

EL-WIND MUI DINH LTD.,

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Environmental Impact Assessment

Project:

37,6 MW MUI DINH WIND FARM

**Located: Phuoc Dinh, Phuoc Ninh and Phuoc Nam commune in Thuan Nam District
and Phuoc Hai Commune in Ninh Phuoc District, Ninh Thuan Province**



Ninh Thuan, March 2015

Environmental and Social Impact Assessment

37.6 MW Mui Dinh Wind Farm and Associated Infrastructures Project

ACRONYMS AND ABBREVIATIONS

ORGANIZATION, GOVERNMENT INSTITUTION, PRIVATE COMPANY, AND OFFICIAL

CFFC	=	Commune Fatherland Front Committee
CPC	=	Commune People's Committee
DCARC	=	District Compensation, Assistance, and Resettlement Committee
DCDD	=	Dragon Capital Clean Development Ltd.
DONRE	=	Department of Natural Resources and Environment
DPC	=	District People's Committee
ELMD	=	Elwind Mui Dinh LLC
EMA	=	External Monitoring Agent
EVN	=	Electricity of Vietnam
EVN SPC	=	EVN Southern Power Corporation
GAT	=	Grievance Action Team
GPP	=	Grievance Point Person
HSEO	=	Health, Safety, and Environment Officer
IEC	=	International Electrotechnical Commission
IFC	=	International Finance Corporation
ILO	=	International Labor Organization
IUCN	=	International Union for Conservation of Nature
MOH	=	Ministry of Health
MOIT	=	Ministry of Industry and Trade
MOLISA	=	Ministry of Labor, Invalid and Social Affairs
MONRE	=	Ministry of Environment and Natural Resources
NPT	=	National Power Transmission Corporation
OLURR	=	Office of Land Use Right Registration
PCERWASS	=	Provincial Center for Rural Water Supply and Sanitation
PECC3	=	Power Engineering Consulting Joint Stock Company
PO	=	Project Owner
PPC	=	Province People's Committee
PSE	=	Project Site Engineer
SHET	=	Consulting Center for O.S.H and Environmental Technology
VAAC	=	Vietnam Administration for HIV/AIDS Control
WB	=	World Bank

DOCUMENT AND SURVEY

B&C	=	Bid & Contract
Con/DecESMP	=	Construction/Decommissioning ESMP
DMS	=	Detailed Measurement Survey
EIA	=	Environmental Impact Assessment
ESMP	=	Environmental and Social Management Plan
ESIA	=	Environmental and Social Impact Assessment
FS	=	Feasibility Study
IOL	=	Inventory of Losses
RAP	=	Resettlement and Assistance Plan
LURC	=	Land Use Right Certificate
MSDS	=	Material Safety Data Sheets
PIB	=	Project Information Booklet
PS	=	Performance Standards
RCS	=	Replacement Cost Survey
SES	=	Socioeconomic Survey

OTHERS

AC	=	Affected Community
AP	=	Affected Person
BOD	=	Biological oxygen demand
CaCO ₃	=	Calcium carbonate
CH	=	Current height
Cl ⁻	=	Chlorine ion
COD	=	Chemical oxygen demand
CON/DECOM	=	Construction/Decommissioning
DD	=	Project Substation
DC	=	Ninh Phuoc Substation
DP	=	Displaced Person
EHS	=	Environment, Health, and Safety
EGH	=	Expected Maximum Height
EMF	=	Electric and magnetic field
FOG	=	Fat, oil, and grease
G1-G8	=	Section points
GDP	=	Gross domestic product
GRM	=	Grievance Redress Mechanism
HH	=	Households
HIV/AIDS	=	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IBA	=	Important Bird Area
IBAT	=	Integrated Biodiversity Assessment Tool
N	=	Nitrogen
NPP	=	Nuclear power plant
N/S/W/E	=	North/South/West/East
OP	=	Operation
P	=	Phosphorus
PM	=	Particulate Matter
T/L	=	Transmission Line
Total N/P	=	Total Nitrogen/Phosphorus
TSS	=	Total suspended solids
ROW	=	Right-of-way
SF ₆	=	Sulfur hexafluoride
STD	=	Sexually Transmitted Disease
ULAB	=	Used Lead-Acid Battery
UXO	=	Unexploded Ordnance
VND	=	Vietnam Dong (Vietnam Currency)
WTG	=	Wind turbine generator

WEIGHTS AND MEASURES

°C	=	degrees Celsius
cct-km	=	circuit-kilometer
ha	=	hectare
g/cm ³	=	gram per cubic centimeter
kg	=	kilogram
km	=	kilometer
km ²	=	square kilometer
kV	=	kilovolt
kVA	=	kilovolt-ampere
kV/m	=	kilovolt per meter
kW	=	kilowatt
L	=	liter
m	=	meter
m ²	=	square meter
m ³	=	cubic meter
m/s	=	meter per second
mg/L	=	milligram per liter
mL	=	milliliter
MV	=	medium voltage
MVA	=	megavolt-ampere
MW	=	megawatt
MPN	=	most probable number
pH	=	acidity or basicity
rpm	=	revolutions per minute
TI	=	turbulence intensity

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EXECUTIVE SUMMARY

1. The Project will have a 37.6 MW installed capacity from sixteen wind turbine generators (WTG) and a Project Substation (22/110 kV 40 MVA Step-up) to be located in Thuan Nam District, Ninh Thuan Province. Associated infrastructures to be built are the 12.88 cct-km overhead transmission lines (T/L) and 48 T/L Towers to connect the Project to the Ninh Phuoc Substation (22/110 kV 40 MVA).

2. The preparation of this Environmental and Social Impact Assessment (ESIA) is guided by the requirements of the World Bank Safeguard Policy on Environmental Assessment (OP 4.01). The information in the ESIA is based on documents provided by Elwind Mui Dinh LLC (Project Owner), Project Consultants, from field inspections and information gathered during community interviews, and from secondary data from government agencies and related reports. The assessment was carried out with the following objectives:

- a. Establish current environmental and social conditions;
- b. Identify key environmental and social issues;
- c. Assess magnitude of impacts and provide mitigating measures;
- d. Integrate the issues in the Project planning and design stage; and
- e. Develop an Environmental and Social Management Plan (ESMP) for the project

3. Based on the analysis conducted in this ESIA, the Project presents negative environmental and social impacts but with potential immediate and long-term positive impacts. Most of the adverse negative impacts are identified to be local, minimal, reversible, and can be generally reduced to acceptable levels through practical mitigation measures associated with good engineering practices.

4. The impacts primarily associated with the siting of the T/L ROW and T/L Towers will result to loss and damage to properties that are permanent in nature. At the time of writing the report, it cannot be fully concluded yet whether the effect on properties of the affected persons are marginal or severe. The Resettlement and Assistance Plan (RAP) still has to be updated and finalized for this to be known. Consultations with the affected persons must be conducted, aside from securing approval of the Vietnam Fatherland and Front Committees of the communes. Implementation and success of the RAP will ensure that no affected persons will be undermined. Along the T/L ROW, most of the areas already have high- and medium-voltage T/L (in addition to other communication lines). Thus an additional T/L will be off low to no impact to existing urban structures or visually to nearby inhabitants.

5. Adverse impacts were identified to be due mainly from the construction works. During construction, expected that there will be noise and vibration; fugitive dusts and other emissions; waste generation (solid and hazardous, wastewater), chances of soil erosion; and minimal EMF emission among others. However, these are all localized and reversible. Appropriate environmental, and health and safety (occupational & community) mitigation measures will be put in place.

6. During the operation phase of any wind farm, impact on habitat alteration, and species mortality or injury and disturbance must be evaluated; specifically on avian collision. This impact is low due to the fact that at the Project Site, the following holds true:

- i. Dry and barren land
- ii. Low to none bird sighting
- iii. No Protected Area (< 50km radius)
- iv. No Alliance for Zero Extinction Site and Key Biodiversity Area (< 10km radius)
- v. No Key Biodiversity Area (< 25km radius)
- vi. No Important Bird Area (< 140km radius)

7. Despite of this, regular monitoring on species injury or mortality (i.e. bird, bats) within the Project area of influence must be performed; including open-water containers or ponds that can attract animals to forage or insects to breed. Other parameters to be monitored are waste discharge, noise, or complaints of nearby residents, among many others.

8. Other impacts associated with the Project that needs to be considered in design, planning, construction and operation are:

- i. Cutting/trimming trees, and impact on agricultural land and structures which requires proper consultation with the affected persons and compensation in accordance with government laws
- ii. Hazards to workers and the community during the construction and operation

9. One of the positive impacts of the project is the potential for employment during the construction and operation phase. Although during construction hiring will entirely be dependent with the Contractor, the Project Owner will suggest that local labor be hired; with equal preference for man and woman, but not allowing child labor at any time. Long-term effect of the Project will be to assist the province in increasing its energy capacity to power economic zones; which will eventually provide jobs.

10. To ensure that during Project implementation the impacts are minimized or mitigated, an ESMP has been prepared and will be implemented in all phases of the Project. The ESMP identifies the mitigation measures as well as the institutional arrangements for its implementation. An International Safeguard Specialist (environment and social) who is knowledgeable on ESIA can be hired by the Project Owner (if no sufficient in-house capacity) to assist the Health, Safety, and Environment Officer (HSEO) in ensuring the effective ESMP implementation.

11. Throughout the construction period, the HSEO, in coordination with the Contractors/s and with assistance from the International Safeguard Specialist, will prepare Monthly Monitoring Reports on the implementation of the ESMP (Mitigation and Monitoring). The reports will be submitted by the Project Owner to the IFC/WB or other financial institutions.

12. This Project is recommended to be supported by IFC/WB or other financial institutions, subject to the commitments set forth in the ESMP and allocation of appropriate technical, financial, and human resources by the Project Owner to ensure the ESMP are effectively implemented.

1.0 INTRODUCTION

1.1 BRIEF PROJECT BACKGROUND

13. The Ven-Wind New Energy GmbH, a German company, has business interests worldwide on wind energy; solar energy; development of centers of expertise on energy; provision of decentralized power; and biotechnology. In Vietnam, it established the project company Elwind Mui Dinh LLC (Project Owner) as a special purpose vehicle to install electricity systems, and to produce and trade electricity. It was granted a 50-year Investment Certificate (*Certificate No. 431043000194 of 22 October 2012*) by the People's Committee of Ninh Thuan Province for the Mui Dinh Wind Farm Project (Project).

14. The Project will have a 37.6 MW installed capacity from 16 wind turbine generators (WTG) in Thuan Nam District, Ninh Thuan Province. It also includes development of an 22/110 kV 40 MVA Step-up Substation (Project Substation), 12.88 cct-km overhead transmission lines (T/L), and 48 T/L Towers to connect to the 22/110 kV 40 MVA Ninh Phuoc Substation (Ninh Phuoc Substation).

15. Pursuant to the *Law No. 52/2005/QH11 of 29 November 2005 by the National Assembly on environment protection*, the main governing law on environmental management in Vietnam, an environmental impact assessment (EIA) was prepared for the Project¹. This was submitted and finally approved by the Department of Natural Resources and Environment (DONRE) of Ninh Thuan Province.

1.2 PROJECT RATIONALE AND JUSTIFICATION

16. The Project development is in accordance with the national energy strategy of the Socialist Republic of Vietnam. The energy strategy encourages diversifying resources for electricity generation and prioritizes use of renewable energy. In the *Decision No. 37/2011/QD-TTg of 29 June 2011 by the Prime Minister*, the development of wind power projects in Vietnam is supported². This was cemented in the country's direction for development when the Prime Minister approved the National Power Development Master Plan for the Period 2011 – 2020 with a Vision to 2030 through *Decision No.1208/QD-TTg of 21 July 2011*. In this decision, wind energy development is prioritized along with other renewable sources of energy such as solar and biomass energy. The country aims to bring its total wind power capacity from the current negligible level to around 1000 MW by 2020, and 6200 MW by 2030³.

17. The *Master Plan on Socio-economic Development of Ninh Thuan Province through 2020* was approved by the Prime Minister through *Decision No. 1222/QD-TTg of 22 July 2011*. In the plan, the energy sector is one of the six industries prioritized for development. A group of energy industries consisting of nuclear and renewable energy will be developed in

¹ *Law No. 52/2005/QH11 of 29 November 2005 by the National Assembly on environment protection*

² *Decision No. 37/2011/QD-TTg of 29 June 2011 on the mechanism of supporting the development of wind power projects in Vietnam.*

³ *Decision No. 1208/QD-TTg of 21 July 2011 on the approval of the National Master Plan for Power Development for the 2011-2020 period with the vision to 2030.*

the province as the key to the vision of becoming the national clean energy center. This cluster of energy industries will make up 11 % of the province's gross domestic product (GDP) and satisfy 5-8 % of the country's energy needs in 2020. The province will boost the development of wind farms in 14 high wind potential zones (total output of 1,600 MW) and solar power (output of 282 MW)⁴. Further, the Ministry of Industry and Trade approved the *Ninh Thuan's Wind Power Development Plan in the period 2011 – 2020, outlook to 2030*, through *Decision No. 2574/QD-BCT of 23 April 2013*. The Project Site (Phuoc Dinh Commune, Thuan Nam District) was among the many identified potential areas in the province for wind power development⁵.

1.3 THE ESIA REPORT

18. The Project Owner plans to apply for financing. Therefore, it has initiated this Environmental and Social Impact Assessment (ESIA) Report to be prepared according to the International Finance Corporation (IFC) and World Bank Group (WB) requirements. The IFC, a member of the WB, requires an environmental assessment of a proposed project for financing to help ensure that it is environmentally and socially sound and sustainable. This is in accordance with the WB Safeguard Policy on Environmental Assessment (OP 4.01)⁶.

19. **Project Categorization.** The Project has been classified as Category B according to the IFC/WB environmental screening guidelines. It has potential limited adverse environment and social impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures⁷.

20. **Purpose.** The purpose of the ESIA is to identify potential environmental and social impacts of the Project in its lifetime - from pre-construction up to the decommissioning phase. These potential impacts are additionally caused by the Project based on the assessed baseline conditions. The ESIA also aims at providing mitigation measures to minimize, offset or eliminate potential adverse impacts and propose a management and monitoring plan.

21. **Methodology.** The ESIA was carried in the following stages:

- i. Review of applicable national and international policy, legal, and administrative framework; standards, and industry best practices
- ii. Review of project-related documents and secondary information
- iii. Collection and assessment of baseline environmental and socio-economic conditions within the Project area through site visits, field observations, environmental sampling, and secondary data gathering

⁴ *Decision No. 1222/QD-TTg of 22 July 2011 on the approval of the Master Plan on Socioeconomic Development of Ninh Thuan Province through 2020.*

⁵ *Decision No. 2574/QD-BTC of 23 April 2013 on the approval for Ninh Thuan's Wind Power Development Plan in the period of 2011-2020, outlook to 2030.*

⁶ The World Bank. Environmental Assessment.

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/0,,contentMDK:20274458~menuPK:549248~pagePK:210058~piPK:210062~theSitePK:244381,00.html>

⁷ International Finance Corporation. Procedure for Environmental and Social Review of Projects.

<http://www.ifc.org/wps/wcm/connect/8b64370048855267ab74fb6a6515bb18/ESRP.pdf?MOD=AJPERES&CACHEID=8b64370048855267ab74fb6a6515bb18>

- iv. Stakeholder engagement with the Affected Communities (AC)
- v. Assessment of the Project's likely positive and negative impacts and identification of mitigation measures and any residual negative impacts that cannot be mitigated
- vi. Development of an Environmental and Social Management Plan (ESMP) that consists of a set of measures for mitigation to eliminate, offset, or reduce adverse impacts to acceptable levels; monitoring; institutional arrangements and responsibilities; implementation schedule; and cost estimates
- vii. Development of a grievance redress mechanism, and future Project disclosure and public consultation activities
- viii. Development of an emergency preparedness and response system for accidental and emergency situations associated with the Project in a manner appropriate to prevent and mitigate any harm to people and/or the environment
- ix. Assessment of the capacity of the organizational structure that defines roles, responsibilities, and authority to implement the ESMP; and development of a capacity building program to cover any identified gaps in the Project Owner

22. **Structure.** The ESIA report includes the following sections:

- Executive Summary
- Introduction
- Policy, Legal, and Administrative Framework
- Project Description
- Baseline Data
- Environmental and Social Impacts
- Stakeholder Engagement
- Compensation Framework
- Resettlement Assistance and Livelihood
- Environmental and Social Management Plan
- Emergency Preparedness and Response
- Organization Capacity and Competency
- Conclusion and Recommendation

2.0 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 WORLD BANK AND INTERNATIONAL FINANCE CORPORATION

11. The Project is assessed in accordance with the IFC/WB policies, performance standards and related guidance notes, manuals, and guidelines on environmental, social, health and safety issues. The documents that guided the ESIA study are listed in the following sections.

2.1.1 World Bank/IFC Policy

12. The WB Safeguard Policy on Environmental Assessment (OP 4.01) is the umbrella policy for environmental and social management used to examine the potential environmental and social risks and benefits of projects associated with the WB investment lending operations. The IFC being the private finance arm of the WB has adopted the Environmental and Social Safeguard Policies and its Disclosure Policy in 1998. In 2006, it has applied the Policy and Performance Standards on Social and Environmental Sustainability to all investment projects to minimize their impact on the environment and on affected communities (footnote 6).

13. The IFC Sustainability Framework articulates its strategic commitment to sustainable development, and is an integral part of its approach to risk management. It promotes sound environmental and social practices, encourages transparency and accountability, and contributes to positive development impacts. Under the Sustainability Framework are the IFC Policy and IFC Performance Standards (PS) on Environmental and Social Sustainability, and IFC Access to Information Policy. The IFC Policy on Environmental and Social Sustainability describes its commitments, roles, and responsibilities related to environmental and social sustainability⁸.

2.1.2 IFC Performance Standards

14. The IFC Performance Standards on Environmental and Social Sustainability (2012) are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. In the case of its direct investments, IFC requires its clients to apply the PS to manage environmental and social risks and impacts so that development opportunities are enhanced. There are eight PS and together these establish the standards that the client must meet throughout the life of the project⁹. Due

⁸ International Finance Corporation. IFC's Sustainability Framework.

http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Sustainability+Framework/

⁹ International Finance Corporation. 2012. Performance Standards on Environmental and Social Sustainability.

http://www.ifc.org/wps/wcm/connect/115482804a0255db96fbffd1a5d13d27/PS_English_2012_Full-Documents.pdf?MOD=AJPERES

diligence will indicate the project impacts that must be managed in a manner consistent with the applicable standards and underlying objectives. The eight PS are listed as follows:

- PS 1: Assessment and Management of Environmental and Social Risks and Impacts
- PS 2: Labor and working conditions
- PS 3: Resource Efficiency and Pollution Prevention
- PS 4: Community Health, Safety and Security
- PS 5: Land Acquisition and Involuntary Resettlement
- PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- PS 7: Indigenous Peoples
- PS 8: Cultural Heritage

15. In addition to meeting the requirements under the IFC PS, clients must comply with applicable national laws, including those laws implementing host country obligations under international law.

16. **Guidance Notes.** A set of eight Guidance Notes corresponding to each PS offers guidance on the requirements contained in the PS. It also includes reference materials and good sustainability practices to help clients improve project performance¹⁰. The PS and related Guidance Notes are followed in the ESIA Report. The overall content of the ESIA Report is formulated in accordance with the Guidance Note on PS 1. Guidance Notes for PS 2 to PS 8 are addressed when applicable. The PS 7 (Indigenous Peoples) is not applicable to the Project.

17. **Good Practice Manuals.** These manuals are used to prepare public consultation and social assessment of the ESIA.

- IFC. 1998. Doing Better Business through Effective Public Consultation and Disclosure: A Good Practice Manual
- IFC. 2003. Good Practice Note: Addressing the Social Dimensions of Private Sector Projects
- IFC. 2007. Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets.

2.1.3 IFC Environmental, Health, and Safety Guidelines

18. The WB Environmental, Health and Safety Guidelines (EHS Guidelines) are technical reference documents with general and industry-specific examples of good international industry practice. The IFC uses the EHS Guidelines as a technical source of information during project appraisal. These contain the performance levels and measures that are normally acceptable to IFC and that are generally considered to be achievable in new facilities at reasonable costs by existing technology. These are comprised of the General and Industry Sector EHS Guidelines.

¹⁰ International Finance Corporation. Performance Standards and Guidance Notes – 2012 Edition. 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/

19. The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors. These are used together with relevant Industry Sector EHS Guidelines. The Industry Sector EHS Guidelines consist of industry-specific impacts and management, performance indicators and monitoring, and a general description of industry activities. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent¹¹. For this Project, the following are the applicable industry-specific EHS Guidelines which are followed in this ESIA Report, together with the General EHS Guidelines:

- Industry Sector: Power - Wind Energy
- Industry Sector: Power - Electric Power Transmission and Distribution

2.2 SOCIALIST REPUBLIC OF VIETNAM

20. Legislation and supporting instruments on environment, resettlement, electricity, and other related regulations that the Project will have to comply with are presented in this section. Also presented are legal documents and approvals required for the project that have been issued by the national and local governments. These documents are issued in Vietnamese and only the outlines to the documents are provided here.

2.2.1 Environment

21. The Project has to comply with the environmental legal framework of Vietnam which is outlined in this section. The main components of the framework, if not, the more applicable ones are shown here.

22. Laws

- Law No. 52/2005/QH11 of 29 November 2005 by the National Assembly on environment protection
- Law No. 17/2012/QH13 of 21 June 2012 by the National Assembly on water resources
- Law No. 20/2008/QH12 of 13 November 2008 by the National Assembly on biodiversity
- Law No. 68/2006/QH11 of 29 June 2006 by the National Assembly on standards and technical regulations
- Law No. 29/2004/QH11 of 03 December 2004 by the National Assembly on forest protection and development

23. Others

- Circular No. 12/2011/TT-BTNMT of 14 April 2011 by the Ministry of Natural Resources and Environment stipulating hazardous waste management
- National Technical Regulations on air and noise quality
 - QCVN 05: 2009/BTNMT on ambient air quality
 - QCVN 06: 2009/BTNMT on hazardous substance in ambient air

¹¹ International Finance Corporation. Environmental Health and Safety Guidelines.
http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Sustainability+Framework/Environmental,+Health,+and+Safety+Guidelines/

- QCVN 26: 2010/BTNMT on noise
- QCVN 27: 2010/BTNMT on vibration
- National Technical Regulations on water quality
 - QCVN 01: 2009/BYT on drinking water quality
 - QCVN 02: 2009/BYT on domestic water quality
 - QCVN 08: 2008/BTNMT on surface water quality
 - QCVN 09: 2008/BTNMT on underground water quality
 - QCVN 14: 2008/BTNMT on domestic wastewater
 - QCVN 40: 2011/BTNMT on industrial wastewater
- National Technical Regulations on soil quality
 - QCVN 43: 2012/BTNMT on sediment quality
 - QCVN 03: 2008/BTNMT on allowable limits of heavy metals in soils
 - QCVN 15: 2008/BTNMT on pesticide residues in the soil
- National Technical Regulations on solid and hazardous waste
 - QCVN 07: 2009/BTNMT on hazardous waste thresholds

2.2.2 Electricity

24. Outlined in this section is the electricity legal framework in Vietnam which the Project has to comply with. The framework is comprised of laws, decrees, circulars, decisions, guidance and correspondence, and national technical codes and regulations.

25. Laws

- Law No. 28/2004/QH11 of 03 December 2004 by the National Assembly on electricity (Electricity Law)
- Law No. 24/2012/QH13 of 20 November 2012 by the National Assembly amending and supplementing a number of articles of Electricity Law

26. Decrees

- Decree No. 14/2014/ND-CP of 26 February 2014 by the Government stipulating in detail the implementation of the Electricity Law regarding electrical safety
- Decree No. 137/2013/ND-CP of 21 October 2013 by the Government detailing the implementation of some articles of Electricity Law and the Law No. 24/2012/QH13 of 20 November 2012 by the National Assembly amending and supplementing a number of articles of Electricity Law

2.2.3 Compensation, Resettlement and Rehabilitation

27. The Project has to comply with the compensation, resettlement, and rehabilitation legal framework of Vietnam which. Specific decisions by the People's Committee of Ninh Thuan are included.

28. Laws

- Law No. 45/2013/QH13 of 29 November 2013 by the National Assembly on land
- Law No.02/2011/QH13 of 11 November 2011 by the National Assembly on complaints

- Law No.03/2011/QH13 of 11 November 2011 by the National Assembly on denunciations
29. **Decrees**
- Decree No. 47/2014/ND-CP of 15 May 2014 by the Government on regulations on compensation, support, and resettlement upon land expropriation by the State
 - Decree No. 43/2014/ND-CP of 15 May 2014 by the Government on detailing a number of articles of the Law No. 45/2013/QH13 of 29 November 2013 by the National Assembly on land
30. **Decisions**
- Decision No. 88/2013/QD-UBND of 27 December 2013 by the People's Committee of Ninh Thuan on issuing regulations on housing, buildings and structures in the province
 - Decision No.92/2013/QD-UBND of 23 December 2013 by the People's Committee of Ninh Thuan on detailing land price for year 2014 in the province
 - Decision No. 36/2013/QD-UBND of 05 July 2013 of the People's Committee of Ninh Thuan on issuing regulations to coordinate implementation of compensation, support and resettlement when the State recovers land in the province
 - Decision No. 38/2012/QD-UBND of 09 August 2012 of the People's Committee of Ninh Thuan on amending and supplementing some articles of the regulations in Decision No. 2380/2010/QD-UBND (below)
 - Decision No. 2380/2010/QD-UBND of 21 December 2010 of the People's Committee of Ninh Thuan on the board of regulations on compensation, support and resettlement when State acquires land for implementation of investment project in the province

2.2.4 Others

31. Other legislations applicable to the Project are the following:
- Law No. 27/2001/QH10 of 29 June 2001 by the National Assembly on fire prevention and fighting
 - Law No. 40/2013/QH13 of 22 November 2013 by the National Assembly on amending and adding a number of articles of the Law No. 27/2001/QH10 of 29 June 2001 on fire prevention and fighting
 - Decision No. 3733/2002/QD-BYT of 10 October 2002 by the Ministry of Health promulgating 21 labor hygiene standards, 5 principles and 7 labor hygiene measurements
 - Law No. 50/2014/QH13 of 18 June 2014 by the National Assembly on construction
 - Circular No. 22/2010/TT-BXD of 03 December 2010 by the Ministry of Construction on labor safety in work construction
 - Law No. 10/2012/QH13 of 18 June 2012 by the National Assembly on labor code
 - Law No. 64/2006/QH11 of 29 June 2006 by the National Assembly on HIV/AIDS prevention and control
 - Law No. 21-LCT/HDNN8 of 30 June 1989 by the National Assembly on people's health

- Law No. 28/2001/QH10 of 29 June 2001 by the National Assembly on cultural heritage (Law on Cultural Heritage)
- Law No. 32/2009/QH12 of 18 June 2009 by the National Assembly amending and supplementing a number of articles of the Law on Cultural Heritage
- Law No. 73/2006/Q11 of 29 December 2006 by the National Assembly on gender equality
- Circular No. 07/2010/TT-BGTVT of 11 February 2010 by the Ministry of transport on defining load and limit size of roads; circulation of overloaded, oversized, and tracked vehicles on road; transportation of extra-load and super-length cargoes; and cargo loading limits of road vehicles upon participation in road transport

2.2.5 Legal Documents and Approvals Required for the Project

32. Several documents and approvals are required of the Project in terms of investment, land, siting, and environmental commitment among others from various government offices (Table 1). These are integral for the Project in establishing its commitment in the development of electricity industry, economic development, and protection of the environment and the community.

Table 1. Project Documents and Approvals

No.	Description
01	Document No. 4836/UBND-KTN of 06 October 2014 by the People's Committee of Ninh Thuan Province on the connection between the 110 kV T/L of Mui Dinh Wind Power Plant and the 22/110 kV 40 MVA Ninh Phuoc Substation
02	Document No. 25/BXD-QHKT of 14 August 2014 by the Ministry of Construction on the Project not subject to a detailed construction plan (1/500)
03	Document No. 259/UBND of 24 November 2014 by the People's Committee of Phuoc Hai Commune on community feedback on the environmental impact assessment of the project: "Wind Farm Mui Dinh"
04	Document No. 02/UBMTTQ of 24 November 2014 by the Vietnam Fatherland Front Committee of Phuoc Hai Commune on community feedback on the environmental impact assessment of the project: "Wind Farm Mui Dinh"
05	Document No. 23/UBND-DC of 02 April 2014 by the People's Committee of Phuoc Dinh Commune on community feedback on the environmental impact assessment of the project: "Wind Farm Mui Dinh"
06	Document No. 02/MTTQ of 02 April 2014 by the Vietnam Fatherland Front Committee of Phuoc Dinh Commune on community feedback on the environmental impact assessment of the project: "Wind Farm Mui Dinh"
07	Document No. 19/UBND-DC of 02 April 2014 by the People's Committee of Phuoc Nam Commune on community feedback on the environmental impact assessment of the project: "Wind Farm Mui Dinh"
08	Document No. 01/MTPN of 02 April 2014 by the Vietnam Fatherland Front Committee of Phuoc Nam Commune on community feedback on the environmental impact assessment of the project: "Wind Farm Mui Dinh"
09	Document No. 14/UBND-DC of 02 April 2014 by the People's Committee of Phuoc Ninh Commune on community feedback on the environmental impact assessment of the project: "Wind Farm Mui Dinh"
10	Document No. 01/MTPN of 02 April 2014 by the Vietnam Fatherland Front Committee of

	Phuoc Ninh Commune on community feedback on the environmental impact assessment of the project: "Wind Farm Mui Dinh"
11	Amendment of 26 August 2013 to the Investment Certificate No. 431043000194 of 22 October 2012 by the People's Committee of Ninh Thuan Province for Ven-Wind New Energy GmbH in registering the enterprise El Wind Mui Dinh Ltd. on Article 2 on the number of wind turbines, design capacity, and the total land area for the Project
12	Decision No. 7139/QD-BCT of 23 November 2012
13	Investment Certificate No. 431043000194 of 22 October 2012 by the People's Committee of Ninh Thuan Province for Ven-Wind New Energy GmbH in registering the enterprise El Wind Mui Dinh Ltd., the project Mui Dinh Wind Power Plant, and the responsibilities of the investor

2.2.6 Administrative Framework

33. **Department of Environment and Natural Resources (DONRE).** The DONRE represents the ministry at the provincial and district levels, and works through the People's Committees at provincial level. It evaluates and approves the EIA Report of a project as a prerequisite before commencement of construction. A quarterly report on Environmental Performance must be submitted to DONRE by the Project Owner for compliance with the approved Environmental Management and Monitoring Plans in the EIA Report.

34. **National Power Transmission Corporation (NPT).** The NPT is responsible for operation of the transmission network. An energy producer must have a connection Agreement with the NPT in order to connect to the national grid.

35. **Electricity of Vietnam (EVN).** The EVN is a state-owned utility engaged in the generation, transmission and distribution of electricity for the whole of Vietnam. It is responsible for electricity supply to support economic development, and to provide power to meet the needs of the people. It also has the key responsibility of ensuring investments in power generation and network expansion to meet power demand in the economy.

36. **EVN Southern Power Corporation (EVN SPC).** The EVN SPC is a regional power corporation in charge of operating the distribution systems in the South of Vietnam (not including Ho Chi Minh City which is under the EVN-HCMCPC). It operates the 22/110 kV 40MVA Ninh Phuoc Substation in Ninh Thuan Province, where the Project will be connected.

37. **Vietnam Administration for HIV/AIDS Control (VAAC).** The VAAC, under the Ministry of Health, coordinates and implements national HIV programmes and activities.

38. **People's Committee of Ninh Thuan Province.** The People's Committee is the executive agency of the Provincial People's Council and the State administrative agency at local level. It is responsible for executing and carrying out State management at local level in accordance with the Constitution, law and documents of State agencies at higher levels and resolutions of the Provincial People's Council. It is responsible for screening and approving any investment project within its territory; ensuring that the project will contribute to the development of the province and its people; applicable national and local laws are followed; and stipulating provisions as needed.

39. **People's Committee of Phuoc Dinh, Phuoc Nam, Phuoc Ninh, and Phuoc Hai communes.** The People's Committee of the communes within a project's area of influence is responsible for ensuring that an investment project will abide with the applicable administrative and regulatory framework locally and nationally, and ensuring that the welfare

of its people and environment are protected. The approval of the People's Committee of each of the communes is required for the Project to proceed.

40. **Vietnam Fatherland Front Committee of Phuoc Dinh, Phuoc Nam, Phuoc Ninh, and Phuoc Hai communes.** The Vietnam Fatherland Committee of the communes is a political platform for its people for: expressing their will and aspirations; exercising their rights; consultation, coordination and unity in action; making contribution to safeguard independence, sovereignty and territorial integrity; supporting modernization and industrialization; and promoting a prosperous and civilized society. The approval of the committees in all affected communes is required for the Project to proceed.

41. **District Compensation, Assistance and Resettlement Committee (DCARC).** The DCARC will be implementing the Resettlement and Assistance Plan (RAP) of the Project in terms of payment for compensation, assistance and resettlement of the displaced persons¹², in coordination with the Project owner. It will also receive and process complaints related to the RAP.

2.3 INTERNATIONAL CONVENTIONS AND PROTOCOLS

42. The Socialist Republic of Vietnam is a party to the following conventions:
- UNESCO World Heritage Convention
 - Ramsar Convention on Wetlands
 - Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
 - Convention on International Trade in Endangered Species of Wild Fauna and Flora
 - Convention on Biological Diversity
 - ILO Conventions
 - Cartagena Protocol on Biosafety
 - Kyoto Protocol

¹² Displaced Persons (DPs) in a project are could be: (i) persons with legal rights to land lost in its entirety or in part; (ii) persons who lost the land they occupy in its entirety or in part who have no formal legal rights to such land, but who have claims to such land that are recognized or recognizable under national laws; and (iii) persons who lost the land they occupy in its entirety or in part who have neither formal legal rights nor recognized or recognizable claims to such land.

3.0 PROJECT DESCRIPTION

3.1 PROPOSED PROJECT

43. The Project consists of sixteen wind turbine generators (WTG), each with a rated output of 2.35 MW (type Enercon E-92; 92 m rotor diameter) and the Project Substation. Associated infrastructures to be built are the 12.88 cct-km overhead T/L, and 48 T/L Towers to be connected to the Ninh Phuoc Substation.

44. Ninh Thuan Province initially approved a lease of 430 ha contiguous land to the Project Owner. However, this was reduced due to the Nuclear Power Plant Project “Ninh Thuan NPP 1” of the Government. Finally, 264.36 ha of non-contiguous land was leased for the Project (South Site - 57.27 ha; North Site - 206.46 ha).

3.2 LOCATION

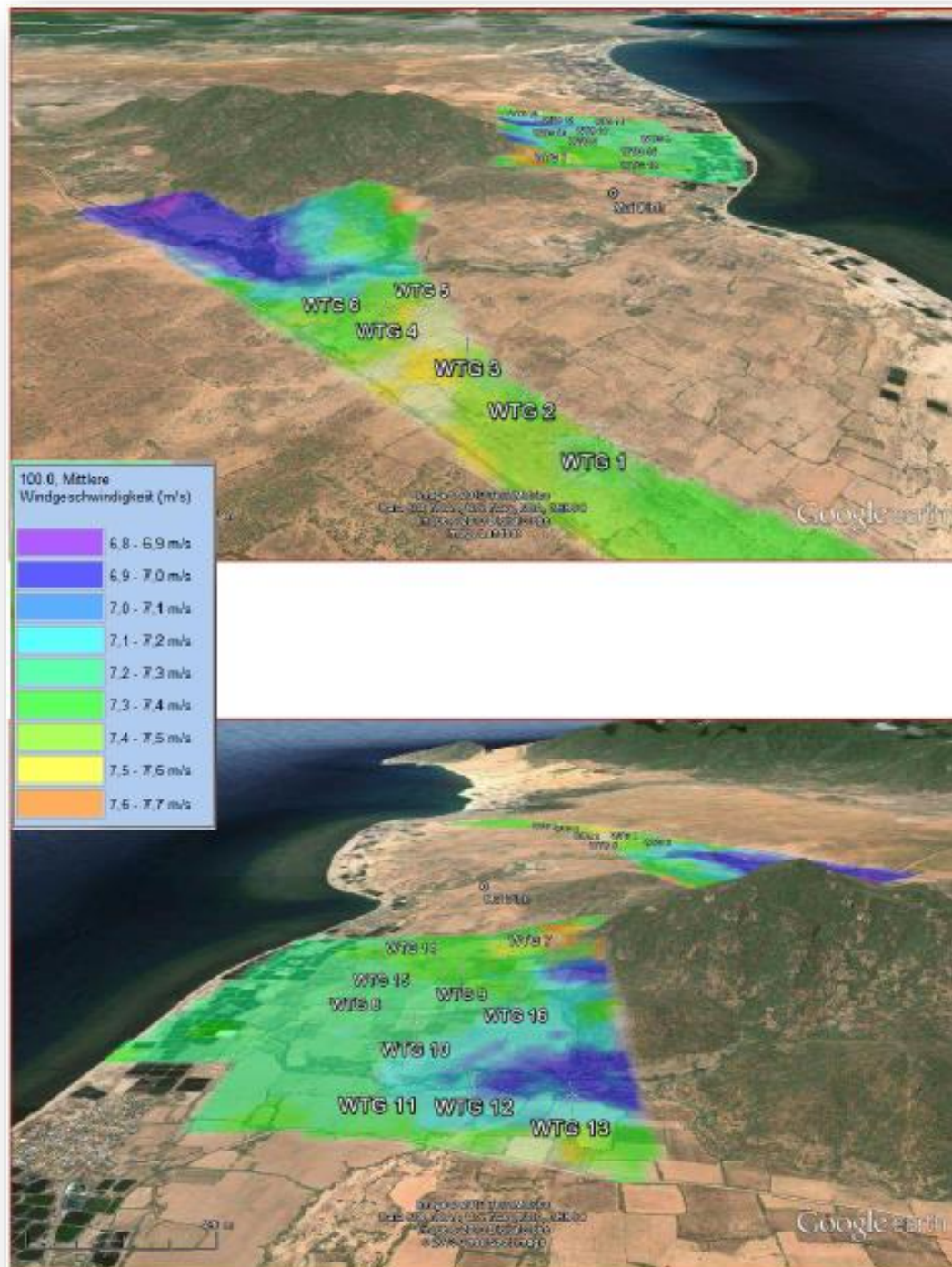
45. The Project Site is at Phuoc Dinh Commune in Thuan Nam District. To connect it to the Ninh Phuoc Substation, overhead T/L will also pass the communes of Phuoc Nam and Phuoc Ninh in the district; and Phuoc Hai Commune in Ninh Phuoc District. In the Project Site, the WTGs (Table 2) will face toward the east to the East Sea (Figure 1).

Table 2. Coordinates of the WTGs (WGS84)

Project Site	WTG	N (Y)	E (X)
South Site	1	1263330.39	581556.33
	2	1263541.79	581391.35
	3	1263742.37	581245.46
	4	1263967.91	580990.36
	5	1264310.65	581074.09
	6	1264182.86	580779.35
North Site	7	1266484.13	581687.28
	8	1267137.34	582348.95
	9	1267090.54	581949.46
	10	1267559.58	582066.96
	11	1267928.09	582126.44
	12	1267942.47	581852.34
	13	1268103.94	581589.84
	14	1266480.23	582222.23
	15	1266885.82	582290.35
	16	1267320.53	581743.29

m = meter; WTG = wind turbine generator

Adapted from: El-wind Mui Dinh LLC. 2013. *Wind Farm Mui Dinh: Project description*. Project Document: Unpublished.



m/s = meter per second; WTG = wind turbine generator

Adapted from: El-wind Mui Dinh LLC. 2013. *Wind Farm Mui Dinh: Project description*. Project document: Unpublished.

Figure 1. A visualization of the Project Site with the WTGs and the East Sea

3.3 TECHNICAL CHARACTERISTICS

90. Components of the Project include the WTG and foundations, Project Substation, underground cables, access roads, and associated T/L. A total permanent area, including the T/L Tower foundations, of 86,972.89 m² is required of the Project (Table 3).

Table 3. Permanent Area required of the Project

No.	Item	Area (m ²)	Total Area (m ²)
01	Project Site		81,094.98
02	WTG foundation	4,208.32	
03	Crane assembly area	16,400.00	
04	Switchyard area	4,899.24	
05	22kV grid connection (external)	6,020.00	
06	22kV underground cable	19,596.27	
07	Access road	29,971.15	5,877.91
	110 kV T/L		
07	T/L Towers foundation	5,877.91	
Total			86,972.89

kV = kilovolts; m² = square meter; WTG = wind turbine generator

3.3.1 Wind Turbine Generator and Foundation

91. The wind turbine generator (WTG) is the fundamental component of the Project and is responsible for harnessing the wind and turning it into electricity. In the Project Site, the WTGs are spaced to maximize wind energy potential while minimizing space use. The WTG alignment was determined by wind speed and turbulence analyses. The WTGs are separated by 3.5 times of the rotor diameters in the prevailing wind direction and by 2.5 times of the rotor diameters in the secondary wind direction. A minimum distance of 225 m between turbines is implemented. Sixteen WTGs will be used, each with a rated output of 2.35 MW (Enercon E-92) (Table 4).

92. The South Site consists of WTG 1, 2, 3, 4, 5, and 6 (Figure 2). South Site WTG 5 is connected to the North Site WTG 7 and 9, and then to the Project Substation. Other North Site WTGs (WTG 10, 14, 15, 8, 16, 11, 12, and 13) are connected to the Project Substation via WTG 13 (Figure 3).

