

Environmental and Social Monitoring Report

Project Number: 51209-002
January–December 2020
April 2022

Indonesia: Eastern Indonesia Renewable Energy Project (Phase 2)

Prepared by PT Infrastruktur Terbarukan Lestari for the Asian Development Bank

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ANNUAL ENVIRONMENTAL AND SOCIAL MONITORING REPORT

**LIKUPANG SOLAR FARM PROJECT (21 MWP)
PT INFRASTRUKTUR TERBARUKAN LESTARI**

**WINERU VILLAGE LIKUPANG TIMUR
DISTRICT MINAHASA UTARA REGENCY
NORTH SULAWESI PROVINCE INDONESIA**

March 2021

Document REVISION Control

Document Change Record

Date	Version	Author	Change Details

Distribution List

Doc Name	Site HSE team	Site Technical team	Vena HSSE	External Party		
				ADB	LESC	Another interested party
Annual E&S Monitoring Report - 2020	X	X	X	X	X	Upon request

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GLOSSARY AND ABBREVIATION

<u>ADB</u>	Asian Development Bank – Project Financing of Likupang Solar Farm 1
AESMR	Annual Environmental Social Monitoring Report
AMDAL	<i>Analisis Mengenai Dampak Lingkungan</i> – Environmental Impact Assessment
ANDAL	Indonesian Environmental Impact Statement (<i>Analisis Dampak Lingkungan Hidup</i>)
BLHD	Regional Environmental Agency (<i>Badan Lingkungan Hidup Daerah</i>)
E&S	Environmental & Social
ITL	PT Infrastruktur Terbarukan Lestari
EMMP	Environmental Management and Monitoring Plan
EPC	Engineering, Procurement and Construction
ESHIA	Environmental, Social, Health Impact Assessment
ESHS	Environmental, Safety, Health and Social
ESMP	Environmental and Social Management Plan
GOI	Government of Indonesia
kV	kiloVolt
MW	MegaWatt
O&M	Operation & Maintenance
PLN	<i>Perusahaan Listrik Negara</i> – Electricity State Owned Off-taker
RKL-RPL	Indonesian Environmental Management Plan (<i>Rencana Pengelolaan Lingkungan</i>) - Indonesian Environmental Monitoring Plan (<i>Rencana Pemantauan Lingkungan</i>)
SPS	Safeguard Policy Statement

1. Introduction

1.1. BRIEF PROJECT DESCRIPTION

The Likupang Solar Farm (the Project) of 15 MWac installed capacity, has been constructed at Wineru Village, Likupang Timur District, Minahasa Utara Regency, Sulawesi Utara Province, Indonesia. The site component and facilities comprises of the following;

- A solar panel field covering an area of 29.4 Hectares (Ha);
- Inverter station (PV-box) and on-site infrastructure;
- Operation of onsite control room and instrumentation facilities;
- Main station Building; and
- 20kV underground transmission line to the Likupang 70kV substation which located adjacent to the site.

The Project location map and overview of the area is provided in **Figure 1**.

The Project has completed the Indonesian regulatory environmental approval process, locally known as AMDAL (*Analisis Mengenai Dampak Lingkungan Hidup*). The Environmental Permit number 06/ILK/DPM-PTSP/II/2017) was obtained from the Government of Minahasa Utara Regency on 22 February 2017.

In addition to the AMDAL process, the Environmental, Social and Health Impact Assessment (ESHIA) has been developed to provide an understanding of the Project's alignment with the IFC Performance Standards and Guidelines. Alignment with these expectations is a requirement of PT ITL parent company, Vena Energy and also to support current financing of the Project by Asian Development Bank (ADB). Along with identifying impacts and the assessment of predicted environmental and social impacts, the ESHIA recommends appropriate management and mitigation measures to manage the potential impacts and align the Project with the Applicable Standards.

In 2019, the Project has officially entering the operation phase as acknowledgement of the COD by PLN on 5 September 2019. During the operation phase, operations and maintenance ("O&M") works for the solar farm components are performed by PT Nari Indonesia Forefer (NIF, the "O&M Contractor") under a 5-year O&M Contract. Overall solar farm operation and management as well as civil balance of plant O&M and site security are performed by the Project staff and subcontractors. The operation activities comprises of;

- Daily operation of the Solar Farm;
- Maintenance activities involving all electrical component monitoring and maintenance;
- Grass cutting under the PV table and surround the perimeter fence;
- Maintenance of the access road;
- PV cleaning activities;
- Security monitoring through patrolling and CCTV throughout the site;

A site layout of the Project is provided in **Figure 2**.

The site is located within land zoned as Dry Agricultural Land, which is generally associated with agricultural areas which rely on limited rainfall. As part of the Project's permitting, PT Infrastruktur Terbarukan Lestari is required to be granted formal approval by the local

PT. Infrastruktur Terbarukan Lestari

Government for conversion of the land to suitable zoning that allows the development of a PV Power Plant, this approval was granted as part of the Project's Location Permit. According to the location permit (No. 02/KPPT/IV/2016), the total area permitted for PT Infrastruktur Terbarukan Lestari to develop the solar power plant in Wineru village is 40 Ha. The current land use map is shown in **Figure 3**.

