appropriate support.
- People who have no land and work as hired labours will work for households with land, so they will lose their jobs when the land owner got affected by land acquisition. Households with land are compensated, but those who lose their jobs should also be considered for support.
- Right from the first stage of land clearance, the company did a very good job. They mobilized and supported the graves to move was also good. The director of Thuan Binh Company asked the people about the distance of transportation roads and the location of grave to avoid it during construction.

LIST OF PARTICIPANTS – AUTHORITY MEETINGS
DANH SÁCH THAM DỰ CUỘC HỌP
Phu Lac 2 Wind Farm Project – Dự án Điện gió Phú Lạc 2

Date Ngày	13/11/2020
Venue Địa điểm họp	Ủy ban nhân dân xã Phú Lạc
Topics Nội dung họp	Tham vấn cộng đồng và khảo sát tình hình kinh tế xã hội

Name Họ tên	**Position/Job and Organization** Chức vụ/Công việc và Cơ quan công tác	**Phone number** Số điện thoại	**Email**
Mai Đức Nghĩa	Phó chủ tịch xã	0918 991 175	
Lê Minh Duy	Cựu chiến binh	0356 850 331	
Đỗ Tấn Thông	Phó chủ tịch xã	0828 391 751	
Mai Thị Đắc Tín	Cán bộ văn hoá xã hội	0383 062 958	
Đặng Dũng	Chủ tịch MTTQ VN	0911 577 740	
Lâm Duy Trị	Cán bộ nông - lâm nghiệp	0943 360 299	
Nguyễn Văn Trường	Công ty Thuận Bình	0964 266 677	
Trần Minh	IFC	0904 166 288	

Minute of Meeting

Project	0575020 Phu Lac 2 Wind Farm
Subject	**Engagement Meeting with authorities of Lien Huong town**
Date	13th November 2020
Location	The office of Lien Huong town People's committee
Attendees	• Lien Huong town People's committee • Thuan Binh Windpower JSC • ERM

ERM opened the meeting with the purpose of this discussion, introduced the participants, and expressed its role in the creation of an Environmental and Social Impact Assessment (ESIA) following international guidelines as well as briefed through the provided questionnaire.

Thuan Binh Windpower JSC updated the Project development progress and extended its consideration on the management of environmental and social aspects of the Project.

The following documents were obtained:

1. Data provided by authorities based on ERM's questionnaire
2. Meeting attendance list

General

- Lien Huong town has 14 quarters and 36,000 people.
- Agriculture accounts for 40%; fishery accounts for 30%; trade and services make up 20%, and other professions account for 10% of the town's livelihood.
- The key industry is fisheries.

Agriculture

- People go to farm in other communes
- In the old days, working in agriculture, people originally lived in Lien Huong, reclaiming land in neighboring communes;
- Land for agricultural production: 447 ha, for rice cultivation.

Infrastructure

- The town has sea embankments, state capital, commercial center

Livelihood

- People can borrow money from banks for social policies and agricultural extension programs

Medical facilities

- 1 medical station
- 1 district medical center
- The medical team has 5 people (1 head, 1 deputy, 3 staff)
- To basically meet the medical examination and treatment needs
- There are private hospitals at home
- People go to big hospitals and big centers in Phan Rang and Phan Thiet

Vulnerable

- There are 103 poor households but this should be decreased to 41 households by the end of 2020.

Religion

- Main religion: Catholicism, Buddhism
- 1 church
- 5 pagodas

- 6 shrines

Ethnic Minorities

- There are 30 households with various ethnic minority group
- 4 households (Chăm, Bà Ni, Bà La môn, Hoa)

Education

10 schools:

- 2 kindergartens
- 5 primary school
- 2 secondary school
- 1 high school (Being the center of the district, other communes go to the town to learn)

Perception:

- The project may affect the land, and it may reduce income
- Need to support people with suitable compensation
- To give priority in recruiting local workers

LIST OF PARTICIPANTS – AUTHORITY MEETINGS
DANH SÁCH THAM DỰ CUỘC HỌP
Phu Lac 2 Wind Farm Project – Dự án Điện gió Phú Lạc 2

Date Ngày	13/11/2020
Venue Địa điểm họp	Ủy ban nhân dân thị trấn Lăng Hương
Topics Nội dung họp	Tham vấn cộng đồng và khảo sát tình hình kinh tế xã hội

Name Họ tên	**Position/Job and Organization** Chức vụ/Công việc và Cơ quan công tác	**Phone number** Số điện thoại	**Email**
Dương Văn Đức	Cán bộ phòng thống kê	0919 958 150	
Nguyễn Thị Thu Lan	Trưởng khu phố 8	0932 203 332	
Nguyễn Văn Minh	Trưởng khu phố 6	0336 380 721	
Hồ Ngọc Pháp	Trưởng khu phố 3	0397 841 399	
Trần Văn Mến	Trưởng khu phố 5	0378 744 462	
Nguyễn Thắt Hùng	Trưởng khu phố 4	0933 486 560	
Nguyễn Văn Trường	Công ty Thuận Bình	0964 266 677	

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