93. A ring-shape cable infrastructure connects the WTGs and the Project Substation. In case of failure of an MV cable, all WTGs generation can still be transmitted to the Project Substation. Inside each WTG, an MV switchboard (Ring Main Unit) will be installed which will allow to connect/disconnect and open/close the ring to the next WTG. Each ring, in normal operation situation, is open at one of the links to prevent the complete ring to be switched off in case of failure.

Table 4. Technical Data for the WTG Enercon E-92 – 2,350 kW

General	
Rated Power	2,350 kW
Rotor Diameter	92 m
Hub Height	138 m
Wind Zone (DiBt)	WZ III
Wind Class	IEC/EN IIA
Turbine Concept	Gearless, variable speed, single blade adjustment
Rotor	
Type	Upwind rotor with active pitch control
Rotational Direction	Clockwise
No. of Blades	3
Swept Area	6,648 m ²
3 Blade Material	GRP (epoxy resin); Built-in lightning protection
Rotational Speed	Variable, 5 – 16 rpm
Pitch Control	Enercon single blade pitch system, one independent pitch system per rotor blade with allocated emergency supply
Drive Train with Generator	
Main Bearing	Double-row tapered / cylindrical roller bearings
Generator	Enercon direct-drive annular generator
Grid Feeding	Enercon inverter
Brake Systems	3 independent pitch control systems with emergency power supply, rotor brake, rotor lock
Yaw Control	Active via adjustment gears, load-dependent damping
Cut-out Wind Speed	28 – 34 m/s (with Enercon storm control)
Remote Monitoring	Enercon SCADA

kW = kilowatt; m = meter; m/s = meter per second; m² = square meter; rpm = revolutions per minute;
IEC/EN = International Electrotechnical Commission/Enercon; WTG = wind turbine generator

Adapted from: ENERCON GmbH. 2013. *The most suitable wind energy converter for every location: ENERCON Product Overview*. http://www.enercon.de/p/downloads/ENERCON_Produkt_en_web_072013.pdf

3.3.2 Underground cables

94. Communication between the WTGs will be linked by an LWL-cable (optical fiber cable). This will be done via an underground cable trench and connection to the Project Substation will be through WTG 9 and WTG 13; trench width approximately 1.5 m. An existing road will be crossed to interconnect the North Site WTGs; the Left (WTG 10, 16, 11, 12, and 13) and the Right (WTG 8, 14, and 15).

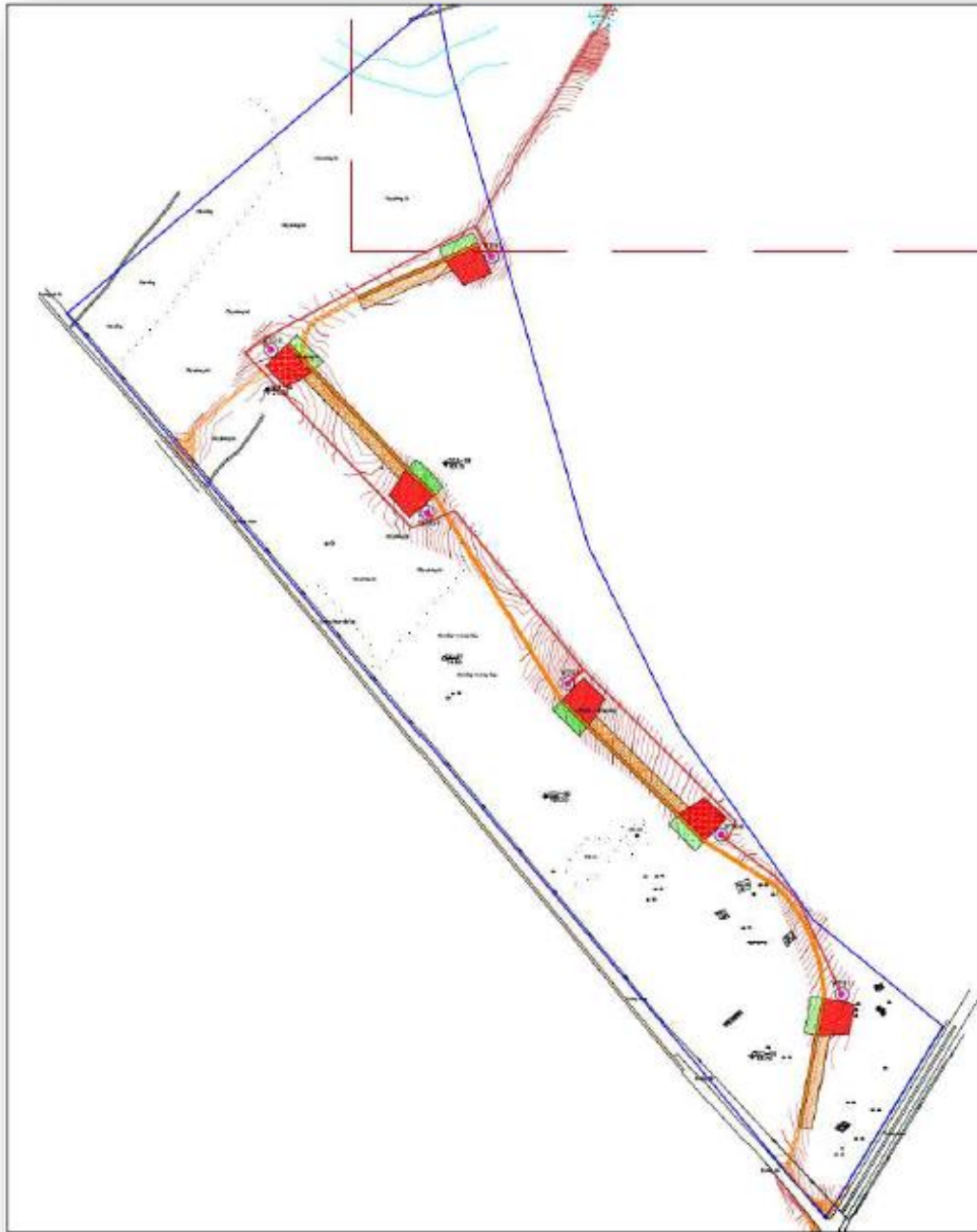
95. The 24kV NA2XS(F)2Y standard electrical cable type will be used. These underground cables will require a total of 19,596.27 m² of land. The three types of cable to be used will have a total length of 31,800 m:

- i. Cable 3 x 1 x 150 mm²: 11,790 m
- ii. Cable 3 x 1 x 300 mm²: 12,630 m
- iii. Cable 3 x 1 x 500 mm²: 7,380 m

3.3.3 Access roads

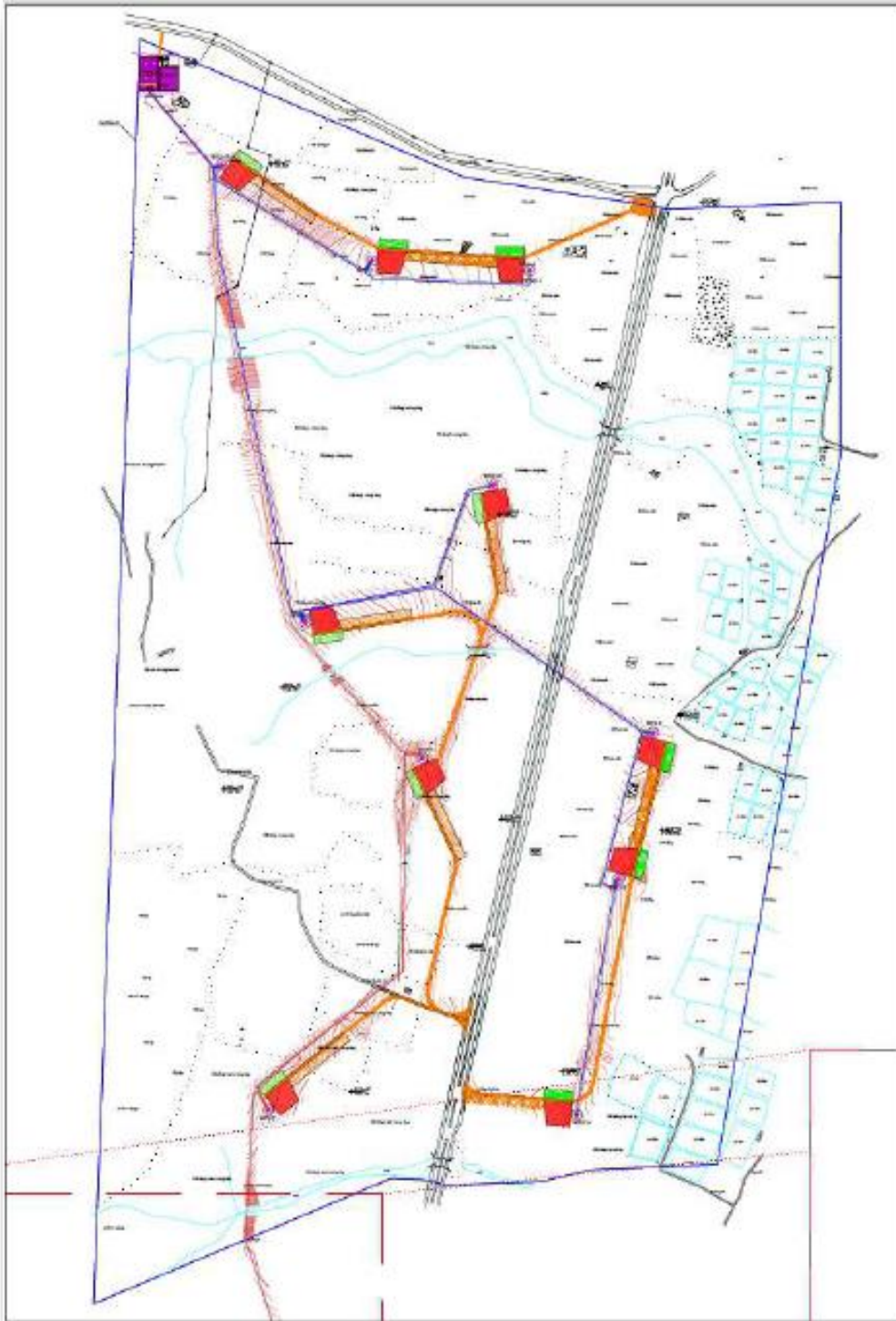
96. The South Site can be accessed at WTG 1 via an existing road. The North Site can be accessed from the east (WTG 14) and west (WTG 7) via the Ca Na–Binh Tien Road; and from the north (WTG 11) via another existing road. However, construction of new access

roads are required connect several WTGs. The design of the new roads will be based on WTG supplier (Enercon) guidelines for the model to be used and in accordance with local climate conditions. Rain gutters and underpasses to discharge rain water will be integrated in the design.



Adapted from: El-wind Mui Dinh LLC. 2014. *Wind Farm Mui Dinh: Master Plan 1/500*.
Project document: Unpublished.

Figure 2. South Site Layout



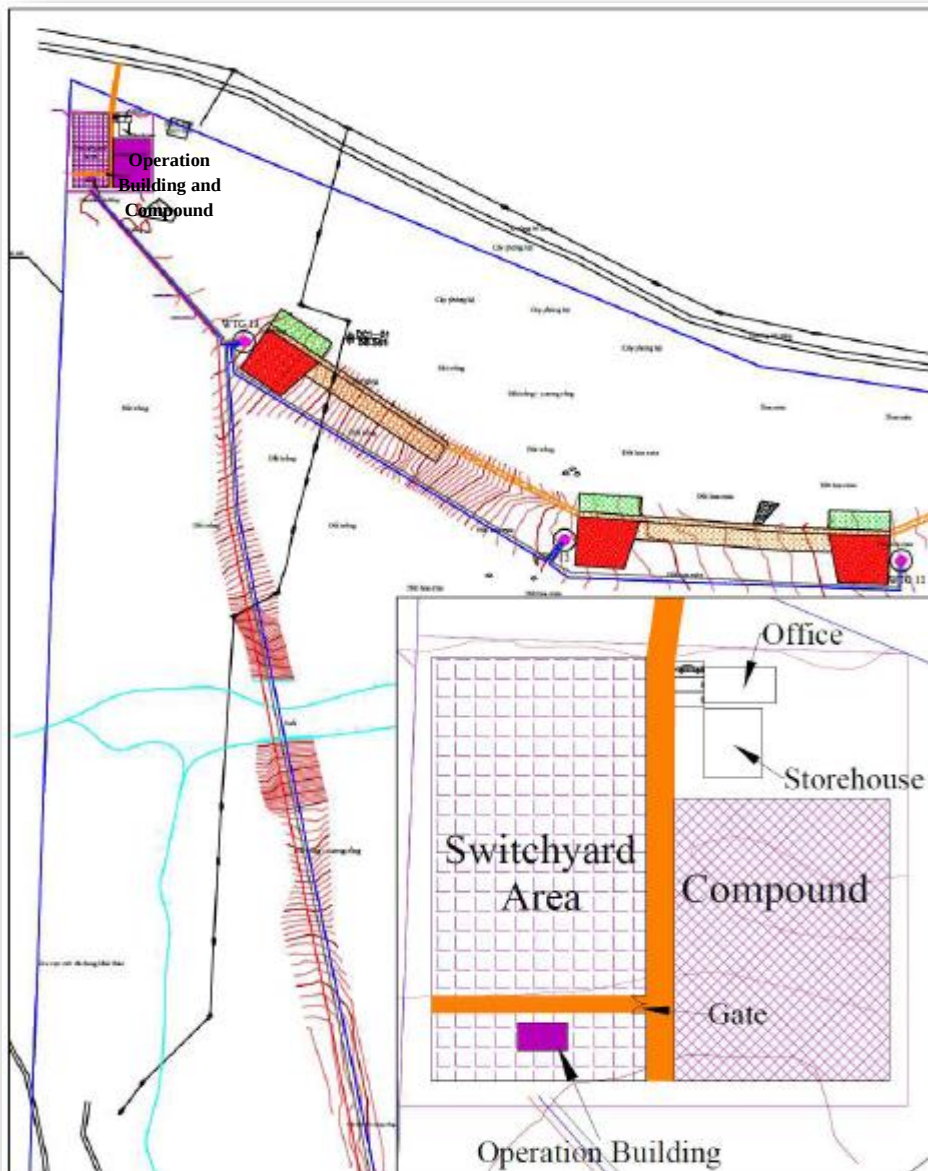
Adapted from: El-wind Mui Dinh LLC. 2014. *Wind Farm Mui Dinh: Master Plan 1/500*. Project document: Unpublished.

Figure 3. North Site Layout

3.3.4 Project Substation

97. The Project Substation (22/110 kV 40 MVA Step up) is located in the Switchyard Area at the North Site (Figure 3). It is comprised of the outdoor 110 kV Switchgears and the 22 kV Switchboard/Operation Building (Table 5)**Error! Reference source not found.**; houses equipment for support, protection and maintenance (Table 6). Important characteristics in choosing the location:

- Far from rivers, streams, and free-running water areas
- Lies on a flat and high area, covered by grass and bushes
- Safe distance from the closest WTG (WTG 13)
- Minimized the length of 110 kV overhead T/L to connect to Ninh Phuoc Substation



Adapted from: El-wind Mui Dinh LLC. 2014. *Wind Farm Mui Dinh: Master Plan 1/500*. Project document: Unpublished.

Figure 4. Switchyard Area at Project Site
Table 5. Other infrastructure in the Switchyard Area

No.	Item	Details
01	Compound	30.0 m x 40.0 m Chain-link fence with lockable gates suitable for truck access and laydown of containers and heavy parts Flat crushed rock or similar surface Free drainage Workshop and office inside (details below)
02	Workshop	8.0 m x 10.0 m shed 4.5 m stud Drive-in roller door for vans, forklift, and light trucks 3ph and 1ph power all round, lighting, windows, vermin-proof, etc. Workbenches and storage racks 2.4 m x 2.4 m dangerous goods container
03	Office	Office and amenity rooms for four (4) people SCADA/Server room Temperature and humidity controlled High speed internet connection, telephone connection 3.0 m x 4.0 m storage room (temperature and humidity controlled)

m = meter

Table 6. Main equipment in the Project Substation

No.	Item	Unit	Quantity
01	Transformer 110kV 40MVA	Set	1
02	Secondary Transformer	Set	1
03	Aptomat	Set	4
04	CB (DS+2ES)	Item	3
05	CB (DS+1ES)	Item	4
06	Current transformer 110kV	Item	12
07	Capacitor 110kV	Item	12
08	Disconnecting switch	Item	3
09	MK	Item	4
10	SCADA	Set	1

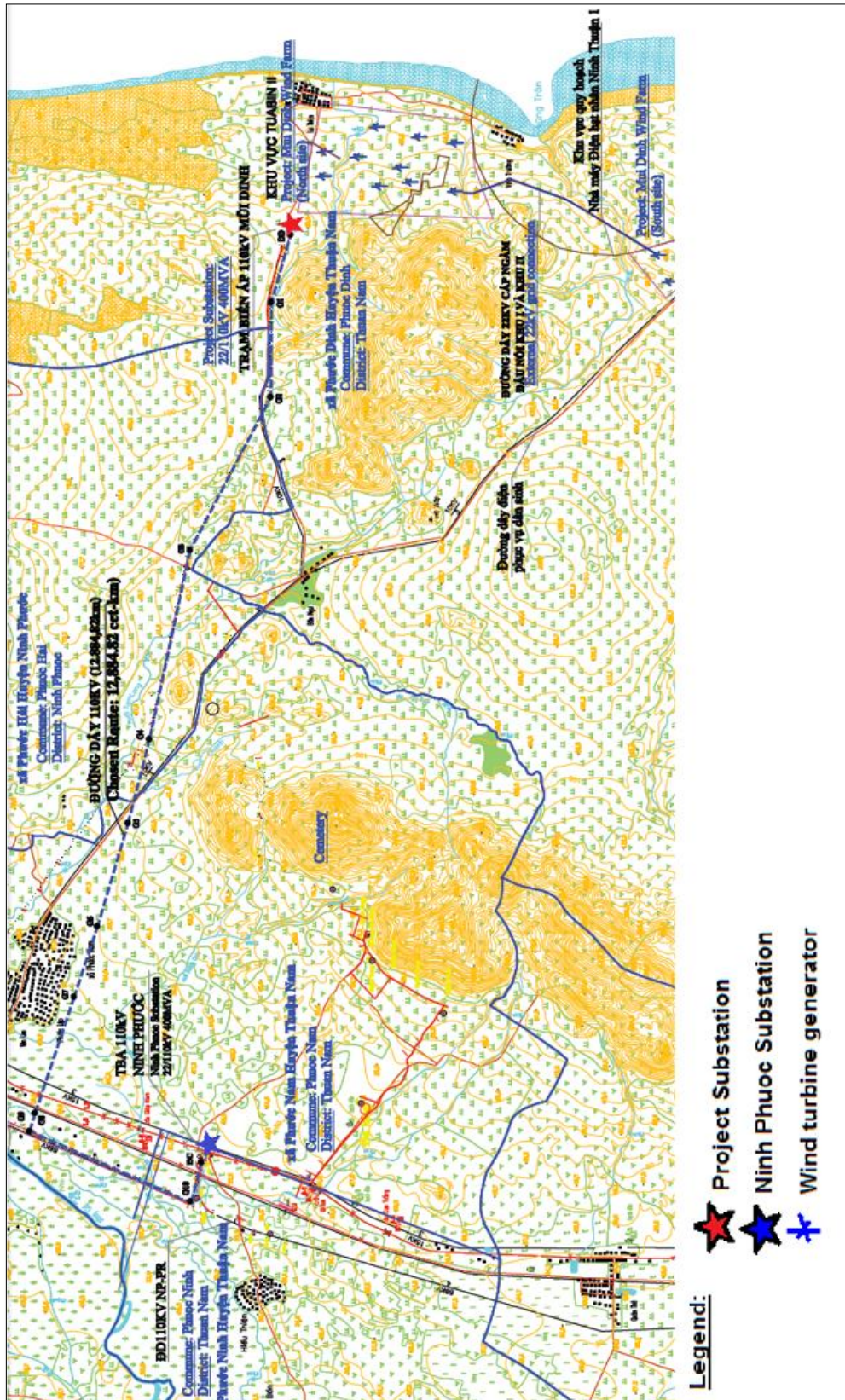
3.3.5 Associated Transmission Lines

98. The overhead 110 kV T/L will have a total length of 12,884.82 cct-km. The route was proposed by the Power Engineering Consulting Joint Stock Company (PECC3) based on the External Grid Connection Study done. The final route was chosen among other alternatives with consideration of economic viability, practicality, and minimal environmental and social impacts (Figure 5).The T/L passes through the three communes of Thuan Nam District (Phuoc Dinh, Phuoc Nam, and Phuoc Ninh) and Phuoc Hai Commune of Ninh Phuoc District. It starts from the Project Substation in Phuoc Dinh Commune with the terminal point at the Ninh Phuoc Substation in Phuoc Ninh Commune (

99. Table 7).

100. A total of 48 galvanised steel lattice T/L Towers will be required. These will be located on all angles and will be constructed either as single or double body. The height will range from 28 – 63 m to lift the cables above residential areas where double insulators will be fitted. The T/L traverses land of varying topography thus restricting the T/L Towers to be

evenly spaced. Supported by cast-in-place reinforced concrete slab pier and pile foundations, average area required per T/L Tower foundation is 122.02 m² (Table 8).



Adapted from: Power Engineering Consulting Joint Stock Company (PECC3). 2014. *External Grid Connection Study: Single line diagram*. Project document: Unpublished.

Figure 5. Route of the 110 kV Transmission Lines (T/L)

Table 7. Details of the Transmission Line Sections

Location and Length					
No.	District	Commune	Section	Length (m)	Cumulative Length (m)
01	Thuan Nam	Phuoc Dinh	DD – G1	776.27	776.27
			G1 – G2	1055.75	1,832.02
			G2 – G3	1922.04	3,754.06
02	Ninh Phuoc	Phuoc Hai	G3 – G4	2146.00	5,900.06
			G4 – G5	957.61	6857.67
03 xz	Thuan Nam	Phuoc Nam	G5 – G6	1197.38	8055.05
			G6 - G7	822.66	8877.71
			G7 - G8	1359.90	10237.61
	Phuoc Ninh	G8 – G9	212.49	10450.10	
		G9 – G10	1963.54	12413.64	
		G10 - DC	470.18	12884.82	
Coordinates and Elevation					
Section Point	Northing (m)	Easting (m)	Elevation (m)		
DD	1268280.265	581399.716	64.571		
G1	1268493.498	580653.305	70.564		
G2	1268500.280	579597.581	74.803		
G3	1269396.327	577897.184	46.453		
G4	1269846.751	275798.984	38.339		
G5	1270084.649	574871.395	30.745		
G6	1270423.873	573723.075	22.215		
G7	1270679.867	572941.264	17.964		
G8	1271111.163	571651.570	17.405		
G9	1271177.518	571448.164	16.949		
G10	1269383.079	570650.993	20.621		
DC	1269263.073	571105.578	21.201		

DD = Project Substation; DC = Ninh Phuoc Substation; G1-G10 = Section points; m = meter

Adapted from: Power Engineering Consulting Joint Stock Company (PECC3). 2014. *External Grid Connection Study: TK-14-04-14*. Project document: Unpublished.

Table 8. Summary of the Main Features of the T/L and T/L Towers

No.	Item	Transmission Line
01	Starting point	22/110 kV 40 MVA Project Substation
02	Ending point	22/110 kV 40 MVA Ninh Phuoc Substation
03	Length of line	12.88 cct-km
04	ROW width; area	8 m; 103,078 m ²
05	Earth grounding width	~50 m per side of T/L Tower; Radial within ROW
06	Voltage	110 kV
07	T/L Towers number; height	48 (13 tension, 35 suspension); 28 – 63 m
10	Total area required for T/L Towers	5,878 m ² (122 m ² per T/L Tower)
11	Structures within the ROW ^a	13
12	Structures within Earth grounding width	None (<i>only foundation of towers</i>)

cct-km = circuit kilometer; V = kilovolt; MVA = megavolt-ampere; m = meter; m² = square meter; m³ = cubic meter; T/L = Transmission line; ROW = Right-of-way

Note: ^aInclude household, warehouse, farm, and watch house

Adapted from: Power Engineering Consulting Joint Stock Company (PECC3). 2014. *External Grid Connection Study: Single line diagram*. Project document: Unpublished.

101. The conductors selected for the T/L are aluminum alloy conductors surrounding a steel cable. A ground wire and an optical communication cable will be strung on the T/L Towers. Ceramic insulators that meet IEC standard will be used. Single insulators will be

used but will be increased to double insulators where the T/L is strung over buildings or national and provincial roads (*Ch. 2, Art. 9, Decree No. 14/2014/ND-CP of 26 February 2014 by the Government on stipulating in detail the implantation of Electricity Law regarding electrical safety*) (Table 9).

Table 9. Main equipment in the T/L and T/L Towers

No.	Item	Unit	Quantity
01	Tension tower	tower	13
02	Lightning rods for tension tower	set	39
03	Earthing system TĐ.N-2T	set	13
04	Suspension tower	tower	35
05	Lightning rods for suspension tower	set	35
06	Earthing system TĐ.ĐA-2T	Set	35
07	Wire ACSR -400/51	meter	87,215
08	Optical fiber	meter	14,970
09	Conduit ACSR -400/51	set	36
10	Conduit	set	18
11	Dielectric insulation	set	48

3.4 IMPLEMENTATION PROGRAM

3.4.1 Preconstruction Phase

102. **Survey and Design.** The detailed design of the Project sites and the associated T/L was prepared as the result of several studies:

- Site Selection was made in coordination with the People's Committee of Ninh Thuan Province and EVN. The identified potential areas for wind power generation based on the *Decision No. 2574/QĐ-BCT (Date: 23/04/2013) by the Ministry of Industry and Trade* was considered along with other energy projects in the area. Site selection criteria included no Important Bird Areas, no wetlands, no high bird activity, and not along routes of migratory birds.
- Cadastral Survey was undertaken to determine the site boundaries and T/L route
- Soil Investigation was necessary to determine the subsurface conditions at the location of the WTGs. This provided the designers the construction design parameters for the foundations.
- Wind Resource Evaluation applied wind measurement methods and programs to characterize the wind resource in the Project sites on a period of 24 – 36 months.
- Micrositing was done to quantify the small-scale variability of the wind resource over the terrain of interest. Ultimately, micrositing was used to position WTGs on the Project Site to maximize the overall energy output.
- Noise and Shadow Flicker Assessment was done to determine any potential impacts to persons near the WTGs. The software WindPRO was used for the analysis.
- External Grid Connection Study was undertaken to determine the T/L route options to connect the Project Site to the existing 22/110 kV 40 MVA Ninh Phuoc Substation. Aside from cost, the criteria included minimized impacts.

103. **Resettlement and Assistance.** The Project will entail some persons to be temporarily or permanently displaced from their houses, land, and other structures. Compensation shall

be designed in accordance with the requirements of IFC and the government. The Project Owner is committed and will complete compensation and clearance of land (temporary and permanent use) prior to the construction phase (Discussed more in section *Resettlement and Assistance*).

3.4.2 Construction Phase

104. **Management.** The Project Owner will assign a Project Site Engineer (PSE) and an Health, Safety, and Environment Officer (HSEO). Both will be responsible for the supervision and monitoring of the Contractor.

105. **Schedule.** Construction duration is estimated at six (6) months.

106. **Contractor.** Contractor will be chosen based on a set bidding procedure. The Bid & Contract (B&C) Documents will include implementation of construction phase mitigation measures discussed in section *Environmental and Social Management Plan (ESMP)*.

107. **Equipment and Materials.** Oil, grease, fuel, and other standard items will be used as necessary. An estimated total of 12,300 L of diesel will be consumed by construction equipment. Major equipment such as trucks for carrying cement and building materials are expected to visit 12-15 times per day (estimated 1,920 total visits). A total visit of 320 times is expected of a crawler crane (maximum 2 – 3 times a day); and heavy duty tow truck crawler crane 160 times total (maximum 1 – 2 times a day) (Table 10). The number of visits is limited for such heavy vehicles and cargo to protect the roads, in accordance with *Circular No. 07/2010/TT-BGTVT of 11 February 2010*.

108. Construction works within the ROW will also require a range of heavy and light machinery. While noise is expected, none of the equipment will produce excessive and damaging vibrations. Amongst all, highest impact will be from the bulldozer. A fuel truck may be required for refueling. An estimated 88 m³ of concrete is needed per T/L Tower foundation (4,232 m³ total).

Table 10. Construction equipment and materials

Equipment		Materials
5 - 12 ton trucks	Concrete mixer	Cement
Mobile crane	Concrete needle vibrator	Sand and aggregate
Bulldozer	Concrete platform vibrator	Steel
Excavator	Pulling, braking, sag measuring tools	Galvanized steel
Soil compactor	Welding machine	Insulators
5-10 kVA generator	Powered- and hand-operated winch	Conductors
Pole erector	Earth resistance meter	Fuel
Hydraulic pressing machine	Pump	WTG parts
Fiber optic fusion splicer	Others (as needed)	Cables
Fiber optic cable tester		Others (as needed)

kVA = kilovolt-ampere

109. **Construction Works.** Construction activities in the Project Site will include land clearing for site preparation and access routes; excavation, blasting, and filling; transportation of supply materials and fuels; construction of foundations involving

excavations and placement of concrete; operating cranes for unloading and installation of equipment; commissioning of new equipment; and site reinstatement and restoration

110. For the T/L ROW, the activities are preparation of site and access route; clearing of the ROW; preparation of Contractor's facilities; transport of materials; construction of foundations involving excavations and placement of concrete and reinforcement steel; erection of prefabricated T/L Towers and equipment; pulling the conductor lines, tensioning and attaching to the insulators; testing, adjustment, and commissioning; and site reinstatement and restoration.

111. **Work force.** About 400 workers will be required. Some works such as construction of the WTG foundations, Project Substation, T/L Towers and foundations, and stringing and tensioning conductors are specialized tasks done by professionals and skilled workers whom may not be from the province. But less-skilled workers needed are expected to be drawn from the surrounding areas or affected communes; thus no worker camps. Work force hiring will be entirely dependent on the Contractor. However, the Project Owner will encourage the Contractor to consider local workers for less-skilled works.

112. **Land Requirement and Access Roads.** A total land area of 34,559 m² will be used as temporary areas for storage or mounting (31,534 m²) and the rest for access roads. The Ca Na–Binh Tien Road will be used as the main access road to the Project Site, with new roads to be constructed to connect the existing road network to the Project Site.

113. The WTG and other related equipment will be transported via sea from Denmark to Vietnam; specifically to Cam Ranh Bay, Khanh Hoa Province. These will then sail to the Port of Ca Na in Ninh Thuan Province. From here on, transportation will be via roads using the Ca Na–Binh Tien Road and some commune roads (Tu Thien–Bau Ngu and Van Lam–Son Hai). Only an experienced transporter of WTG will be contracted to fully meet the conditions of the supplier.

114. For construction along the T/L ROW, the National Highway Q1A will be the main access road along with other existing commune roads. If needed, temporary access will be required for construction of temporary facilities for Contractor's use. Access roads will be closed after construction is completed

115. **Power and Water Supply.** Permits will be secured for use of the existing 22kV line near the Project Site to supply electricity for the construction activities. For water supply, it is envisaged that daily needs of the construction team and works will not entail usage of lots of water. Thus, water will be purchased locally and transported by tank trucks.

3.4.3 Operational Phase

116. **Management.** The Project Owner will manage the operation of the Project and the associated T/L; including maintenance activities within the ROW.

117. **Equipment and Materials.** Use of oil, grease, fuel and such for maintaining vehicles and equipment are highly likely. Worn-out parts will be replaced as needed. Regular

maintenance within the ROW may involve the use of mowing or pruning machinery, in addition to manual clearing. In addition to personal protective equipment, there will be use of monitoring and measuring equipment for worker's safety in performing any electrical and mechanical maintenance works.

118. **Operation and Maintenance Works.** Routine inspections, tests, servicing and maintenance, replacement of parts, and works on equipment will be undertaken. There will be checking for oil leaks, structural stability, corrosion, and safety. Regular maintenance and trimming of vegetation within the ROW is necessary to avoid disruption and damage to the T/L and T/L Towers. For trees planted outside of ROW that threaten to infringe upon the safety distance, such will be cut or felled to ensure adherence to safety. Compensation will be made in accordance with regulations.

119. **Work Force.** During the operational phase, an estimated total number of 20 workers will be required. There will be outsourcing/contracted works as deemed necessary by the Management.

120. **Access Roads.** Existing roads and new ones constructed will be similarly used as discussed in earlier sections. Along the ROW, the Project Owner will be given guaranteed access to maintain vegetation within safe clearance heights to the T/L. Existing commune roads will be used as much as practicable.

3.4.4 Decommissioning

121. The life time of the Project is 50 years as in the Investment Certificate. This corresponds more than the industry estimate design life time of a WTG; except for certain replacement parts. However, as the wind turbine industry is still relatively young, the actual lifetime of a particular wind farm is uncertain and some variance around the industry estimate of 20 years is expected. Additionally, other site components such as the site cabling and foundations may have a significantly longer useful lifetime (around 50 years).

122. **Management.** The PSE and the HSEO will be responsible for the supervision and monitoring of the Contractor for the decommissioning activities.

123. **Schedule.** Duration of decommissioning activities is estimated at six (6) months.

124. **Contractor.** The Contractor will be chosen based on bidding procedures. Bid & Contract (B&C) Documents will be prepared with the inclusion of the decommissioning phase mitigation measures (Discussed in section *Environmental and Social Management Plan*).

125. **Equipment and Chemicals.** It is anticipated that no new chemicals will be introduced for the decommissioning activities except for the fuel, oil, lubricant, and grease for the vehicles and equipment.

126. **Land requirement and access roads.** The Project Site and ROW is the work area. Access roads utilized during operation phase will also be used.

127. **Decommissioning Works.** Decommissioning activities will generally include removal of infrastructure and site rehabilitation. The activities will include, but not limited to:

- Dismantling – Infrastructures within the Project Site that are no longer active will be dismantled. Others that are still usable will be transferred to another company for management. The 110 kV T/L will be handed over to the government for continuous usage in the power grid.
- Scrappage
- Recycling - WTG components will be recycled according to type of material. All large metal components that are primarily mono-material (e.g. gears, transformers, WTG Tower sections) are assumed to be recycled the most, along with cables. All others (e.g. concrete, lubricant) are treated as wastes to be either landfilled or incinerated accordingly, whichever is applicable.
- Waste disposal – Licensed companies will be contracted to collect and dispose all wastes, according to regulations
- Site rehabilitation – Project Site will be leveled and subsequently planted with native plant species to restore its natural state

128. **Work force.** Decommissioning will require an estimated 400 workers maximum. Like in the construction phase, decommissioning may be accomplished by professionals, skilled, and less-skilled workers. Hiring of workers will be the responsibility of the Contractor. The Project Owner will encourage the Contractor to hire local workers for the less-skilled works.

4.0 BASELINE DATA

4.1 PHYSICAL CONDITIONS

145. Vietnam lies in the eastern part of the Indochina Peninsula. It has a land area of 331,211.6 km². International borders are shared with the People's Republic of China on the north, the Lao People's Democratic Republic on the west, and the Kingdom of Cambodia on the southwest. It is bounded by the East Sea on the east and south¹³.

4.1.1 Geography

130. Ninh Thuan Province is located in the South Central Coastal Region of Vietnam. Its geography is characterized by plain, mountain, and coastal areas¹⁴. The province has its border with Khanh Hoa Province in the north, Binh Thuan Province in the south, Lam Dong Province in the west, and the East Sea in the east (Map 1). It has a total natural surface of 3,358 km² with 105 km of coastline. It is comprised of seven administrative units; the six rural districts (Ninh Hai, Ninh Phuoc, Ninh Son, Bac Ai, Thuan Bac, and Thuan Nam) and the capital Phan Rang-Thap Cham City¹⁵.

131. The Project Site is in Phuoc Dinh Commune, Thuan Nam District. The associated T/L will traverse three communes in the district (Phuoc Dinh, Phuoc Nam, and Phuoc Ninh) and Phuoc Hai Commune of Ninh Phuoc District. The east side of Phuoc Dinh Commune is bordering the East Sea, to its northwest is bordering with the Phuoc Hai Commune. The Phuoc Nam Commune is to the west of Phuoc Hai and Phuoc Ninh Commune is to the south of Phuoc Nam Commune.

4.1.2 Topography

132. Topography of Ninh Thuan Province can be characterized as gradually sloping from west to east and northwest to southeast. The province is surrounded by mountains on three sides. It has three types of topography: (i) central valley; (ii) low-lying coastal plain; and (iii) mountainous areas occupying about 60 % of provincial land area (Map 2). Thuan Nam District is one of the lowland districts in the province¹⁶. The Project Site is characterized by slightly hillside situations and a general decrease of height from the west to east (~35-40 m) (Figure 6). To its west, there is a decrease in height (~40-45 m) where the T/L connects the Project Site to the Ninh Phuoc Substation.