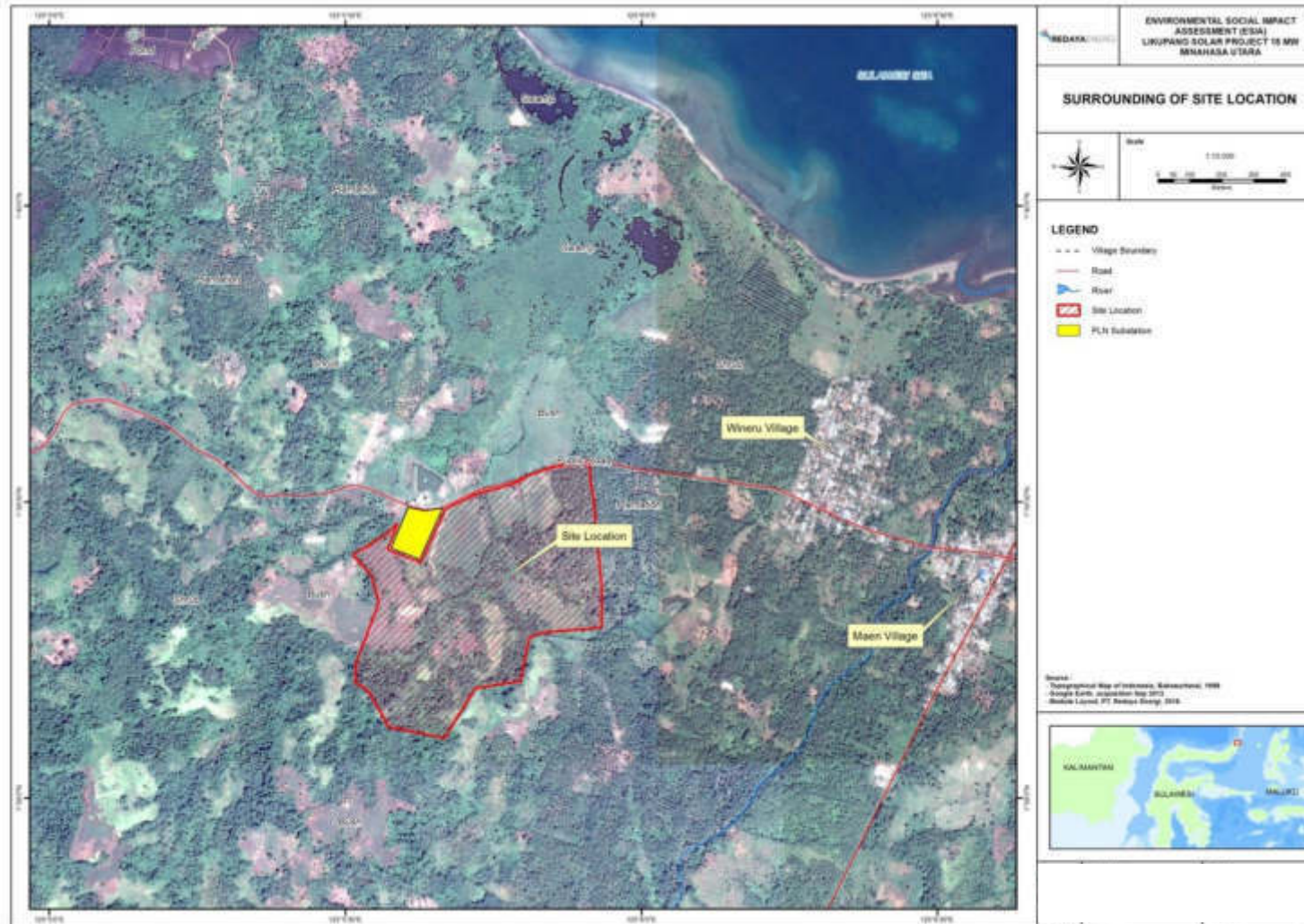


Figure 1 Site Location

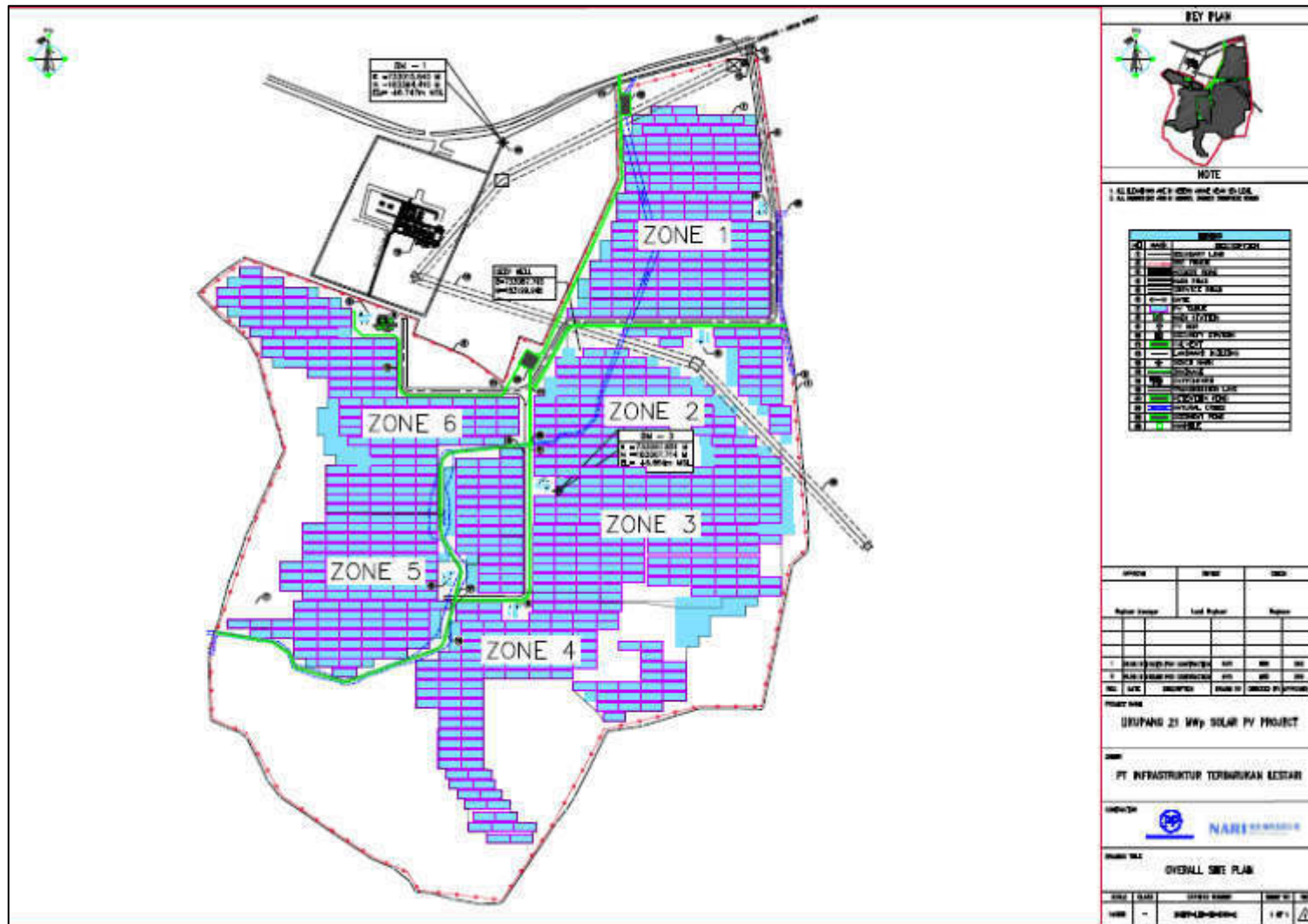


Figure 2 Site Layout

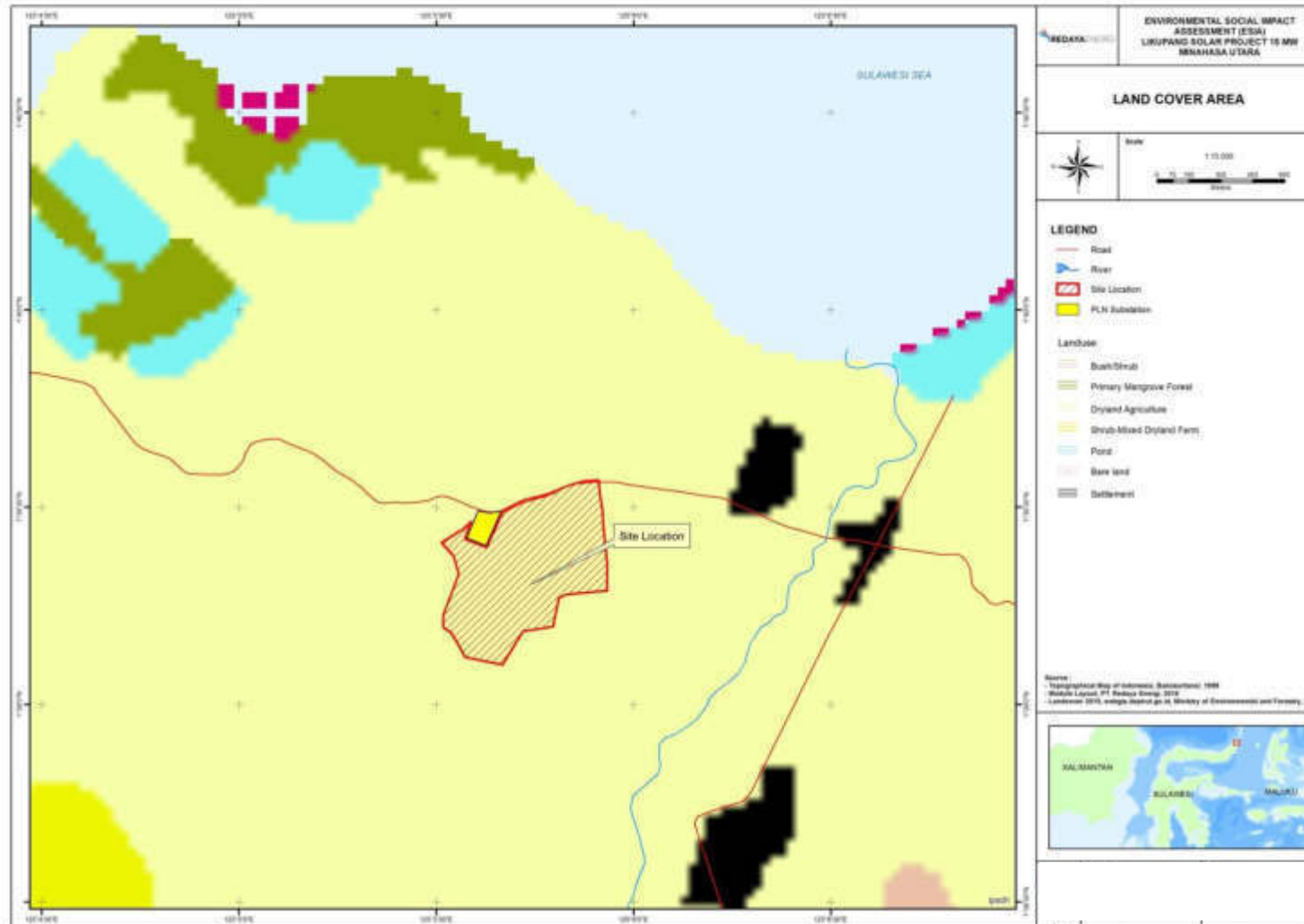


Figure 3 Map of Land Use

1.2. PURPOSE OF THE REPORT AND COVERAGE OF REPORTING

The Purpose of the Annual Environmental and Social Monitoring Report (AESMR) is to present the environmental mitigation and monitoring activities undertaken by PT ITL in 2020. This report also includes updates on project progress, the status including gaps identified (if any) in the Environmental Management and Monitoring Plan (EMMP) implementation and environmental monitoring data. The community complaints/grievance and its resolutions (if any) which implemented in 2020 are also reported.

1.3. APPLICABLE REGULATORY FRAMEWORK

Indonesian Regulatory Framework

In Indonesia, the Environmental Management and Protection Law No. 32 of 2009 is the main environmental law covering important environmental issues, including environmental standards, AMDAL, environmental permitting, and environmental audits. AMDAL itself consists of the Environmental Impact Analysis Terms of Reference (locally known as Kerangka Acuan Analisis Dampak Lingkungan or KA-ANDAL), Environmental Impact Analysis (locally known as Analisis Dampak Lingkungan or ANDAL) and Environmental Management/Monitoring Effort (known as Rencana Pengelolaan Lingkungan/Rencana Pemantauan Lingkungan or RKL/RPL), Indonesia's environmental law requires a project proponent to undertake an AMDAL where it is considered that the Project has the potential to result in significant environmental or social impacts.

Various legislation and guidelines have been issued to specify the activities that require a full AMDAL process as defined in the Minister of Environment Decree No. 05 of 2012. Specifically, in relation to this Project, Regulation No. 05/2012 states that the construction of power plants with up to 10 MW capacity is required to secure an AMDAL.

The AMDAL process comprises an integrated and comprehensive assessment of major and significant impacts of a project or activity, taking into account ecological, socio-economic-cultural, and public health aspects. It aims to evaluate the environmental feasibility of a project or activity and is used as a provision by the authority for granting the subsequent permits for the Project or activity.

The Project's ANDAL and RKL-RPL has been assessed through the AMDAL Commission of Sulawesi Utara and the environmental permit was issued by the Governor of Sulawesi Utara (through PTSP) in February 2017. Following this approval, the Project is required to submit a report to the BLHD of Minahasa Regency and BLHD of Sulawesi Utara Province every six months. The report will detail the Project's implementation of environmental and social commitments specified within the RKL-RPL.

Other Relevant Regulatory Provisions

In addition to the overarching requirements to manage environmental, social and health impacts through the AMDAL processes, other applicable regulatory provisions include:

- Indonesian Laws;
- Government Regulations;
- Presidential Decrees;

- Ministerial Regulations;
- Regency Regulations (Decrees of Head of Environmental Impact Management Agency and National Land Agency); and
- Local Regulations and Governor Decrees.
- The Project Feasibility Study provides a detailed overview of other permits relating to the Project, while the Project ANDAL-RKL/RPL details valid Indonesian Government Legislations and Regulations pertaining to the Project.