¹³ Vietnam National Administration of Tourism. The Socialist Republic of Vietnam. http://vietnamtourism.com/e_pages/country/overview.asp

¹⁴ Oxfam-Vietnam and Graduate School of Global Environmental Studies of Kyoto University. 2008. *Drought Management Considerations for Climate Change Adaptation: Focus on Mekong Region – REPORT (VIETNAM)*. <http://www.iedm.ges.kyoto-u.ac.jp/report/Climate%20Change%20Research%20report%20in%20Ninh%20Thaun%20%20Sign-off%20version.pdf>

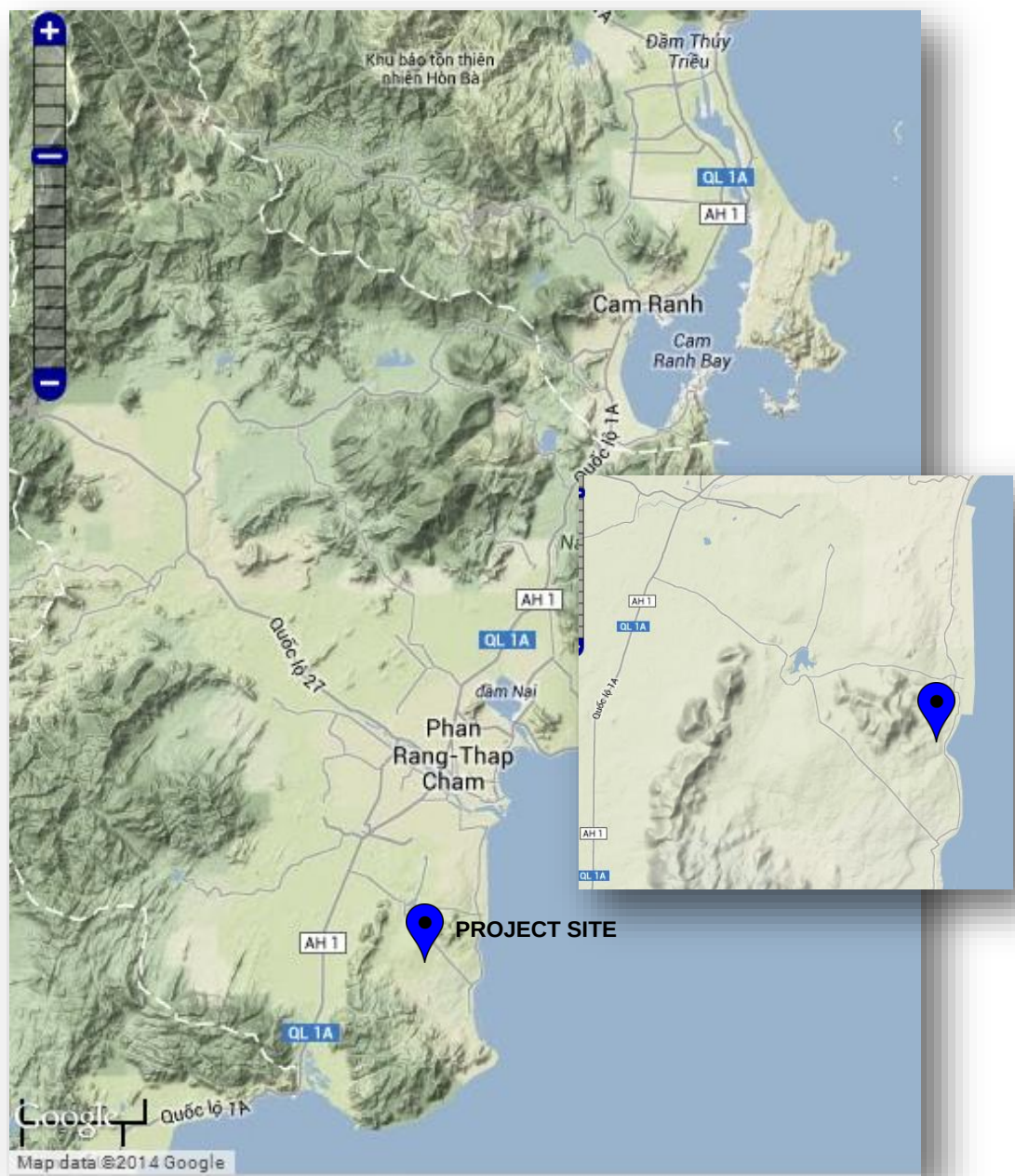
¹⁵ General Statistics Office of Vietnam. Number of administrative units as of 31 December 2011 by province. http://www.gso.gov.vn/default_en.aspx?tabid=466&idmid=3&ItemID=12833

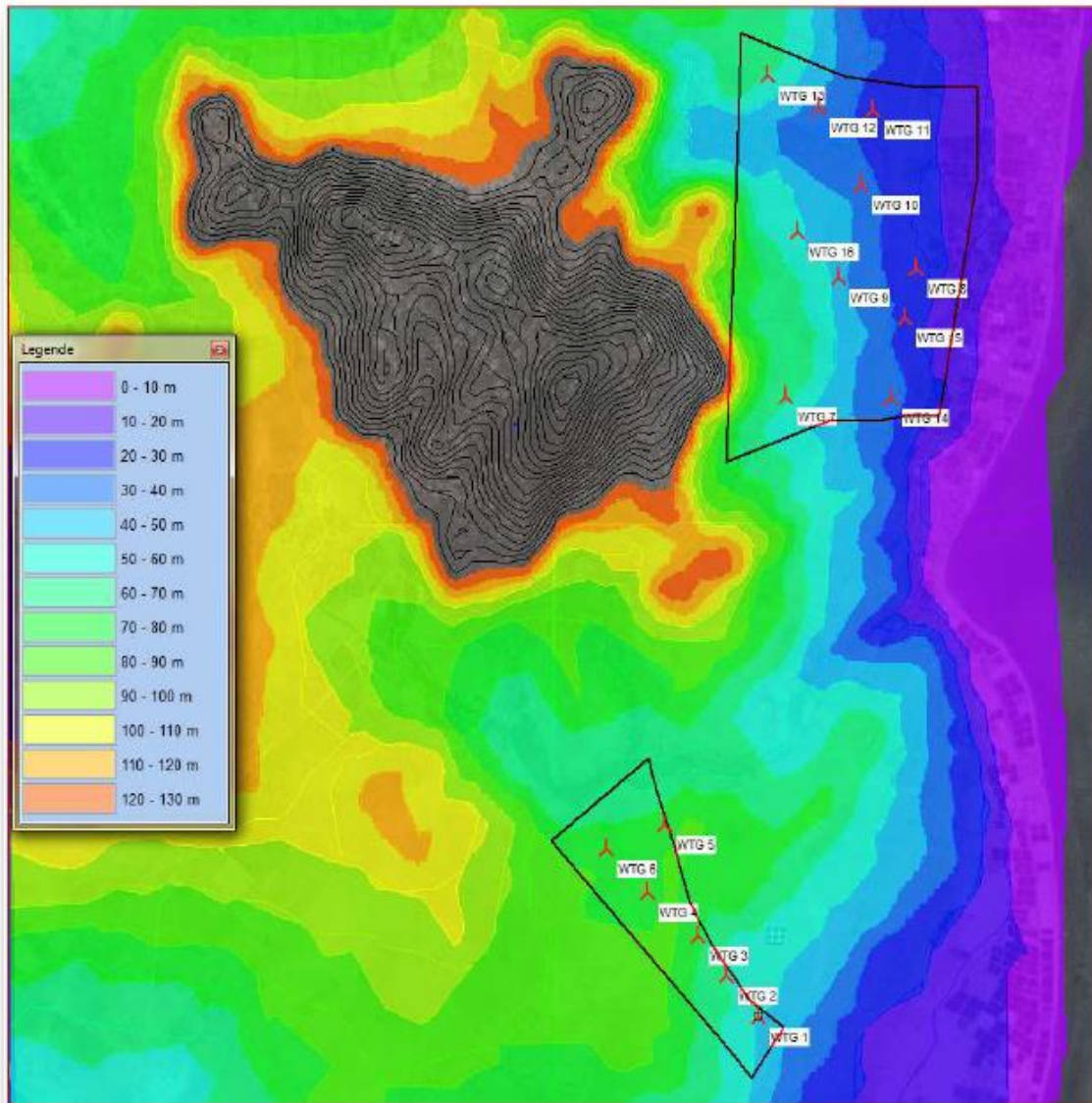
¹⁶ UNICEF Viet Nam and Ninh Thuan Province. 2012. *An analysis of the situation of children in Ninh Thuan Province*. http://www.unicef.org/vietnam/sitan_nt_eng.pdf

Map 1. Ninh Thuan Province Administrative Map and the Project Site



Map 2. Terrain Map of Ninh Thuan Province and the Project Site





WTG = wind turbine generator

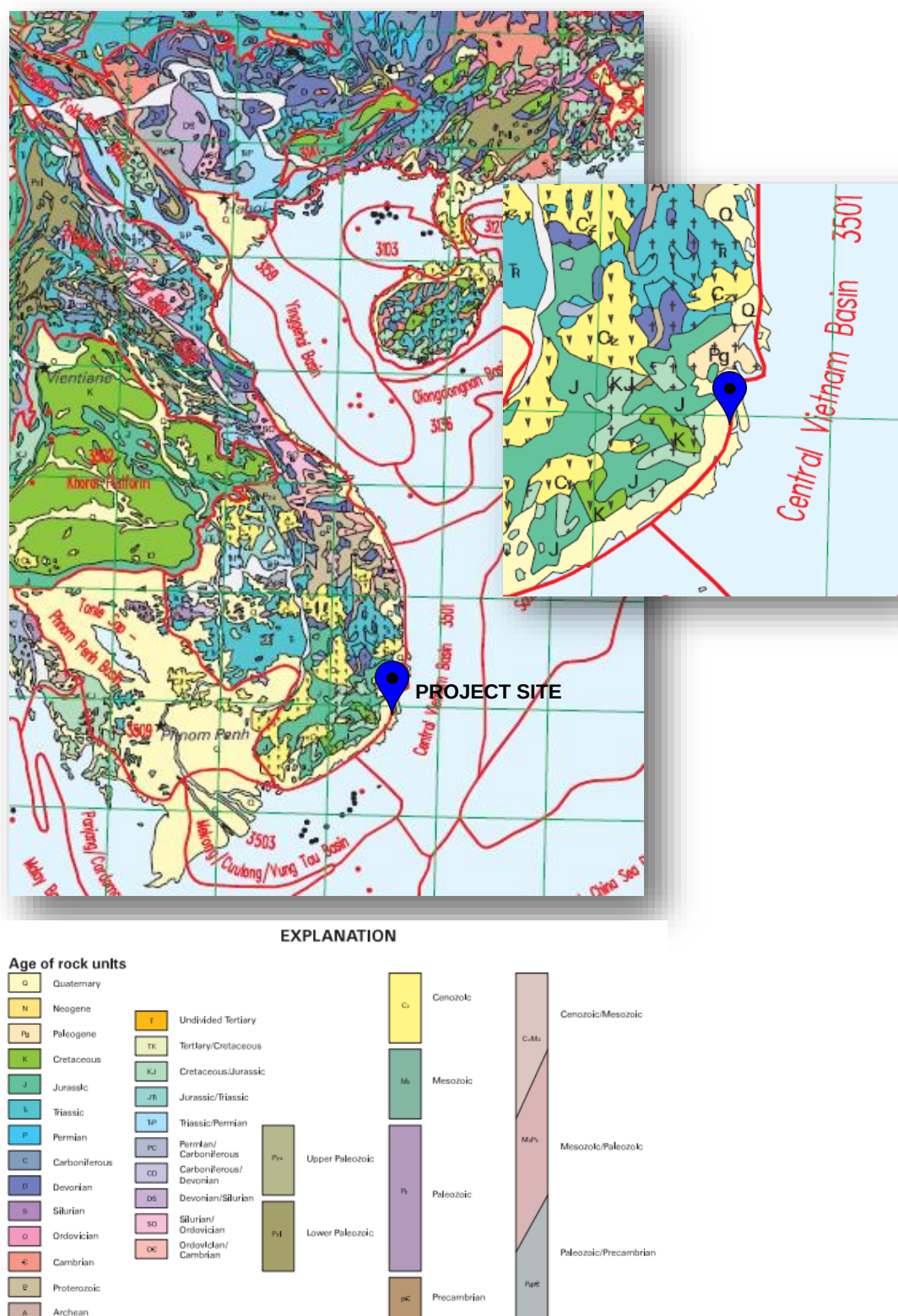
Adapted from: El-wind Mui Dinh LLC. 2013. *Wind Farm Mui Dinh: Project description*. Project document: Unpublished.

Figure 6. Topography of the Project Site

4.1.3 Geology and Seismicity

133. **Geology.** The geology in the Project Site and T/L ROW is of quaternary age rock units (Map 3). Boulders and vast amounts of sand are common geological features nearby the Project Site.

Map 3. Geology Map of Vietnam and the Project Site



Adapted from: U.S. Department of the Interior and U.S. Geological Survey. 1999. *U.S. Geological Survey Open-File Report 97-470F: Maps showing geology, oil and gas fields, and geologic provinces of the Asia Pacific Region.* <http://pubs.usgs.gov/of/1997/ofr-97-470/OF97-470F/aspac.PDF>

134. The Soil Investigation, done by Tan Thuy Hoang Geotechnical Development and Service Co., Ltd. (Table 11), showed that soils in the WTG locations are mostly of sand texture (at a maximum depth of 20.5 m) ranging from fine, medium, coarse, clayey, and cemented sand (usually near roads). Most soils are characterized as fine sand. The only location with a different soil texture was at WTG 9 (at a depth of 18-18.5 m), where it is of clay texture and clayey sand further down to 20.5 m.

135. In terms of sand bulk density, only WTG 13 registered $<1.60 \text{ g/cm}^3$, i.e., 1.52 g/cm^3 (from surface down to 2.5 m). All other values are moderately high. These are indicative of impairing root growth and movement of air and water through the sandy soil. Protection of soil from erosion and runoff is problematic due to low water infiltration. Proper storm water management and landscaping (using native plant species) will be implemented to mitigate soil erosion and manage drainage in the Project Site.

Table 11. Summary of soil investigation at the WTG locations

WTG	Depth (m)	Soil Texture	Color Gradient	Dry density (g/cm^3)
1	2 - 20.5	Sand (Fine; Cemented)	BR; Y	1.71 - 1.89
2	2 - 20.5	Sand (Fine)	BR; Y	1.73 - 1.92
3	2 - 20.5	Sand (Fine)	YBR; Y	1.81 - 1.92
4	2 - 20.5	Sand (Fine)	YBR; BRY	1.70 - 1.91
5	2 - 18.5	Sand (Fine)	YBR; Y	1.64 - 1.92
6	2 - 24.5	Sand (Fine)	YBR; Y	1.72 - 1.93
7	2 - 18.5	Sand (Fine; Cemented)	BRY	1.75 - 1.90
8	2 - 20.5	Sand (Fine)	BRY	1.75 - 1.94
9	2 - 16.5	Sand (Fine; Clayey) and Clay	YBR; Y; GGR	1.74 - 1.95
10	2 - 20.5	Sand (Fine; Medium)	YBR; Y	1.62 - 1.93
11	2 - 20.5	Sand (Fine; Clayey; Medium)	YBR; Y	1.74 - 1.89
12	1 - 12.5	Sand (Fine; Coarse; Medium)	YBR; Y	1.64 - 1.92
13	1 - 25.5	Sand (Medium)	YBR; Y	1.52 - 1.91
14	2 - 20.5	Sand (Fine; Cemented; Medium)	YBR; Y	1.76 - 1.88
15	2 - 20.5	Sand (Fine)	YBR; Y	1.61 - 1.93
16	4 - 20.5	Sand (Medium)	YBR; Y	1.62 - 1.94

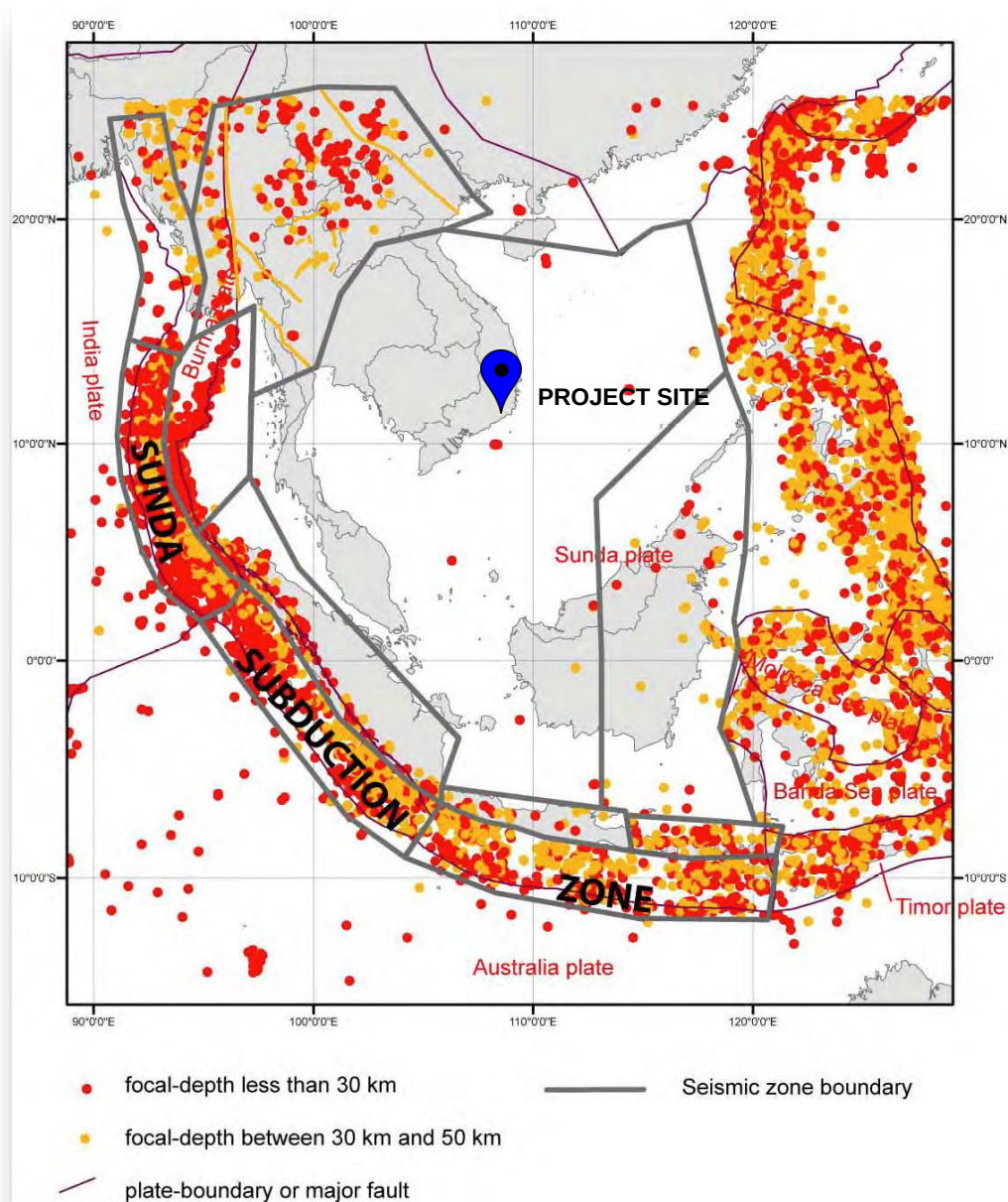
BR = Brown; BRY = Brownish yellow; GGR = Greenish Gray; Y = Yellow; YBR = Yellowish brown; g/cm^3 = gram per cubic centimeter; m = meter; WTG = Wind turbine generator

Adapted from: Tan Thuy Hoang Geotechnical Development and Service Co., Ltd. 2014. *Summary of soil testing results*. Project document: Unpublished.

136. **Seismicity.** The Project Site and associated T/L are situated between two shallow-focus earthquake zones (0-30 km) located approximately 250 km to the north and 200 km to the south (Map 4). The whole Central Coastal Region is located on a large stable core of the Sunda Plate and is characterized by low seismicity and strain rates¹⁷.

¹⁷ M. Petersen et al. 2007. *Documentation for the Southeast Asia Seismic Hazard Maps*. http://earthquake.usgs.gov/hazards/products/images/SEASIA_2007.pdf

Map 4. Shallow-depth earthquakes in Southeast Asia (Focal depth < 50 km; 1964 – 2005)



4.1.4 Meteorology

137. The province has a typical tropical monsoon climate, with the features of draught, heat, moderate to strong wind, and high evaporation rates. It is one of the most drought-ridden and hottest areas in the country. There are two seasons, the rainy season (July to November) and dry season (December to June). The Truong Son mountain range is oriented in an alignment that channels winds in such a manner which enables storms to become highly damaging with heavy rains and floods affecting crop production and livelihoods (footnote 14).

138. **Temperature.** With an annual average temperature of ~ 26-27 °C, January being the lowest (14 °C) and May the highest (38-39 °C)¹⁸, it is considered to be the hottest province in the country (footnote 14).

139. **Humidity.** Relative humidity of 75-77 % is relatively low compared to other areas in the country (footnote 18).

140. **Precipitation.** It has the lowest average rainfall in the country, thus it is one of the driest. The amount of rainfall received varies from the coastal to the mountainous areas. The annual average rainfall is 700-800 mm in the coastal Phan Rang-Thap Cham City and can reach to more than 1,100 mm in mountainous areas (footnote 14).

141. **Sunshine.** The province has a high solar altitude with long and equal sunshine periods. The annual average sunshine duration is 2,600-2,800 hours with a total temperature load of 10,000°C distributed throughout the year¹⁹.

142. **Wind.** According to the *Decision No. 2574/QĐ-BCT of 23 April 2013 by the Ministry of Industry and Trade*, Phuoc Dinh Commune has a recorded wind velocity of 8.5-9.0 m/s. A detailed Wind Resource Evaluation was done by Project Owner covering measurements for a total of 28.5 months (from 05 May 2009 to 19 September 2011). Measurements from a 60 m and 100 m hub height were obtained. The data for 24 months (01 September 2009 to 01 September 2011), with data availability of about 94.0%, was used for the analysis.

143. At 60.0 m hub height, the average wind speed is approximately 6.47 m/s²⁰. The maximum monthly average is 8.86 m/s (January) and lowest is 5.04 m/s (October). A turbulence intensity (TI₁₅), according to IEC 61400-1 ed. 3, of 0.14% indicated the site as IEC B. According to the Weibull distribution, the following are the prevailing wind directions (Figure 7):

- i. North Northeast, NNE = 19 %
- ii. North / East Northeast, N / ENE = 13 % / 11 %
- iii. West Southwest / North Northwest, WSW / NNW = 11 % / 10 %.

144. The summer monsoon has a prevailing southwest (SW) wind direction and winter monsoon from north (N). Significant variations occur from April to May and September to November.

¹⁸ Ninh Thuan Economic Development Office. Natural Conditions.

<http://edoninhthuan.gov.vn/en/news.aspx?ID=88&NewsID=129&LangID=2>

¹⁹ Ninh Thuan Economic Development Office. Solar energy plants.

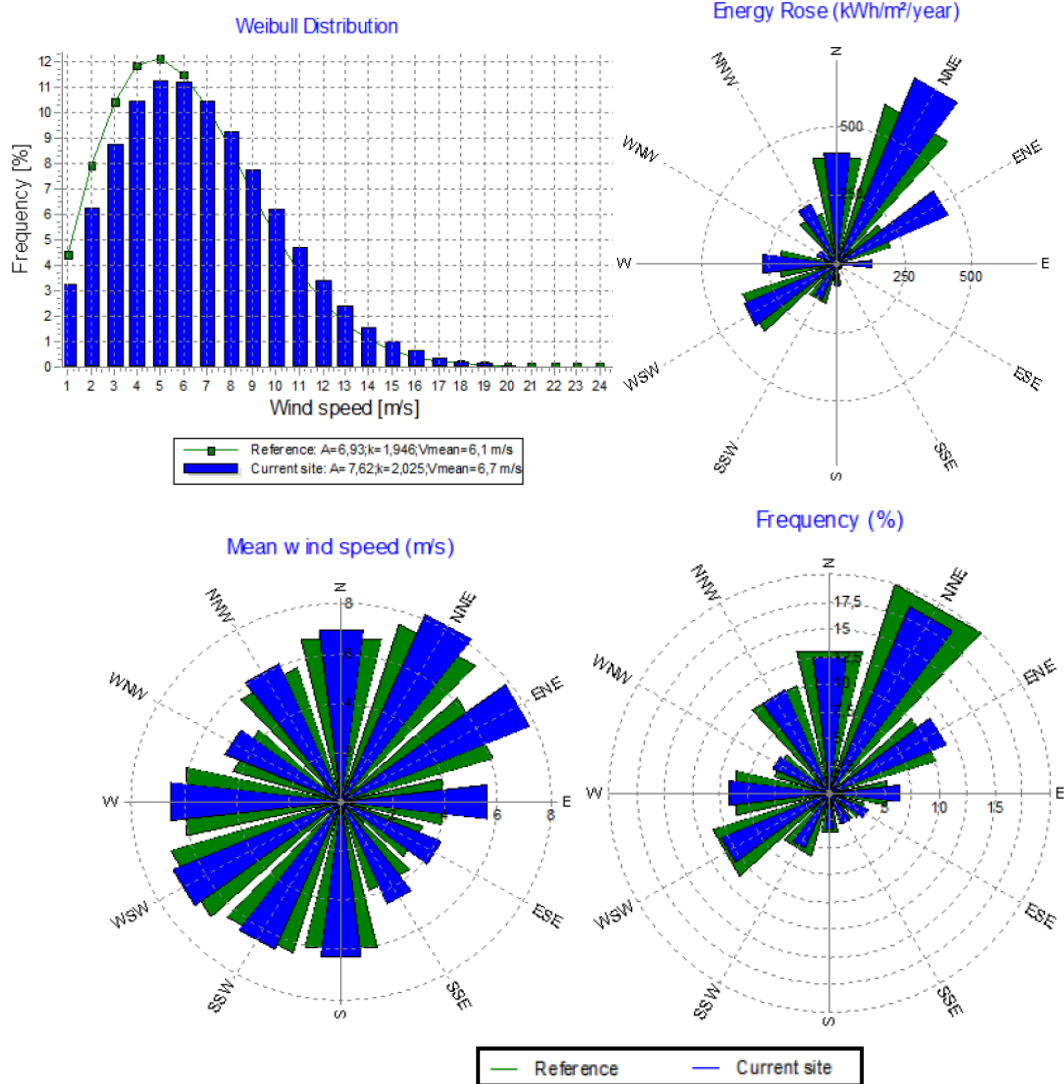
<http://edoninhthuan.gov.vn/EN/news.aspx?ID=341&NewsID=1602&LangID=2>

²⁰ Wind measurements during a 12-month period (01 August 2010 – 01 August 2011), with 100% data availability, have a higher average wind speed of 6.8 m/s

Site coordinates
UTM (north)-WGS84 Zone: 49 East: 281.298 North: 1.263.749
Wind statistics
VN 2013-03-26_MUI DINH 01.09.2009-01.09.2011 - 60,00 m.wvs

Weibull Data

Sector	Current site			Frequency [%]	Reference: Roughness class 1		
	A- parameter [m/s]	Wind speed [m/s]	k- parameter		A- parameter [m/s]	k- parameter	Frequency [%]
0 N	7,89	6,99	2,064	12,6	7,63	2,054	13,3
1 NNE	9,24	8,26	3,123	18,6	8,40	3,020	20,0
2 ENE	8,82	7,63	2,447	11,4	6,91	2,207	10,1
3 E	6,31	5,63	1,686	6,3	4,38	1,556	5,3
4 ESE	4,67	4,14	2,084	3,7	3,71	2,409	3,4
5 SSE	5,04	4,46	2,029	3,0	4,27	1,864	2,9
6 S	7,18	6,36	2,072	3,3	6,84	2,062	3,6
7 SSW	7,31	6,48	2,068	5,5	7,22	2,044	5,9
8 WSW	7,87	6,99	1,893	10,6	7,68	1,892	11,1
9 W	7,39	6,56	1,842	9,1	6,82	1,832	8,8
10 WNW	5,38	4,62	1,631	5,7	4,79	1,626	5,2
11 NNW	6,82	6,06	1,873	10,3	6,37	1,859	10,3
All	7,62	6,75	2,025	100,0	6,93	1,946	100,0



kWh/m²/year = kilowatt-hour per square meter per year; m = meter; m/s = meter per second
N,S,W,E = North, south, west, east

Adapted from: El-wind Mui Dinh LLC. 2013. *Wind Farm Mui Dinh: Project description*. Project document: Unpublished.

Figure 7. Wind data analysis at 60 m hub height for 24 months (01/09/2009 – 01/09/2011)
(Generated using WindPRO21 version 2.8.579)

²¹ WindPRO is developed by EMD International A/S, Niels Jernesvej 10, DK-9220 Aalborg ø, Tel. +45 96 35 44 44, Fax +45 96 35 44 46, e-mail: windpro@emd.dk

4.1.5 Hydrology and Hydrogeology

145. Water resources in the province are distributed unevenly, concentrated mainly in the southern and central part. The underground water supply is quite limited in quantity, i.e., equal only to one third of the country-wide average (footnote 18).

146. The T/L will traverse the area near the Bau Ngu Lake. This lake is bounded by the communes of Phuoc Dinh and Phuoc Hai. Several streams and other bodies of water will also be crossed (Table 12). Some small fishponds are within 1 km of the Project Site.

Table 12. Water Bodies crossed by the T/L

Section	Water Body				
	Stream	Channel	Ditch	Pond	Irrigation Canal
DD - G1	-	-	-	-	-
G1 - G2	1	-	-	-	-
G2 - G3	-	-	-	-	-
G3 - G4	3	-	-	-	-
G4 - G5	-	-	1	3	-
G5 - G6	-	-	1	-	-
G6 - G7	-	-	3	-	-
G7 - G8	-	-	7	-	-
G8 - G9	-	-	2	-	-
G9 - G10	-	-	11	-	-
G10 - DC	-	-	6	-	-
Total	4	-	31	3	-

DD = Project Substation; DC = Ninh Phuoc Substation; G1-G8 = Section points

Adapted from: Power Engineering Consulting Joint Stock Company (PECC3). 2014. *External Grid Connection Study: TK-14-04-14*. Project document: Unpublished.

147. Baseline data on surface water and groundwater quality within the Project area of influence are needed for future monitoring. The Consulting Center for O.S.H and Environmental Technology (SHET), an accredited environmental monitoring company, was contracted for the environmental sampling. Surface water quality in Bau Ngu Lake is within the national standard (Figure 8). Groundwater samples obtained from households exceeded the standard concentration for ammonia (NH₃) (Figure 9). Ammonia in water is an indicator of possible bacterial, sewage and animal waste pollution. The wastewater and sewage from Project activities will be managed effectively to mitigate impacts to surface and groundwater water quality. Further, mitigating measures to ensure water safety for the workers in the Project Site shall be put in place.



Communes: Phuoc Dinh and Phuoc Hai (Bau Ngu Lake)

No.	Parameter	Unit	Value	Standard*	Method of analysis
1	pH, 24.7 °C	-	6.98	5.5 - 9	TCVN 6492-2011
2	BOD ₅ , 20°C	mg/L	12	15	TCVN 6001-1-2008
3	COD	mg/L	18	30	SMEWW-5220.C
4	TSS	mg/L	27	50	SMEWW 2540-TSS.D
5	Total P	mg/L	0.084	-	TCVN 6202-2008
6	Total N	mg/L	2.15	-	TCVN 6638-2000
7	Total Coliform	MPN/100mL	1,500	7500	TCVN 6187-2-2009

BOD = Biological oxygen demand; COD = Chemical oxygen demand; °C = degrees Celsius
 mg/L = milligram per liter; mL = milliliter; MPN = Most probable number; TSS = Total suspended solids;
 P = Phosphorus; N = Nitrogen

Note: *Standard Regulation: QCVN 08: 2008/BTNMT

Adapted from: Consulting Center for O.S.H and Environmental Technology (SHET). 2014. *Environmental survey analysis results*: Project document: Unpublished.

Figure 8. Representative baseline surface water quality data of Bau Ngu Lake
 (Sampling date: 01 April 2014)



1: Commune: Phuoc Dinh
Household of Bùi Văn Hải
(Near WTG 13)



2: Commune: Phuoc Nam
Household of Nguyễn Thị Hồng Loan
(Along National Highway Q1A)

No.	Parameter	Unit	1	2	Standard*	Method of analysis
1	pH, 24.5 °C	-	6.86	6.47	5.5 - 8.5	TCVN 6492-2011
2	COD (KMnO ₄)	mg/L	1.56	1.52	4	TCVN 6186-1996
3	Hardness (CaCO ₃)	mg/L	57	62	500	TCVN 6224-1996
4	Cl ⁻	mg/L	62.4	52.8	250	TCVN 6194-1996
5	Fe	mg/L	0.018	0.026	5	TCVN 6177-1996
6	NH ₃	mg/L	0.139	0.108	0.1	TCVN 4563-1988
7	Mn	mg/L	ND (<10 ⁻²)	ND (<10 ⁻²)	0.5	TK TCVN 6193-1996
8	Total As	mg/L	ND (<10 ⁻³)	ND (<10 ⁻³)	0.05	SMEWW 3500-As B

As = Arsenic; COD = Chemical oxygen demand; CaCO₃ = Calcium carbonate; Cl⁻ = Chlorine ion; Fe = Iron; °C = degrees Celsius;; KMnO₄ = Potassium permanganate; mg/L = milligram per liter; Mn = Manganese; NH₃ = Ammonia; ND = Not Detected; WTG = Wind turbine generator

Note: *Standard Regulation: QCVN 09: 2008/BTNMT

Adapted from: Consulting Center for O.S.H and Environmental Technology (SHET). 2014. *Environmental survey analysis results*. Project document: Unpublished.

Figure 9. Representative baseline groundwater quality data of households
(Sampling date: 01 April 2014)

4.1.6 Air Quality and Noise

148. Ambient air quality and noise measurements were performed in different locations within the Project area of influence (Figure 10). Results of noise and air quality parameters comply with the national standards. However, the ambient noise and PM10 (particulates) values are near the upper limit of the standards. Project activities during construction are expected to add to these ambient values and mitigating measures shall be in place.



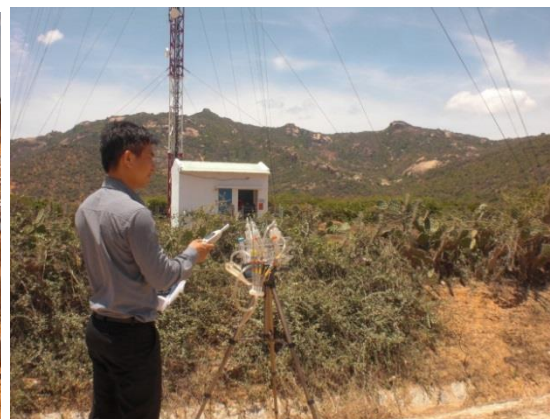
1: Commune: Phuoc Ninh
At Ninh Phuoc Substation



2: Commune: Phuoc Dinh
Roadside near WTG 6 location



3: Commune: Phuoc Dinh
At WTG 6 location



4: Commune: Phuoc Dinh
Roadside near WTG 11 location

No.	Parameter	Unit	1	2	3	4	Standard*	Method of analysis
1	Noise	dB	65	65	54	68	70	Extech 407730 Digital Sound Meter
2	PM10	mg/m ³	0.24	0.23	0.21	0.24	0.3	TCVN 5067:1995
3	NO ₂	mg/m ³	0.024	0.037	0.035	0.029	0.2	TCVN 6137:2009
4	SO ₂	mg/m ³	0.043	0.056	0.052	0.048	0.35	TCVN 5971:1995
5	CO	mg/m ³	2.34	2.42	2.16	2.55	30	TQKT- YHLD & VSMT 1993

dB = decibel; mg/m³ = milligram per cubic meter; PM10 = Particulate matter (< 10 microns); NO₂ = Nitrogen dioxide;
SO₂ = Sulfur dioxide; CO = Carbon monoxide; WTG = Wind turbine generator

Notes: *Standard Regulation: Noise - QCVN 26:2010/BTNMT: 70 dB (0600H – 2100H) and 55 dB (2100H – 0600H)
Others - QCVN 05:2013/BTNMT

Adapted from: Consulting Center for O.S.H and Environmental Technology (SHET). 2014. *Environmental survey analysis results*. Project document: Unpublished.

Figure 10. Representative baseline ambient air quality and noise sampling
(Sampling date: 01 April 2014)

4.2 BIOLOGICAL CONDITIONS

4.2.1 Forest

149. The forest area of the province is 149,000 ha (2011); 140,600 ha natural forest and 8,400 ha planted forest, of which 43.5% is forest cover²². Although the forest cover is high, density had decreased due to excessive illegal deforestation and severe drought-induced forest fires (footnote 16). The fire-impacted forest area was 7 ha in 2011 and more than doubled by 2012²³. There are no forest areas in the Project Site and the T/L ROW.

4.2.2 Flora

150. Bananas and coconuts are commonly found in the province, along with rice fields beside the roads. In animal grazing areas, some farmers plant Napier grass and *Gliricidia* for forage. In the Project Site, the plants thriving are mostly cacti and other shrubs that are conducive to very dry conditions. Within the T/L ROW, however, the flora is more varied.

151. **Affected Flora within the T/L ROW.** Within the ROW, there are plants such as fruit trees (rambutan, mango, apple, etc.), cacti, shrubs, coconut, hardwood, and rice. A maximum height of 9.0 m was recorded during site inspection (14/04/ 2014), while other trees can reach a maximum height of 25 m. Trees that obstruct the T/L ROW will have to be cut, pruned or felled for safety.

152. **International Union for Conservation of Nature (IUCN) Red List.** Using the Integrated Biodiversity Assessment Tool (IBAT), the *possible*²⁴ occurrence of threatened plant species in the species distribution map, which includes the Project Site and the T/L ROW, was identified²⁵. These are the vulnerable species Ocean Turf Grass (*Halophila beccarii*) and the near threatened species Mangrove Date Palm (*Phoenix paludosa*). Both species are native to Vietnam. The *Halophila beccarii* has a very narrow restricted habitat in the intertidal zone that is susceptible to destruction from cyclones, waves, intense grazing, and infestation of fungi and epiphytes. Other threats include mangrove destruction, coastal development such as construction of harbours, shrimp farms, sediment discharge, untreated

²² General Statistics Office. Area of forest as of 31 December by province.
http://www.gso.gov.vn/default_en.aspx?tabid=469&idmid=3&ItemID=14261

²³ General Statistics Office. Area of fired forest by province.
http://www.gso.gov.vn/default_en.aspx?tabid=469&idmid=3&ItemID=14250

²⁴ The Red List deals with species of widely varying range sizes - from restricted range species limited to a single 1 km² site to species whose ranges exceed many hundreds of thousands of square kilometers, despite possibly being quite rare within that vast range. The species underlying the grid cell in IBAT are species whose "limits of distribution" intersect with that grid cell. This should not be confused with actual occurrence; rather, this should be interpreted as possible occurrence.

²⁵ Species data downloaded from the Integrated Biodiversity Assessment Tool (IBAT) (<http://www.ibatforbusiness.org>). Provided by BirdLife International, Conservation International, IUCN and UNEP-WCMC. Please contact ibat@birdlife.org for further information.

waste disposal, and aquaculture among others²⁶. The *Phoenix paludosa* is a back mangrove species, and is therefore particularly vulnerable to coastal development and sea-level rise²⁷.

153. The identified species in the IUCN Red List were not found within the Project Site and T/L ROW, but may possibly be present along the coastal area to the east. However, the activities in the Project Site will ensure that there will be no disposal of any untreated waste and sediment discharge that may negatively impact the coastal area. Mitigating measures relating to waste disposal and proper drainage will be put in place.

4.2.3 Fauna

154. Sheep, goats, and cattle are widespread in the province (Photo 1). Livestock are an important part of the provincial economy. The most preferred grazing animal is the Sultan breed of sheep due to its resistance to high-temperature environment (footnote 14). Animals graze farm lands and open private lands for forage, as in the Project Site.

155. Almost all households in the province keep poultry birds for regular source of food and income. But this practice is decreasing due to the bird flu scare which has diminished the poultry business (footnote 16). Ownership of dogs is common in households. Common butterflies are also prevalent almost everywhere, in the Project Site and along the T/L ROW.

156. Regarding bird species, cattle egrets (*Bubulcus ibis*) are a common sighting in the paddy fields in Thuan Nam District, specifically in Phuoc Nam Commune where the T/L will traverse. Near the Bau Ngu Lake, swallows are sighted because of an existing swallow breeding house located nearby. A similar swallow breeding house is located along the National Highway Q1A in Phuoc Nam Commune. Mynas and sparrows are usually sighted along power cables. However in the Project Site, mostly dry barren land of cacti and shrubs, bird sightings are very rare.

²⁶ The IUCN Red List of Threatened Species. *Halophila beccarii*.
<http://www.iucnredlist.org/details/173342/0>

²⁷ The IUCN Red List of Threatened Species. *Phoenix paludosa*.
<http://www.iucnredlist.org/details/178816/0>



Commune: Phuoc Ninh
In front of Ninh Phuoc Substation



Commune: Phuoc Dinh
Along section G1-G2 of the Transmission Line



Commune: Phuoc Dinh
In the South Site of the Project (near WTG 6 location)

Photo 1. Common grazing of livestock in Thuan Nam District

157. **IUCN Red List.** Using the IBAT, the *possible* occurrence of threatened animal species in the species distribution map was identified (footnote 25). There are a total of 394 species, of which seven are globally threatened birds species (critically endangered = 2; endangered = 1; vulnerable = 4) (Table 13).

158. The bird species that are critically endangered are the White-rumped Vulture (*Gyps bengalensis*) and the Red-headed Vulture (*Sarcogyps calvus*). Both species have suffered an extremely rapid population decline primarily as a result of feeding on carcasses of animals treated with the veterinary drug diclofenac. The endangered bird species is the Black-bellied Tern (*Sterna acuticauda*). All the above three bird species are considered to be possibly extinct or extirpated in Vietnam. On the other hand, the four vulnerable bird species are the Greater Spotted Eagle (*Aquila clanga*), Chinese Egret (*Egretta eulophotes*), Yellow-breasted Bunting (*Emberiza aureola*), and the Great Slaty Woodpecker (*Mulleripicus pulverulentus*). The *Aquila clanga* and *Egretta eulophotes* are sighted mainly in the far south of Vietnam. Although the other two vulnerable species are sighted in all of Vietnam; their

habitat, reed beds and dry-water rice fields and swamp forests and tall mangroves²⁸, are different from the Project Site and T/L ROW. It can be concluded that the Project will have no adverse impact on birds listed in the IUCN Red List.

Table 13. Species of *possible* occurrence in the Project Sites and T/L route

Taxonomic group	CR	EN	VU	NT	DD	Total
Amphibians	0	0	1	1	4	6
Birds	2	1	4	16	0	23
Fishes	0	2	20	17	33	72
Invertebrates	0	6	86	116	32	240
Mammals	0	10	16	6	15	47
Reptiles	0	0	4	0	2	6
Total	2	19	131	156	86	394

Globally Threatened: CR = Critically Endangered, EN = Endangered, VU = Vulnerable
NT = Near Threatened; DD = Data Deficient; T/L = Transmission line

Important Note: The Red List deals with species of widely varying range sizes - from restricted range species limited to a single 1 km² site to species whose ranges exceed many hundreds of thousands of square kilometers, despite possibly being quite rare within that vast range. The species underlying the grid cell in IBAT are species whose "limits of distribution" intersect with that grid cell. This should not be confused with actual occurrence; rather, this should be interpreted as *possible* occurrence.

Source: Species data downloaded from the Integrated Biodiversity Assessment Tool (IBAT) (<http://www.ibatforbusiness.org>). Provided by BirdLife International, Conservation International, IUCN and UNEP-WCMC. Please contact ibat@birdlife.org for further information.

4.3 SOCIO-ECONOMIC CONDITIONS

4.3.1 Population and Affected Communities

159. As of 2012, the average population in the province was 567,700. It ranks 7th out of the 63 provinces in the country with the least population. Population density is 172 persons/km² ²⁹. Around 36 % of its population resides in the urban area³⁰.

160. Thuan Nam District, as of 2010, has a population of 55,252 and a population density of 98 persons/km². Ethnic groups in the district are the Kinh, Cham, and Raglay. The district is comprised of 12,247 households, wherein 8.4 % are considered poor. Thuan Nam District has a 13.8% poverty rate (footnote 16).

161. The Project Site is uninhabited as it was leased from the government. But within the T/L ROW, there are a total of 16 residents (10 males and 6 females) only in Thuan Nam District; of which three are married couples. Thirteen reside in the commune of Phuoc Nam, one in Phuoc Dinh, and a couple in Phuoc Ninh.

²⁸ BirdLife International (2014) IUCN Red List for birds. Downloaded from <http://www.birdlife.org> on 16/04/2014.

²⁹ General Statistics Office of Vietnam. Area, population, and population density in 2012 by province. http://www.gso.gov.vn/default_en.aspx?tabid=467&idmid=3&ItemID=14459

³⁰ General Statistics Office of Vietnam. Average urban population by province. http://www.gso.gov.vn/default_en.aspx?tabid=467&idmid=3&ItemID=14454

4.3.2 Education

162. As of 2012, there were a total of 231 schools in the province. The number of primary school is 149, lower secondary is 63, and upper secondary is 19³¹. All communes in the province have kindergartens, and primary and lower secondary schools. The province meets the national standards of universal primary education and has universal lower secondary schooling. However, in terms of universal primary education, only 57% communes had met the national standards. The province has a much lower literacy level (88.8 % for male and 83.3 % for female) compared with the national and regional rates for persons over 15 years old. Functional literacy and numeric skills continue to be weak amongst many Raglay ethnic minority households, especially amongst adult women. School enrolment and school performance are recognized to be better amongst the Cham ethnic minority than other ethnic minorities in the province (footnote 16).

4.3.3 Health

163. By the end of 2012, there were a total of 80 health establishments under the Provincial Department of Health. Currently there are 6 hospitals, 8 regional polyclinics, 1 sanatorium and rehabilitation hospital, and 65 medical service units³². Combined, there are a total of 1,635 total patient beds in the province³³. In Thuan Nam District, all its communes have health clinics and midwife/delivery nurse care; but only 37% have doctors. No communes in the district have reached the national health standards (footnote 16).

164. The 2012 provincial data show 305 infected people, 60 patients, and 5 deaths³⁴ (0.14%, 0.10%, and 0.0001%, respectively, of country's statistics). There is decrease in new cases (62.7%) and patients (31.2%) with reference to 2011. Infections are primarily amongst males (20-29 years old) primarily associated with intravenous drug use and heterosexual transmission. Authorities have considerably intensified HIV/AIDS awareness and prevention activities in recent years (footnote 16).

4.3.4 Water Supply and Sanitation

165. Around 20% of rural population in the province has no access to safe water and to those with, half does not meet the drinking water quality standard of the Ministry of Health (MOH). Sanitation is poor, only 62% of households use appropriate sanitary latrines (52.72% Thuan Nam District). The district can have access to treated surface water supply from the Provincial Center for Rural Water Supply and Sanitation (PCERWASS) (footnote 16). The population and households in Phuoc Dinh Commune have the poorest status (Table 14). Furthermore, salinization is a major problem affecting supply in lowland areas due to dry conditions, scarcity and over-exploitation of underground water (footnote 14).

³¹ General Statistics Office of Vietnam. Number of school of general education as of 30 September by province. http://www.gso.gov.vn/default_en.aspx?tabid=474&idmid=3&ItemID=14029

³² General Statistics Office of Vietnam. Number of Health establishments under provincial department of health by province. http://www.gso.gov.vn/default_en.aspx?tabid=474&idmid=3&ItemID=14010

³³ General Statistics Office of Vietnam. Number of patient beds under provincial department of health by province. http://www.gso.gov.vn/default_en.aspx?tabid=474&idmid=3&ItemID=14006

³⁴ General Statistics Office of Vietnam. Number of infected people with HIV/AIDS and number of AIDS deaths by province. http://www.gso.gov.vn/default_en.aspx?tabid=474&idmid=3&ItemID=14001

Table 14. Rural water supply and sanitation in the affected communes, 2010

Description	Thuan Nam			Ninh Phuoc
	Phuoc Dinh	Phuoc Ninh	Phuoc Nam	Phuoc Hai
Population	9,619	4,811	11,611	12,367
<i>Population using appropriate water</i>	32%	97%	96%	91%
No. of households (HH)	2,231	829	2,212	2,472
<i>HH using appropriate clean latrines</i>	51%	33%	60%	75%
<i>HH that have appropriate clean latrines</i>	43%	32%	44%	67%
With appropriate clean water and latrines				
<i>Schools</i>	5	4	5	5
<i>Clinics</i>	1	1	1	1

HH = households

Adapted from: Provincial Centre for Rural Water Supply and Sanitation. 2011. *Report on results of implementation of the monitoring indicators for clean water and environmental sanitation in Ninh Thuan Province*. In UNICEF Viet Nam and Ninh Thuan Province. 2012. *An analysis of the situation of children in Ninh Thuan Province*. http://www.unicef.org/vietnam/sitan_nt_eng.pdf. p. 73.

4.3.5 Electricity Supply

166. All districts and communes in the province are connected to the electricity grid, with >95% of households supplied (footnote 16). Further development in the power sector, such as construction of new transmission systems, is being done to supply demand in the industrial parks, tourist areas, and major economic zones of the province³⁵. In Thuan Nam District, kerosene or gas is still used for cooking despite availability of electricity.

4.3.6 Economy

167. Main sources of livelihood in the province are agriculture, animal husbandry, forestry, fisheries and aquaculture. Agriculture employs over 70% of labor force. Despite the dry climate and soils, these provide suitable growing conditions for several commercially valuable crops (grapes, maize and short rotation vegetable crops such as garlic, carrots, potatoes, chilies and tomatoes). Conditions are also suitable for livestock production, including sheep and cattle, which are important components of the local economy. In coastal areas, shrimp farming is widely practiced; as in the coastal area to the east of Project Site.

168. Given the geology of the area, the Geology & Minerals Corporation (GEOSIMCO), a subsidiary of the Vietnam National Coal – Mineral Industries Group (VINACOMIN), has quarrying operations near the Project Site. Also nearby, but within the safety zone, is the Ninh Thuan NPP 1 nuclear project (two reactors; 2000 MW output) of the government due to start by 2017. Both the Project and Ninh Thuan NPP 1 are major power projects to supply electricity to the industrial parks and other major economic zones in the province.

4.3.7 Land Use

169. The province has 335,800 hectares (ha) of land. About 55.4% was forestry land, 22.01% agricultural production land, 5.3% specially used land, and the remaining homestead

³⁵ Ninh Thuan Portal. Infrastructure. <http://www.ninhthuan.gov.vn/english/Pages/Infrastructures.aspx>

land (2012)³⁶. Land within the T/L ROW is used as residential, agriculture, animal husbandry, public infrastructure (electrical and communication lines, roads, irrigation, railway, and others), and other mixed uses described in earlier sections (Table 15).

Table 15. Land use within the T/L ROW

District / Commune	Section	Distance	Number of times Crossed				Area (m²)				
		(m)	Line, Post ^a	Roads, Railway	Water body	Rice ^c , Others	Res	WRH	WH	Farm	Agri ^c
Thuan Nam District											
Phuoc Dinh	DD - G1	776.27	0	0	0	0,5	-	-	-	-	5,366.5
Phuoc Dinh	G1 - G2	1,055.75	3	3	1	0	-	-	-	-	497.1
Phuoc Dinh	G2 - G3	1,922.04	3	1	0	0	-	-	25	-	5,272
Ninh Phuoc District											
Phuoc Hai	G3 - G4	2146.00	0	6	3	0	-	-	-	-	2,783.2
Phuoc Hai - Phuoc Nam	G4 - G5	957.61	6	2	12	0,8	-	-	-	-	1,623.2
Thuan Nam District											
Phuoc Nam	G5 - G6	1,197.38	0	1	3	0,4	-	-	-	-	-
Phuoc Nam	G6 - G7	822.66	0	1	2	0,6	343	-	-	-	627.8
Phuoc Nam - Phuoc Ninh	G7 - G8	1,359.90	6,6	4,1	2	6, 2	418	-	-	8,282.4	-
Phuoc Ninh	G8 – G9	212.49	3	1	6	0, 7	-	-	-	-	-
Phuoc Ninh	G9 – G10	1,963.54	6	4	8	0,19	30	-	-	-	671.2
Phuoc Ninh	G10 – DC	470.18	2	1,1	2	0,13	-	30	-	-	-
Total		12,884.82	35	26	39	70	791	30	25	8,282.4	16,841

Agri = agriculture; DD = Project Substation; DC = Ninh Phuoc Substation; G1-G10 = Section points; m = meter; m² = square meter; Res = residential; ROW = Right-of-way; T/L = Transmission line; WH = watch house; WRH = warehouse

Notes: ^aLines pertain to electrical and communication lines and Post is Traffic Light

^bArea of rice field was not provided, just the number of times crossed, as well as for other crops

^cAgricultural crops grown discussed in the section on *Flora*

Adapted from: Power Engineering Consulting Joint Stock Company (PECC3). 2014. *External Grid Connection Study: TK-14-04-14*. Project document: Unpublished.

4.3.8 Road Networks/Transportation

170. Most areas of the province are readily accessible through its transportation network. The network is comprised of: National Highway No. 1A, the National Highway No. 27A leading to Dalat and south of Central Highlands, the National Highway No. 27B Ninh Son-Cam Ranh, the Trans-Vietnam railway, and the roads in all the communes. The province is only 60 km from the Cam Ranh International Airport (in Khanh Hoa Province) and is also near the Port of Ba Ngoi (one of 10 large-scale seaports in Vietnam). Within the province, there is also the Phan Rang Air Base which is about 20 km northwest of the Project Site. Thus, the province is accessible via sea, railway, road and air (footnote 35).

³⁶ General Statistics Office of Vietnam. Land use by province (As of January 1, 2012). http://www.gso.gov.vn/default_en.aspx?tabid=466&idmid=3&ItemID=14194

171. The Project Site can be accessed via the Ca Na–Binh Tien Road in Phan Rang - Thap Cham City that leads up to Phuoc Dinh Commune. This road is about 12 km away from the National Highway No. 1A where the 22/110 kV 40 MVA Ninh Phuoc Substation is located.

4.3.9 Communication

172. Since 2005, all provinces in the country have one broadcasting station³⁷ and one television station, except for Hanoi which has more³⁸. Ninh Thuan Province also has two editorial offices³⁹. Its postal service, telecommunication, and high speed communication networks are being modernized to meet the demand for information exchange and communication (footnote 35).

4.3.10 Biodiversity Areas

173. **Legally Protected Areas and Internationally Recognised Areas.** Using the IBAT, protected area locations near the Project were identified (

³⁷ General Statistics Office of Vietnam. Number of broadcasting stations by province.
http://www.gso.gov.vn/default_en.aspx?tabid=474&idmid=3&ItemID=13997

³⁸ General Statistics Office of Vietnam. Number of television stations by province.
http://www.gso.gov.vn/default_en.aspx?tabid=474&idmid=3&ItemID=13996

³⁹ General Statistics Office of Vietnam. Number of editorial offices by province.
http://www.gso.gov.vn/default_en.aspx?tabid=474&idmid=3&ItemID=13998

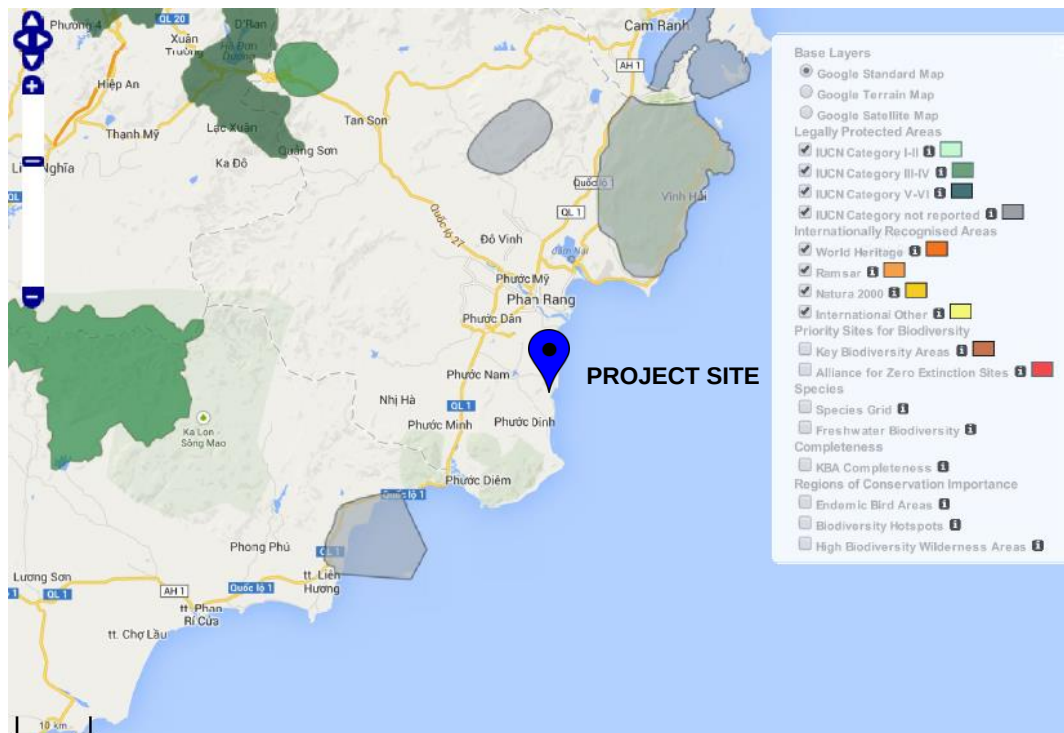
174. Map 5). For the Legally Protected Areas, the Kalon Song Mao (IUCN Category IV) and Rung Thong Da Lat (IUCN Category V) are about 50 km to the west and to the northwest of the Project, respectively. The Cat Tien (UNESCO-MAB Biosphere Reserve), an Internationally Recognised Area, is about 140 km to the west. Two sites of IUCN Category not yet reported are about 20 km to the southwest and northeast of the Project.

175. **Priority Sites for Biodiversity.** Using the IBAT, there is no Alliance for Zero Extinction Sites and Key Biodiversity Areas (KBA) within 10 km radius of the Project (Map 6). The KBA identified is Nui Cha, a national park, about 25 km northeast of the Project.

176. **Regions of Conservation Importance.** Vietnam is part of the Indo-Burma Biodiversity Hotspot which is ranked 1 out of 10 of the world's most threatened forested hotspots with only 5% remaining habitat⁴⁰. The South Vietnamese lowlands are considered an Endemic Bird Area and probably extending to Binh Thuan, Ninh Thuan and Khanh Hoa provinces (Map 7). However, there is no Important Bird Area (IBA) near the Project until about 140 km to its west (footnote 28).

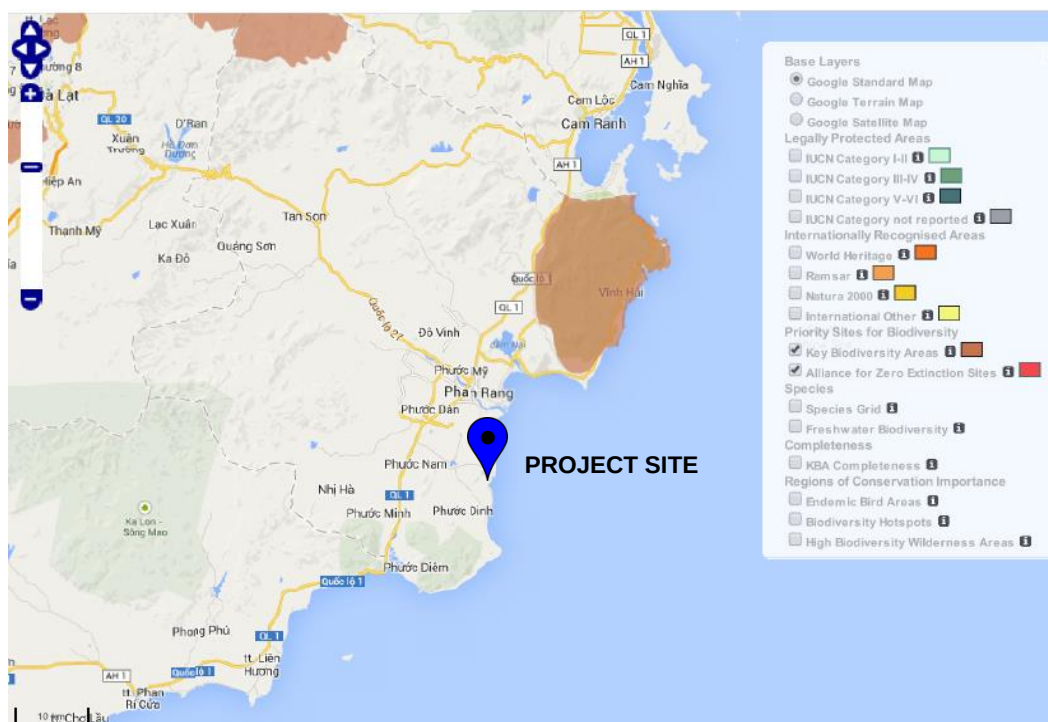
⁴⁰ Conservation International. The World's 10 Most Threatened Forest Hotspots. <http://blog.conservation.org/2011/02/10-most-threatened-forest-hotspots/>

Map 5. Legally Protected Areas and Internationally Recognised Areas near the Project



Source: Legally Protected Area and Internationally Recognised Area data downloaded from the Integrated Biodiversity Assessment Tool (IBAT) (<http://www.ibatforbusiness.org>). Provided by BirdLife International, Conservation International, IUCN and UNEP-WCMC. Please contact ibat@birdlife.org for further information.

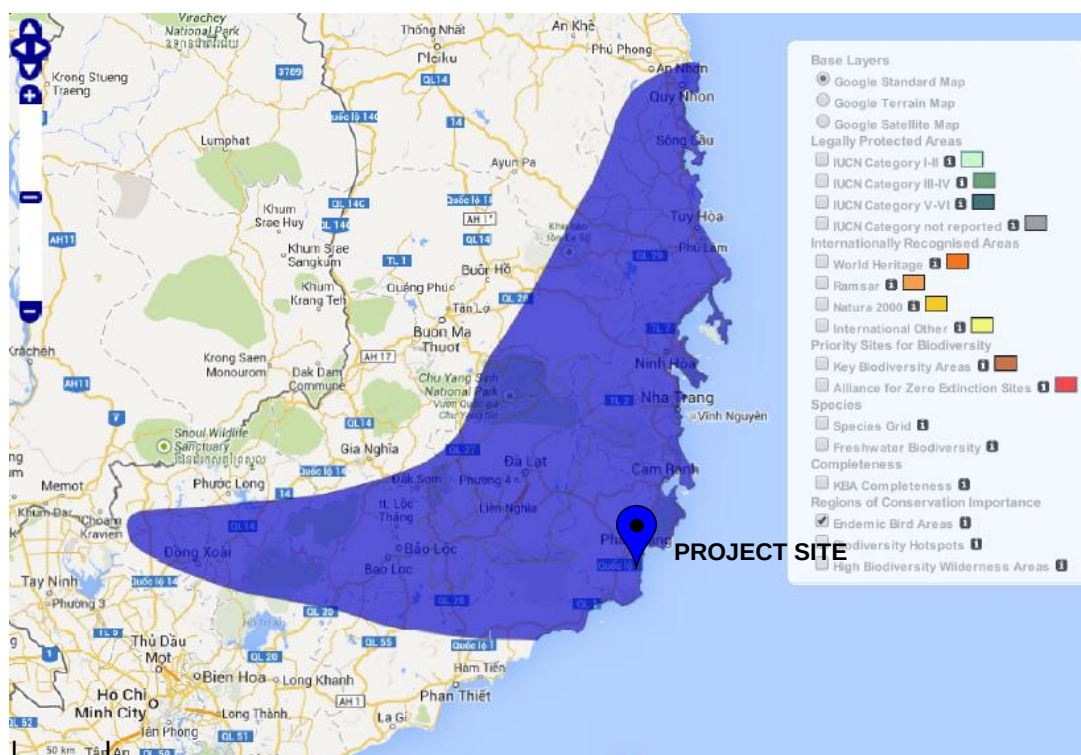
Map 6. Priority Sites for Biodiversity near the Project



Source: Priority Sites for Biodiversity data downloaded from the Integrated Biodiversity Assessment Tool (IBAT) (<http://www.ibatforbusiness.org>). Provided by BirdLife International, Conservation International, IUCN and UNEP-WCMC. Please contact ibat@birdlife.org for further information.

177. An abnormal sighting of the migratory bird species Red-necked Phalarope (*Phalaropus lobatus*) was observed starting 2011 in the shrimp farms of Phuoc Dinh Commune (during sowing time) by the Institute of Tropical Biology. Naturally the species is seen in the Nghia Hung coast and Xuan Thuy Nature Reserve in the country's northern province of Ha Nam, and some sightings in Cat Tien National Park in Dong Nai Province⁴¹. Although this species is considered native in Vietnam, it has not triggered the IBA criteria and categorized as least concern in the IUCN Red list⁴². This species commonly travel at low altitudes of very few feet to a few hundred feet above sea or land. Its flight altitude has been observed to be so low they were visible only as they topped the waves⁴³.

Map 7. Endemic Bird Areas near the Project



Source: Endemic Bird Areas data downloaded from the Integrated Biodiversity Assessment Tool (IBAT) (<http://www.ibatforbusiness.org>). Provided by BirdLife International, Conservation International, IUCN and UNEP-WCMC. Please contact ibat@birdlife.org for further information.

4.3.11 Development Plan

178. In the *Master Plan on Socio-economic Development of Ninh Thuan Province through 2020*, there is prioritized development of the energy; tourism; agriculture, forestry and fisheries; manufacturing and processing industries; education and training; and construction-

⁴¹ Vietnam Environment Administration – Ministry of Natural Resources and Environment. Thousands of red necked phalarope flock to Ninh Thuan. <http://vea.gov.vn/en/news/news/Pages/ThousandsofredneckedphalaropeflocktoNinhThuan.aspx>

⁴² BirdLife International (2014) Species factsheet: *Phalaropus lobatus*. Downloaded from <http://www.birdlife.org> on 08/04/2014

⁴³ U.S. Geological Survey. Migration of Birds: Migratory Flight Altitude. <http://www.npwrc.usgs.gov/resource/birds/migratio/altitude.htm>

real estate trading sectors. These industries are projected to contribute 91% of the province's GDP and will employ 85% of its workforce.⁴⁴

- a) **Energy.** Investments will be on nuclear power plants (total 4,000 MW)⁴⁵, hydropower plant (1,200 MW), solar power (282 MW), and wind farms (total 1,600 MW)
- b) **Tourism.** High quality and diversified products and services
- c) **Agriculture, forestry and fisheries.** Agriculture- sciences, techniques, and new technologies. Fisheries- aquatic breed production, shrimp farming, and export processing. Forestry- land use, forest coverage, enhanced protection, planting new forests and existing regenerated, and rubber plantations
- d) **Industries.** Processing industries for salt, food and beverage, shrimp, cashew nuts, livestock and meat; beer and vintage plants; and industrial parks
- e) **Construction, real estate trading and development of new urban centers.** A high-technical level construction sector, along with real estate covering brokerage and lease, and intermediaries for sale and purchase services
- f) **Education and Training.** Scale and quality, infrastructure and quality of teachers, minimizing education gap, and mobilizing children of prescribed age to go to school

4.3.12 Mines/Unexploded Ordnance

179. The total area of mines/UXO disturbance in Vietnam is about 6.6 million ha, about 20% of the total national land area. And of which, about 925,000 ha (14%) is heavily concentrated. The total area of agricultural land disrupted by mines/UXO is about 436,000 ha (~7% of the total area disturbed).⁴⁶ In the Project Site and the T/L ROW, there is no Mines/UXO Assessment done yet. This is needed and will be included and discussed further in section *Environment and Social Management Plan*.

4.3.13 Climate Change and Vulnerability

180. As early as 2020, an annual average temperature increase of 0.4°C in the province will be realized. By 2050, temperature increase in the province can be within 1.0-1.4 °C, with the most possible increase of 1.2 °C. Over most of Vietnam, an increase of about 2-3 °C in the annual mean temperature is projected by the end of the 21st century. These changes are relative to 1980–1999 baseline under the medium IPCC emission scenario⁴⁷.

181. Main physical vulnerabilities in the province include increased rainfall variability, increased frequency of oceanic storms, floods, and periods of drought. Main socio-economic vulnerabilities include water resources quality and supply, reduced agricultural production, forestry, coastal zone inundation, loss in aquaculture production, change in biodiversity, and human health impacts due to heat stress and increased air pollution (footnote 14).

⁴⁴ Decision No. 1222/QĐ-TTg of 22 July 2011 on approving the Master Plan on Socioeconomic Development of Ninh Thuan Province through 2020.

⁴⁵ International Atomic Energy Agency. 2013. *Vietnam Experience in the IAEA Integrated Nuclear Infrastructure Review Missions*. http://www.iaea.org/NuclearPower/Downloadable/News/2013-09-19-inig/INIR_SideEvent_Vietnam.pdf

⁴⁶ Technology Centre for Bomb and Mine Disposal. Contamination Situation. <http://www.bomcen.vn/?category=63&lang=en>

⁴⁷ Ministry of Natural Resources and Environment. 2012. *Climate Change, Sea Level Rise Scenarios for Vietnam*. Hanoi, Vietnam.

5.0 ANTICIPATED IMPACTS

182. The Project presents negative impacts to the environment, occupational health and safety, community health and safety, but a potential positive impact on local employment. To address the adverse negative impacts in the various phases of the Project, mitigation measures must be in place. These measures are detailed in section *Environmental and Social Management Plan*.

5.1 ENVIRONMENTAL IMPACTS

183. Environmental impacts of the Project will be mostly during the pre- and construction phases. Wind energy projects do not normally generate emissions and effluents in the operation phase. And the case holds true for power transmission projects.

5.1.1 Pre-Construction Phase

184. **Loss and Damage of Property.** At the Project Site, no person will suffer loss or damage of property as the land was leased from the province. However, in the T/L ROW there will be impacts on properties. Impacts will vary depending on the location orientation of properties, and can be temporary or permanent. For the tower foundations, land will be permanently acquired and a protection boundary of 0.5 m from the perimeter cannot be planted with rice, crops, and others. Trees that obstruct the T/L ROW will have to be cut, pruned or felled for safety. Houses that do not meet ROW safety regulations will be cleared.

5.1.2 Construction and/or Decommissioning Phase

185. **Loss and Damage of Property.** Land will be temporarily required by the Contractor for construction camps (if needed), storage areas, and temporary access roads. For those that live within the ROW, there will be temporary disruption of daily activities such as disturbance of crops, canals and drains. The total load of heavy-duty equipment and trucks might exceed the limit of the provincial and commune roads and cause damage.

186. **Mine/Unexploded Ordnance Detonation.** The risk of mine/unexploded ordnance (UXO) detonation is still widespread in Vietnam and continues to have a direct impact on all of its provinces and cities. These are often unexpectedly detonated as a result of any kind of vibration created or changes in the soil environment. Although the lands and roads in the Project Site and T/L ROW have been utilized for a long time, the risk remains since there may be shallow mine/UXO that could be uncovered during construction.

187. **Noise.** These are generated by activities such as operation of pile drivers, earth moving and excavation equipment, concrete mixers, cranes; demolition blasting operations; and traffic/transporting.

188. **Fugitive Dust and Other Emissions.** Activities may generate dust (including PM10) and gaseous pollutants (CO, NO_x, and SO₂). Dust generation is usually caused by a combination of on-site excavation and movement of earth materials, contact of machinery

with bare soil, and exposure of bare soil and soil piles to wind. Sources of emission of gaseous pollutants include exhaust from vehicles and equipment, and burning of wastes.

189. **Solid and Hazardous Waste Generation.** Non-hazardous wastes generated may be excess fill materials from grading and excavation activities, scrap wood and metals, small concrete spills, and demolition wastes among others. These although non-hazardous are non-biodegradable and must not be left unchecked. Hazardous waste may include construction and demolition wastes, waste battery and accumulators, contaminated machinery maintenance materials (oily rags, used oil filters, and used oil), and spill cleanup materials. Potential release activities may be during storage, transfer or use. These may be diesel, gasoline, lubricants, hydraulic oil, grease, transmission fluids, lead-acid batteries, and brake fluid among others.

190. At decommissioning, the WTGs will all be removed as the site needs to be restored. Some parts of WTG are recyclable and other non-hazardous parts can be landfilled. Used switchgears, which contain sulfur hexafluoride (SF₆), must be properly managed, handled, and disposed of to avoid release of SF₆ and its toxic by-products to the environment.

191. **Wastewater Generation.** Mismanaged domestic wastewater, sewage and petroleum wastes may impact quality of water resources. Surface water quality may result to an increase in turbidity; biological oxygen demand; chemical oxygen demand (COD); total nitrogen, phosphorus and suspended solids; faecal coliform; and fats, oil, and grease among others. Possible impacts on groundwater quality may be on the COD, chlorine ion, calcium carbonate, ammonia, iron, manganese, and total arsenic. There is also the possibility of petroleum leakage and imbalance in natural pH of surface water and groundwater.

192. **Soil Erosion.** There are high chances of soil erosion during site preparation activities and access roads construction due to low water infiltration of the mainly sandy soil land.

193. **Habitat Alteration, Species Mortality or Injury and Disturbance.** The potential for alteration of terrestrial habitat in the Project Site is limited due to small footprint of the wind farm. The same cannot be similarly said for the T/L ROW as most of the areas are uninhabited by people. In both cases, construction equipment may carry over invasive species not natural to the local environment.

194. Land clearing may be required in some areas (foundations, switchyard, etc.) and will disrupt habitat, if any, of local animals. Clearing and disruption to riparian vegetation and watercourses may occur in the T/L ROW.

195. **Electric and Magnetic Field.** Electric and magnetic fields (EMF) will be emitted by transmission lines and electrical equipment. Electric fields are shielded by materials that conduct electricity and others, while magnetic fields pass through most and difficult to shield. However, impact of these is low if electrical safety regulations are followed.

196. **Cultural Heritage Impact.** While there are no known cultural heritage sites within the Project area of influence, it is possible that “chance discoveries” may be made during excavations. Cultural heritage sites are protected under the *Law No. 28/2001/QH10 of 29*

June 2001 by the National Assembly on cultural heritage and thus must be considered with a mitigation measure in place.

5.1.3 Operation

197. **Loss and Damage to Property.** Regular maintenance within the ROW is necessary for functional and safety reasons. Unchecked growth of tall trees and accumulation of vegetation may result in a number of impacts, including power outages through contact of branches and trees; ignition of fires; corrosion; blocking equipment access; and interference with critical grounding equipment. Restriction in land use activities is also expected.

198. **Visual Impact.** The Project Site is mostly dry barren land of fine sand with cacti and shrubs, and valued to a limited extent for scenic quality. Sensitivity of the landscape to change is expected to be low. However, visual impact of WTGs will be permanent to the residents nearby. There might be changes to the visual character of the area that will depend on the level of visual contrast (color, shape/scale, texture and reflectivity) between WTGs and the existing landscape within which they would be viewed.

199. The T/L and T/L Tower may be visually undesirable to local residents. However, this impact is low since there are existing T/L, distribution and telecommunication lines along most of the ROW. Impact is considered less than if T/L was entirely new in the area.

200. **Light and Illumination Issue.** Another potential impact is the shadow flicker effect of rotating blades that can create nuisance if WTGs are not situated accordingly. Similarly, blade glint may occur when the sun strikes a rotor blade or tower at a particular orientation. However, it is a temporary phenomenon for new WTGs and typically disappears in time when blades have been soiled after few months of operation.

201. **Noise.** Measures to prevent and control noise of WTGs are mainly related to engineering design standards. For the T/L, noise in the form of buzzing can often be heard around transformers. This reaches maximum during periods of precipitation or as a result of fog. But the sound of rain usually masks the increase in noise.

202. **Species Mortality or Injury and Disturbance.** The most important biodiversity impact is the risk of collision of birds and bats to the WTGs, plus electrocutions (which may result to power outages and fires) along the T/L ROW. Flight paths of bats, local birds and migratory birds, if any, will be altered and may cause injury if WTGs are not planned accordingly. However, bird siting is very rare in the Project Site and an abnormal sighting of a migratory bird species (discussed in Section *Flora*) to the east commonly travel at low altitudes of very few feet, so low they were visible only as they topped the waves⁴⁸. Thus the Project is expected to have low to no impact to this bird species. As for the T/L, there are several existing medium and low voltage lines, and communication lines, along the T/L ROW, thus impact of an additional one is expected to be low.

⁴⁸ U.S. Geological Survey. Migration of Birds: Migratory Flight Altitude.
<http://www.npwrc.usgs.gov/resource/birds/migratio/altitude.htm>

203. **Solid and Hazardous Waste Generation.** Non-hazardous food wastes, office and workshop wastes, and ROW plant trimmings are expected to be generated during operation. Hazardous wastes may be transformer oils, waste battery and accumulators, small amounts of machinery maintenance materials, and spill cleanup materials. Improper handling and management may result to disposal in the local environment.

204. **Water Quality.** Installed foundations for the WTG and T/L Towers, underground cables, other structures, and access roads may result in increased erosion and sedimentation on surface waters.

5.2 OCCUPATIONAL HEALTH AND SAFETY

205. Most of the occupational health and safety issues during construction, operation and decommissioning for wind energy projects and electric power distribution are similar. These include working at heights, EMF, live power lines, and exposure to chemicals. In addition to these, there are general construction and decommissioning issues such as exposure to physical hazards; trip and fall hazards; exposure to dust and noise; falling objects; and ergonomic injuries and illnesses. Access to safe water supply is also an issue due to poor water quality in the commune and province in general.

5.2.1 Operation, Construction and/or Decommissioning

206. **Working at heights.** These include the assembly/removal of WTG components and T/L Towers during construction and general maintenance activities during operation. Provision of substandard hoisting, fall protection and personal protective equipment may pose danger to the workers.

207. **Electric and Magnetic Fields.** Electric utility workers typically have a higher exposure to EMF than the general public due to working in proximity to electric power lines. Occupational EMF exposure can be prevented or minimized through the preparation and implementation of an EMF safety program in accordance with electrical safety regulations.

208. **Live Power Lines.** During construction, maintenance, and operation activities, workers may be exposed to occupational hazards from contact with live power lines. These hazards may be pronounced when protective equipment, procedures, and training are not in place in the performance of related works.

209. **Exposure to Chemicals.** Occupational exposures to chemicals can primarily include handling of pesticides (herbicides) used for ROW maintenance, and exposure to PCB in transformers and other electrical components.

210. **Access to Safe Water Supply.** Access to safe water supply in the province is low and about 50% does not meet the drinking water quality standard of the MOH. The groundwater in the area is limited and does not meet the standard. Access to safe drinking water is an issue that has to be addressed. This impact is low to none since during construction, water will be purchased locally and transported by tank trucks.

211. **Fire and Explosion Hazard.** Construction and decommissioning sites have the necessary components for a fire or explosion to occur easily. Precursors such as fuel, fuel storage tanks, vehicles and machines, vegetation trimmings, spark, smoke, wind, and open burning if unchecked will be disastrous. Combustible materials only need an ignition source (electrical spark or small flame) together with air to produce fire or create an explosion. Careful planning and control of work activities, vehicles, machines, and storage areas must be done to protect the workers in the site. During operation, improper management of fuels and practicing open-burning can result to fire incidents. Lightning also will always pose danger of fire hazard on any electrical equipment such as the Switchyard or T/L.

5.2.2 More on Construction and Decommissioning

212. **Physical Hazards.** These are from use of heavy equipment and machinery. Vehicle traffic and use of lifting equipment in the movement of machinery and materials may pose temporary hazards such as physical contact, spills, dust, emissions, and noise. Traffic safety should be promoted by all to and from the workplace, and during equipment operation.

213. **Trip and Fall Hazards.** Trip and falls on the same elevation associated with poor housekeeping, such as excessive waste debris, loose construction materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground, are also among the most frequent cause of lost time accidents at construction and decommissioning sites

214. **Exposure to Dust, Noise and Vibration.** Activities may generate dust (including PM10) and gaseous emissions (CO, NO_x, and SO₂). Dust in the site will be more pronounced than normal wind conditions. Dust generation is usually caused by excavation and movement, contact of machinery with soil, and wind exposure of soil and piles. Emission sources of pollutants include exhaust from construction equipment and burning of wastes.

215. Noise and vibration are produced in activities such as operation of pile drivers, earth moving and excavation equipment, concrete mixers, cranes; demolition blasting operations; and transporting equipment, materials and people. If unmanaged, the workers will be affected especially if no protective equipment is provided at the workplace.

216. **Falling Objects.** Activities may pose significant hazards related to the potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities.

217. **Ergonomic Injuries and Illnesses.** Repetitive motion, over-exertion, and manual handling, are among the most common causes of injuries in construction and decommissioning sites. Workers usually work hard to finish assigned tasks and these are personally not observed or checked. Negative effects of such are just realized based on the work output and after injuries and illnesses have already occurred.

5.3 COMMUNITY HEALTH AND SAFETY

218. Impacts are similar to those of most large industrial facilities and infrastructure projects. They may include general site hazards; public access; exposure to dust, noise, and

vibration; traffic hazard; disease incidence; and security, peace, and order. During operation, issues can be on emergency situations; blade throw; public access; aircraft navigation safety; electrocution and lightning; and electromagnetic interference.

5.3.1 Construction and/or Decommissioning

219. **General Site Hazards.** Risk management strategies must be implemented to protect the community from physical, chemical, or other hazards. Risks may arise from inadvertent or intentional trespassing, including potential contact with hazardous materials, contaminated soils and other environmental media, blasting operations, and excavations and structures which may pose falling and entrapment hazards.

220. **Communicable and Vector-borne Diseases.** Diseases of most concern due to labor mobility are sexually-transmitted diseases (STDs), such as HIV/AIDS. Vector-borne disease such as malaria may occur in work sites with improperly managed standing open water containers, clogged drainage and rain gutters, stored wastes and tires, among others. These can attract vectors and be harborage and artificial breeding sites if left unchecked.

221. **Exposure to Dust, Noise and Vibration.** This may be primarily due to construction equipment, materials, people transit, and blasting operations.

222. **Traffic Hazard.** There will be significant increase in movement of heavy vehicles for the transport of materials and equipment; thus increasing the risk of traffic-related accidents and injuries to local communities. Local road networks will be used and large vehicles containing special loads may cause traffic if unplanned and uncontrolled.

223. **Security, Peace, and Order.** The impact of introducing workforce not from the local community may lead to issues in security, peace and order. Although the Project supports hiring of the local community, workers from outside may be needed for their invaluable skills and abilities. While impacts may be low if workers are mostly locals, it is still sufficient to warrant concern. Different communities will definitely have cultural differences and activities of workers if not controlled or checked might lead to problems.

5.3.2 Operation

224. **Aircraft and Navigation Safety.** The Project Site is about 20 km southeast of Phan Rang – Thap Cham Airbase, and about 60 km southwest of the Cam Ranh International Airport. The WTG blades at their highest point may reach more than 100 m in height and may impact aircraft safety directly through potential collision, alteration of flight paths, or signal frequency interference. These risks may also be imposed by the T/L Towers.

225. **Blade Throw.** When a rotor blade fails, it can result in the “throwing” of a rotor blade which may affect public safety. However, this issue is low since usually a setback range is unlikely to exceed 300 meters, and the nearest residents live about 500 meters from a WTG.

226. **Electrocution and Lightning.** The operation of the T/L near community areas may expose the villagers to electrocution hazards as a result of direct contact with live conductors, flashover from the conductor to a pole and conductor breakage (particularly if

the person, tree or structure is near a live line where safe vertical clearance is compromised). Lightning strikes may also be experienced.

227. **Public Access.** During operation, there are risks on inadvertent or intentional trespassing in the Project Site, i.e., Project Substation and other energized equipment, storage areas of hazardous materials or waste, and T/L Towers and the WTGs.

228. **Electromagnetic Interference.** The WTG could potentially cause electromagnetic interference with aviation radar and telecommunication systems. The nature of the potential impacts depends primarily on the location of the WTG relative to the transmitter and receiver, and characteristics of the rotor blades among others.

5.4 LOCAL EMPLOYMENT

5.4.1 Operation, Construction and Decommissioning

229. **Economic Displacement.** Animal grazing is an important component of the local and provincial economy. Sheep, cows, and goats graze the lands of farmers and open private lands including the Project Site. During construction and decommissioning, the grazing of animals will be hindered, thus potentially affecting activities of the herders. This will be difficult to mitigate at these phases of the Project due to safety reasons. However, during the operation phase, animal grazing may be restored nearly as before, with minimum adverse impact if the Project Owner will allow.

230. **Employment opportunities.** The Project creates employment opportunities for the local workforce. Construction and demolition activities will require workers of varying skill levels and workforce can be obtained from outside of the district/province or from within. And during the operation phase, opportunities for permanent or temporary works can be expected. These are all positive impacts.

231. Second, the Project generally will contribute electricity to the national grid. It will support the province in its aim to develop its energy, tourism, agriculture, manufacturing and processing industries. Although indirect and not immediate, the long-term impact will be jobs creation as the above industries develop.

6.0 GRIEVANCE REDRESS MECHANISM

6.1 PURPOSE OF THE MECHANISM

232. During the course of the Project it is possible that people may have concerns and complaints with the Project's environmental and social performance including the implementation of the Environmental and Social Management Plan (ESMP). Issues may occur during any phases of the Project. Any concerns will need to be addressed quickly and transparently, and without retribution to the Affected Person (AP). A Grievance Redress Mechanism (GRM) is to be used to address any environmental and social concerns.

6.2 ACCESS TO THE MECHANISM

233. Any person who has a complaint regarding the environmental and social performance of the Project shall have access to the GRM. The Project Owner through the Grievance Point Person (GPP) shall ensure that:

- GRM is publicly disclosed, and posted in the offices of the affected communes and in strategic places of the Project's area of influence
- GRM is accessible to all segments of affected villages/communes; and
- The public, most especially the residents living in the vicinity of the Project's area of influence are aware of their rights to have free and uninterrupted access to the GRM mechanism and legal charges without adverse action being taken against them.