International Regulatory Framework

ADB Safeguard Policy Statement

ADB's *Safeguard Policy and Access to Information Policy (2018)*. The SPS applies to all ADB-financed and/or ADB-administered projects and their components, regardless of the source of financing, including investment projects funded by a loan; and/or a grant; and/or other means, such as equity and/or guarantees. ADB works with borrowers and clients to put into practice the requirements of SPS.

The SPS supersedes ADB's Involuntary Resettlement Policy (1995), Policy on Indigenous Peoples (1998), and Environment Policy (2002). In accordance with the SPS, these previous policies apply to all projects and tranches of multi-tranche financing facility projects that were reviewed by ADB's management before 20 January 2010.

The objectives of ADB's safeguards are to:

Avoid adverse impacts of projects on the environment and affected people, where possible; Minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and

Assist borrowers and clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

The ADB SPS framework consists of three operational policies:

- Environment,
- Indigenous Peoples, and
- Involuntary Resettlement.

All three safeguard policies involve a structured process of impact assessment, planning, and mitigation to address the adverse effects of projects throughout the project cycle. It requires the Project to:

- Identify and assess impacts in the project cycle;
- Develop and implement plans to avoid, minimize, mitigate, or compensate for the potential adverse impacts; and
- Inform and consult the affected community during project preparation and implementation.

To help borrowers and clients and their projects achieve the desired outcomes, ADB adopts a set of specific safeguard requirements that borrowers and clients are required to meet in addressing environmental and social impacts and risks. These safeguard requirements are as follows:

- Safeguard Requirements 1: Environment (Appendix 1 of SPS);
- Safeguard Requirements 2: Involuntary Resettlement (Appendix 2 of SPS);
- Safeguard Requirements 3: Indigenous Peoples (Appendix 3 of SPS); and

- Safeguard Requirements 4: Special Requirements for Different Finance Modalities (Appendix 4 of SPS).

1.4. VENA ENERGY ENVIRONMENT AND SOCIAL GOVERNANCE FRAMEWORK

Vena Energy implements its own Environment and Social Governance (ESG) management system. This sets out the company's methodology and procedures for identifying and managing ESG responsibilities within their business and the portfolio companies in which they invest. These procedures and management expectations are built around the IFC PS and EHS Guidelines.

The ESG system's intent is to meet the following corporate objectives of Vena Energy:

- To comply with all applicable laws;
- To use their influence to ensure that the portfolio companies in which Vena Energy developed are always operated to enhance the positive effects and minimize the adverse impacts on the environment, employees and stakeholders (including affected communities);
- To ensure the business and the portfolio companies in which we developed to make efficient use of natural resources and protect the environment wherever possible;
- To support the reduction of human-induced GHG that contribute to climate change;
- To encourage the businesses in which the Vena Energy' capital is invested to work within a defined timeframe towards full compliance with the International Labour Organization ("ILO") Core Conventions and ILO Basic Terms and Conditions of Work and with the United Nations ("UN") Universal Declaration of Human Rights; and
- To recognize and, as appropriate, promote the social aspects of the development outcomes arising from the activities of the portfolio companies in which the Vena Energy' capital is invested.

1.5. PROJECT ACTIVITIES AND PROGRESS DURING REPORTING PERIOD

During the reporting period the Project has been in operation phase. The site has produced electricity that purchased by PT PLN (Persero) UP2B Sistem Minahasa since October 2019. The activities at the site comprises of general O&M works such as; PV panel cleaning, grass cutting, drainage cleaning and general electrical checking and monitoring throughout components of the solar Farm. Vena Energy has appointed PT NARI Forever Indonesia (PT NFI) to conduct the O&M task at the site for the first 5 years. PT NFI subcontracted the work to PT Syntek Otomasi which conducted the scope of O&M and security of the site. Vena Energy employs 4 (four) direct personnel to supervise this operation.

2. ENVIRONMENTAL & SOCIAL MONITORING

2.1. ENVIRONMENTAL APPROVALS AND PERMITS

List of environmental approvals and permits based on document review and discussion with the site representative are as follows:

- Environmental Permit Number: 06/ILK/DPM-PTSP/II/2017, issued by the Government of Minahasa Utara Regency dated 22 February 2017 remain valid as long as no revision or major changes on the process production and capacity;
- KA ANDAL, ANDAL, and RKL-RPL dated 2017, approval only no validity required;
- Temporary Domestic Waste Area permit No. 660.1/438/DLH/XII/2017, issued by Environment Agency of Minahasa Utara dated 19 December 2017, valid for three years;
- Temporary Hazardous Waste (B3) Storage Permit No. 05/LB3/DPM-PTSP/V/2018, issued by Investment Agency and Integrated Service of North Sulawesi Province dated 18 May 2018 valid for three years. It is however observed that the coordinate of the TPS B3 is not accurate as per the permit.
- Water Abstraction Permit No.503/DPMTSPD/SIPA/112/VI/2018, Investment Agency and Integrated Service of North Sulawesi Province dated 4 June 2018 valid for 5 years.

Looking to the permit requirements, it is concluded that the site is fully comply with the applicable regulation except the coordinate of the TPS B3 that is not accurate based on the permit.

2.2. ENVIRONMENTAL & SOCIAL MANAGEMENT AND MONITORING METHODOLOGY/ PROCEDURES

The method employed for developing this annual E&S monitoring report is based on data and information that are reviewed, extracted, analyzed, and as available from the following sources:

- RKL-RPL monitoring report semester 1 and 2 of 2020;
- ESHIA document dated Januari 2018, Section 11.8. Operation phase - Environmental and Social Management Plan.
- O&M Monthly report period of June-December 2020
- Correspondences of/between the contractors, PT ITL internal reporting, records, etc.

The above-mentioned documents provide specific monitoring aspects on the following requirements, which provide basis of the compliance status table that explained in the section below:

- Environmental & social management; and
- Occupational health and sanitation management.

3. ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN IMPLEMENTATION

3.1. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN COMPLIANCE STATUS

The Project Company fully transitioned to operation phase on February 2020, where Full commercial operation for the 15 Mwac was achieved on 5 September 2019.

The O&M organizational structure is shown in figure 4 below.

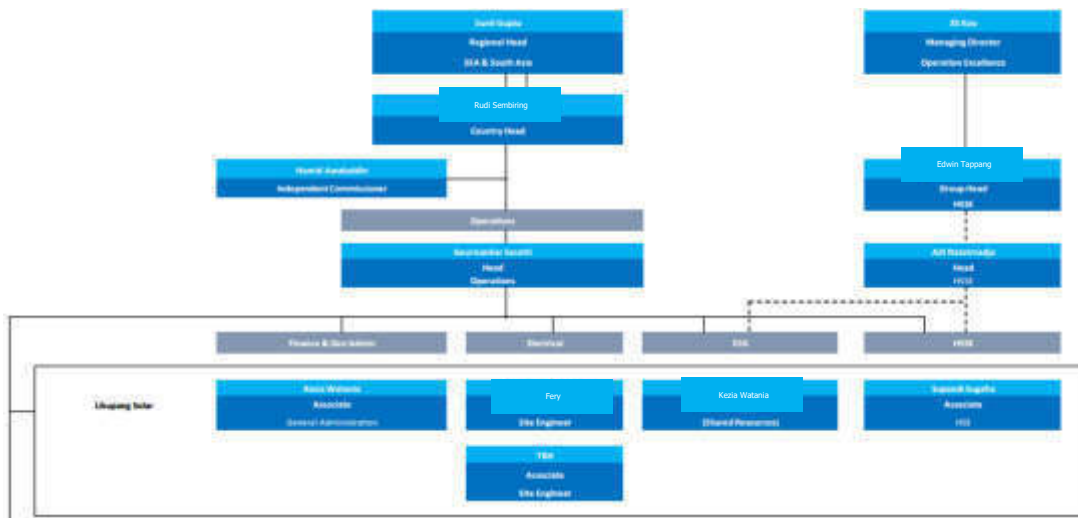


Figure 4 – O&M organizational Chart

During the operational phase, one employee from the HSSE department oversees the relevant environmental and safety aspects and one employee oversee the social aspects as ESG officer i.e. Kezia Watania which she also take role as General Administration of the site. They directly report to the head of operations. A line of coordination is also available to the Head of HSSE in Jakarta. It is considered that the organisational arrangement including the operation plans to be sufficient to manage the anticipated environmental and social impacts for the operational phase.

The environmental and social impacts have been assessed through a systematic process applied for all project components as identified through the AMDAL/ESHIA scoping and through engagement with key Government stakeholders in Manado, North Sulawesi. The Project Company’s Environmental and Social Management Plan (ESMP) focuses on the following key aspects:

- Environmental management;
- Social management; and
- Occupational health and sanitation management.

The status of each environmental monitoring requirements as reported by the Project is summarized in **Table 1-3**, indicating that all the monitoring programs were fully implemented as part of the ongoing operations activities. The availability of competent resources such as dedicated HSE officer from Vena Energy ensures the timely and appropriate implementation of the E&S monitoring program throughout the operation phase.