6.3 THE MECHANISM

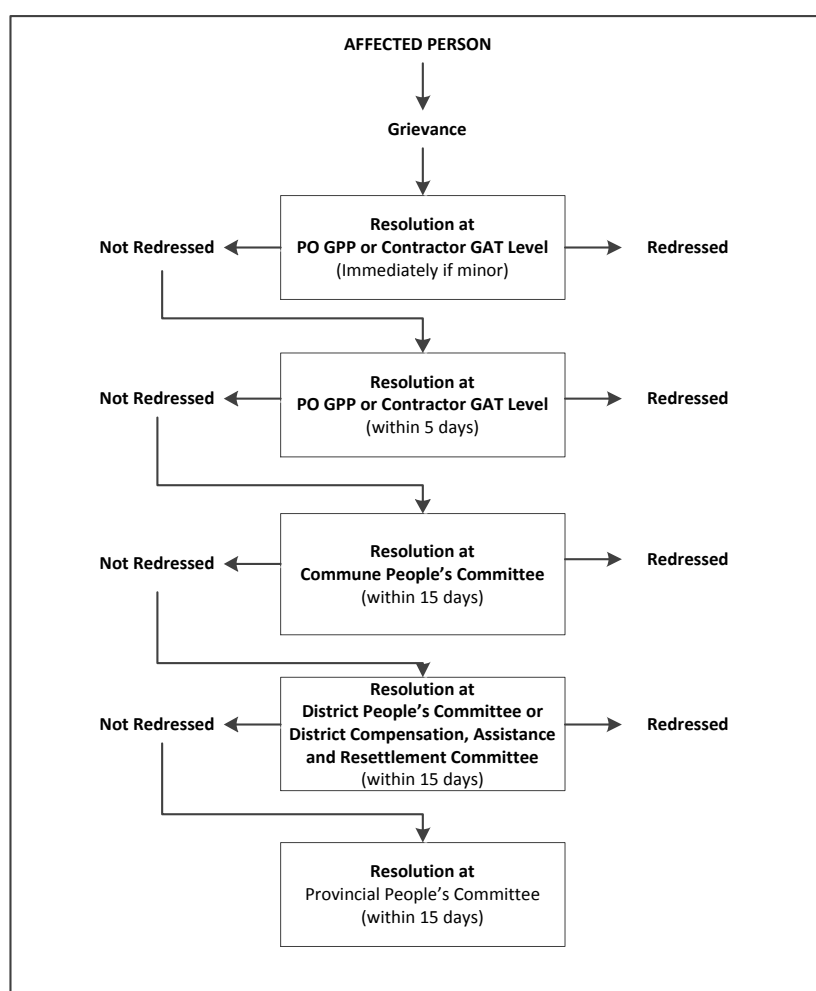
234. The GRM will comply with the IFC requirements related to community engagement under the PS1: Policy and Performance Standards on Social and Environmental Sustainability. It should be scaled to risks and adverse impacts of the Project, address concerns promptly, use an understandable and transparent process that is culturally appropriate and readily accessible to all segments of the affected communities, and do so at no cost to communities and without retribution. The GRM should not impede access to judicial and administrative remedies, and will be made public throughout the stakeholder engagement process (Figure 11). Managing grievances is a step-by-step process. It requires assigning responsibilities and specifying timelines for prompt responses/actions to grievances to avoid prolonging the concerns of the APs.

235. **Publicizing GRM Procedures.** Prior to the commencement of Project construction, the Project Owner will appoint a member of its staff to be the GPP to handle grievances lodged during construction, and succeeding phase of the Project. The Project Owner will ensure that the GPP has sufficient support in terms of facilities to implement the GRM. The Contractor shall also be required to have a Grievance Action Team (GAT).

236. At least one month prior to the start of construction, the GRM is to be disclosed to the affected communes by the GPP in coordination with the concerned Commune People's Committee (CPC). It may be disclosed during social preparation, or preferably, during an

independent ESIA disclosure. The information to be disclosed/explained shall, at least, include:

- GRM purpose
- Who can raise grievances
- GRM scope
- Potential grievances out of GRM scope and what institution to direct grievance
- No cost involved on part of complainants
- GRM benefits, as opposed to informal resolution approach
- GRM procedure
- GRM entities and contact persons
- Timeframe for resolving grievances



PO = Project Owner; GPP = Grievance Point Person; GAT = Grievance Action Team

Figure 11. Grievance Redress Mechanism

237. **Receiving and Keeping Track of Grievances.** The APs can lodge grievances to the CPC of affected communes, to the Contractor GAT, and to the GPP. The CPC and GAT shall make sure that received grievances are documented and registered with the GPP as soon as possible. The GPP shall make sure that grievances are acknowledged, duly referenced, and AP informed of the expected action timelines as set forth in the GRM. The

GPP shall inform the AP immediately if grievance is within GRM scope, otherwise the AP shall be directed to the proper institution and/or mechanism.

238. **Reviewing and Investigating Grievance.** If a grievance is within GRM scope, it will be immediately reviewed, investigated and discussed together with the GAT or GPP. The review of the grievance should take place immediately, preferably before the next day.

239. **Developing Resolutions, Options and Preparing a Response.** If the issue is minor and can be resolved by the GAT or GPP, they shall immediately act on the grievance. If the issue is more serious and needs a more comprehensive review and investigation, the GAT or GPP shall resolve it within 5 days and meet with the AP. If according to the AP the grievance has been resolved satisfactorily, the GPP shall obtain a written confirmation of satisfaction from the AP, which will form part of the grievance documentation.

240. In the case that the issue persists, the AP can appeal to the CPC. The CPC will meet personally with the AP and will have 15 days to resolve the complaint. The CPC will document and keep file of complaints it handles.

241. If grievance is not resolved, the AP may bring the case, either in writing or verbally, to any member of the District Compensation, Assistance and Resettlement Committee (DCARC) or District People's Committee (DPC). The DCARC or DPC will meet personally with the AP and have 15 days to resolve the complaint. The DPC will document and keep file of complaints, and will inform the DCARC of its decision. The DCARC will ensure that the AP is notified of the decision.

242. If the grievance is not resolved, the AP may bring the case, either in writing or verbally, to the Province People's Committee (PPC). The PPC will meet personally with the AP and have 15 days to resolve the complaint to the satisfaction of all concerned. The PPC will document and keep file of complaints and will inform the AP of its decision.

243. **Monitoring, Reporting and Evaluation.** The GPP shall keep track of and document the progress of each step for record purposes, future reference, monitoring and evaluation of the GRM. If, according to the AP, the impact has been resolved satisfactorily, the GPP shall obtain a written confirmation of satisfaction from the AP for documentation.

244. For at least a week after closure of a grievance (satisfactorily confirmed by the AP), the Project Owner shall monitor the effectiveness of the resolution and status of the grievance management is reported. Monitoring shall be documented. The report shall provide comprehensive information on number of grievances received, timeframe of actions, number of action backlogs, efficiency rate, and remarks particularly on constraints and lessons learned. Reports shall serve as basis for evaluating GRM effectiveness and help determining improvements to strengthen the GRM and improve the ESMP. It is advisable to use monitoring reports to report back to the affected communes on GRM implementation.

7.0 RESETTLEMENT AND ASSISTANCE PLAN

245. The Project will entail permanent and temporary impacts on properties primarily on the associated T/L. The T/L will traverse four communes in two districts in the province. The Project Owner is committed in completing the Resettlement and Assistance Plan (RAP) prior to construction.

7.1 SCOPE OF RESETTLEMENT AND ASSISTANCE

7.1.1 Approaches to Identification of Project Impacts

246. The approach needed in determining the potential social impacts of the Project was to conduct census and Inventory of Losses (IOL) where all immovable properties inside the T/L ROW are determined, counted, measured, tagged, owners identified and their places of residence were verified with government authorities. The immovable assets consist of lands, houses, other structures and essential utilities, perennial crops, fruit trees and wood trees. Preliminary census and IOL were conducted from April 2014. More detailed and final census and IOL must be done following ROW delineation by the Project Owner. The RAP must be updated as data becomes available. At the time of accomplishing this RAP, several data are still not provided thus making this section incomplete and not final. Thus, presented below are based only from the preliminary census and IOL.

7.1.2 Preliminary Summary of Impacts

247. The T/L ROW covers a total land of 103,078.56 m², of which 5,877.91 m² are for the foundations of T/L Towers. There are 16 residents within the ROW with a combined 13 properties including houses and other structures. Inventory of landowners under the ROW is not available at the moment and needed in the course of updating the RAP.

248. The impact of land acquisition will vary owing to the location orientation under the ROW. Impacts can be on land only; land and house; and land, house and other structures. Preliminary data does not include landowners and their landholdings; number of persons to be physically displaced/resettled (displaced person, DP)⁴⁹ and their landholdings; whose land, house or structure will be permanently acquired; and whose land, house, or structure will be of restricted use only. Landholding is very important to identify severity of impact, whether a livelihood restoration program must be implemented by the Project Owner. An ideal marginal impact is <10% of landholdings affected by ROW. All of the above data are needed for proper compensation to be made and if

249. **Displaced Persons.** Only in Thuan Nam District that there are residents under the ROW. There are 10 males and 6 females, of which three are married couples. Thirteen are residents of Phuoc Nam Commune, one in Phuoc Dinh Commune, and one couple in Phuoc Ninh Commune. Inventory of the DP is needed in updating of this RAP.

⁴⁹ Displaced persons could have: (i) legal rights to land lost entirely or in part; (ii) lost the land they occupy entirely or in part who have no formal legal rights to such land, but who have claims to such land that are recognized or recognizable under laws; and (iii) lost the land they occupy entirely or in part, who have neither formal legal rights nor recognized or recognizable claims to such land.

250. **Affected Land.** Data on aggregate land area of in each of the communes under the ROW must be obtained. During updating of the RAP, the area for residential only and area for mixed use (such as land for animal farming, growing rice, trees, and residential) must be clearly identified.

251. *Legal Status of Land Ownership.* The Land Use Right Certificates (LURCs) of all the DPs must be checked. During RAP updating, it will be necessary to ascertain, especially with male-headed household DPs, that spouses also have their names included in the LURCs in accordance with the *Law No. 45/2013/QH13 of 29 November 2013 of the National Assembly on Land*.

252. *Impacts on Lands.* From the lands held by the DPs, the land area to be affected from their total landholding in which effects shall come from the establishment of ROW and the foundations for the suspension and tension towers must be obtained in the course of RAP updating. Such effects are categorized into that of restrictions and permanent acquisitions, as differentiated accordingly.

- (i) **Restrictions on Land Use** - All DPs whose lands are under the ROW will be restricted on their activities. However, such lands will remain in their possession for continuous use. Within this impact category, the total area affected, represented as percentage of their landholdings, shall be obtained. Details on impact of land restrictions in the four communes must be known. There are DPs which will experience real restrictions on the use of their lands under the ROW because several hardwoods, fruit trees, rice, crops, and others plants are grown. Some of the trees in the preliminary census and IOL were identified to grow to as much as 25 m. Thus some have to be maintained, cut or pruned, to ensure safety. Permanent restriction is that DPs can still cultivate their lands and be able to grow their trees or crops, while temporary is access when the T/L Towers are constructed and erected.
- (i) **Permanent Land Acquisition** - The 5,877.91 m² of land shall be permanently acquired for the T/L Towers foundations. The number of DPs, and their landholdings, to be affected by permanent land acquisition must be determined as it will be a basis on the assessment whether the impact is severe or not.
- (ii) **Temporary Impacts** - These impacts envisaged during Project implementation in four communes are resultant from the requirement for temporary access roads for vehicles that will deliver the pre-fabricated steels, equipment, cables and utilities as well as construction materials in the work areas. An area of 34, 559 m² will be required for temporary access. The Project Site Engineer (PSE) and Health, Safety and Environment Officer (HSEO) will identify the sites of the roads and for temporary work stations by the Contractor. The Contractor will restore the work areas to its original condition, or better, prior to the return of land to their owners. The Project Owner will stipulate this requirement as a condition in the contract with Contractor prior to the award of civil works contract.

253. **Affected Houses and Other Structures.** At the time this report is made, there are 8 houses and 5 other structures under the ROW when the IOL was conducted (Table 16). This should be validated in the updating of the RAP. The houses are found only in Phuoc Nam Commune and the structures in the communes of Phuoc Dinh, Phuoc Nam, and Phuoc Ninh, all in Thuan Nam District. The houses and structures are mainly made of brick walls and corrugated iron roofs; classified locally as Level 4. However, it is still not clear if these will all be demolished or relocated during Project implementation and will be updated as the information is available. The Project Owner will provide replacement materials, as needed, fireproofing materials and lightning arrestors, and repair houses under the ROW to conform with the requirements in the *Decree No. 14/2014/ND-CP of 26 February 2014* which states that houses and works inside of up-to 220 kV T//L ROW are not required to be relocated if the following conditions are met:

- i. Roofs and surrounding walls are made of fire-proof materials.
- ii. Metal structures are earthed according to regulations on earthing techniques
- iii. Do not obstruct access for checking, maintenance, and replacement of parts of electrical works
- iv. Distance from any part of a house or works to the nearest 110 kV T/L in the maximum sag state is not less than 4.0 m
- v. Electric field intensity (one meter from the ground surface) must be ≤ 5 kV/m at any point outside the houses and ≤ 1 kV/m at any point inside the houses

Table 16. Location and Areas of Affected Houses and Other Structures

District and Commune	No. of Houses	No. of Other Structures	Area (m ²)
Thuan Nam District	8	6	771.2
Phuoc Dinh	-	1	25.0
Phuoc Nam	8	3	716.2
Phuoc Ninh	-	1	30.0
Ninh Phuoc District			
Phuoc Hai	-	-	-
Grand Total	8	5	771.2

Adapted from: Power Engineering Consulting Joint Stock Company (PECC3). 2014.
External Grid Connection Study: TK-14-04-14. Project document: Unpublished.

254. **Affected Flora.** Types of vegetation that will be affected are hardwood, fruit trees, seasonal crops and others (

255. Table 17). However, impacts cannot be determined fully based on preliminary IOL. Approximately 258 m² of land are planted, not including the 20 rice fields and 8 crop areas identified to be under the T/L ROW. The detailed area and impacts shall be known only once final census and IOL is made in which compensation shall be based on the prevailing market prices as regulated by laws.

256. **Unanticipated Impacts.** If unanticipated impacts are found during Project implementation, a social impact assessment will be conducted and this section will be appropriately updated.

Table 17. Flora within the Transmission Line ROW

Section	Area (m ²), otherwise specified							
	EMH = 15 - 25 m			EMH < 15 m				
	Maleleuca	Mango	Other trees	Sterculia	Cacti & others	Apple	Rice	Other crops
DD - G1	1,710.4	-	-	-	-	-	-	5,366.5
G1 - G2	-	-	-	-	-	-	-	497.1
G2 - G3	-	-	-	-	7,976.8	-	-	5,272
G3 - G4	-	-	-	724	5,088	-	-	2,783.2
G4 - G5	-	-	-	-	-	-	-	1,623.2
G5 - G6	-	-	-	-	-	-	-	-
G6 - G7	-	-	-	-	-	-	-	627.8
G7 - G8	-	-	-	-	-	-	-	-
G8 - G9	-	-	-	-	-	-	8,282.4	-
G9 - G10	-	229.6	-	-	-	7,656	5,431.2	671.2
G10 - DC	-	-	-	-	-	-	2,838.4	-

DD = Project Substation; DC = Ninh Phuoc Substation; G1-G10 = Section points; T/L = transmission line
 CH = Current height (as of 14/04/2014); EMH = Expected maximum height

Adapted from: Power Engineering Consulting Joint Stock Company (PECC3). 2014. *External Grid Connection Study: TK-14-04-14*. Project document: Unpublished.

7.2 INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION

7.2.1 Project Stakeholders

257. In compliance with *Law No. 45/2013/QH13 of 29 November 2013 of the National Assembly on Land* and IFC's Access to Information Policy (2012), the Project Owner will promote the active participation of the stakeholders. The stakeholders were initially identified during the preliminary series of disclosure and consultations in the four communes, such as the CPC; the Vietnam Fatherland Front Committee; and some of the DPs. During the course of updating the RAP, all the DPs must be identified.

7.2.2 Stages of Participatory Consultations

258. Participatory consultation with the people in affected communes is an important aspect in Project development in which objectives are to: (i) allay the fears of the DPs about what may happen to them once the Project is implemented; (ii) assess the needs for relocation on affected structures that balance the DPs' needs and capabilities with the technical requirements of civil works; and (iii) reduce potential conflicts and avoid unnecessary and costly Project development delay. With these objectives, the Project Owner will carry out the participatory consultations in every stage of the Project phase relevant to the requirements in this RAP.

7.2.3 Public Consultations during RAP Preparation

267. **Pre-Project Implementation.** Community feedback on the Project was obtained from the Vietnam Fatherland Front Committee of the four communes as required by law. However, meaningful consultations with the DPs are still not performed which is very important. Meeting minutes and photos of such activities are needed and must be included in the RAP.

268. In the public meetings and consultations to be held, the stakeholders in the four communes must be given the Vietnamese version of the Project Information Booklets (PIBs) to be prepared by the Project Owner. The topics to be possibly discussed are: (i) Project general information; (ii) Affected districts and communes and the scale of land acquisition; (iii) objectives and principles of RAP according to the requirements of the government and World Bank's Safeguard Policy on Environmental Assessment (OP 4.01); (iv) schedules of IOL and Socioeconomic Survey; (v) livelihood restoration program (if needed); (vi) compensation and relocation options; (vii) issues on gender and vulnerable groups; and (viii) mechanisms of DPs participation, GRM-RAP, monitoring and evaluation in all phases of the RAP preparation, updating and implementation. The meetings and consultations can be held in Commune People's Committee offices, which will be attended by the Project Owner, Contractor, local officials, DPs, and other concerned residents.

259. **Project Implementation.** This RAP shall be updated by a Project Consultant to be hired by the Project Owner. The updating of RAP will be based on the final detailed design and will be implemented before construction contract is awarded to the Contractor/s. During the updating, the Project Consultant will meet the provincial, district, commune and/or village officials, and the stakeholders to appraise them about Project implementation. The stakeholders will be provided with PIBs and presented with visual aids for recall and further understanding of the Project. Focus group discussion that also includes women and vulnerable groups will be facilitated. All stakeholders will be encouraged to share their thoughts and will be recorded in the Minutes of Public Consultations, for consideration in the updated version of the RAP.

260. A Detailed Measurement Survey (DMS) and census of DPs in the final boundaries of ROWs will be conducted followed by the public meeting and consultations. The DPs will be interviewed to share information on their affected properties and productive assets and solicit their consensus on relocation sites, if applicable. The need for relocation sites shall be confirmed with the DPs in the presence of DCARC representatives and the commune officials. Based on the updated RAP, the DPs will be provided with a summary or leaflet (in Vietnamese) and asked for their comments/suggestions. The summary RAP shall also be made available at the offices of district and communes. In order to obtain the detailed information on the affected properties and the DPs, the Project Consultant will design the appropriate DMS during the updating of RAP.

261. The Project Consultant will inform the Project Owner to coordinate with the DCARC and commune officials in order to: (i) secure consensus and agreement of DPs on compensation, entitlements and other assistance, and the schedule as well as mode of

releases thereof; (ii) confirm the schedule of DPs relocation; and (iii) the procedures and guidelines for relocation of structures, if appropriate.

7.3 GRIEVANCE REDRESS MECHANISM – RAP

290. The Project Owner will ensure that all grievances on any aspect of land acquisition, compensation and resettlement are addressed in a timely and satisfactory manner. All possible avenues will be made available to DPs to air their grievances by establishing a well-defined GRM-RAP. The DPs can send their grievance to all parties involved in Project implementation related to compensation, entitlement, policy, rates, land acquisition, resettlement, allowance and income restoration. The DPs will not be charged of any fee during the resolution of their grievances. Nothing in this GRM-RAP removes DPs ability to pursue the matter through the Vietnamese legal system. There are three (3) stages in the resolution of grievances under the RAP. The Project Owner and the DCARCs are responsible for following-up the GRM-RAP of the DPs.

291. **First Stage: Commune Peoples' Committee (CPC)** - An aggrieved DP may lodge his complaint before any member of the CPC through the Village Chief or directly to the CPC, in written or verbal form. It is incumbent upon the Village Chief to notify the CPC and CPC will meet personally with the DP and will have 15 days to resolve the complaint. The CPC secretariat will document and keep file of all complaints.

292. **Second Stage: District Peoples' Committee** - If after 15 days the DP does not hear from the CPC, or if the DP is not satisfied with the decision taken, the DP may bring the case, either in writing or verbally, to any member of the DCARC or the DPC. The DPC or DCARC will have 15 days to resolve the grievance or complaint. The DPC will document and keep file of all complaints and will inform the DCARC of its decision. The DCARC will ensure that the DP is notified of the decision.

293. **Third Stage: Provincial Peoples' Committee** – If after 15 days the DP does not hear from the DPC, or if the DP is not satisfied with the decision, the DP may bring the case, in verbal or in writing, to the PPC. The PPC has 15 days within which to resolve the complaint to the satisfaction of all concerned. The PPC is will document and keep file of all complaints and inform the DPs of its resolution.

7.4 POLICY COMMITMENTS, ELIGIBILITY, AND LAND ACQUISITION PROCESS

7.4.1 Project Policy Commitments

294. **Policy Prior to DMS and Updating of RAP.** The following are the policies:

- (i) No land acquisition or site clearing will be done prior to the ROW and T/L Towers construction. Land acquisition or clearing of the ROW will only be undertaken upon completion of payment for compensation based on updated RAP drawn from detailed design of the Project.

- (ii) Permanent or temporary acquisition and/or clearing of lands that will result to physical and/or economic displacements of persons or households will be avoided or minimized, as much as possible, by identifying feasible alternatives in Project engineering design, alignment of ROW, access roads, and work stations.
- (iii) Joint participatory consultations and meetings with stakeholders and community organizations will be carried out prior to DMS, and during the updating and implementation of the RAP. Women, disabled, and the elderly will be invited to participate in the consultations and meetings. Comments and suggestions will be recorded and taken into account for consideration in the updating or implementation of the RAP whenever legally acceptable and ethically relevant.
- (iv) The DPs will be systematically informed and consulted about the Project, the rights and options available to them, the proposed mitigating measures, special assistance measures to vulnerable groups and the need for the preparation of RAP. The RAP will be disclosed in a language according to the ethnicity of the DPs and involve them in decision-making process concerning their resettlement.
- (v) The Project Owner will conduct due diligence on the ownership of affected assets, with assistance from representatives of the commune or village, and identify 100% of the DPs who are severely and marginally affected by land restriction and/or land acquisition. Severely affected DPs are those who stand to lose 10% or more of their economic and important assets while marginally affected DPs are those who will lose below 10% of the same.
- (vi) DMS will use a survey tool that will enable to segregate important data on DPs by gender and income as basis for updating the compensation and assistance due.
- (vii) Authority to declare the cut-off date of eligibility of the DPs who are eligible to receive compensation and assistance will be vested on the respective DCARC.
- (viii) Replacement Cost Surveys (RCS) will be carried out as bases for compensation of DPs, based on replacement costs, in compliance with the compensation policy of Vietnam and WB/IFC.

295. Policy on RAP Implementation. The following are the policies:

- (i) Compensation on the affected properties of DPs will be based on replacement cost, without provisions for deduction of the following: (a) stamp, duties, fees or other payments in case of land; and (b) depreciation and salvage value of construction materials in case of houses and other structures.
- (ii) Payment of compensation to DPs will not be differentiated between the male and the female household heads.
- (iii) DPs residing, working, cultivating land and/or doing business during the DMS for updating of the RAP are entitled to be compensated for their lost assets, incomes and businesses at market prices prevailing at the time of compensation.
- (iv) All DPs whose names are included in the cut-off date established by the DCARC are entitled to receive compensation. The DPs that have no title or any recognizable legal rights to land will be compensated for non-land assets, at replacement cost.
- (v) Special assistance measures will be provided to the severely affected DPs who shall become vulnerable due to the Project, with particular attention to women; children without means of support; disabled; the elderly; landless; and people with incomes below the generally accepted poverty line for the District, which is higher than the

official Ministry of Labor, Invalids and Social Affairs (MOLISA) poverty line. Institutional DPs are excluded from receiving such assistance.

- (vi) Resettlement will be implemented only upon confirmation on availability of resettlement site prior agreed. The DPs who decide to be relocated in the earth grounding zones will be provided with fireproof materials and lighting arrestors.

296. **Management and Administration of RAP.** The following will be implemented:

- (i) Effective institutional arrangements and human resources for consultation, liaison, land acquisition, resettlement and monitoring will be established to ensure the efficient implementation of RAP.
- (ii) Effective mechanism for arbitration of grievance redress will be established with members of the stakeholders and community representatives
- (iii) Adequate budgetary support for payment of compensation, assistance, and resettlement will be committed and released to DPs during RAP implementation.
- (iv) Reliable and efficient database system will be established for the internal monitoring of RAP implementation.
- (v) The Project Owner will commit itself in making all the houses of DPs compliant with the requirements in *Decree No. 14/2014/ND-CP of 26 February 2014*; which upon completion along with the payment of compensation will pave the way for the award of construction contract/s.

7.4.2 Eligibility

297. Eligibility of DPs is defined by the cut-off dates which will be officially issued by the DCARCs in the two districts. The cut-off date is the date in which DPs are entitled to receive compensation and assistance, which are established in order to discourage opportunistic encroachers in the ROW for the purpose of compensation and/or assistance from the Project. The cut-off dates can only be set upon receipt of Construction Permit

298. Some persons may be declared by the DCARCs as eligible persons under the Project beyond the cut-off date, such as: (i) person who is occupying or using the land or assets before the cut-off date but who was not in the list of DPs; (ii) households separating from large families; and (iii) household who bought the affected land or property after the cut-off date. Their eligibility will be declared after verification by the respective CPC and submit their names for recognition by the DCARCs. On another hand, there are also people who shall be provided assistance after the cut-off date, such as: (a) newly born child; (b) people who have retired from military service; and (c) people who have just returned from school to live with the affected household.

299. Any person who moved and construct a house in the ROW after the cut-off date will not receive compensation and assistance from the Project. They will be informed in advance and required to remove the structure before Project implementation. If all actions of diplomacy with the encroacher have been exhausted, compulsory eviction will be the last option as provided for in the *Law No. 45/2013/QH13 of 29 November 2013 on Land*, *Law No.02/2011/QH13 of 11 November 2011 on Complaints* and *Law No.03/2011/QH13 of 11 November 2011 on Denunciations*.

7.4.3 Land Acquisition Process

300. The Project Owner will comply with the land acquisition and related laws (Table 18). There are set timeframes but may vary depending on the number of DPs in the Project.

Table 18. Land Acquisition Process in Vietnam as Provided for by Law

No.	Activity
01	Evaluation of the RAP
02	Approval of the RAP
03	Submission of RAP to the respective People's Committee for <i>Decision on Land Acquisition</i>
04	Issuance of the <i>Decision on Land Acquisition</i> or <i>Decision on Common Land Acquisition</i> (province-level)
05	Issuance of individual <i>Decision on Land Acquisition</i> to land owners
06	Preparation of the updated RAP
07	Announcement of the RAP for consultation
08	Revise the RAP if needed and submit for review
09	District People's Committee approves the RAP
10	Announcement of the RAP
11	Payment of compensation and assistance
12	Handover of land to Project Owner
13	Enforced land acquisition in accordance with the law when landowner fails to handover the land
14	Resolution of complaints

RAP = Resettlement and Assistance Plan

7.5 ENTITLEMENTS, ASSISTANCE AND BENEFITS

7.5.1 Objective

301. The Project Owner aims to implement in transparent manner the provisions of entitlements, assistance and benefits to the DPs, consistent with the degree of impacts of land acquisition to their properties. For purposes of this RAP, the cut-off dates are the dates only officially declared by the DCARCs for the four communes. In public consultations during RAP preparation, the Project Owner and Project Consultant will have explain to local officials and stakeholders about the Project, the compensation policy and the need to conduct the IOL, including the eligibility of the DPs.

302. The overall objective of this RAP is to provide the guidelines and administrative processes and procedures for the Project Owner to ensure that DPs are not worse off because of the Project. Likewise, the Project should provide an opportunity for the local population and DPs alike to derive benefits from it that thereby fosters a sense of ownership over the same through their participation in planning and implementation.

7.5.2 Coverage of Compensation and Entitlements

303. A summary of the potential number of DPs and their affected properties that will be covered in the provision of compensation, assistance and benefits cannot be fully presented at this time. The following information will be added as the RAP is updated, below are based on preliminary census and IOL done:

304. **Displaced Persons.** The total number of DPs, including sex distribution data, which claimed that they have LURCs subject to validation during Project implementation. From this

number, some shall be not be severely affected by land acquisition and will not become vulnerable to the Project.

305. **Affected Land.** From the 103,078.56 m² of affected land, 97,200.65 m² owned by 40 DPs shall be subject to restricted activities under the ROW. A total of 5,877.91 m² shall be acquired permanently from none of DPs (*all the foundations are designed to evade the structures*) for the foundations of T/L Towers.

306. **Affected Houses.** There are eight houses under the ROW; of which 8 houses will be supported for restricted land use. The houses have aggregate areas of 791 m².

307. **Other Structures.** Five other structures shall be affected under the ROW. They have combined areas of 127.6 m².

308. **Affected Trees and Crops.** Compensation on damages to trees, rice and other field crops shall be determined during Project implementation.

7.5.3 Provisions for Assistance

309. In addition to compensation, the DPs will be extended of the following assistance:
- (i) One time support for DPs whose activities shall be restricted which is equivalent to 60% of the price of agricultural lands under the ROW
 - (ii) One time support for DPs whose lands shall be acquired which is equivalent to 3 times of the price of agricultural lands under the ROWs;
 - (iii) Installation of fireproofing materials and lightning arrestors to houses that will be relocated in earth grounding zones. This allowance shall also be provided to non-DPs whose houses are established in the earth grounding zones.

7.5.4 Entitlement Matrix

310. The DPs are entitled to receive entitlements, assistance, and benefits under the Project. Entitlements are guided by the Project policy commitments and laws (Table 19).

Table 19. Entitlement Matrix

No.	Type of Loss	Application	Eligible	Entitlements	Implementation Issues
01	Permanent loss of land	Land acquisition	DPs who were issued with LURCs (40 DPs)	Cash compensation at replacement cost without deduction for stamp, duties, fees or other payments.	- Payment of compensation and assistance package ^a - Affected households to be notified at least 90 days before land acquisition ^b . - Hand over of the land by the owner within 20 days from the date District Compensation Board pays compensation ^a
02	Temporary impacts and restrictions on land use	Restrictions on land use under the ROW	Users of affected land (120 DPs)	Support for restrictions on land use on the productive land adjacent to residential land; support level is not higher than 80% of the same land type's price. DPs can still use land for production but they are not allowed to grow plant higher than 4 m.	PO and DCARC guide the affected households to use land under ROW, ensuring safety for people and construction ^c
		Temporary loss	Users of affected	For the portion to be used temporarily	If the quality of land will be

		of land	land (to be determined during Project implementation)	during construction: (i) rental in cash which will be no less than the net income that would have been derived from the affected property during disruption; (ii) restoration of the land within one (1) month after use; compensation is paid at full replacement cost or 'land for land' compensation if Contractor fails to restore the affected land within one (1) month after use.	radically changed when returned to DPs, requiring a change of land use, then the DPs should be compensated for all envisaged losses. Contracts with the Contractors should include an article regulating specifically the responsibilities of the Contractors.
03	Houses	Fully affected house. The indicators for fully affected house will be determined by the DCARC with the technical assistance from District or Provincial Construction Department and concurred by the DPs during the DMS.	Owners of the structures with or without acceptable proof of ownership over the land; with or without building permit. (30 DPs)	Compensation in cash for the entire affected structures will be provided at 100% of the full replacement cost for materials and labor, without provision for deduction of depreciation or salvage value of construction materials, whether or not they have title to the affected land or permit to build the affected structure. The amount will be sufficient to rebuild a structure the same as the former one at current market prices. Provision of allowance for the installation of fireproofing materials and lightning arrestors.	Calculation of rates will be based on the actual affected area and not the useable area.
04	Secondary Structures (kitchen, latrines, bathrooms and yards)	Loss of or damage to assets	Owners of the structures with or without acceptable proof of ownership over the land; with or without building permit. (10 DPs)	Compensation in cash for the entire affected structures will be provided at 100% of the full replacement cost for materials and labor, without provision for deduction of depreciation or salvage value of construction materials, whether or not they have title to the affected land or permit to build the affected structure. The amount will be sufficient to rebuild a structure the same as the former one at current market prices.	Calculation of rates will be based on the actual affected area and not the useable area.
05	Crops and Trees (rice, mango, rambutan, etc.)	Loss of or damage to assets	Impacts will be determined during Project implementation.	- For annual crops, cash compensation equivalent to current market value of crops at the time of compensation.	DPs will be given notice months in advance regarding evacuation. Crops grown after issuance of the deadline will not be compensated.
06	Other Allowances/ Assistance	Loss of land and non-land assets	Affected households (they shall be identified during the updating of the RAP)	a) All DPs who vacated the affected land immediately after receiving compensation and allowances will be given an incentive bonus as per regulations of the PPC b) Relocating DPs will be provided with a lump-sum one time allowance package to cover the cost of domestic water, power and telephone connections at the new site as per PPC's decision at payment time	Based on the actual situation of the locality, the PPC Chairman issues other allowances ^d to ensure accommodations, life stabilization and production for DPs. Special cases have to be submitted to the Prime Minister for approval.
07	Any other impacts that may be identified during implementation	Loss of land and non-land assets	Affected households	a) All DPs who vacate the affected land immediately after receiving compensation and allowances will be given an incentive bonus as per regulations of the PPC b) Every relocating DP will be provided with a lump-sum one time allowance package to cover the cost of domestic water, power and	Based on the actual situation of the locality, the PPC Chairman issues other allowances ^d to ensure accommodations, life stabilization and production for DPs. Special cases have to be submitted to the Prime Minister for approval.

			telephone connections at the new site as per PPC's decision at payment time
08	Any other impacts that may be identified during implementation	Individuals, organizations in the Project area	a) Entitlements to compensation and assistance will be provided as in compensation policy b) Secondary impacts on production and business or DPs isolated from access to resources temporarily have to be compensated and supported in accordance with RAP

DCARC = District Compensation, Assistance and Resettlement Committee; DP = Displaced Person;
DMS = Detailed Measurement Survey; LURC = Land Use Right Certificate; PPC = Province People's Committee;
RAP = Resettlement and Assistance Plan;

Notes: ^a Decree No. 43/2014/ND-CP of 15 May 2014

^b Land law No. 45/2013/QH13 of 29 November 2013

^c Decree No. 14/2014/ND-CP of 26 February 2014

^d Decision No. 36/2013/QĐ-UBND of 05 July 2013

7.5.5 Addressing the Gender Issues

311. The Project Owner, with the assistance from Project Consultant, will carry out the following specific actions to address gender issues in the Project:

- (i) During the updating of this RAP, both men and women will be invited to participate in public meeting, providing inputs to DMS; resettlement activities; and relocation
- (ii) A male and female representative of the DPs will be invited to participate in the resolution of grievances
- (iii) Gender issues will be included in the training on Project implementation
- (iv) Special attention will be extended to elderly, disabled and woman-headed households during relocation and in the provision of assistance
- (v) Disaggregated monitoring indicators by gender and household income will be developed for monitoring social benefits, economic opportunities, livelihood, and resettlement activities as well as in the restoration of livelihoods and living standards during post-Project implementation.

7.5.6 Assistance to Vulnerable Households

312. During the updating of this RAP, the number of DPs that shall become vulnerable due to the Project will be identified. They shall receive applicable allowances and will be stipulated in the updated Entitlement Matrix, on top of their compensation. They will be given priority for income restoration that will be designed under the Project with their active involvement. In order to ensure that they share the same benefits as the other DPs, they will be assisted in appointing their representatives in each commune or neighborhood clusters to participate in any meeting or consultations related to resettlement, compensation and assistance and income restoration.

7.5.7 Special Considerations

313. Between the periods after the cut-off dates were established in each district towards the implementation of the updated RAP, some unfortunate developments could happen to any DPs. One example is the passing away of the household head during the IOL or DMS. In such a case, the spouse will receive the compensation in behalf of the spouse who

passed away before payment of compensation. In case of death of both spouses, compensation shall be received by any of the children with written permission from siblings.

7.5.8 Unforeseen Impacts

314. If during the DMS additional adverse impacts are identified, and additional affected households and DPs are found after the cut-off date, they will also be entitled to receive Project entitlements as the others. This holds on condition that eligibility is certified by communes or village chiefs that they have actually been in the ROW even before the cut-off dates. Likewise, new DPs that will emerge due to changes in Project design or alignment prior to or even during construction are entitled to the same entitlements as other DPs.

7.5.9 Income Opportunities

315. Members of the affected communes will be offered the opportunity to provide waged labor at award rates for any of the positions they are able to undertake or can be trained to undertake; whether it is clearing land, assisting with the preparation of foundation of towers, providing support in stringing of conductor cables, and others. Both men and women should be offered this opportunity although there is no need to establish a quota stressing affirmative action. However, realistically there are some highly skilled tasks that local labor cannot undertake in due time even with training. But whatever employment opportunities are afforded, it will be in accordance with the International Labor Organization (ILO) conventions; child labor is strictly prohibited.

7.6 RELOCATION OF HOUSING AND SETTLEMENT

316. While at the time of writing this report, only 8 houses and 5 other structures are found under the ROWs, this will be verified during updating of the RAP. The number to be relocated will be identified. However, *Decree No. 14/2014/ND-CP of 26 February 2014* states that houses and works inside of up-to 220 kV T/L ROW are not required to be relocated once certain conditions are met. In compliance with this, the Project Owner will allocate budgets for the repair of houses.

317. The relocation of DPs other than in the earth grounding zone is only a contingent measure and will be validated with the DPs during the DMS. But in case there is such option from the DPs, the DCARC of the districts will confirm if they will provide the lands with security tenure. The RAP will include a budget for this contingency.

7.7 INCOME RESTORATION AND REHABILITATION

318. There will be no need for an income restoration and rehabilitation program once the impact on the lands of DPs are found to be only marginal, i.e., no household will become vulnerable due to the Project. The severity or not of the impact will be determined as this RAP is updated.

7.8 RESETTLEMENT BUDGET AND FINANCING PLAN

7.8.1 Principles of Replacement Cost

319. Budget for the compensation of DPs affected properties will be based on replacement costs, in compliance with the policy requirements of Vietnam and WB/IFC. The Project Consultant will conduct a Replacement Cost Survey (RCS) in order to verify and establish the current unit rates on the values of land, houses, crops and trees as well as other assets to ensure that DPs will be compensated for their affected assets based on replacement costs. Information from both primary and secondary information will be obtained and utilized.

320. For the primary sources of information, the sample respondents will be selected in the areas where the T/L will be installed. The respondents will consist of non-DPs and will be requested to share their knowledge on the current values or prices of the following: (a) price of agricultural land, (b) costs of construction materials for houses and other related structures, and (c) price of crops and trees.

321. As to secondary information, the Project Consultant will refer to relevant publications and the prices issued by Ninh Thuan People's Committee:

- (i) *Decision No. 88/2013/QD-UBND of 27 December 2013 by the People's Committee of Ninh Thuan on issuing regulations on housing, buildings and structures in the province*
- (ii) *Decision No.92/2013/QD-UBND of 23 December 2013 by the People's Committee of Ninh Thuan on detailing land price for year 2014 in the province*
- (iii) *Decision No. 36/2013/QD-UBND of 05 July 2013 of the People's Committee of Ninh Thuan on issuing regulations to coordinate implementation of compensation, support and resettlement when the State recovers land in the province*
- (iv) *Decision No. 38/2012/QD-UBND of 09 August 2012 of the People's Committee of Ninh Thuan on amending and supplementing some articles of the regulations in Decision No. 2380/2010/QD-UBND*
- (v) *Decision No. 2380/2010/QD-UBND of 21 December 2010 of the People's Committee of Ninh Thuan on the board of regulations on compensation, support and resettlement when State acquires land for implementation of investment project in the province*

7.8.2 Compensation Rates and Assistance

322. The compensation rates to be applied in calculating the budget will be based on the replacement cost rates as established for compensation of affected properties while the provisions for assistance complies with the prescription in the above-mentioned relevant decisions. These will be obtained by the Project Consultant as the RAP is being updated.

Table 20. Replacement Cost Rates and Assistance

No.	Compensation / Assistance	Description	Compensation Rates
01	Land	Mixed Land Use:	

		Thuan Nam District Ninh Phuoc District	VND/m ² VND/m ²
		<u>Residential Land:</u> Thuan Nam District	VND/m ²
02	House	Level 4	VND/m ²
03	Other Structures	Watch house Warehouse Farm Etc.	VND/m ² VND/m ² VND/m ² VND/m ²
04	Assistance	Support allowances for restrictions on land use Support allowances for restrictions on use of houses or support facilities Assistance to DP for land to be acquired Allowance for fireproof materials and lightning arrestors	% of the value of land under the ROW % of value of house or support facility under the ROW % of the unit price of land VND/affected household

DP = Displaced Person; m² = square meter; ROW = Right-of-Way; VND = Vietnam Dong

7.8.3 Administration, External Monitoring and Contingency Cost

323. The budget for the administration of RAP shall be compared to the total cost of compensation and assistance package to DPs. Budget must be allotted for:

- (i) Administration and management
- (ii) Replacement cost survey
- (iii) Conduct of DMS
- (iv) Meetings and consultations
- (v) Grievance resolution
- (vi) Salaries for RAP updating

7.8.4 Compensation Payment and Procedures

324. Following the approval of budget by the Project Owner, a schedule of release of funds and payment to the DPs will be prepared. The Project Owner will be responsible for channeling the funds directly to DPCs/DCARCs. The DPCs/DCARCs will be responsible for delivering the payments of compensation and assistance to DPs. In case of replacement land, the Project Owner will be responsible for coordination with DPC which will then allocate the land and the issuance of LURCs. The cost estimates are preliminary. During the updating and implementation of this RAP, the Project Owner /Project Consultants (PECC3) will facilitate the RCS to establish the rates for calculation of compensation payments to DPs, based on replacement costs.

7.8.5 Summary and Financing of Resettlement Costs

325. The overall cost of RAP updating and implementation will be estimated for inclusion in the Project investment. The Project Owner will ensure the timely provision of funds and

will meet any unforeseen obligations in excess of the resettlement budget in order to meet the social safeguards objectives under the Project (326. Table 21). The budget estimate will be determined as the RAP is being updated.

Table 21. Resettlement Expenses of the Project

No.	Resettlement expenses
01	Compensation to DPs Land House Other Structures
02	Assistance to DPs Support for ROW restriction Support for lands to be acquired Allowance for fireproofing and lighting arresters
03	Administration of RAP Administration and Management Replacement Cost Survey Conduct of DMS Meetings and Consultations Grievance Resolution Salaries for RAP updating
04	Contingency

DMS = Detailed Measurement Survey; DP = Displaced Person; ROW – Right-of-way

Note: The budget distribution in the Administration of RAP can be based on the percentage share of DPs in each commune

7.9 INSTITUTIONAL ARRANGEMENTS

327. The Project Owner will be responsible in the management of RAP and social issues. It will have the following duties:

- (i) Provide adequate budgetary support for updating and implementation of the RAP
- (ii) Actively participate in the updating and implementation activities in collaboration with the concerned organizations at the district and commune levels
- (iii) Liaise with the DPCs to facilitate the establishment of the DCARCs
- (iv) Provide orientation to the related People's Committees, DCARC, and related groups on the Project, and its Resettlement Policy
- (v) Process the flow of specific tasks of these groups relative to the RAP updating and implementation
- (vi) Take the lead in the public disclosure of the RAP in coordination with the DPC, and participate in information dissemination and holding of consultation meetings with stakeholders
- (vii) Monitor grievances and call the attention of concerned government offices where complaints have remained outstanding beyond prescribed action periods;
- (viii) Design and implement an internal monitoring system that shall capture the overall progress of the RAP updating and implementation
- (ix) Prepare Project progress reports on the RAP

7.10 IMPLEMENTATION SCHEDULE

328. As envisaged, the RAP shall be implemented within 6 months prior to the award of civil works contract (Table 22). The Project Owner will only award the civil works contract after compliance with the following conditions: (i) full payment of compensation to DPs; (ii) all affected houses under the ROWs have been repaired and compliant laws; and (iii) no grievance left unresolved.

Table 22. RAP Implementation Activities

No.	Implementation Activities
	RAP Preparation and Updating
01	Demarcation of ROWs
02	Project disclosure, public meetings and consultations
03	Conduct of DMS and SES
04	Conduct of RCS
05	Processing of DMS and SES data
06	Writing the draft of updated RAP
07	Confirmation with DPs on compensation and relocation options
08	Finalize the updated RAP
	RAP Implementation
09	Issuance of public notice on the implementation of RAP
10	Public meetings and consultations
11	Approval of budget for compensation and assistance
12	Release of budget and disbursement of payment to DPs
13	Repair of houses and structures in respective communes
14	Clearing of the ROWs
15	Resolution of grievance and redress filed by DPs
16	Internal Monitoring
	Post Land Acquisition and Resettlement Activities
17	Publication of invitation to bid for civil works contract
18	Evaluation of bids and award of civil works contract
19	Mobilization of equipment and hiring of local labor
20	Implementation of Project civil works

DMS = Detailed Measurement Survey; DP = Displaced Person;
 RAP = Resettlement and Assistance Plan; RCS = Replacement Cost Survey;
 ROW = Right-of-way; SES = Socioeconomic Survey

7.11 MONITORING AND REPORTING

7.11.1 Internal Monitoring

329. The Project Owner is responsible for the internal monitoring of the RAP implementation. All activities in resettlement are time bounded and the progress of implementation will be obtained by the Project Consultant from the field and transmitted to the Project Owner. Internal monitoring reports will cover those related to performance indicating the measurement of input indicators against proposed timetable and budget including the provision and physical delivery of compensation; repair of houses and structures; and assistance to the DPs, including grievance and redress, among others.

7.11.2 Data Collection and Reporting

330. The Project Owner and the Project Consultant will jointly establish a database, with data disaggregated by gender and income levels for use in monitoring the activities in RAP implementation, specifically the compliance in Project policies. All reports will be consolidated.

7.11.3 Internal Monitoring Indicators

331. Internal monitoring will primarily focus on keeping track the activity performance in RAP implementation in all four communes in the two districts. The coverage of internal monitoring is 100% of the DPs that will be validated during the DMS. Internal monitoring indicators will be prepared.

7.12 SOCIAL IMPACT MONITORING AND EVALUATION

332. Social impact monitoring and evaluation of RAP implementation shall be conducted. The key objectives of social impact monitoring and evaluation are to: (i) assess whether RAP objectives have been met, specifically the restoration of livelihoods, satisfaction, and the enhancement of DPs' living standards; (ii) assess RAP efficiency, effectiveness, impact, and sustainability, drawing lessons as guide to future RAP formulation for future projects; and (iii) the need for further mitigation measures.

333. The Project Owner can hire an External Monitoring Agent (EMA) that will carry out a post-resettlement survey at six or twelve months after the completion of RAP activities. The EMA will conduct a rapid appraisal in areas inhabited by the DPs, hold public consultations, and conduct Socioeconomic Survey by interviewing a random sample of 20% of the DPs whose responses will be recorded in a structured questionnaire. The EMA will compare with their pre-resettlement conditions to assess the success or failure of the RAP. Specific to monitoring the social impacts, the EMA will produce but not limited to the following:

- (i) **Capacity of DPs to Restore Livelihoods and Living Standards.** This will include assessment on the effectiveness or inadequacy of technical assistance, allowances and other measures, and to what extent the DPs have maintained their livelihoods and living standards to pre-project levels.
- (ii) **Public Consultation and Awareness of RAP Policies.** The EMA will validate if DPs have been fully informed and consulted about land acquisition and relocation activities. It will also inquire the DPs if they were aware of the compensation and entitlements policies and various options. Included in validation is the process how public consultations were conducted, and problems and issues rose.
- (iii) **Level of Satisfaction of DPs.** The EMA will assess the DPs satisfaction level on compensation, allowances, assistance received, RAP implementation, and the degree of efficiency in handling and resolving grievances.
- (iv) **Change in Living Standards.** Some indicators in the performance evaluation of RAP implementation are very useful in assessing the living standards of the DPs. The EMA will compare and assess the progress of DPs in coping with the restoration of their livelihoods that define their living standards. Special attention to disparities between their pre-Project and post-resettlement social conditions will be analyzed, and disaggregated by gender and per capita income levels. Any factors or issues

relevant to restoration will be disclosed in the Social Impact Evaluation Report. The EMA will discuss its findings with Project Owner and advice follow-up actions, where appropriate, to bring into closure the social issues arising from the RAP.

8.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

334. The Environmental and Social Management Plan (ESMP) provides clearly identifiable mechanisms to ensure that all mitigation measures recommended are implemented. In preparing the ESMP, the IFC's Policy and Performance Standards on Social and Environmental Sustainability was followed. The ESMP is based on the mitigation that is considered necessary to reduce or avoid the potential negative impacts of Project activities on the environment and society. The Project Owner, the Contractors, and workers should comply with the recommended mitigation measures described to ensure that their activities are conducted in a manner that meets the ESMP protection requirements. This would include, at least, training workers so they are familiar with the practices required by the ESMP. The proposed ESMP can be regularly updated as the works progress and as environmental and social issues change in significance.

335. In addition to the ESMP, the Contractor's Construction/Decommissioning Environment and Social Management Plan (ConESMP/DecESMP) will be prepared and should include further details on the manner in which the aims of the ESMP will be implemented. The costs associated with the proposed mitigation measures should be minimal and are inherent to good engineering practice. There are no site specific mitigation measures that could represent a significant expense. Workers and Contractors engaged in the works are expected to comply with the ESMP through their direct managers. The direct managers should be familiar with the ESMP and would liaise with the responsible officer representing the Project. For monitoring, the costs would be minimal and would principally be associated with the purchase of monitoring equipment, contracting an environmental sampling company, and the employment of relevant engineer or officer.

336. To ensure that the monitoring and mitigation measures outlined in the ESMP are successfully implemented during construction/decommissioning phases, the Project Owner must hire a Health, Safety, and Environment Officer (HSEO) and a Project Site Engineer (PSE); with the HSEO retained during the operational phase. The Project Owner may opt to hire one main Contractor for the Project or several contractors separately for civil, electrical, etc. Nevertheless, all Contractors will be under the responsibility of the HSEO and PSE. Overall, the HSEO will be responsible for the implementation of the ESMP Mitigation Plan (Table 23) and Monitoring Plan (Table 24). Also, he will be responsible for reporting on any incident, and ensuring that the ESMP and permitting requirements are met. Results of compliance or non-compliance from inspections made would need to be documented by the HSEO, who would be in consultation with the DONRE and relevant government agencies as required.

337. In the event of an incident, the point of contact would be the HSEO who would use the Incidents Register and report all incidents to the Project Owner within 48 hours. Any serious incidents should be reported as soon as practically possible to the Project Owner and relevant authorities.

Table 23. Mitigation Plan

No.	Project Phase: Impact Category	Potential Impact	Mitigating Measures	Schedule	Responsible Entity	Budget /Source
A	PRE-CONSTRUCTION					
A.1	Environment	Loss and Damage of Property	1. Site ROW and T/L Towers to minimize impacts on properties 2. Conduct a final survey of T/L alignment to assess the final sites of T/L Towers where impacts further minimized	Survey & Design	PO	Design Cost
			3. Prepare, update, and implement the RAP according to Vietnam regulations and WB/IFC		PO, DCARC	RAP Cost
B.	CONSTRUCTION and/or DECOMMISSIONING					
	All categories	All impacts	To mitigate impacts, Contractor/s will prepare a <i>Con/DecESMP</i> that contains sections on <i>Environment Plan, Occupational Health & Safety Plan, and Community Health & Safety Plan (CHSP)</i> . These three (3) plans shall include what is mentioned and asked for in here, the least, to be checked by the <i>HSEO</i> and <i>PSE</i> , and included as requirement in the <i>B&C</i> .	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
B.1	Environment	Loss and Damage of Property	1. Consult commune heads and community prior to construction 2. Contractor/s to compensate landowners/occupants and repair any damage to public infrastructure caused by construction activities, at Contractor's cost, to at least the same standard and condition before; to be included in the <i>B&C</i> ; further stipulating Contractor/s payment withheld until damage is repaired. 3. Set up construction facilities and temporary work stations to minimize impacts on properties 4. Schedule activities on dry season to minimize crop disturbance 5. Use the Earth Grounding Zone for houses and other structures within the ROW that meet requirements : 6. Land clearing and demarcation with consideration of: (a) Define the ROW width and provide a clear boundary (b) Advise all workers of the boundary (c) Identify useable trees/vegetation; arrange for removal if needed (d) Offer vegetative materials to local community as fuel wood 7. Cut/trim trees in accordance with safety and compensation laws 8. Revegetate with native species if land clearing is unavoidable	CON	Contractor/s, PSE, HSEO	CON Cost

B&C = Bid & Contract; CON = Construction; DCARC = District Compensation, Assistance and Resettlement Committee;
Con/DecESMP = Construction /Decommissioning ESMP; PO = Project Owner; PSE = Project Site Engineer; HSEO = Health, Safety, and Environment Officer;
RAP = Resettlement and Assistance Plan; ROW = Right-of-way; T/L = Transmission Line; WB/IFC= World Bank/International Finance Corporation

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
B.	CONSTRUCTION and/or DECOMMISSIONING					
B.1	Environment (continued)	Loss and Damage of Property	9. To protect provincial/commune roads from damage, maximum trips/day: crawler crane (3); heavy duty tow truck crawler crane (2) ((in accordance with DONRE requirement for the Project)	CON	Contractor/s, PSE, HSEO	CON Cost
		Mine/UXO Detonation	1. Entire Project area of influence assessed for presence of mines/UXO by an accredited mine/UXO assessor 2. Secure the <i>Mine/UXO Clearance</i> , and submit to PO before any construction works can start	Before CON	PO, Contractor/s	CON Cost
		Noise	1. Operate loud construction equipment and any blasting operation only at day time; minimize construction works at night 2. Provide noise barriers as needed	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Fugitive Dust and Other Emissions	1. Minimize dust from material handling and open sources, including storage piles and on-site access roads 2. Maintaining vehicles to ensure emissions comply with standards 3. Avoiding open burning of wastes	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Solid and Hazardous Waste Generation	1. Contractor/s to prepare a <i>Solid and Hazardous Waste Management Plan</i>	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
			2. Implement the <i>Solid and Hazardous Waste Management Plan</i> 3. Reuse and recycle, where possible, or dispose wastes from excavation, construction and demolition to approved sites 3. Used switchgears (with SF ₆) must be properly managed and disposed; and/or SF ₆ reclaimed for reuse in new equipment 4. <u>For Hazardous Wastes:</u> (a) Implement stringent waste segregation of hazardous waste (b) Implement proper labeling and storage in leak-proof containers, on areas with concrete surface and secondary containment to prevent potential spills and leakages reaching soil or groundwater (c) Contract only a licensed company for hazardous wastes collection, transport, and disposal	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost

CON/DECOM = Construction/Decommissioning; HSEO= Health, Safety, and Environment Officer; PO = Project Owner; PSE = Project Site Engineer;
ROW = Right-of-way; SF₆ = Sulfur Hexafluoride; T/L = Transmission Line; UXO = Unexploded Ordnance

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
B. CONSTRUCTION and/or DECOMMISSIONING						
B.1	Environment (continued)	Solid and Hazardous Waste Generation (continued)	(e) Contract only a licensed ULAB transporter and recycler of waste battery and accumulators (f) Designate areas of impervious surface for equipment services, refueling, and wash down; and provide oil and grease traps (g) Provide portable spill containment and cleanup equipment 5. For use of Hazardous Materials: (a) Prepare a <i>List of Hazardous Materials</i> (with quantity and hazard classification) to be brought to the site. The HSEO will have to verify the list and approve prior to introduction to the site. (b) Display MSDS of all hazardous materials used in work areas (c) Train workers for the safe use, handling, storage, disposal, and spill response for the hazardous materials (d) Provide workers with personal protective equipment	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Wastewater Generation	1. Contractor/s to prepare a <i>Wastewater Management Plan</i>	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
			2. Implement the <i>Wastewater Management Plan</i> 3. Provide adequate sanitation facilities for all 4. If sewage from the facility is to be discharged to surface water, septic system, or where land is used as part of treatment system, discharge standards must be met 5. Sewage sludge must be disposed in compliance with laws	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Soil Erosion	1. <u>Sediment Mobilization and Transport:</u> (a) Schedule to avoid heavy rainfall periods; suspend activities during extreme rainfall and high winds to the extent practical (b) Contour and minimize length and steepness of slopes (c) Stabilize exposed areas by mulching (d) Revegetate areas promptly (with native plant species) (e) Design channel and ditches for post-construction flows (f) Line steep channel and slopes (g) Use settlement ponds and silt fences	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost

CON/DECOM = Construction/Decommissioning; HSEO = Health, Safety, and Environment Officer; MSDS = Material Safety Data Sheet; PSE = Project Site Engineer; ULAB = Used Lead-Acid Battery

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
B.	CONSTRUCTION and/or DECOMMISSIONING					
B.1	Environment (continued)	Soil Erosion (continued)	3. <u>Road Design:</u> (a) Limit access road gradients to reduce runoff-induced erosion (b) Provide adequate road drainage based on road width, surface material, compaction, and maintenance 4. <u>Structural Slope Stability:</u> (a) Provide effective short term measures for slope stabilization, sediment control and subsidence control until long term measures during operation (b) Provide adequate drainage systems to minimize and control infiltration	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Habitat Alteration; Species Mortality or Injury and Disturbance	1. Remove invasive species from machinery by wash down before bringing to sites; any outbreak is the Contractor's responsibility 2. Avoid scheduling of activities during the breeding season, other sensitive seasons, or times of day 3. Revegetate disturbed areas with native plant species 4. Minimize clearing and disruption to riparian vegetation 5. Prohibit hunting animals and collecting ground nests of resident birds 6. Avoid use of machinery in the vicinity of watercourses 7. Use existing roads and tracks for access roads whenever possible 8. Store removed topsoil on site for future landscaping use 9. Implement proper collection and disposal of wastes 10. Observe manufacturer equipment guidelines and procedures with regard to noise, oil spill prevention and emergency response	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Cultural Heritage Impact	For "chance discoveries" during excavations, Contractor/s, PSE, or HSEO must promptly notify competent government authorities	CON	Contractor/s, PSE, HSEO	CON Cost

CON/DECOM = Construction/Decommissioning; HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
B. CONSTRUCTION and/or DECOMMISSIONING						
B.2	Occupational Health and Safety	Working at Heights	1. Contractor/s to prepare a <i>Fall Protection Plan</i>	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
			2. Implement the <i>Fall Protection Plan</i> 3. Avoid tower installation/removal works during poor weather conditions and especially where there is risk for lightning strikes 4. Prior to work, test structure for integrity and remove obstructions 5. Provide adequate work-positioning device system 6. Use approved safety belts and backup safety straps when operating power tools at height; and tool bags for raising/lowering materials 7. Install WTG Towers with an emergency exit system for descending, which may consist of, but not limited to, a hatch at the back of nacelle 8. Provide first aid box for minor injuries in towers 9. Install fixtures to facilitate use of hoisting and fall protection systems	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Electric and Magnetic Fields	1. Contractor/s to prepare an <i>Electrical Safety Plan</i>	Before CON	Contractor/s, PSE, HSEO	CON Cost
			2. Implement the <i>Electrical Safety Plan</i> 3. Follow electrical safety regulations and good practice	CON	Contractor/s	-
		Live Power Lines	1. Contractor/s to prepare an <i>Electrical Safety Plan</i>	Before CON	Contractor/s, PSE, HSEO	CON Cost
			2. Implement the <i>Electrical Safety Plan</i> 3. Follow electrical safety regulations and good practice 4. Hire only trained and certified workers on electrical works 5. Set procedures on pre-work initial inspections, test, or determinations; clearances; deenergizing lines and equipment; installing barricades and barrier; emergency procedures; and first-aid among others 6. Provide appropriate training, personal protective equipment and materials for working on or around energized lines and equipment	CON / DECON	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Access to Safe Water Supply	Daily water supply in the construction site will be purchased locally and transported by trucks	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost

CON/DECOM = Construction/Decommissioning; EMF = Electromagnetic Field; HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
B.	CONSTRUCTION and/or DECOMMISSIONING					
B.2	Occupational Health and Safety (continued)	Physical Hazards	1. Contractor/s to prepare a <i>Traffic Management Plan</i>	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
			2. Implement the <i>Traffic Management Plan</i> 3. Schedule to avoid peak hours of local road network wherever practicable and published in advance for special loads (WTG parts) 4. Plan and control vehicle traffic 5. Use locally sourced materials to minimize transport distances 6. Coordinate with emergency responders 7. Ensure vehicles are maintained regularly and equipped for trips 8. Implement road safety training and adherence to speed limits 9. Adopt trip limit and arrange driver roster to avoid overtiredness	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Trip and Fall Hazards	1. Implement good housekeeping practices 2. Clean up excessive waste debris and liquid spills regularly 3. Locate cords and ropes in common areas and marked corridors	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Exposure to Dust, Noise and Vibration	1. Provide workers with personal protective equipment 2. Implement best practices, control technologies, and maintenance procedures to reduce gas emissions and dust generation 3. Avoid open burning of wastes 4. Use noise control and protection devices for equipment 5. Train workers on proper use and maintenance of equipment 6. Optimize use of vehicles to reduce number required 7. Implement vehicle speed limit of 30 km/hr within the sites	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Falling Objects	1. Use designated and restricted material discharge zones, and/or a chute for safe movement of materials from upper to lower levels 2. Conduct sawing, cutting, grinding, sanding, chipping or chiseling with proper guards and anchoring as applicable 3. Maintain clear traffic ways to avoid driving equipment over loose scrap	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost

CON = Construction; DECOM = Decommissioning; HSEO = Health, Safety, and Environment Officer; km/hr = kilometer/hour; PSE = Project Site Engineer;
WTG = Wind Turbine Generator

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
B.	CONSTRUCTION and/or DECOMMISSIONING					
B.2	Occupational Health and Safety (continued)	Falling Objects	4. Use temporary fall protection measures in scaffolds and out edges of elevated work surfaces to prevent materials from being dislodged 5. Evacuate work areas in blasting operations; use blast mats or other means of deflection to minimize fly rock or ejection of demolition debris 6. Wear appropriate personal protective equipment, such as safety glasses with side shields, face shields, hard hats, and safety shoes	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Ergonomic Injuries and Illnesses	1. Train workers on lifting and materials handling techniques 2. Plan work site layout to minimize need for manual transfer of loads 3. Select tools and design work stations that reduce force requirements and holding times, and which promote improved postures, including, where applicable, user adjustable work stations 4. Implement administrative controls into work processes	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Fire and Explosion Hazard	1. Contractor/s to prepare a <i>Fire Prevention, Safety, and Management Plan</i>	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
			2. Implement the <i>Fire Prevention, Safety, and Management Plan</i> 3. Provide appropriate and accessible firefighting equipment 4. Prohibit smoking and burning of wastes 5. Ensure proper storage of flammable materials 6. Assign the HSEO as liaison for fire responding units 7. Ensure unobstructed access of fire responders and egress of vehicles	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
B.3	Community Health and Safety	All Impacts	Coordinate the CHSP with the commune heads and the communities within the immediate vicinity. Contractor/s will record, monitor, and report the effectiveness and improvements needed.	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		General Site Hazards	1. Restrict access to the site, through a combination of institutional and administrative controls, including fencing and signage 2. Posting information on public safety hazards and emergency contact 3. Implement procedures dealing with emergency situations, i.e., emergency response procedures, communication protocols	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost

CHSP = Community Health & Safety Plan; CON = Construction; DECOM = Decommissioning; HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
B.	CONSTRUCTION and/or DECOMMISSIONING					
B.3	Community Health and Safety (continued)	Diseases Incidence and Infections	1. Contractor/s to prepare an <i>Education and Awareness Plan for HIV/AIDS and other STDs</i>, and <i>Integrated Control Strategy for Mosquito and Other Arthropod-borne Diseases</i> for workers and community, in cooperation with the Ministry of Health or provincial counterpart. 1. Implement the <i>Education and Awareness Plan for HIV/AIDS and other STDs</i>, and <i>Integrated Control Strategy for Mosquito and Other Arthropod-borne Diseases</i>. 2. The <i>Integrated Control Strategy for Mosquito and Other Arthropod-borne Diseases</i> should have emphasis more on source prevention, reduction or control rather than chemical control, and will include best management practices in eliminating artificial mosquito breeding sites and harborage, which will include at least the following: (a) Storage for water must be properly covered (b) Eliminate and drain unnecessary standing water that may stand >4 days to prevent development of adult mosquitoes (c) Ensure wastes for disposal are properly stored and covered (d) Dispose of unwanted or unused artificial containers (e) If possible, drill drainage holes, cover, or invert any container or object that holds standing water that must remain outdoors. Check for containers or trash in places that may be hard to see (f) Clean clogged rain gutters and storm drains. Keep drains flowing freely and clear of leaves, vegetation, and other debris (g) Ensure rain water does not stand in any containers (h) Minimize sites mosquitoes can use for refuge (harborage) by thinning branches, trimming and pruning shrubs and bushes, and keeping grass short, if applicable (i) Properly store spare tires and dispose of old tires, if applicable	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
				CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost

CON = Construction; DECOM = Decommissioning; HIV/AIDS = Human Immunodeficiency virus/Acquired immune deficiency syndrome;

HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer; STDs = Sexually transmitted disease

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
B. CONSTRUCTION and/or DECOMMISSIONING						
B.3	Community Health and Safety (continued)	Exposure to Dust, Noise and Vibration	1. Operate loud construction equipment and any blasting operation only at day time; minimize construction works at night 2. Provide noise barriers as needed 3. Avoid open burning of wastes	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Traffic Hazard	1. Contractor/s to prepare a <i>Traffic Management Plan</i>	Before CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
			1. Implement the <i>Traffic Management Plan</i> 2. Schedule to avoid peak hours of local road network and published in advance for special loads (WTG parts) 3. Plan and control vehicle traffic 4. Use locally sourced materials to minimize transport distances 5. Coordinate with emergency responders 6. Maintain and equipped vehicles regularly for trips 7. Implement road safety training and adherence to speed limits	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
		Security, Peace and Order	1. Provide security personnel in areas where appropriate 2. Implement a “No Alcohol and Drug Policy” 3. Prohibit illegal activities such as, but not limited to, gambling and hunting of wild animals 4. Train workers on community cultural awareness and respect to right of privacy	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost
B.4	Local Employment	Employment Opportunities	1. Consider hiring local workers, if possible, for less-skilled works that can be easily obtained from the local community	Before CON / DECOM	Contractor/s	CON / DECOM Cost
		Economic Displacement	1. Create passageways, if possible, for grazing areas at safe distance from the construction site	CON / DECOM	Contractor/s, PSE, HSEO	CON / DECOM Cost

CON = Construction; DECOM = Decommissioning; HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer;
WTG = Wind Turbine Generator

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
C	OPERATION					
C.1	Environment	Loss and Damage of Property	1. Avoid or minimize crop disturbance by proper scheduling of ROW maintenance activities 2. Consult with commune heads and local community within the ROW prior to any maintenance works 3. Remove invasive plant species, whenever possible, and cultivate native plant species 4. Where cutting or trimming of trees is necessary, it should be done in accordance safety clearance requirements for power lines 5. Prohibit burning to control vegetation under the ROW 6. Implement an Integrated Vegetation Management; selective removal of tall-growing tree species and the encouragement of low-growing grasses and shrubs under the ROW	OPER	PO, HSEO	OPER Cost
		Visual Impact; Light and Illumination Issue	1. Site and orient WTGs so as to avoid residences located within the narrow bands where shadow flicker has high frequency 2. Use WTGs and T/L Towers of uniform type and height, while observing electrical and air navigational regulations 3. Site ROW and T/L Towers in less populated areas as possible	Survey & Design	PO	Design Cost
			4. Increase integration of Project components to surroundings: (a) Paint WTGs with non-reflective coating of uniform color matching the sky (light gray or pale blue), while observing air navigational marking regulations (b) Avoid company insignia, advertising, or graphics on WTGs (c) Landscape around the Switchyard Area (d) Revegetate disturbed areas with native plant species (e) Maintain Switchyard Area compact, clean, and painted to match with the local environment 5. Allot 21% (~17,000m²) of the Project Site as green area, specifically areas on top of the underground cables (in accordance with DONRE requirement for the Project): (a) Choose native plant species that will suit a wind farm, i.e., does not block or reduce wind resource for the WTGs (b) About 840 trees/hectare (1,428 total) must be planted	OPER	PO, HSEO	OPER Cost

CHSP = Community Health & Safety Plan; HSEO = Health, Safety, and Environment Officer; OPER = Operation; PO = Project Owner; ROW = Right-of-way; T/L = Transmission Line; WTG = Wind Turbine Generator

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
C	OPERATION					
C.1	Environment (continued)	Species Mortality or Injury and Disturbance (continued)	1. Account for known migration pathways or concentrated areas 2. Configure WTGs to avoid potential avian and bats mortality 3. Use WTGs of tubular structure to deter bird landing/perching 4. Prepare appropriate <i>Storm Water Management Plan</i> ; <i>Wastewater Management Plan</i> , to avoid open-water areas for feeding or nesting 5. Avoid critical habitats in the T/L alignment 6. Site towers away from water resources and riparian vegetation	Survey & Design	PO	Design Cost
			1. Implement the <i>Storm Water Management Plan</i> and <i>Wastewater Management Plan</i> 2. Install low intense and blinking lights as obstruction lights to minimize collision risk, in accordance with navigation regulations 3. Restrict vehicle movement to existing roads that connect the Project Site to surrounding areas. Avoid off-road driving	OPER	PO, HSEO	OPER Cost
		Solid and Hazardous Waste Generation	1. Prepare a <i>Solid and Hazardous Waste Management Plan</i>	Survey & Design	PO	Design Cost
			1. Implement the <i>Solid and Hazardous Waste Management Plan</i> 2. Identify waste sources and expected waste generation 3. Implement pollution prevention strategies, source reduction, waste segregation, reuse, and recycling as far as practicable 4. Implement systems for collection, storage, and final disposal 5. Maintain WTGs and provide each with oil collection systems 6. Provide transformers with pits to retain >100% of the coolant capacity and using non-carcinogenic coolants 5. <u>For Hazardous Wastes:</u> (a) Implement proper labeling and storage in leak-proof containers (b) Contract only a licensed hazardous wastes company (c) Contract only a licensed ULAB transporter and recycler (d) Designate areas of impervious surface for handling equipment and provide oil and grease traps (e) Provide portable spill containment and cleanup equipment (f) Replace transformers oil annually by licensed company	OPER	PO, HSEO	OPER Cost

HSEO = Health, Safety, and Environment Officer; OPER = Operation; PO = Project Owner; ROW = Right-of-way; T/L = Transmission Line; WTG = Wind Turbine Generator

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
C	OPERATION					
C.1	Environment (continued)	Solid and Hazardous Waste Generation (continued)	6. For use of Hazardous Materials: (a) Prepare a <i>List of Hazardous Materials</i> and display MSDS (b) Train workers on handling, storage, disposal, and spill response (c) Provide workers with personal protective equipment (c) Contract only a licensed ULAB transporter and recycler (d) Designate areas of impervious surface for handling equipment and provide oil and grease traps (e) Provide portable spill containment and cleanup equipment 7. For use of Hazardous Materials: (a) Prepare a <i>List of Hazardous Materials</i> and display MSDS (b) Train workers on handling, storage, disposal, and spill response (c) Provide workers with personal protective equipment 8. In accordance with DONRE requirement for the Project: (a) Build solid waste storage area (20 m ²) (b) Build temporary hazardous waste storage area (15 m ²) - both structures built of impervious surface, closed, and roofed	OPER	PO, HSEO	OPER Cost
		Water Quality	1. Prepare a <i>Wastewater Management Plan</i>	Survey & Design	PO	Design Cost
			2. Implement the <i>Wastewater Management Plan</i> 3. Providing adequate permanent sanitation facilities 4. Pretreat effluent containing oil and grease, by installing oil & grease traps, prior to discharge into sewer systems 5 If sewage from the facility is to be discharged to surface water, a septic system, or where land is used as part of the treatment system, it must wastewater discharge standards	OPER	PO; HSEO	OPER Cost
		Noise	1. Site WTGs and T/L Towers where there are no sensitive noise receptors (households, hospitals and schools, etc.) in close proximity 2. Adhere to national/international acoustic design standards for WTG	Survey & Design	PO	Design Cost
			3. Noise barriers or noise cancelling acoustic devices will be considered as necessary	OPER	PO, HSEO	OPER Cost
C.2	Occupational Health and Safety	Working at Heights	1. Prepare a <i>Fall Protection Plan</i>	Survey & Design	PO	Design Cost

HSEO = Health, Safety, and Environment Officer; PO = Project Owner; OPER = Operation; ULAB = Used Lead-Acid Battery; WTG = Wind Turbine Generator

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
C	OPERATION					
C.2	Occupational Health and Safety (continued)	Working at Heights (continued)	2. Implement the <i>Fall Protection Plan</i> 3. Avoid tower installation/removal works during poor weather conditions and especially where there is risk for lightning strikes 4. Prior to work, test structure for integrity and remove obstructions 5. Provide adequate work-positioning device system Use approved safety belts and backup safety straps when operating power tools at height; and tool bags for raising/lowering materials 7. Install WTG with an emergency exit system for descending, which may consist of, but not limited to, a hatch at the back of nacelle 8. Provide first aid box for minor injuries in towers 9. Install fixtures to facilitate use of hoisting & fall protection systems	OPER	PO, HSEO	OPER Cost
		Electric and Magnetic Fields	1. Prepare an <i>Electrical Safety Plan</i>	Survey & Design	PO	Design Cost
			2. Implement the <i>Electrical Safety Plan</i> 3. Follow electrical safety regulations and good practice	OPER	PO, HSEO	OPER Cost
		Live Power Lines	1. Prepare an <i>Electrical Safety Plan</i>	Survey & Design	PO	Design Cost
			2. Implement the <i>Electrical Safety Plan</i> 3. Follow electrical safety regulations and good practice 4. Hire only trained and certified workers on electrical works 5. Set procedures on pre-work initial inspections, test, or determinations; clearances; deenergizing lines and equipment; installing barricades and barrier; emergency procedures; and first-aid among others 6. Provide appropriate training, personal protective equipment and materials for working on or around energized lines and equipment	OPER	PO, HSEO	OPER Cost
		Exposure to Chemicals	1. Prohibit use of pesticides for maintaining vegetation under ROW 2. Provide personal protective equipment in handling chemicals	OPER	PO, HSEO	OPER Cost
		Access to Safe Water Supply	If connection with the PCERWASS for treated water is planned or if groundwater will be sourced, it will only be used for cleaning, watering greenery and bathing; bottled water will be supplied for drinking and cooking	OPER	PO, HSEO	OPER Cost

HSEO = Health, Safety, and Environment Officer; PCERWASS = Provincial Center for Rural Water Supply and Sanitation; PO = Project Owner; OPER = Operation

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
C	OPERATION					
C.2	Occupational Health and Safety (continued)	Fire and Explosion Hazard	1. Prepare a <i>Fire Prevention, Safety, and Management Plan</i>	Survey & Design	PO	Design Cost
			2. Implement the <i>Fire Prevention, Safety, and Management Plan</i> 3. Provide up-to-date training, drills, and supervision to the workers 4. Install and provide appropriate and accessible firefighting system and equipment to all Project Site structures 5. Install lightning protection systems to all Project structures 6. Prevent unauthorized access to high-risk areas 7. Strictly prohibit smoking and burning of debris/wastes 8. Implement proper storage of hazardous materials 9. Assign HSEO to act as liaison for fire responding units 10. Ensure unobstructed access of fire responders to the site and egress of vehicles during emergency 11. Regularly inspect to identify missing or corroded parts that need immediate replacement 12. Monitor ROW vegetation according to fire risk 13. Perform thinning, slashing, and other maintenance activities 14. Dispose trimmings/maintenance slash properly 15. Install and provide appropriate and accessible firefighting system and equipment to T/L Towers	OPER	PO, HSEO	OPER Cost
C.3	Community Health and Safety	All impacts	This section must be coordinated with commune heads and communities within the immediate vicinity.	Before OPER	PO	OPER Cost
		Aircraft Navigation and Safety	1. Consult and further verify, as needed, with government authorities regulating management of air navigation in relation to possible physical and radio frequency obstacle impact of towers 2. Install anti-collision lighting and marking systems on towers as needed and required by laws and authorities 3. Consider WTG with designs that minimize radar interference by using radar-absorbent surface treatment for blades and nacelle and non-metallic blades which should not create electrical disturbance	Survey & Design	PO	Design Cost
			4. If interference is detected during operation: (a) Install higher quality or directional antenna and amplifier (b) Direct antenna toward an alternative broadcast transmitter	OPER	PO, HSEO	OPER Cost

HSEO = Health, Safety, and Environment Officer; PO = Project Owner; OPER = Operation; ROW = Right-of-way; T/L = Transmission Lines; WTG = Wind Turbine Generator

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
C	OPERATION					
C.3	Community Health and Safety (continued)	Aircraft Navigation and Safety	(c) Relocate the antenna (d) Construct a new repeater station if wide area is affected	OPER	PO, HSEO	OPER Cost
		Blade Throw	Implement regular maintenance and checking of all WTGs	OPER	PO, HSEO	OPER Cost
		Electrocution and Lightning (continued)	1. Conduct regular inspection on the line to ensure minimum vertical clearance as well as protection is maintained 2. Regularly check for possible conductor snapping and de-energizing of T/L within 3 cycles to avoid potential for electrocution 3. Identify parts that need immediate replacement 4. Provide lightning arresters along the line and to structures nearby 5. Ensure security of the cable to avoid vandalism 6. Post information boards/signages and warning signs about public safety distances from the power lines	OPER	PO, HSEO	OPER Cost
		Public Access	1. Post information boards/signages about public safety hazards and emergency contact information 2. Use gates on access roads 3. Fence individual WTGs to prohibit public access 4. Prevent access to T/L Towers ladders 5. Install barriers/barricades to Project Substation and other energized equipment 6. Lock storage areas of hazardous materials and wastes	OPER	PO, HSEO	OPER Cost
		Electric and Magnetic Field	1. Prepare an <i>Electrical Safety Plan</i> 2. Site facilities so as to avoid or minimize exposure to the public. 3. Avoid locations intended for highly frequent human occupancy	Survey & Design	PO	Design Cost
			2. Implement the <i>Electrical Safety Plan</i> 3. Post information boards/signages and warning signs about public safety distances from the power lines	OPER	PO, HSEO	OPER Cost

HSEO = Health, Safety, and Environment Officer; PO = Project Owner; OPER = Operation; T/L = Transmission Lines; WTG = Wind Turbine Generator

No.	Project Phase: Impact Category	Potential Environmental and Social Impact	Mitigating Measures	Schedule	Responsible Entity	Budget / Source
C	OPERATION					
C.4	Local Employment	Employment Opportunities	1. Develop and implement a recruitment approach that will hire workers from the affected communes, if not, from the district/province 2. Consider hiring workers from the local community or from the affected communes, especially for the ROW maintenance activities	OPER	PO	OPER Cost

PO = Project Owner; OPER = Operation

Table 24. Monitoring Plan

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
A	PRE-CONSTRUCTION					
A.1	Site Project and Designing Project components to minimize environmental and social impacts	Project Site, T/L ROW, and Project components design	FS	<u>Visual inspection</u>	ONCE / Before final FS Approval	PO
A.2	Secure the Mine/UXO Clearance	Project Site and T/L ROW	Mine/UXO Clearance	<u>Visual inspection</u>	ONCE / Before CON	PO
A.3	Consult and further verify, as needed, with the government authorities regulating management of air navigation in relation to possible physical and radio frequency obstacle impacts of the WTGs and T/L Towers	WTGs and T/L Towers	Consultation/ meeting minutes	<u>Visual inspection</u>	ONCE / Before final FS Approval	PO
A.4	Consultations with Affected Community; Prepare, update, and implement the RAP	RAP, Affected Community	RAP, DCARC and Affected Community	<u>Meetings</u>	CONTINUOUS / Before CON or as required	PO; Consultant
A.5	Include the ConESMP/DecESMP (contents and requirements detailed in <i>Mitigation Plan</i> presented) as <i>Special Conditions</i> in the B&C Documents	B&C Documents	<i>Special Conditions</i>	<u>Visual inspection</u>	ONCE / Before disseminating B&C Documents	PSE and HSEO
A.6	Evaluate Contractor bids for competence and accepting responsibility for preparation and implementation of Con/DecESMP as required; Ranking B&C Documents and advising Bid Evaluation Panel	B&C Documents	Competence of Contractor; Inclusion of <i>Special Conditions</i> as responsibility of the Contractor; Ranking of bids	<u>Visual inspection</u>	ONCE / Before submission of B&C Documents to Bid Evaluation Panel	PSE and HSEO

B&C = Bid & Contract; CON = Construction; ConESMP/DecESMP = Construction/Decommissioning Environmental and Social Management;

DCARC = District Compensation, Assistance and Resettlement Committee; HSEO = Health, Safety and Environment Officer; PO = Project Owner;

PSE = Project Site Engineer; FS = Feasibility Study; RAP = Resettlement and Assistance Plan; T/L = Transmission Line; UXO = Unexploded Ordnance; WTG = Wind Turbine Generator

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
A	PRE-CONSTRUCTION					
A.7	Contractor to prepare the Con/DecESMP that establishes its management and compliance requirements with the ESMP and B&C Documents	Con/DecESMP	Approval of Con/DecESMP which includes the ESMP Mitigation Plan for the Construction/ Decommissioning Phase	<u>Visual inspection</u>	ONCE / Before CON/DECOM can start	PSE and HSEO
A.8	Evaluate Project Site and ROW for presence of invasive species and require Contractor to wash down all machinery before bringing to sites	Project Site, T/L ROW, and Contractor's machinery	Invasive species	<u>Visual inspection</u>	ONCE / Before CON/DECOM can start	PSE, HSEO, and Contractor
A.9	Site and setup of CON/DECOM Facilities (camp site, office, equipment and machinery laydown area, etc.) to minimize impacts	CON/DECOM Facilities	Compliance with mitigation measures in Con/DecESMP	<u>Visual inspection</u>	ONCE / Start of CON/DECOM Facilities establishment	PSE, HSEO, and Contractor
B	CONSTRUCTION / DECOMMISSIONING					
B.1	Perform land clearing and demarcation to minimize impacts	Project Site and T/L ROW	Land; Trees/vegetation; ROW boundary; AND Complaints or Reports received from workers/local community	<u>Visual inspection</u> ; <u>Meeting</u> : With workers/Affected Community	<u>Visual inspection</u> : DAILY / Start and end of workday; IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor
B.2	Landscape and Visual Management	Project Sites and T/L ROW	Eyesores (Camp sites, work areas, wastes, debris, scattered materials); AND Complaints or Reports from workers/local community	<u>Visual inspection</u> ; <u>Meeting</u> : With workers/Affected Community	<u>Visual inspection</u> : DAILY / Start and end of workday; IMMEDIATE / Complaint or Report received	

B&C = Bid & Contract; CON/DECOM = Construction/Decommissioning; ConESMP/DecESMP = Construction/Decommissioning Environmental and Social Management; HSEO = Health, Safety and Environment Officer; PSE = Project Site Engineer; ROW = Right-of-way; T/L = Transmission Line

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
B	CONSTRUCTION / DECOMMISSIONING					
B.3	Implement trip limits/day for crawler crane-type equipment and vehicles to protect provincial and commune roads	Crawler crane and Heavy-duty tow truck crawler crane	Allowable maximum trips/day: Crawler crane (3 trips) and Heavy-duty tow truck crawler crane (2 trips)	<u>Visual inspection</u> of roster of vehicle trips; <u>Meeting</u> : With Contractor	<u>Visual inspection</u> : DAILY / As needed; <u>Meeting</u> : On schedule	PSE, HSEO, and Contractor
B.4	Air Emissions management	Project Site; ROW where works are being conducted AND local community nearby	CO, NO _x , PM10, SO ₂ , Dust; Personal protective equipment; AND Complaints or Reports from workers/local community	<u>Measurement</u> : For compliance with <i>National Technical Regulation on Air quality (QCVN 05: 2009/BTNMT)</i> and <i>Hazardous substance in ambient air (QCVN 06: 2009/BTNMT)</i> sampled in at least 2 locations; <u>Visual inspection</u> : For dust generation; <u>Meeting</u> : With workers/ local community	<u>Measurement</u> : ONCE / 3 months; <u>Visual inspection</u> : IMMEDIATE / As dictated by wind and site conditions (For Dust only); IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor
B.5	Noise and Vibration management	Project Site; ROW where works are being conducted AND local community nearby	Noise; Personal protective equipment; AND Complaints or Reports from workers/local community	<u>Measurement</u> : Using Sound Meter for compliance with <i>National Technical Regulations for Noise (QCVN 26:2010/BTNMT)</i> and <i>Vibration (QCVN 27:2010/BTNMT)</i> sampled in work areas and near community noise receptors; <u>Meeting</u> : With workers/ local community	<u>Measurement</u> : DAILY / Start of noisy work activities, then as required; IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor
B.6	Solid and Hazardous Wastes Management Plan (for Non-hazardous)	Project Site and T/L ROW	Non-hazardous wastes improperly stored and disposed; Burning of maintenance trimmings; AND Complaints or Reports from workers/local community	<u>Visual inspection</u> ; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : DAILY / Start and end of workday; IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor

CO = Carbon monoxide; NO_x = Nitrogen oxides; PM10 = Particulate matter ≤ 10 microns; SO₂ = sulfur dioxide; HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer; ROW = Right-of-way; T/L = Transmission line;

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
B	CONSTRUCTION / DECOMMISSIONING					
B.7	Solid and Hazardous Wastes Management Plan (for Hazardous)	Vehicle parking and maintenance area; Equipment laydown area; Hazardous Materials and Wastes storage areas; Project Substation; WTGs; T/L Towers; ROW	Leaks; Spills; Improperly stored and disposed Hazardous Materials and Wastes (specifically petroleum compounds); Spill containment and cleanup equipment; Personal protective equipment; First Aid Kits; Communication system; AND Complaints or Reports from workers/local community	<u>Measurement</u> : For compliance with <i>National Technical Regulations for Solid and Hazardous Waste (QCVN 07: 2009/BTNMT)</i> ; <u>Visual inspection</u> : For all areas applicable; <u>Troubleshoot</u> : For communication system; <u>Meeting</u> : With workers/ local community	<u>Measurement</u> : ONCE / 3 months (for petroleum compounds on soil); IMMEDIATE / Complaint or Report received; <u>Visual inspection and Troubleshoot</u> : DAILY / At start and end of workday; IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor
B.8	Storm Water Management Plan	Project Site and T/L ROW	Puddle/pools formed on the ground after a rain/storm; Clogged road drainage; AND Complaints or Reports from workers/local community	<u>Visual inspection</u> ; <u>Meeting</u> : With workers/local community	<u>Visual inspection</u> : ONCE / After a rain/storm; IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor
B.9	Wastewater Management Plan	Nearby Surface Water (Bau Ngu Lake); Groundwater source (1st-Near Project Site, 2nd-Along T/L ROW)	Surface Water (BOD, COD, pH, Total N, Total P; TSS, Coliform); Groundwater (pH, COD, Cl ⁻ , CaCO ₃ , ammonia, iron, manganese, total arsenic) AND Complaints or Reports from workers/local community	<u>Measurement</u> : For compliance with the <i>National Technical Regulation on Surface water quality (QCVN 08: 2008/BTNMT) and Groundwater quality (QCVN 09: 2008/BTNMT)</i> sampled at least in 3 locations; <u>Visual inspection</u> ; <u>Meeting</u> : With workers/local community	<u>Measurement</u> : ONCE / 3 months; IMMEDIATE / Complaint or Report received; <u>Visual inspection</u> : IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor

BOD = Biological oxygen demand; COD = Chemical oxygen demand; pH = Acidity or basicity; Total N/P = Total Nitrogen/Phosphorus; TSS = Total suspended solids; Cl⁻ = Chlorine ion; CaCO₃ = Calcium carbonate; HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer; ROW = Right-of-way; T/L = Transmission Line; WTG = Wind Turbine Generator

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
B	CONSTRUCTION / DECOMMISSIONING					
B.10	Electrical Safety Plan (as part of the Occupational Health and Safety Plan)	Project Site; T/L ROW	Electrical Incident/Accidents; EMF; Equipment Maintenance Records; Personal protective equipment; AND Complaints from workers/local community	<u>Visual inspection</u> ; <u>Measurement</u> : Using EMF Meter for compliance, sampled at least in 3 locations; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : IMMEDIATE / Complaint or Report received; <u>Measurement</u> : ONCE / 1 month; ONCE / Installation work;	PSE, HSEO, and Contractor
B.11	Fire Prevention, Safety, and Management Plan (as part of the Occupational Health and Safety Plan)	Work areas; Camp sites; Fuel storage areas; Other hazardous materials storage areas; Vehicles and parking areas; Equipment and machinery; Laydown areas; Office; Vegetated land; Waste disposal areas; WTGs; Project Substation; T/L ROW	<u>Fire monitor and control system</u> (Fire alarm, Lightning arresters, and Fire extinguishers); <u>Fire communication systems</u> , <u>responders access areas</u> , and <u>egress areas</u> (Responders contact line and access, and egress areas); <u>Fire precursors</u> (Fuel, Vegetation trimmings; Spark, Smoke, Wind, Fire, Open burning, Explosion); <u>Worker Protection</u> (Personal protective equipment, First Aid Kit); AND <u>Complaints or Reports</u> from workers/local community	<u>Visual inspection</u> ; <u>Smell</u> : (Fuel leak indicator); <u>Troubleshoot</u> : Conduct a Fire drill; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : (1) <i>For Fire precursors</i> - DAILY / Start and end of workday or as needed; (2) <i>For others</i> - ONCE / Month; AND (3) <i>For Complaint or Report received</i> - IMMEDIATE; <u>Troubleshoot</u> : ONE FIRE DRILL / month or as required by law, whichever is more stringent	PSE, HSEO, and Contractor
B.12	Traffic Management Plan (as part of the Occupational Health and Safety Plan)	Project Site; T/L ROW; Access roads; Public roads	Alarms or horns; Moving machinery; Vehicles; Access roads; Public roads; Camp sites; Drivers; Flag persons; Workers; Work areas; Equipment and materials laydown areas; Personal protective equipment; First Aid Kits; AND Complaints or Reports from workers/local community	<u>Visual inspection</u> ; <u>Hearing</u> ; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : DAILY / As required; IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor

EMF = Electromagnetic Field; HSEO = Health, Safety and Environment Officer; PSE = Project Site Engineer; ROW = Right-of-way; T/L = Transmission Line;
WTG = Wind Turbine Generator

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
B	CONSTRUCTION / DECOMMISSIONING					
B.13	Fall Protection Plan (as part of the Occupational Health and Safety Plan)	WTGs and T/L ROW	Hoisting, and Fall protection equipment and installed systems; Personal protective equipment; First Aid Kits; Communication system; AND Complaints or Reports from workers	<u>Visual inspection</u> ; <u>Troubleshoot</u> ; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : ONCE / Before maintenance work; IMMEDIATE / Complaint or Report received; <u>Troubleshoot</u> : ONCE / Month; ONCE / Before maintenance work; IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor
B.14	General Site Hazards management (as part of the Community Health and Safety Plan)	Project Site and T/L ROW	Hazard information boards/signages; WTGs and T/L Towers; Project Substation and other energized equipment; Storage areas for Hazardous materials and wastes; Excavations/trenches; Confined spaces; Communication systems; First Aid Kits; AND Complaints or Reports from workers/local community	<u>Visual inspection</u> ; <u>Troubleshoot</u> : For Communication systems; <u>Meeting</u> : With workers/ local community	<u>Visual inspection and Troubleshoot</u> : DAILY / Start and end of workday; IMMEDIATE / Complaint or Report received	PSE, HSEO, and Contractor
B.15	HIV/AIDS and other STDs Awareness Plan and Integrated Control Strategy for Mosquito and Other Arthropod-borne Diseases (as part of the Community Health and Safety Plan)	All workers and local community; Project Site and T/L ROW	Meeting minutes with the workers, commune heads, and local community; Breeding places of mosquitoes; AND Complaints or Reports from workers/local community	<u>Visual inspection</u> : For meeting minutes, breeding places of mosquitoes; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : (1) <i>For meeting</i> - ONCE / Before CON/DECON works start; (2) <i>For breeding places</i> - DAILY / Start and end of workday; (4) <i>For Complaint or Report received</i> - IMMEDIATE	PSE, HSEO, and Contractor

HIV/AIDS = Human Immunodeficiency virus/Acquired immune deficiency syndrome; HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer; ROW = Right-of-way; STD = Sexually Transmitted Disease; T/L = Transmission Line; WTG = Wind Turbine Generator

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
C	OPERATION					
C.1	PO to prepare the mitigating measures in the ESMP operation phase that establishes PO's commitment, management, and compliance requirements with the ESMP	ESMP mitigating measures for Operation	All measures in the Monitoring Plan Operation Phase, including the prepared <i>Storm Water Management Plan; Wastewater Management Plan; solid and Hazardous Waste Management Plan; Fall Protection Plan; Electrical Safety Plan; Fire Protection, Safety, and Management</i>	<u>Visual inspection</u>	ONCE / Before Operation (<i>optional to be included in the FS</i>)	HSEO
C.2	Storm Water Management Plan	Project Site and T/L ROW	Puddle/pools formed on the ground after a rain/storm; Clogged road drainage; AND Complaints or Reports from workers/local community	<u>Visual inspection; Meeting:</u> With workers/local community	<u>Visual inspection:</u> ONCE / After a rain/storm; IMMEDIATE / Complaint or Report received	HSEO and Authorized Workers
C.3	Wastewater Management Plan	Nearby Surface Water (Bau Ngu Lake); and Groundwater source (1st-Near Project site; 2nd-Along T/L ROW)	Surface Water (BOD, COD, pH, Total N, Total P; TSS, Coliform); Groundwater (pH, COD, Cl ⁻ , CaCO ₃ , ammonia, iron, manganese, total arsenic) AND Complaints or Reports from workers/local community	<u>Measurement:</u> For compliance with the <i>National Technical Regulation on Surface water quality (QCVN 08: 2008/BTNMT) and Groundwater quality (QCVN 09: 2008/BTNMT)</i> sampled at least in 3 locations; <u>Visual inspection; Meeting:</u> With workers/local community	<u>Measurement:</u> ONCE / 6 months; IMMEDIATE / Complaint or Report received; <u>Visual inspection:</u> IMMEDIATE / Complaint or Report received	HSEO and Environmental Monitoring Company
C.4	Landscape and Visual management	Project Site	1.7 ha of Green Area with 840 trees/ha (total 1,428 trees) planted on areas above the underground cables (in accordance with DONRE requirement for the Project)	<u>Visual inspection</u>	<u>Visual inspection:</u> ONCE / After all planted	HSEO and Authorized Workers

BOD = biological oxygen demand; COD = Chemical oxygen demand; pH = Acidity or basicity; Total N/P = Total Nitrogen/Phosphorus; TSS = Total suspended solids; Cl⁻ = Chlorine ion; CaCO₃ = Calcium carbonate; EMF = Electric and magnetic field; hSF₆ = Sulfur hexafluoride; OP = Operation; T/L = Transmission line; ROW = Right-of-way
ESMP = Environmental and Social Management Plan; FS = Feasibility Study; PO = Project Owner; HSEO = Health, Safety, and Environment Officer; ha = hectare

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
C	OPERATION					
C.4	Design considerations and plans to reduce impacts on species mortality or injury and disturbance	Project Site (WTGs), and T/L	Birds or Bats injury and mortality, specifically: (1) Entire carcass, (2) Partial remains, (3) Feathers	<u>Visual inspection</u>	<u>Visual inspection</u> : DAILY / Start and end of workday; IMMEDIATE / Complaint or Report received	HSEO and Authorized Workers
C.5	Solid and Hazardous Waste Management Plan (Non-hazardous)	Project Site and T/L ROW	Storage area; Non-Hazardous Wastes improperly stored and disposed; Burning of maintenance trimmings; AND Complaints or Reports from workers/local community	<u>Visual inspection</u> ; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : DAILY / Start and end of workday; IMMEDIATE / Complaint or Report received	HSEO and Authorized Workers
C.6	Solid and Hazardous Waste Management Plan (Hazardous)	Vehicle parking and maintenance area; Equipment laydown area; Hazardous Materials and Wastes storage areas; Project Substation; WTGs and T/L Towers	Storage area; Leaks; Spills; Improperly stored and disposed Hazardous Materials and Wastes (specifically petroleum compounds; transformer oils); Spill containment and cleanup equipment; Personal protective equipment; First Aid Kits; Communication system; AND Complaints or Reports from workers/local community	<u>Measurement</u> : For compliance with <i>National Technical Regulations for Solid and Hazardous Waste (QCVN 07: 2009/BTNMT)</i> ; <u>Visual inspection</u> : For all areas applicable; <u>Troubleshoot</u> : For communication system; <u>Meeting</u> : With workers/ local community	<u>Measurement</u> : ONCE / 6 months (for petroleum compounds on soil); IMMEDIATE / Complaint or Report received; <u>Visual inspection and Troubleshoot</u> : DAILY / At start and end of workday; IMMEDIATE / Complaint or Report received	HSEO and Environmental Monitoring Company
C.7	Fall Protection Plan	WTGs and T/L ROW	Hoisting, and Fall protection equipment and installed systems; Personal protective equipment; First Aid Kits; Communication system; AND Complaints or Reports from workers	<u>Visual inspection</u> ; <u>Troubleshoot</u> ; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : ONCE / Before maintenance work; IMMEDIATE / Complaint or Report received; <u>Troubleshoot</u> : ONCE / Month; ONCE / Before maintenance work; IMMEDIATE / Complaint or Report received	HSEO and Authorized Workers

HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer; ROW = Right-of-way; T/L = Transmission Line; WTG = Wind Turbine Generator

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
C	OPERATION					
C.7	Electrical Safety Plan (includes Electrocutation and Lightning Strikes management)	Project Substation, WTGs, and T/L ROW	Electrical Incident/Accidents; EMF; Equipment Maintenance Records; Minimum vertical clearance along ROW; Information boards/signages on public safety distances; Lightning arresters; Energized equipment; Personal protective equipment; First Aid Kits; Communication system; AND Complaints or Reports from workers/local community	<u>Visual inspection</u> ; <u>Pre-work Initial Inspection Test</u> ; <u>Troubleshoot</u> : For communication system; <u>Measurement</u> : Using EMF Meter, sampled at least in 3 locations and where maintenance is performed; <u>Meeting</u> : With workers/local community	<u>Visual inspection</u> : ONCE / Month or IMMEDIATE / Complaint or Report received; <u>Pre-work Initial Inspection Test</u> : ONCE / Before maintenance work; <u>Troubleshoot</u> : ONCE / Month; ONCE / Before maintenance work; IMMEDIATE / Complaint or Report received <u>Measurement</u> : ONCE / 6 months; ONCE / Before maintenance work; IMMEDIATE / Complaint received	HSEO and Authorized Workers
C.8	Fire Prevention, Safety, and Management Plan	Project components (Fuel storage areas; Vehicles; Electrical equipment; Office Building and Compound; Workshop; Project Substation; WTGs; T/L ROW and T/L Towers)	<u>Fire monitor and control system</u> (Fire alarm, Lightning arresters, and Fire extinguishers); <u>Fire communication systems</u> , <u>responders access areas</u> , and <u>egress areas</u> (Responders contact line and access, and egress areas); <u>Fire precursors</u> (Fuel, Vegetation trimmings; Spark, Smoke, Wind, Fire, Open burning, Explosion); <u>Worker Protection</u> (Personal protective equipment, First Aid Kits); AND <u>Complaints or Reports from workers/local community</u>	<u>Visual inspection</u> ; <u>Smell</u> : (Fuel leak indicator); <u>Troubleshoot</u> : Conduct a Fire drill; <u>Meeting</u> : With workers/ local community	<u>Visual inspection</u> : (1) <i>For Fire precursors</i> - DAILY / Start and end of workday or as needed; (2) <i>For others</i> - ONCE / Month; AND (3) <i>For Complaint or Report received</i> - IMMEDIATE; <u>Troubleshoot</u> : ONE FIRE DRILL / 6 months	HSEO and Authorized Workers
C.9	Worker's Health Protection (as part of the Occupational Health and Safety Plan)	Workers	Health Check-up results (Current year and previous years since hired)	<u>Visual inspection and Comparison</u>	ONCE / Year	HSEO

EMF = Electric and magnetic field; HSEO = Health, Safety, and Environment Officer; PSE = Project Site Engineer; ROW = Right-of-way; T/L = Transmission Line; WTG = Wind Turbine Generator

No.	Mitigating Measure	Applies to	Parameter to Monitor	Means of Verification	Frequency / Schedule	Monitoring Responsibility
C	OPERATION					
C.11	General Site Hazards management	Project Site and T/L ROW	Fenced and gated areas (WTGs and T/L Towers; Project Substation and other energized equipment); Trespassers; Climbers; Alcoholic drinks; Prohibited drugs; Gambling; Hunting; Hazard information boards/signages; Storage areas for Solid and hazardous wastes; Excavations/trenches; Confined spaces; Communication system; Personal protective equipment; First Aid Kits; AND Complaints or Reports from workers/local community	<u>Visual inspection</u> ; <u>Troubleshoot</u> : Communication system	<u>Visual inspection and Troubleshoot</u> : DAILY / Start and end of workday; IMMEDIATE / Complaint or Report received	HSEO and Authorized Workers
C.12	Noise management	Project Site and T/L ROW (nearby a local community)	Noise level in five (5) locations*: (1) WTG - (X: 1,267,137.34, Y: 582,348.95); (2) Project Substation - (X: 1,268,153.65, Y: 581,554.32); (3 – 5) Locations along the T/L ROW (in accordance with DONRE requirement for the Project); To add, measure in areas with nearby noise receptors) AND Complaints or Reports from workers/local community	<u>Measurement</u> : Using Sound Meter for compliance with <i>National Technical Regulations for Noise (QCVN 26:2010/BTNMT)</i> and <i>Vibration (QCVN 27:2010/BTNMT)</i> sampled in areas near noise receptors; <u>Meeting</u> : With workers/ local community	<u>Measurement</u> : ONCE / 6 months; IMMEDIATE / Complaint or Report received	HSEO and Environmental Monitoring Company

HSEO = Health, Safety, and Environment Officer; ROW = Right-of-way; T/L = Transmission line; WTG = Wind Turbine Generator

Note: * Locations for noise measurements as specifically identified in the Vietnamese EIA

8.1 REPORTING

338. In compliance with the B&C and ESMP, during the construction/decommissioning periods, the Contractor/s must prepare a *Contractor Monthly Report*. The report shall include how the Con/DecESMP is being implemented, the problems encountered, and solutions and/or alterations made to address issues faced. Copies of the *Control Record* and the *Record of Accidents* must be attached to the *Contractor Monthly Report*. The Contractor/s must submit this to the designated Health, Safety and Environment Officer (HSEO) of the Project Owner.

339. The HSEO will prepare a *Monthly Monitoring & Evaluation Report* on ESMP implementation, and how it is being addressed by the Contractor/s. The HSEO will report to the Project Owner monthly, or at another schedule required. The report shall contain the following:

- i. Work progress
- ii. Observed environmental and social impacts
- iii. ESMP implementation
- iv. Problems encountered and Recommended corrective actions
- v. Project's compliance with the ESMP
- vi. Other observations and recommendations

340. During the operational phase, the HSEO will be responsible for undertaking routine monitoring, reporting and resolution of environmental and social issues. All monitoring and reporting activities will be sustained by the Project Owner to ensure that mitigation measures are effectively implemented.

8.2 IMPLEMENTATION ARRANGEMENTS

341. **Project Owner.** The Project Owner has the overall responsibility for implementing the ESMP, and will arrange for the hiring of the PSE and HSEO.

342. **PSE and HSEO.** Responsible prior to and during construction/decommissioning:

- (i) Include the Con/DecESMP (which details the ESMP Construction / Decommissioning impact mitigating measures) as *Special Conditions* in the Bid and Contract (B&C) Documents
- (ii) Evaluate Contractors bids for: (1) competence and (2) taking responsibility for preparation and implementation of Con/DecESMP
- (iii) Rank B&C Documents and advise Bid Evaluation Panel
- (iv) Ensure the Mine/UXO Clearance have been obtained prior to construction
- (v) Check the prepared Con/DecESMP by the Contractors, and approve once deemed complete of all mitigation measures as in the ESMP
- (vi) Induct the Conductor to the site
- (vii) Implement the ESMP and monitor the Contractor/s
- (viii) ESMP compliance monitoring
- (ix) Consult and report with the DONRE and relevant government authorities
- (x) Submit reports to the Project Owner

343. The HSEO will be retained during the Project operation and will be responsible for:

- (i) Implement and ensure requirements of ESMP operation period are met
- (ii) Undertake routine monitoring, reporting and resolution of issues
- (iii) Document and report any incident
- (iv) Document results of compliance or non-compliance
- (v) Consult and report with the DONRE and relevant government authorities
- (vi) Submit reports to the Project Owner

344. **Contractor/s.** The Contractor/s will be responsible for implementing

- (i) Prepare the Con/DecESMP
- (ii) Comply with the Con/DeconESMP
- (iii) Submit *Contractor Monthly Reports* to the HSEO

345. **District Compensation, Assistance and Resettlement Committee (DCARC).** The DCARC will be implementing the RAP in terms of payment for compensation, assistance and resettlement of the displaced persons, in coordination with the Project Owner. It will also receive and process complaints related to the RAP.

8.3 CAPACITY DEVELOPMENT AND TRAINING

346. The objective of capacity building is to strengthen compliance with the: (i) Vietnam legislation and safeguard requirements; and (ii) WB/IFC safeguard requirements. The Contractor may be required to implement capacity building in order to meet its contract obligations. Further, the HSEO must be able to implement the ESMP effectively. The need for capacity building will be evaluated and decided by an International Safeguard Specialist for social and environment to be hired by the Project Owner (if no sufficient in-house capacity to implement relevant laws and meet the safeguard requirements of IFC/WB). However, if an International Safeguard Specialist is hired, the support it can give will include but not limited to:

- i. Reviewing B&C Documents to ensure that ESMP requirements have been included;
- ii. Ensure that Mine/UXO Clearance have been conducted by recognized demining contractor;
- iii. Establish environmental and social monitoring and reporting procedures that are in accordance with IFC/WB requirements;
- iv. Undertake environmental and social compliance monitoring;
- v. Provide a brief refresher training to the HSEO and PSE on ESMP implementation, including IFC/WB monitoring and reporting requirements
- vi. Assist in the preparation of periodic environmental and social monitoring reports

8.4 ESMP COSTS

347. An estimated cost cannot be provided at the time of writing the report and will just be updated as the information is made available. Nevertheless, the cost in implementation of the ESMP (Mitigation and Monitoring) will depend on the level of commitment of the Project Owner. The very least, there will be technical, financial, and human resources aspects that must be funded for the ESMP to be successfully implemented.

9.0 CONCLUSION AND RECOMMENDATION

348. Based on the analysis conducted in this ESIA, the Project presents negative environmental and social impacts but with potential immediate and long-term positive impacts. Most of the adverse negative impacts are identified to be local, minimal, reversible, and can be generally reduced to acceptable levels through practical mitigation measures associated with good engineering practices.

349. The impacts primarily associated with the siting of the T/L ROW and T/L Towers will result to loss and damage to properties that are permanent in nature. At the time of writing the report, it cannot be fully concluded yet whether the effect on properties of the affected persons are marginal or severe. The *Resettlement and Assistance Plan (RAP)* still has to be updated and finalized for this to be known. Consultations with the affected persons must be conducted, aside from securing approval of the Vietnam Fatherland and Front Committees of the communes. Implementation and success of the RAP will ensure that no affected persons will be undermined. Along the T/L ROW, most of the areas already have high- and medium-voltage T/L (in addition to other communication lines). Thus an additional T/L will be off low to no impact to existing urban structures or visually to nearby inhabitants.

350. Adverse impacts were identified to be due mainly from the construction works. During construction, expected that there will be noise and vibration; fugitive dusts and other emissions; waste generation (solid and hazardous, wastewater), chances of soil erosion; and minimal EMF emission among others. However, these are all localized and reversible. Appropriate environmental, and health and safety (occupational & community) mitigation measures will be put in place.

351. During the operation phase of any wind farm, impact on habitat alteration, and species mortality or injury and disturbance must be evaluated; specifically on avian collision. This impact is low due to the fact that at the Project Site, the following holds true:

- i. Dry and barren land
- ii. Low to none bird sighting
- iii. No Protected Area (< 50km radius)
- iv. No Alliance for Zero Extinction Site and Key Biodiversity Area (< 10km radius)
- v. No Key Biodiversity Area (< 25km radius)
- vi. No Important Bird Area (< 140km radius)

352. Despite of this, regular monitoring on species injury or mortality (i.e. bird, bats) within the Project area of influence must be performed; including open-water containers or ponds that can attract animals to forage or insects to breed. Other parameters to be monitored are waste discharge, noise, or complaints of nearby residents, among many others.

353. Other impacts associated with the Project that needs to be considered in design, planning, construction and operation are:

- i. Cutting/trimming trees, and impact on agricultural land and structures which requires proper consultation with the affected persons and compensation in accordance with government laws
- ii. Hazards to workers and the community during the construction and operation

354. One of the positive impacts of the project is the potential for employment during the construction and operation phase. Although during construction hiring will entirely be dependent with the Contractor, the Project Owner will encourage for local labor to be hired; with equal preference for man and woman, but not allowing child labor at any time. Long-term effect of the Project will be to assist the province in increasing its energy capacity to power economic zones; which will eventually provide jobs.

355. To ensure that during Project implementation the impacts are minimized or mitigated, an *Environmental and Social Management Plan (ESMP)* has been prepared and will be implemented in all phase of the Project. The ESMP identifies the mitigation measures as well as the institutional arrangements for its implementation.

356. This Project is recommended to be supported by IFC/WB or other financial institutions, subject to the commitments set forth in the ESMP and allocation of appropriate technical, financial, and human resources by the Project Owner to ensure these mitigation measures are effectively implemented.

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APPENDIX

- 1. Decision on approval to report on environmental impact assessment “Mui Dinh Wind Farm”;**
- 2. The community Comments;**
- 3. Document about route direction of T/L ROW 110kV, Mui Dinh Wind Farm connecting substation Ninh Phuoc 110kV.**

Ref. No. 569/QD-UBND

Ninh Thuan, March 13, 2015

DECISION

On approval to report on environmental impact assessment “Mui Dinh Wind Farm” in three communes of Thuan Nam District (Phuoc Dinh, Phuoc Nam, and Phuoc Ninh) and Phuoc Hai Commune of Ninh Phuoc District of El Wind Mui Dinh Ltd.

CHAIRMAN OF PEOPLE'S COMMITTEE OF NINH THUAN PROVINCE

Pursuant to the organization law of the People's Councils and People's Committees dated

November 26th 2003;

Pursuant to the Environment protection law dated on June 6, 2014;

Pursuant to the Decree No.80/2006/ND-CP, dated August 9, 2006 by the GOV concerning instruction on environment protection law implementation;

Pursuant to the Decree No.29/2011/ND-CP, dated on Apr 18, 2011 by the GOV concerning instruction on implementation of the environment protection law;

Pursuant to the Circular No. 26/2011/TT-BTNMT dated on Junly 18, 2011 by Ministry of Natural Resources and Environment (MONRE), concerning instruction on strategic enviromental impact assessment, enviromental impact assessment and environmental protection commitment;

At request of Environment Impact Assessment Report Evaluation Committee Mui Dinh Wind Farm project in three communes of Thuan Nam District (Phuoc Dinh, Phuoc Nam, and Phuoc Ninh) and Phuoc Hai Commune of Ninh Phuoc District, Ninh Thuan province.

Considering contents of revised and supplemented EIA report of Mui Dinh Wind Farm project in three communes of Thuan Nam District (Phuoc Dinh, Phuoc Nam, and Phuoc Ninh) and Phuoc Hai Commune of Ninh Phuoc District, Ninh Thuan province attached with Explanatory Correspondence No.03/ĐTM-MD dated on December 8, 2014 by of El Wind Mui Dinh Ltd.,.

At Ninh Thuan Environment and Natural Resource department Chief's request on Document No.598/TTr-STNMT dated March 03, 2015

DECISION

Article 1: Approval on contents of EIA report of Mui Dinh Wind Farm project (hereinafter called Project) in the territory of three communes of Thuan Nam District (Phuoc Dinh, Phuoc Nam, and Phuoc Ninh) and Phuoc Hai Commune of Ninh Phuoc District, Ninh Thuan province of El Wind Mui Dinh Ltd., (hereinafter called Project Owner) with following main contents:

1. Bound, capacity of Project:

- a) Land area: total land area for survey is about 263, 73 ha, including 2 locations: Location 1 has an area of 57, 27 ha; Location 2 has an area of 206, 46 ha, in which: temporary area is 34,559 m², permanent area is 86,951.98 m².
- b) Size: comprising of 16 wind turbines with total designed capacity of 37,6 MW.
Coordinates of the WTGs:

WTG	N (Y)	E (X)
1	1263330.39	581556.33
2	1263541.79	581391.35
3	1263742.37	581245.46
4	1263967.91	580990.36
5	1264310.65	581074.09
6	1264182.86	580779.35
7	1266484.13	581687.28
8	1267137.34	582348.95
9	1267090.54	581949.46
10	1267559.58	582066.96
11	1267928.09	582126.44

12	1267942.47	581852.34
13	1268103.94	581589.84
14	1266480.23	582222.23
15	1266885.82	582290.35
16	1267320.53	581743.29

2. Project Owner (PO) is responsible for implementing exactly contents mentioned in approved EIA report and the following compulsory requirements:
 - a) Delineating the project boundary, the project only after the completion of the procedures for conversion of land use, land under the current provisions of law.
 - b) Construction activities, operational projects are not affecting agricultural production, livelihood activities and other activities surrounding the project.
 - c) Implementing strictly committed to protecting the environment impact assessment report by the competent environmental authorities for approval.
 - d) Implementating fully of environmental monitoring reports submitted periodically to the competent Ninh Thuan Environment and Natural Resource department to monitor and coordinate.
 - e) Collection, storage and disposal of hazardous waste in accordance with the provisions of Circular No.12/2011/TT-BTNMT dated Apr. 14th 2011 of the Ministry of Natural Resources and Environment on hazardous waste management.
3. The other requirements:
 - a) Implement strict requirements on environmental protection provisions of the law on during construction, evaluation and approval of the design. Compliancing with regulations on chemical safety, fire safety, occupational safety, traffic safety, safety power grid.
 - b) ensuring funds for the implementation of environmental protection and environmental monitoring as specified in the environmental impact acessment report.

Article 2. Project owners must do:

1. To approve and publicly listed environmental management plan of the project at headquarters of three communes of Thuan Nam District (Phuoc Dinh, Phuoc Nam, and Phuoc Ninh) and Phuoc Hai Commune of Ninh Phuoc District before the project implementation accordance with article No. 22, Decree No.29/2011/ND-CP, dated on Apr 18, 2011.

2. Implement strict requirements on environmental protection provisions of Clause 2, 3 Article 1 of this Decision and other responsibilities under the provisions of the law on environmental protection.

3. Documentation suggest checking, validation work performed works, environmental protection measures serve the operational phase of the project submitted to the competent authorities for inspection and certification prior to project into full operation as stipulated in Circular No. 26/2011/TT-BTNMT dated Jul. 18th 2011 of the Ministry of Natural Resources and Environment Regulations detailing a number of articles of Decree No. 29/2011/ND-CP dated Apr. 18th 2011 regulations on strategic environmental assessment, environmental impact assessment and environmental protection commitment.

Article 3. In the course of project implementation if there are changes compared with paragraphs 1 and 2 of Article 1 of this Decision, the project owner must provide written reports and shall be made only after the change documents approval of Ninh Thuan province.

Article 4. The decision to approve the report of environmental impact assessment of the project as a basis for decisions on investment projects; the basis for the state agency authorized test and inspect the implementation of environmental protection project.

Article 5. Authorizing the Department of Natural Resources and Environment carried out the inspection and supervision of the implementation of environmental protection issues in reporting environmental impact assessment has been approved in this decision.

Article 6. The Director of the Department of: Natural Resources and Environment, Construction, industrial and commercial department; Chairman of the office; Chairman of the Thuan Nam, Ninh Phuoc district's committee; The Director of El Wind Mui Dinh Ltd anh Heads of agencies and units concerned shall implement this decision from the date of signing./.

Recipients:

- Same as above;
- Save office

**ON BEHALF OF THE COMMUNE
PEOPLE'S COMMITTEE
Vice CHAIRMAN
(Signed and sealed)**

Vo Dai

**PHUOC DINH PEOPLE'S
COMMITTEE**

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom – Happiness

No: ...23.../ UBND-ĐC

On provision of public comments for
a report evaluating the environmental
impact of the project "Mui Dinh
Wind Farm"

Phuoc Dinh, April 2^{Sd} 2014

To: Elwind Mui Dinh Ltd.

Phuoc Dinh People's Committee received Document No. 01/MD on 04.01.2014 of Elwind Mui Dinh Ltd. notice on the main investment categories, the environmental problems, the solution environment of the project " Mui Dinh Wind Farm ". Based on studies of this notice, the relevant documents we have the following opinions:

1. Comments on the project's adverse impacts to the natural environment and economic - social:

- Operation of the project period: Agreed with the corresponding content is presented in the notice stated the project.
- Agree with the clearance service for the implementation of the project.
- Construction Phase: there are many problems such as erosion, landslides affecting people in the project area. Therefore, requested the project must comply with the commitments made in the report of environmental impact assessment to protecting the environment and ensuring the living conditions of people in the construction phase.
- The impact of the project on the environment is inevitable due to the construction process. However, in the operation phase, the project will bring economic benefits, social development locally in the future.
- Don't affect the water, atmosphere in the project area. Suggest project owners to take measures to promptly handle the pollution, avoid affecting the health of people in the region.

2. Comments on the solutions and measures to minimize the adverse impacts of the project to the natural environment and economic - social:

Agreed with other measures to minimize adverse impacts of the project on the natural environment and economy - society stated in the notice.

3. Recommendations for project owners:-

- Recommend Investors strictly committed to protecting the environment impact assessment report by the competent environmental authorities for approval.

- Recommend Investors coordination with local authorities in the protection of security and prevent social evils occur in the project area.
- Implementing the compensation and support to ensure the legitimate rights and interests of the affected households in accordance with law prior to construction projects.
- Local government will create favorable conditions and maximum support for the project, in particular, with regard to land acquisition, clearance and construction projects.
- Implementing fully of environmental monitoring reports submitted periodically to the competent authorities to monitor and coordinate processing when the problem occurred.

Above is the opinion of Phuoc Dinh People's Committee to Elwind Mui Dinh Ltd. to synthesizing and handling. /.

Recipients:

- Same as above;
- Save office

**ON BEHALF OF THE COMMUNE
PEOPLE'S COMMITTEE
Vice CHAIRMAN
(Signed and sealed)**

Dang Van Hung

No: ...02/ MTTQ

Phuoc Dinh, April 2^{Sd} 2014

To: Elwind Mui Dinh Ltd.

On provision of public comments for a report evaluating the environmental impact of the project "Mui Dinh Wind Farm"

Pursuant to the Law No. 52/2005/QH11 of 29 November 2005 by the National Assembly on environment protection.

Pursuant to Decree No. 29/2011/ND-CP of 18/04/2011 by the Government on strategic environmental assessment, environmental impact assessment, environmental protection commitments.

Pursuant to Circular No.26/2011/TT-BTNMT of 18/07/2011 by MONRE providing guidelines for the implementation of some articles of the Decree No.29/2011/ND-CP of 18 April 2011 by the Prime Minister on strategic environmental assessment, environmental impact assessment and commitment to environmental protection;

Pursuant to Document No. 01/MD on 04.01.2014 of Elwind Mui Dinh Ltd. on provision of public comments for a report evaluating the environmental impact of the project "Mui Dinh Wind Farm".

After review, we have the following opinions:

- Local government and the people fully support the implementation of the project in Phuoc Dinh commune.
- Agreed with the corresponding content is presented in the notice stated the project and the measures to minimize adverse impacts of the project on the natural environment and economy - society stated in the notice. Recommend Investors strictly committed to protecting the environment impact assessment report by the competent environmental authorities for approval.
- Implementing good environmental sanitation, closely monitor the sources of emissions from the project activity to the environment, in order to avoid health problems for workers and residents.

Above is the opinion of Phuoc Dinh Fatherland Front Committee to Elwind Mui Dinh Ltd. for synthesizing and handling. /.

Recipients:
- Same as above;
- Save office

**ON BEHALF OF THE FATHERLAND
FRONT COMMITTEE
CHAIRMAN
(Signed and sealed)**

Nguyen Ha

**PHUOC NAM PEOPLE'S
COMMITTEE**

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom – Happiness

No: ...19/ UBND

On provision of public comments for
a report evaluating the environmental
impact of the project "Mui Dinh
Wind Farm"

Phuoc Nam, April 2^{Sd} 2014

To: Elwind Mui Dinh Ltd.

Pursuant to the Law No. 52/2005/QH11 of 29 November 2005 by the National Assembly on environment protection.

Pursuant to Decree No. 29/2011/ND-CP of 18/04/2011 by the Government on strategic environmental assessment, environmental impact assessment, environmental protection commitments.

Pursuant to Circular No.26/2011/TT-BTNMT of 18/07/2011 by MONRE providing guidelines for the implementation of some articles of the Decree No.29/2011/ND-CP of 18 April 2011 by the Prime Minister on strategic environmental assessment, environmental impact assessment and commitment to environmental protection;

Pursuant to Document No. 01/MD on 04.02.2014 of Elwind Mui Dinh Ltd. on provision of public comments for a report evaluating the environmental impact of the project "Mui Dinh Wind Farm".

After review, we have the following opinions:

- Agreed with the corresponding content is presented in the notice stated the project and the measures to minimize adverse impacts of the project on the natural environment and economy - society stated specifically in the notice.
- Recommend Investors strictly committed to protecting the environment impact assessment report by the competent environmental authorities for approval to avoid health problems for workers and residents.
- Recommend Investors coordination with local authorities in the protection of security and prevent social evils occur in the project area.

Above is the opinion of Phuoc Dinh Fatherland Front Committee to Elwind Mui Dinh Ltd. for synthesizing and handling. /.

Recipients:

- Same as above;
- Save office

**ON BEHALF OF THE COMMUNE
PEOPLE'S COMMITTEE
Vice CHAIRMAN
(Signed and sealed)**

Thiên Sanh Tuấn

**PHUOC NAM FATHERLAND
FRONT COMMITTEE**

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom – Happiness

No: ...01/ MTPN

Phuoc Nam, April 2^{Sd} 2014

To: Elwind Mui Dinh Ltd.

On provision of public comments for a report evaluating the environmental impact of the project "Mui Dinh Wind Farm"

Phuoc Nam People's Committee received Document No. 01/MD on 04.02.2014 of Elwind Mui Dinh Ltd. notice on the main investment categories, the environmental problems, the solution environment of the project " Mui Dinh Wind Farm ". Based on studies of this notice, the relevant documents we have the following opinions:

- Agreed with the corresponding content is presented in the notice stated the project and the measures to minimize adverse impacts of the project on the natural environment and economy - society stated specifically in the notice.
- Recommend Investors strictly committed to protecting the environment impact assessment report in the construction phase and operation phase, to avoid health problems for workers and residents.
- Local government will create favorable conditions and maximum support for the project, in particular, with regard to land acquisition, clearance and construction projects.
- Implementating fully of environmental monitoring reports submitted periodically to the competent authorities to monitor and coordinate processing when the problem occurred.

Above is the opinion of Phuoc Nam Fatherland Front Committee to Elwind Mui Dinh Ltd. for synthesizing and handling. /.

Recipients:
- Same as above;
- Save office

**ON BEHALF OF THE FATHERLAND
FRONT COMMITTEE
CHAIRMAN
(Signed and sealed)**

Bá Văn Cảnh

**PHUOC NINH PEOPLE'S
COMMITTEE**

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom – Happiness

No: 14/ UBND

On provision of public comments for
a report evaluating the environmental
impact of the project "Mui Dinh
Wind Farm"

Phuoc Nam, April 2^{Sd} 2014

To: Elwind Mui Dinh Ltd.

Phuoc Ninh People's Committee received Document No. 01/MD on 04.01.2014 of Elwind Mui Dinh Ltd. notice on the main investment categories, the environmental problems, the solution environment of the project "Mui Dinh Wind Farm".

After review, we have the following opinions:

- Limited impact on the environment, not to happen emissions, emissions of the affected people.
- The construction must comply with the provisions of the law, not violate local zoning.
- Recommend Investors strictly committed to protecting the environment impact assessment report by the competent environmental authorities for approval to avoid health problems for workers and residents.
- Recommend Investors coordination with local authorities in the protection of security and prevent social evils occur in the project area, don't occur negatively affect people's lives.
- Implementating fully of environmental monitoring reports submitted periodically to the competent authorities to monitor and coordinate processing when the problem occurred.

Above is the opinion of Phuoc Ninh People's Committee to Elwind Mui Dinh Ltd. for synthesizing and handling. /.

Recipients:

- Same as above;
- Save office

**ON BEHALF OF THE FATHERLAND
FRONT COMMITTEE
Vice CHAIRMAN
(Signed and sealed)**

Thiên Sanh Hung

**PHUOC NINH FATHERLAND
FRONT COMMITTEE**

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom – Happiness

No: ...01/ MTPN

Phuoc Ninh, April 2^{Sd} 2014

To: Elwind Mui Dinh Ltd.

On provision of public comments for a report evaluating the environmental impact of the project "Mui Dinh Wind Farm"

Phuoc Nam People's Committee received Document No. 01/MD on 04.02.2014 of Elwind Mui Dinh Ltd. notice on the main investment categories, the environmental problems, the solution environment of the project " Mui Dinh Wind Farm ".