Table 1 Environmental Management – Operation

Source Document	Activity/Aspect	Potential Impacts	Mitigation	Responsibility	Timing	Monitoring Parameter	Monitoring Responsibility	Monitoring Frequency	Reporting	Status in 2020
AMDAL/RKL-RPL	Solar power generation facility operation	Increased electric energy supply	1) Maintaining the stability of the electric supply to PLN 2) Maintaining underground power transmission lines connected to the source of the generator.	PT Infrastruktur Terbarukan Lestari	During operation phase	Electricity supply	PT Infrastruktur Terbarukan Lestari	Every six months	daily and monthly basis to PLN	Fully implemented (the daily and monthly power generation has been frequently submitted to PLN since September 2019 on which the official COD date enacted. In 2020, the site has generated total of 29.754 Gwh)
2020 ADB review	Solar power generation facility operation	Excessive water abstraction as a result of frequent PV cleaning	1) Only use water for cleaning if really necessary 2) Record the water usage for compliance purpose.	PT Infrastruktur Terbarukan Lestari	During operation phase					Fully comply In 2020, the water usage was recorded at 180.7 m ³ which is in compliance with the allowable limit in the water abstraction permit.
AMDAL/RKL-RPL	Solar power generation facility operation	Temperature rise (micro climate change)	1) Plant and maintain cover crop/grass in solar power generation facility area 2) Plant trees that can highly absorb CO ₂ and produce high O ₂ surrounding project area.	PT Infrastruktur Terbarukan Lestari	During operation phase	Ambient temperature < 35°C	PT Infrastruktur Terbarukan Lestari	Every six months	RKL-RPL implementation report	Fully implemented (the RKL-RPL implementation report is frequently submitted to local BLH and province level).

Table 2 Social Management – Operation

Source Document	Activity/ Aspect	Potential Impacts	Mitigation	Responsibility	Timing	Monitoring Parameter	Monitoring Responsibility	Monitoring Frequency	Reporting	Status in 2020
AMDAL/RKL-RPL	Recruitment of workforce and income	Increased procurement of workforce and income	<ul style="list-style-type: none"> Prioritizing the local workforce, especially for unskilled workforce to be employed during operations phase Inform job vacancies to community and surrounding Wineru Village through head of village and district government of Likupang Timur Provide labour wages at least equal to the wages of labour around the solar power plant or provincial minimum wage of Sulawesi Utara current year 	PT Infrastruktur Terbarukan Lestari	During operation phase	Opening up employment opportunities for workers which derive from Wineru Village and other villages around the site of Likupang solar power plant (>50% of unskilled workforce from Wineru Village)	PT Infrastruktur Terbarukan Lestari	During operation phase every six months	RKL-RPL implementation report to local BLH and Provincial BLH	Fully implemented (the RKL-RPL implementation report is frequently submitted to local BLH and province level). As of December 2020, PT ITL hires 20 locals (87%) out of total employee of 23.
ESHIA	Workforce Mobilisation/Presence	Economic benefit to locals as a result of the Project employment and business opportunities	Communicate Project's requirements around employment and business opportunities where feasible	PT Infrastruktur Terbarukan Lestari – HR/Procurement Department and Community Relation/ Development Department	Prior to and during operation phase	Documentation/ record of employment and business opportunities announcement at regional and local (village) level, as part of stakeholder engagement report	PT Infrastruktur Terbarukan Lestari	Bi-annually during operation phase	Bi-annual report regarding workforce number and composition and stakeholder engagement report	Fully implemented as part of the RKL-RPL requirements the Project has reported its employment status frequently to local labor and local environmental body.
ESHIA	Disturbance to Farming Activities as a Result of Project Operation Activities	Disturbance to Farming Activities as a Result of Project Operation Activities	The Project is still expected to implement the following mitigation measures in addition to the AMDAL required measures in managing heat during operation: - Establishment of a grievance mechanism that is understood by and accessible for all villagers. The mechanism will be simple, efficient and timely and fully consultative.	PT Infrastruktur Terbarukan Lestari – Community Relation/ Development Department	Prior to and during operation phase	<ul style="list-style-type: none"> Record of consultation Available documentation of consultation and grievance records 	PT Infrastruktur Terbarukan Lestari	Bi-annually during operation phase	Consultation report and Biannual grievance report	Fully implemented. A frequent engagement has been continuously implemented to ensure the stakeholder receive the project updates. The engagement register and grievance register is kept maintained and available for review. There is no grievance addressed to the site during 2020.

Table 3 Occupational Health and Sanitation Management – Operation

Source Document	Activity/Aspect	Potential Impacts	Mitigation	Responsibility	Timing	Monitoring Parameter	Monitoring Responsibility	Monitoring Frequency	Reporting	Status in Semester 2 of 2020
AMDAL/ RKL-RPL	Solar power generation facility operation	Increased electric and magnetic field	<ol style="list-style-type: none"> 1) Restricting public access to the site of solar power generation facility (according to internal company regulation) 2) Measuring the magnetic and electric field level periodically 	PT Infrastruktur Terbarukan Lestari	During operation phase	Level or magnetic and electric field	PT Infrastruktur Terbarukan Lestari	Every six months	RKL-RPL implementation report	Fully implemented (the RKL-RPL implementation report is frequently submitted to local BLH and province level) No exceeded parameter of electromagnetic at the site. The access to the site is restricted.
AMDAL/ RKL-RPL	Solar power generation facility operation	Hazardous and toxic waste contamination	<ol style="list-style-type: none"> 1) The proponent has established the hazardous and toxic waste handling procedure. 2) Waste storage is in accordance with Government Regulation Number 101 Year 2014 regarding Management of Hazardous and Toxic Waste, among others: hazardous and toxic waste should be free from flood and is not prone to natural disaster; it should be in control of every person generating hazardous and toxic waste; emergency response equipment is provided; every 3 months, hazardous and toxic waste collected is sent to a hazardous and toxic waste management company which has permit. 3) Develop a waste management plan which include handling and management of the broken panels 	PT Infrastruktur Terbarukan Lestari	During solar power generation facility maintenance (operation phase)	Hazardous and toxic waste in temporary landfill and in solar power generation facility area	PT Infrastruktur Terbarukan Lestari	Every six months	RKL-RPL implementation report	Fully comply. The previous broken PV Panel that considered as hazardous has been fully disposed by the certified contractor. However, it is understood that the newly built TPS B3 still pending the permit from the local agency.