After review, we have the following opinions:

- Proposed adequately compensate and support for people; Recommend Investors coordination with local authorities in ensuring better implementation of the project, not violate local zoning.
- Agreed with the corresponding content is presented in the notice stated the project and the measures to minimize adverse impacts of the project on the natural environment and economy - society stated specifically in the notice.
- **Recommend Investors strictly committed to protecting the environment impact assessment report by the competent environmental authorities for approval to avoid health problems for workers and residents.**
- Ensuring electromagnetic field by the transmission line not affect people's health. The construction must comply with the provisions of the law.

Above is the opinion of Phuoc Ninh Fatherland Front Committee to Elwind Mui Dinh Ltd. for synthesizing and handling. /.

Recipients:

- Same as above;
- Save office

**ON BEHALF OF THE FATHERLAND
FRONT COMMITTEE
CHAIRMAN**

(Signed and sealed)

Hàm Thiên Thiện Thành

**PHUOC HAI PEOPLE'S
COMMITTEE**

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom – Happiness

No: ...259/UBND

On provision of public comments for
a report evaluating the environmental
impact of the project "Mui Dinh
Wind Farm"

Phuoc Hai, November 4th 2014

To: Elwind Mui Dinh Ltd.

Phuoc Hai People's Committee received Document No. 02/TVCD-PH on 11.24.2014 of Elwind Mui Dinh Ltd. notice on the main investment categories, the environmental problems, the solution environment of the project " Mui Dinh Wind Farm ". Based on studies of this notice, the relevant documents we have the following opinions:

1. Comments on the project's adverse impacts to the natural environment and economic - social:

- We agree with the presentation of the project's adverse impact on the environment and economic - social Elwind Mui Dinh Ltd. was raised in the report. The impact of the project during construction and operation on the environment is significant. So we need to have the appropriate remedial measures, hygienic environment and landscape surrounding area.

2. Comments on the solutions and measures to minimize the adverse impacts of the project to the natural environment and economic - social:

Agreed with other measures to minimize adverse impacts of the project on the natural environment and economy - society stated in the notice.

3. Recommendations for project owners:-

- Elwind Mui Dinh Ltd. need to coordinate closely with local authorities to ensure security and prevent social evils occur in the project area.
- Implementing the law and ensure proper sanitation, security and order in the area.

Above is the opinion of Phuoc Hai People's Committee to Elwind Mui Dinh Ltd. to synthesizing and handling. /.

Recipients:

- Same as above;
- Save office

**ON BEHALF OF THE COMMUNE
PEOPLE'S COMMITTEE
CHAIRMAN**

(Signed and sealed)

Châu Văn Biết

**PHUOC HAI FATHERLAND
FRONT COMMITTEE**

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom – Happiness

No: 02/UBMTTQ

On provision of public comments for
a report evaluating the environmental
impact of the project "Mui Dinh
Wind Farm"

Phuoc Hai, November 4th 2014

To: Elwind Mui Dinh Ltd.

Phuoc Hai Fatherland Front Committee received Document No. 01/TVCD-PH on 11.24.2014 of Elwind Mui Dinh Ltd. notice on the main investment categories, the environmental problems, the solution environment of the project " Mui Dinh Wind Farm ". Based on studies of this notice, the relevant documents we have the following opinions:

1. Comments on the project's adverse impacts to the natural environment and economic - social:

- Agreed with the corresponding content is presented in the notice stated the project and the measures to minimize adverse impacts of the project on the natural environment and economy – society. The impact of the project during construction and operation on the environment is significant. So, need to have the appropriate remedial measures, hygienic environment and landscape surrounding area.

2. Comments on the solutions and measures to minimize the adverse impacts of the project to the natural environment and economic - social:

Agreed with other measures to minimize adverse impacts of the project on the natural environment and economy - society stated in the notice. The investor need to make fully and properly measures outlined in the report aims to comply with the law and ensure environmental hygiene, security and order in the area.

3. Recommendations for project owners:-

- Elwind Mui Dinh Ltd. need to coordinate closely with local authorities to ensure security and prevent social evils occur in the project area.
- Priority hiring local people.

Above is the opinion of Phuoc Hai Fatherland Front Committee to Elwind Mui Dinh Ltd. to synthesizing and handling. /.

Recipients:

- Same as above;
- Save office

**ON BEHALF OF THE FATHERLAND
FRONT COMMITTEE**

Vice CHAIRMAN

(Signed and sealed)

Tài Thanh Thưởng

UBMTTQ HUYỆN NINH PHƯỚC
UBMTTQ XÃ PHƯỚC HẢI

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập – Tự do – Hạnh phúc

Số: 02/UBMTTQ

V/v ý kiến cộng đồng đối với báo cáo
đánh giá tác động môi trường của Dự án
“Nhà máy Điện gió Mũi Dinh”

Phước Hải, Ngày 24 tháng 11 năm 2014

Kính gửi: CÔNG TY TNHH ĐIỆN GIÓ MŨI DINH

Ủy ban Mặt trận Tổ quốc xã Phước Hải nhận được Công văn số 01./TV.CĐ.-PH ngày 24 tháng 11 năm 2014 của Công ty TNHH Điện gió Mũi Dinh kèm bản báo cáo tóm tắt nội dung về các hạng mục đầu tư chính, các vấn đề môi trường, các giải pháp bảo vệ môi trường của Dự án “Nhà máy Điện gió Mũi Dinh”. Trên cơ sở nghiên cứu bản tóm tắt này và các tài liệu liên quan, chúng tôi có ý kiến như sau:

1. Ý kiến về các tác động xấu của Dự án đến môi trường tự nhiên và kinh tế - xã hội:

Chúng tôi đồng ý với trình bày về các tác động xấu của dự án đến môi trường và kinh tế - xã hội mà Công ty TNHH Điện gió Mũi Dinh đã nêu ra trong bản báo cáo. Các tác động của dự án trong quá trình xây dựng và vận hành đến môi trường là đáng kể. Vì vậy cần có các biện pháp xử lý phù hợp, đảm bảo vệ sinh môi trường và cảnh quan khu vực xung quanh.

2. Ý kiến về các giải pháp, biện pháp giảm thiểu các tác động xấu của Dự án đến môi trường tự nhiên và kinh tế - xã hội:

Chúng tôi đồng ý với các biện pháp giảm thiểu mà Công ty TNHH Điện gió Mũi Dinh tỉnh Ninh Thuận đã nêu ra. Đồng thời, phía Chủ dự án cần thực hiện đầy đủ và đúng các biện pháp đã nêu ra trong báo cáo nhằm thực hiện đúng pháp luật và đảm bảo vệ sinh môi trường, an ninh trật tự tại địa phương.

3. Kiến nghị đối với Chủ dự án:

- Công ty TNHH Điện gió Mũi Dinh cần phải phối hợp chặt chẽ với địa phương trong việc ngăn chặn an ninh trật tự, tệ nạn xã hội xảy ra trong khu vực dự án.
- Ưu tiên tuyển dụng lao động người địa phương.

Trên đây là ý kiến của UBMTTQ xã Phước Hải, gửi Công ty TNHH Điện gió Mũi Dinh để tổng hợp và xử lý.

Nơi nhận:

- Như trên;
- Lưu ...

UBMTTQ XÃ PHƯỚC HẢI
CHỦ TỊCH



Tai Thanh Thung

**ỦY BAN NHÂN DÂN
XÃ PHƯỚC HẢI**

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập – Tự do – Hạnh phúc**

Số: 25.9.../UBND

V/v đóng góp ý kiến đối với báo cáo đánh giá
tác động môi trường của Dự án “ Nhà máy
Điện gió Mũi Dinh”

Phước Hải, Ngày 24 tháng 11 năm 2014

Kính gửi: **CÔNG TY TNHH ĐIỆN GIÓ MŨI DINH**

Ủy ban nhân dân xã Phước Hải nhận được Công văn số 02.T.V.CD.PH ngày 24 tháng 11 năm 2014 của Công ty TNHH Điện gió Mũi Dinh kèm bản báo cáo tóm tắt nội dung về các hạng mục đầu tư chính, các vấn đề môi trường, các giải pháp bảo vệ môi trường của Dự án “Nhà máy Điện gió Mũi Dinh”. Trên cơ sở nghiên cứu bản tóm tắt này và các tài liệu liên quan, chúng tôi có ý kiến như sau:

1. Ý kiến về các tác động xấu của Dự án đến môi trường tự nhiên và kinh tế - xã hội:

Chúng tôi đồng ý với trình bày về các tác động xấu của dự án đến môi trường và kinh tế - xã hội Công ty TNHH Điện gió Mũi Dinh đã nêu ra trong bản báo cáo. Các tác động của dự án trong quá trình xây dựng và vận hành đến môi trường là đáng kể. Vì vậy cần có các biện pháp xử lý phù hợp, đảm bảo vệ sinh môi trường và cảnh quan khu vực xung quanh.

2. Ý kiến về các giải pháp, biện pháp giảm thiểu các tác động xấu của Dự án đến môi trường tự nhiên và kinh tế - xã hội:

Chúng tôi cũng đồng ý với các giải pháp, biện pháp giảm thiểu các tác động xấu đến môi trường tự nhiên và kinh tế xã hội mà Công ty Điện gió Mũi Dinh đã nêu ra.

3. Kiến nghị đối với Chủ dự án:

- Công ty TNHH Điện gió Mũi Dinh cần phải phối hợp chặt chẽ với địa phương trong việc đảm bảo an ninh trật tự, ngăn chặn tệ nạn xã hội xảy ra trong khu vực dự án.
- Thực hiện đúng pháp luật và đảm bảo vệ sinh môi trường, an ninh trật tự tại địa phương.

Trên đây là ý kiến của Ủy ban nhân dân xã Phước Hải, gửi Công ty TNHH Điện gió Mũi Dinh để tổng hợp và xử lý.

Nơi nhận:

- Như trên;
- Lưu ...

**TM. ỦY BAN NHÂN DÂN
CHỦ TỊCH**



Châu Văn Biết

Số: QL/MTPN.....

Phước Ninh, ngày 2 tháng 4 năm 2014

Kính gửi: CÔNG TY TNHH ĐIỆN GIÓ MŨI DINH

V/v đóng góp ý kiến ý kiến cộng đồng đối với Báo cáo đánh giá tác động môi trường của Dự án: “Nhà máy điện gió Mũi Dinh”

UBMTTQ xã Phước Ninh, huyện Thuận Nam, tỉnh Ninh Thuận có nhận được công văn số ...01/MTD..., ngày ..02..04..2014 của Công ty TNHH Điện gió Mũi Dinh kèm theo tài liệu tóm tắt về các hạng mục đầu tư chính, các vấn đề môi trường, các giải pháp bảo vệ môi trường của Dự án “Nhà máy điện gió Mũi Dinh” tại xã Phước Nam, xã Phước Ninh và xã Phước Dinh, huyện Thuận Nam, tỉnh Ninh Thuận

Sau khi xem xét, UBMTTQVN xã Phước Ninh có ý kiến như sau:

- Đề nghị bồi thường thỏa đáng cho người dân và hỗ trợ để các hộ dân ổn định cuộc sống. Yêu cầu chủ dự án liên hệ và phối hợp chặt chẽ với chính quyền địa phương để đảm bảo thực hiện tốt dự án, không vi phạm quy hoạch chung.
- Thống nhất với nội dung mà báo cáo tóm tắt đánh giá tác động môi trường đã nêu về những tác động môi trường và những biện pháp giảm thiểu những ảnh hưởng đến môi trường.
- Yêu cầu chủ dự án phải cam kết thực hiện nghiêm chỉnh biện pháp, giải pháp giảm thiểu tác động xấu về môi trường trong giai đoạn xây dựng và vận hành để ngăn chặn những ảnh tới môi trường và sức khỏe người dân.
- Bảo đảm điện từ trường do đường dây không gây ảnh hưởng đến sức khỏe người dân, xây dựng thi công dự án phải tuân thủ đúng quy định pháp luật về bảo vệ môi trường.

Trên đây là ý kiến của UBMTTQVN xã Phước Ninh, huyện Thuận Nam, tỉnh Ninh Thuận để xem xét và hoàn chỉnh báo cáo đánh giá tác động môi trường của Dự án

Nơi nhận:

- Như trên;
- Lưu VT

UBMTTQVN XÃ PHƯỚC NINH

CHỦ TỊCH



Chức Chức Chức

**ỦY BAN NHÂN DÂN
XÃ PHƯỚC NINH**

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc**

Số: 14.../UBND

“V/v đóng góp ý kiến đánh giá tác động môi trường Dự án “Nhà máy điện gió Mũi Dinh”

Phước Ninh, ngày 2 tháng 4 năm 2014

Kính gửi: CÔNG TY TNHH ĐIỆN GIÓ MŨI DINH

UBND xã Phước Ninh, huyện Thuận Nam, tỉnh Ninh Thuận có nhận được công văn số 01/MĐ..., ngày 02/04/2014 của Công ty TNHH Điện gió Mũi Dinh kèm theo tài liệu tóm tắt về các hạng mục đầu tư chính, các vấn đề môi trường, các giải pháp bảo vệ môi trường của Dự án “Nhà máy điện gió Mũi Dinh” tại xã Phước Nam, xã Phước Ninh và xã Phước Dinh, huyện Thuận Nam, tỉnh Ninh Thuận

Sau khi xem xét, UBND xã Phước Ninh có ý kiến như sau:

- Hạn chế gây ô nhiễm môi trường không để xảy ra tình trạng do sử dụng nước, khí thải của công trình làm ảnh hưởng đến sức khỏe cho người dân.
- Công tác xây dựng và thi công dự án phải tuân thủ đúng quy định của pháp luật về môi trường, không vi phạm quy hoạch chung của địa phương.
- Đề nghị Công ty TNHH Điện gió Mũi Dinh thực hiện đầy đủ các biện pháp giảm thiểu tác động môi trường đã nêu trong tài liệu, đảm bảo không gây ảnh hưởng xấu đến môi trường tự nhiên xung quanh khu vực Dự án.
- Công ty TNHH Điện gió Mũi Dinh cần phối hợp chặt chẽ với chính quyền địa phương trong công tác đảm bảo an ninh trật tự và an toàn xã hội trên địa bàn xã, không để xảy ra các ảnh hưởng tiêu cực đến đời sống nhân dân.
- Đảm bảo thực hiện đầy đủ báo cáo giám sát môi trường định kỳ gửi lên cơ quan có thẩm quyền để được theo dõi và phối hợp xử lý khi có sự cố xảy ra.

Trên đây là ý kiến của UBND xã Phước Ninh, huyện Thuận Nam, tỉnh Ninh Thuận để xem xét và hoàn chỉnh báo cáo đánh giá tác động môi trường của Dự án

Nơi nhận:

- Như trên;
- Đảng ủy;
- Lưu VP.UBND

**TM. ỦY BAN NHÂN DÂN XÃ
CHỦ TỊCH**

**KT. CHỦ TỊCH
PHÓ CHỦ TỊCH**



Thiên Thanh Hương

Số: ...GA.../MT.P.N...

Phước Nam, ngày 02 tháng 04 năm 2014

Kính gửi: CÔNG TY TNHH ĐIỆN GIÓ MŨI DINH

V/v đóng góp ý kiến ý kiến cộng đồng đối với Báo cáo đánh giá tác động môi trường của Dự án: “Nhà máy điện gió Mũi Dinh”

UBMTTQ xã Phước Nam, huyện Thuận Nam, tỉnh Ninh Thuận có nhận được công văn số ...GA/MĐ..., ngày 02/04/2014... của Công ty TNHH Điện gió Mũi Dinh kèm theo tài liệu tóm tắt về các hạng mục đầu tư chính, các vấn đề môi trường, các giải pháp bảo vệ môi trường của Dự án “Nhà máy điện gió Mũi Dinh” tại xã Phước Nam, xã Phước Ninh và xã Phước Nam, huyện Thuận Nam, tỉnh Ninh Thuận

Sau khi xem xét, UBMTTQVN xã Phước Nam có ý kiến như sau:

- Thống nhất với nội dung mà báo cáo tóm tắt đánh giá tác động môi trường đã nêu về những tác động môi trường và những biện pháp giảm thiểu những ảnh hưởng đến môi trường.
- Yêu cầu chủ dự án phải cam kết thực hiện nghiêm chỉnh biện pháp, giải pháp giảm thiểu tác động xấu về môi trường trong giai đoạn xây dựng và vận hành để ngăn chặn những ảnh tới môi trường và sức khỏe người dân.
- Địa phương sẽ tạo điều kiện thuận lợi và hỗ trợ tối đa cho dự án, đặc biệt là đối với vấn đề thu hồi đất phục vụ dự án thông qua quá trình giải phóng mặt bằng và xây dựng các hạng mục công trình.
- Chính quyền địa phương yêu cầu chủ dự án thực hiện đầy đủ báo cáo giám sát môi trường định kỳ gửi lên cơ quan thẩm quyền để được theo dõi và phối hợp xử lý khi có sự cố xảy ra.

Trên đây là ý kiến của UBMTTQVN xã Phước Nam, huyện Thuận Nam, tỉnh Ninh Thuận để xem xét và hoàn chỉnh báo cáo đánh giá tác động môi trường của Dự án.

Nơi nhận:

- Như trên;
- Lưu VT

UBMTTQVN XÃ PHƯỚC NAM

CHỦ TỊCH



Đã Tuấn Linh

**ỦY BAN NHÂN DÂN
XÃ PHƯỚC NAM**

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc**

Số: 44./UBND

“V/v đóng góp ý kiến đánh giá tác động môi trường Dự án “Nhà máy điện gió Mũi Dinh”

Phước Nam, ngày 02 tháng 04 năm 2014

Kính gửi: CÔNG TY TNHH ĐIỆN GIÓ MŨI DINH

Căn cứ luật bảo vệ môi trường được Quốc hội nước Cộng Hòa Xã Hội Chủ Nghĩa Việt Nam thông qua ngày 29 tháng 11 năm 2005 có hiệu lực thi hành từ ngày 01 tháng 07 năm 2006;

Căn cứ Nghị định số 29/2011/NĐ – CP ngày 18/04/2011 của Chính phủ Quy định về đánh giá môi trường chiến lược, đánh giá tác động môi trường, cam kết bảo vệ môi trường;

Căn cứ thông tư số 26/2011/TT-BTNMT ngày 18/07/2011 hướng dẫn về đánh giá môi trường chiến lược, đánh giá tác động môi trường và cam kết bảo vệ môi trường;

Căn cứ công văn số 01/MĐ..., ngày 02/04/2014... của Công ty TNHH Điện gió Mũi Dinh về việc “xin ý kiến đóng góp đánh giá tác động môi trường” Dự án “Nhà máy điện gió Mũi Dinh”;

Sau khi xem xét, UBND xã Phước Nam, huyện Thuận Nam, tỉnh Ninh Thuận có ý kiến như sau:

- Thống nhất các nội dung đánh giá tác động môi trường của dự án, các đánh giá và các biện pháp phòng ngừa ô nhiễm đã được Công ty TNHH Điện gió Mũi Dinh trình bày khá cụ thể.
- Đề nghị Công ty TNHH Điện gió Mũi Dinh thực hiện đầy đủ các biện pháp giảm thiểu tác động môi trường đã nêu trong tài liệu, đảm bảo không gây ảnh hưởng xấu đến môi trường tự nhiên xung quanh khu vực Dự án.
- Công ty TNHH Điện gió Mũi Dinh cần phối hợp chặt chẽ với chính quyền địa phương trong công tác đảm bảo an ninh trật tự và an toàn xã hội trên địa bàn xã, không để xảy ra các ảnh hưởng tiêu cực đến đời sống nhân dân.

Trên đây là ý kiến của UBND xã Phước Nam, huyện Thuận Nam, tỉnh Ninh Thuận để xem xét và hoàn chỉnh báo cáo đánh giá tác động môi trường của Dự án

Nơi nhận:

- Như trên;
- Đảng ủy;
- Lưu VP.UBND

TM. ỦY BAN NHÂN DÂN XÃ

CHỦ TỊCH



PHÓ CHỦ TỊCH

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Số: ...02/MTD.....

Phước dinh, ngày 2 tháng 4 năm 2014

Kính gửi: CÔNG TY TNHH ĐIỆN GIÓ MŨI DINH

V/v đóng góp ý kiến ý kiến cộng đồng đối với Báo cáo đánh giá tác động môi trường của Dự án: “Nhà máy điện gió Mũi Dinh”

Căn cứ luật bảo vệ môi trường được Quốc hội nước Cộng Hòa Xã Hội Chủ Nghĩa Việt Nam thông qua ngày 29 tháng 11 năm 2005 có hiệu lực thi hành từ ngày 01 tháng 07 năm 2006;

Căn cứ Nghị định số 29/2011/NĐ – CP ngày 18/04/2011 của Chính phủ Quy định về đánh giá môi trường chiến lược, đánh giá tác động môi trường, cam kết bảo vệ môi trường;

Căn cứ thông tư số 26/2011/TT-BTNMT ngày 18/07/2011 hướng dẫn về đánh giá môi trường chiến lược, đánh giá tác động môi trường và cam kết bảo vệ môi trường;

Căn cứ công văn số: ...01/MTD..., ngày ...01/04/2014.....của Công ty TNHH Điện gió Mũi Dinh về việc “xin ý kiến đóng góp đánh giá tác động môi trường” Dự án “Nhà máy điện gió Mũi Dinh” tại xã Phước Nam, xã Phước Ninh và xã Phước Dinh, huyện Thuận Nam, tỉnh Ninh Thuận.;

Sau khi xem xét, UBMTTQVN xã Phước Dinh có ý kiến như sau:

- Chính quyền địa phương và người dân hoàn toàn ủng hộ việc thực hiện dự án “Nhà máy điện gió Mũi Dinh” trên địa bàn xã Phước Dinh.
- Thống nhất với nội dung mà báo cáo tóm tắt đánh giá tác động môi trường đã nêu về những tác động môi trường và những biện pháp giảm thiểu những ảnh hưởng mà dự án mang lại cho môi trường và yêu cầu chủ dự án phải cam kết thực hiện nghiêm chỉnh biện pháp đó trong giai đoạn xây dựng và vận hành để ngăn chặn những ảnh tới môi trường và sức khỏe người dân.
- Đề nghị Công ty TNHH Điện gió Mũi Dinh thực hiện tốt vấn đề vệ sinh môi trường, giám sát chặt chẽ các nguồn thải từ hoạt động của Dự án ra môi trường để tránh bệnh tật phát sinh cho công nhân và người dân.

Trên đây là ý kiến của UBMTTQVN xã Phước Dinh, huyện Thuận Nam, tỉnh Ninh Thuận để xem xét và hoàn chỉnh báo cáo đánh giá tác động môi trường của Dự án

Nơi nhận:

- Như trên;
- Lưu VT



Nguyễn Hữu

**ỦY BAN NHÂN DÂN
XÃ PHƯỚC DINH**

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập-Tự do-Hạnh phúc**

Số: 9.3.../UBND-ĐC
V/v đóng góp ý kiến đánh giá
tác động môi trường Dự án “
Nhà máy điện gió Mũi Dinh”.

Phước Dinh, ngày 02 tháng 4 năm 2014

Kính gửi: Công ty TNHH Điện gió Mũi Dinh.

Ủy ban nhân dân Xã Phước Dinh nhận được công văn số 01/MD ngày 01/4/2014 của Công ty TNHH Điện gió Mũi Dinh kèm theo tài liệu tóm tắt về các hạng mục đầu tư chính, các vấn đề môi trường, các giải pháp bảo vệ môi trường của Dự án “Nhà máy điện gió Mũi Dinh” tại xã Phước Nam, xã Phước Ninh và xã Phước Dinh, huyện Thuận Nam, tỉnh Ninh Thuận. Sau khi xem xét tài liệu, đại diện UBND xã Phước Dinh có ý kiến như sau:

1. Về các tác động tiêu cực của Dự án đến môi trường tự nhiên và kinh tế - xã hội

Hoàn toàn nhất trí với những nội dung về những tác động môi trường và biện pháp giảm thiểu của Dự án “Nhà máy điện gió Mũi Dinh”;

Đồng ý với giải phóng mặt bằng phục vụ cho thực hiện dự án;

Trong giai đoạn xây dựng, có nhiều vấn đề như xói mòn, sạt lở gây ảnh hưởng đến con người trong địa bàn dự án. Vì vậy yêu cầu chủ dự án phải thực hiện đúng các cam kết trong báo cáo đánh giá tác động môi trường nhằm góp phần bảo vệ môi trường và đảm bảo điều kiện sống cho người dân trong giai đoạn xây dựng;

Tác động đến môi trường của dự án “ Nhà máy điện gió Mũi Dinh” là không thể tránh khỏi do quá trình xây dựng. Vấn đề quan trọng là khi dự án hoàn thành, sẽ mang lại những lợi ích về kinh tế, phát triển xã hội, góp phần thiết thực vào chiến lược nông thôn mới của địa phương trong thời gian tới;

Không làm ảnh hưởng đến nguồn nước, không khí trong vùng dự án. Đề nghị chủ dự án có biện pháp kiểm soát và xử lý kịp thời những ô nhiễm để không làm ảnh hưởng đến sức khỏe của cộng đồng dân cư trong khu vực;

2. Về các biện pháp giảm thiểu tiêu cực đến môi trường của Dự án

Thống nhất với các biện pháp giảm thiểu các tác động ảnh hưởng đến môi trường đã nêu trong báo cáo tóm tắt đánh giá tác động môi trường của Dự án.

3. Kiến nghị đối với chủ Dự án

Đề nghị Chủ đầu tư cần phối hợp chặt chẽ với địa phương trong việc bảo vệ an ninh, trật tự, ngăn chặn tệ nạn xã hội xảy ra trong khu vực dự án;

Đề nghị chủ dự án thực hiện đúng các biện pháp giảm thiểu tác động môi trường theo đúng trong báo cáo ĐTM nhằm giảm thiểu, không gây tác động xấu đến môi trường xung quanh làm ảnh hưởng đến cuộc sống cộng đồng dân cư;

Nhằm tạo sự đồng thuận trong nhân dân, đề nghị chủ dự án trước khi triển khai dự án cần tổ chức hội nghị về đền bù, hỗ trợ và tái định cư cũng như đánh giá tác động môi trường trong vùng dự án;

Địa phương sẽ tạo những điều kiện thuận lợi và hỗ trợ tối đa cho dự án, đặc biệt đối với vấn đề thu hồi đất phục vụ dự án thông qua quá trình giải phóng mặt bằng và xây dựng các hạng mục công trình của dự án;

Thực hiện đầy đủ báo cáo giám sát môi trường định kỳ gửi lên cơ quan có thẩm quyền để được theo dõi và phối hợp xử lý khi có sự cố xảy ra.

Trên đây là ý kiến của đại diện UBND xã Phước Dinh, huyện Thuận Nam, tỉnh Ninh Thuận gửi Công ty TNHH Điện gió Mũi Dinh để xem xét và hoàn chỉnh báo cáo đánh giá tác động môi trường của Dự án./.

Nơi nhận:

- Như trên;
- Đảng ủy-HĐND xã
- Lưu: VT; ĐC.



**KT. CHỦ TỊCH
PHÓ CHỦ TỊCH**

Nguyễn Văn Hùng

GUIDE QUESTIONS FOR SOCIAL PERCEPTION SURVEY / PUBLIC CONSULTATION

Name: Phạm Ngọc Minh
 Address: Thị trấn - Phường An Phú - Thuận Hải
 Occupation: Chủ doanh nghiệp tư nhân
 Ethnicity: Việt

A. Awareness of MUI DINH WIND POWER PLANT & TRANSMISSION LINES Project

- Are you aware of the proposed Project? haven't yet
 If Yes, Project Information was known from:
☐ Electric Company ☐ Village head ☐ Commune/District Head ☐ others
- What further information do you need about the Project? _____
- What is your household's source of electricity?
☐ Electric Company ☐ Dry cell battery ☐ None ☐ Others _____
- What do you use for cooking?
☐ Firewood ☐ Kerosene/gas ☒ Electricity ☐ Others _____

B. Environmental issues in the COMMUNITY

- What are the important environmental problems of your community?
☐ Solid Wastes ☐ Storms/Flooding ☐ Forest Fire/illegal logging ☐ Drought
☐ Poor Sanitation ☐ No Water supply ☐ Wildlife Hunting ☐ Others _____
 Why? _____
- Is the proposed Project a route of wildlife animals? Migratory Birds? Yes No Pig, sheep, etc
 Please state kind of animals you saw and when (season/months): _____
- What environmental disaster the community has experienced?
☐ Flooding ☐ Drought ☐ Earthquake ☐ Others Nắng & gió
☐ Forest Fire ☐ Landslide ☐ Lightning strike almost not
- What are the main livelihood activities in this village?
☐ Agriculture ☐ Fishing/ ☐ Retail store ☐ Raising animals ☐ Others business
 (corn, etc.) Aquaculture (cattle, sheep, etc.)
- What are the common diseases experienced by your household/community?
☐ Dengue/Malaria ☐ Respiratory ☐ Colds/cough ☐ Others _____
- How far is the nearest Health center or Hospital? Are the facilities acceptable? Yes No
☐ < 1 km ☐ 1 km - 5 km ☐ > 5 km ☐ > 10 km
- What is your source of Drinking water?
☐ PCERWASS/Water Company ☐ River ☐ Groundwater ☐ Rain ☐ Others
- How do you dispose your Toilet wastes?
☐ Individual toilets with ☐ Individual toilet ☐ Communal toilet ☐ Others _____
 septic tank with pit latrine with pit latrine

C. Environmental Concerns of WIND POWER PLANT & TRANSMISSION LINES Proj.

- What do you think are the environmental issues when the Project is implemented?
☐ Cutting of ☐ Waste ☐ Flooding ☐ Electrocutation ☐ Soil Runoff from
 Trees Disposal diggings
☐ Peace & Order/Security ☐ HIV/AIDS ☐ Damage to crops ☐ Others _____

D. Perceptions of WIND POWER PLANT & TRANSMISSION LINES Project

- What do you think are the positive benefits of the Project to the community?
☐ Comfort & ☐ Improvement of ☐ Progress ☐ Others _____
 Convenience businesses
- What do you think are the negative impacts of the Project to the community? _____
- Do you Approve or Disapprove the Project? Why? _____
- What are your recommendations/suggestions in the implementation of the Project? _____

GUIDE QUESTIONS FOR SOCIAL PERCEPTION SURVEY / PUBLIC CONSULTATION

Name: Le Thi Thuy Loan
 Address: Thị trấn - Cầu Lộ - Thuận Thành
 Occupation: Business
(Other: Teacher)

A. Awareness of MUI DINH WIND POWER PLANT & TRANSMISSION LINES Project

- Are you aware of the proposed Project? Have not yet (Chưa tiếp xúc thông tin về dự án)
 If Yes, Project Information was known from:
☐ Electric Company ☐ Village head ☐ Commune/District Head ☐ others
- What further information do you need about the Project? _____
- What is your household's source of electricity?
☐ Electric Company ☐ Dry cell battery ☐ None ☐ Others _____
- What do you use for cooking?
☐ Firewood ☐ Kerosene/gas ☒ Electricity ☐ Others _____

B. Environmental issues in the COMMUNITY

- What are the important environmental problems of your community?
☐ Solid Waste ☐ Storms/Flooding ☐ Forest Fire/illegal logging ☐ Drought
☐ Poor Sanitation ☐ No Water supply ☐ Wildlife Hunting ☐ Others _____
 Why? _____
- Is the proposed Project a route of wildlife animals? Migratory Birds? Yes No
 Please state kind of animals you saw and when (season/months): Heo, chim, d, heo
- What environmental disaster the community has experienced?
☐ Flooding ☐ Drought ☐ Earthquake ☐ Others Thiếu nước, ít mưa
☐ Forest Fire ☐ Landslide ☐ Lightning strike không bao giờ gặp
- What are the main livelihood activities in this village?
☐ Agriculture (corn, etc.) ☐ Fishing/ Aquaculture ☐ Retail store ☐ Raising animals (cattle, sheep, etc.) ☐ Others không biết
- What are the common diseases experienced by your household/community?
☐ Dengue/Malaria ☐ Respiratory ☐ Colds/cough ☐ Others No không
- How far is the nearest Health center or Hospital? Are the facilities acceptable? Yes No
☐ < 1 km ☐ 1 km - 5 km ☐ > 5 km ☐ > 10 km không biết
- What is your source of Drinking water?
☒ PCERWASS/Water Company ☐ River ☐ Groundwater ☐ Rain ☐ Others _____
- How do you dispose your Toilet wastes?
☐ Individual toilets with septic tank ☐ Individual toilet with pit latrine ☐ Communal toilet with pit latrine ☐ Others _____

C. Environmental Concerns of WIND POWER PLANT & TRANSMISSION LINES Proj.

- What do you think are the environmental issues when the Project is implemented?
☐ Cutting of Trees ☐ Waste Disposal ☐ Flooding ☐ Electrocutation ☐ Soil Runoff from diggings
☐ Peace & Order/Security ☐ HIV/AIDS ☐ Damage to crops ☐ Others _____

D. Perceptions of WIND POWER PLANT & TRANSMISSION LINES Project

- What do you think are the positive benefits of the Project to the community?
☒ Comfort & Convenience ☐ Improvement of businesses ☐ Progress ☐ Others _____
- What do you think are the negative impacts of the Project to the community? No
- Do you Approve or Disapprove the Project? Why? Chưa biết rõ ảnh hưởng nên chưa quyết định
- What are your recommendations/suggestions in the implementation of the Project? _____

No other

GUIDE QUESTIONS FOR SOCIAL PERCEPTION SURVEY / PUBLIC CONSULTATION

Name: Nguyen Thi Nham
 Address: Village 1 km 5 - Thuan Nam - Thuan Nam
 Occupation: Full time NXP bus driver

A. Awareness of MUI DINH WIND POWER PLANT & TRANSMISSION LINES Project

- Are you aware of the proposed Project? haven't heard Chưa nghe
 If Yes, Project information was known from:
☐ Electric Company ☐ Village head ☐ Commune/District Head ☐ others
- What further information do you need about the Project? _____
- What is your household's source of electricity?
☐ Electric Company ☐ Dry cell battery ☐ None ☐ Others _____
- What do you use for cooking?
☐ Firewood ☐ Kerosene/gas ☐ Electricity ☐ Others _____

B. Environmental issues in the COMMUNITY

- What are the important environmental problems of your community?
☐ Solid Waste ☐ Storms/Flooding ☐ Forest Fire/illegal logging ☐ Drought
☐ Poor Sanitation ☐ No Water supply ☐ Wildlife Hunting ☐ Others _____
 Why? _____
- Is the proposed Project a route of wildlife animals? Migratory Birds? Yes No
 Please state kind of animals you saw and when (season/months): cáo, dê, bò / quanh năm
- What environmental disaster the community has experienced?
☐ Flooding ☐ Drought ☐ Earthquake ☐ Others _____
☐ Forest Fire ☐ Landslide ☐ Lightning strike ~ gần đây → sông Lu Lu khô
về hết nước
hàng năm
- What are the main livelihood activities in this village?
☐ Agriculture (corn, etc.) ☐ Fishing/ Aquaculture ☐ Retail store ☐ Raising animals (cattle, sheep, etc.) ☐ Others _____
- What are the common diseases experienced by your household/community?
☐ Dengue/Malaria ☐ Respiratory ☐ Colds/cough ☐ Others _____
vết trùng, sốt
- How far is the nearest Health center or Hospital? Are the facilities acceptable? Yes No
☐ < 1 km ☐ 1 km - 5 km ☐ > 5 km ☐ > 10 km Trạm xá ở thôn
gần
- What is your source of Drinking water?
☐ PCERWASS/Water Company ☐ River ☐ Groundwater ☐ Rain ☐ Others _____
thủy điện vùng huyện này
không
- How do you dispose your Toilet wastes?
☐ Individual toilets with septic tank ☐ Individual toilet with pit latrine ☐ Communal toilet with pit latrine ☐ Others _____
không

C. Environmental Concerns of WIND POWER PLANT & TRANSMISSION LINES Proj.

- What do you think are the environmental issues when the Project is implemented?
☐ Cutting of Trees ☐ Waste Disposal ☐ Flooding ☐ Electrocution ☐ Soil Runoff from diggings
☐ Peace & Order/Security ☐ HIV/AIDS ☐ Damage to crops ☐ Others _____

D. Perceptions of WIND POWER PLANT & TRANSMISSION LINES Project

- What do you think are the positive benefits of the Project to the community?
☐ Comfort & Convenience ☐ Improvement of businesses ☐ Progress ☐ Others no idea
- What do you think are the negative impacts of the Project to the community? _____
- Do you Approve or Disapprove the Project? Why? Approve
- What are your recommendations/suggestions in the implementation of the Project? _____

GUIDE QUESTIONS FOR SOCIAL PERCEPTION SURVEY / PUBLIC CONSULTATION

Name: Đào Thị Thảo
 Address: Thị trấn - Thôn Nhị - Thuận Nam (Xã Thuận Phước)
 Occupation: Chợ

A. Awareness of MUI DINH WIND POWER PLANT & TRANSMISSION LINES Project

- Are you aware of the proposed Project? No
- If Yes, Project Information was known from:
☐ Electric Company ☐ Village head ☐ Commune/District Head ☐ others
- What further information do you need about the Project? _____
- What is your household's source of electricity?
☐ Electric Company ☐ Dry cell battery ☐ None ☐ Others _____
- What do you use for cooking?
☐ Firewood ☐ Kerosene/gas ☐ Electricity ☐ Others _____

B. Environmental issues in the COMMUNITY

- What are the important environmental problems of your community?
☐ Solid Waste ☐ Storms/Flooding ☐ Forest Fire/illegal logging ☐ Drought hàng năm
☐ Poor Sanitation ☐ No Water supply ☐ Wildlife Hunting ☐ Others _____
- Why? _____
- Is the proposed Project a route of wildlife animals? Migratory Birds? No Yes No lò, cùn, d?
 Please state kind of animals you saw and when (season/months): _____
- What environmental disaster the community has experienced?
☒ Flooding ☐ Drought ☐ Earthquake ☐ Others _____
☐ Forest Fire ☐ Landslide ☐ Lightning strike

- What are the main livelihood activities in this village?
☒ Agriculture ☐ Fishing/ ☐ Retail store ☐ Raising animals ☐ Others _____
 (corn, etc.) Aquaculture (cattle, sheep, etc.)
- What are the common diseases experienced by your household/community?
☐ Dengue/Malaria ☐ Respiratory ☐ Colds/cough ☐ Others _____
- How far is the nearest Health center or Hospital? Are the facilities acceptable? No Yes No
☐ < 1 km ☐ 1 km - 5 km ☐ > 5 km lò, xa' phải' ch ☐ > 10 km

- What is your source of Drinking water?
☒ PCERWASS/Water Company ☐ River ☐ Groundwater ☐ Rain ☐ Others _____
- How do you dispose your Toilet wastes?
☐ Individual toilets with ☐ Individual toilet ☐ Communal toilet ☐ Others không biết
 septic tank with pit latrine with pit latrine

C. Environmental Concerns of WIND POWER PLANT & TRANSMISSION LINES Proj.

- What do you think are the environmental issues when the Project is implemented?
☐ Cutting of ☐ Waste ☐ Flooding ☐ Electrocutation ☐ Soil Runoff from
 Trees Disposal diggings
☐ Peace & Order/Security ☐ HIV/AIDS ☐ Damage to crops ☐ Others _____

D. Perceptions of WIND POWER PLANT & TRANSMISSION LINES Project

- What do you think are the positive benefits of the Project to the community?
☒ Comfort & ☐ Improvement of ☐ Progress ☐ Others _____
 Convenience businesses
- What do you think are the negative impacts of the Project to the community? No ideal
- Do you Approve or Disapprove the Project? Why? No ideal
- What are your recommendations/suggestions in the implementation of the Project? _____

No

**PEOPLE'S COMMITTEE
OF NINH THUAN PROVINCE**

SOCIALIST REPUBLIC OF VIETNAM
Independent - Freedom - happiness

Ref. No. 4836/UBND-KTN

Ninh Thuan, October 06, 2014

About route direction of T/L ROW 110kV, Mui Dinh Wind
Farm connecting substation Ninh Phuoc 110kV

To El Wind Mui Dinh Ltd.,

At department of planning and investment's request on Document No. 1391/SKHĐT dated July 10, 2014 about invest T/L ROW 110kV project and construct 2 substation Mui Dinh – Ninh Phuoc; department of construction's request on Document No. 2105/SXD-QHKT dated December 19, 2014 about T/L ROW 110kV, connecting from Mui Dinh Wind Farm to substation Ninh Phuoc 110kV in Phuoc Ninh commune, Thuan Nam District; after considering the route direction alternatives T/L ROW 110kV, connecting from Mui Dinh Wind Farm to substation Ninh Phuoc 110kV established by PECC 3,

Chairman of people's committee of Ninh Thuan province has the following opinions:

Agree with implementation principles route direction of T/L ROW 110kV connecting from Mui Dinh Wind Farm to substation Ninh Phuoc 110kV in Phuoc Ninh commune, Thuan Nam District comply with 3rd alternative mentioned in the report and drawing No. 914003C-NT-MBT-01 established by PECC 3; Request: El Wind Mui Dinh Ltd., rely on the approved route direction in this document, completely deployment route direction drawing and position is expected to expand preventing on transmission lines to substation Ninh Phuoc 110kV, send to department of construction to advise People's Committee of Ninh Thuan Province considering and approving in accordance with the provisions.

Recipients:

- Same as above;
- Save office

ON BEHALF OF THE COMMUNE

PEOPLE'S COMMITTEE

Vice CHAIRMAN

(Signed and sealed)

Do Huu Nghi