3.1.1 Environmental Monitoring and Management

The environmental monitoring at Likupang Solar Project was completed within the reporting period. During operation phase of Likupang Solar Project, there were no significant environmental issues related to environmental management, in particular for the electric energy supply and raise of temperature (micro climate change). In terms of electric energy supply, the site has produced electricity that purchased by PT PLN (Persero) UP2B Sistem Minahasa since October 2019.

The measurements of temperature were conducted at four sampling points i.e:

- In front of site administration office/Main station building (MSB);
- Zone 4 Area;
- Zone 3 area (close to 150 kV transmission line);
- Entrance of the site; and

The measured parameters and laboratory analysis results of temperature for Semester 1 and 2 2020 are tabulated in **Table 4** below.

Table 4 Laboratory Analysis Result of Temperature

No	Parameter	Unit	Period				Result		
				Zone 3	Zone 4	Entrance point	MSB	Baseline	IFC Standard
1	Temperature	°C	Semester 1	35.1	35.3	35.3	35.1	<35-36	-
			Semester 2	34.1	36.5	33.4	33.4		

Source: RKL-RPL Monitoring Results, July 2020 and January 2021

The laboratory analysis results indicate that temperature conditions were mostly detected below the threshold requirement under the AMDAL document.

Aside from routine grass cutting, during this period of monitoring, the site has also been utilized the herbicide to control the grass and bushes growth as shown in the **Figure 5** below. In addition the site has also trial some plantation such as chili, peanuts below the PV panel and jackfruit at the perimeter of the site.



Figure 5 Herbicide spray to control grass growth and planting initiatives

On the drainage condition, the company has been provided quite a lot of effort to reconstruct the drainage system in order to anticipate the rainy season. The Project currently working on reconstructing the drainage and addition of settlement pond at the north of the site. Below Figure 6 shows the current progreses of the drainage work;



Figure 6 – Drainage and settlement pond construction at the site.

Based on above sampling result and site observation, no issues were identified with regards to the environmental management.

Waste Management

Based on document review and information gathered from the site representative, the site has only generate small amount of hazardous waste i.e. used can, contaminated rags, and used lubricant oil. The site has already obtained permit to temporary store the hazardous waste No. 05/LB3/DPM-PTSP/V/2018, issued by Investment Agency and Integrated Permit Service of North Sulawesi Province dated 18 May 2018 and valid for three years. However, due to security reason the site reconsider to relocated the temporary hazardous waste storage area closer to the MSB. Therefore, the site has been proposed to revise the permit to the local Government and currently in progress of approval.

With regards to the previous broken PV the site has already removed all of this waste to the permitted waste contractor. In February 2020, a total of 150.99 ton of broken PV modules has been disposed to PT PPLi (permitted waste contractor - <http://ppli.co.id/>) at their facility in west java. Figure 7 below shows the current temporary hazardous waste arrangement and removal process of the broken PV waste. The detailed report and waste manifest is presented in the appendix 4.



Figure 7 – New Hazardous temporary waste



Figure 8 – Broken PV panel disposal activities.

Furthermore, It is estimated that the amount of non-hazardous waste generated by the site is approximately within 50-60 kg/month, which is dominated by the offices waste and operational waste related such as empty bottle, food leftover, cardboard, wood, dry grasses and food container. The site has appointed a third party to manage the domestic waste which eventually will be disposed to the Government approved facility in Manado.

Based on the document review and site observation, it is understood that the implementation of the waste monitoring and management at the site has been in compliance with the applicable regulation and align with the requirement that outlined in the RKL-RPL and ESHIA document. It is also noted that based on the interview with the community surround the Project, they stated that the Project has no disturbance to their daily activities either in term of dust, noise, waste, and wastewater so far.

3.1.2 Social and Labor Management

Social Management

The management of the Project's impacts on local communities is being led by the site community liaison officers, who are assisted by the HSSE team based in Jakarta who assist with addressing outstanding grievances (if any) and conduct ongoing corporate social responsibility (CSR) programs. We note that during this reporting period there were no grievances addressed to the site. The grievance register is maintained and updated, both for the community and for the workers.

Based on the RKL-RPL document, the benefit received by the community on the present of the Project is comprises of opportunity on employment at the solar farm power plant, education assistance through donation of school supplies, assistance on the covid-19 mitigation measures, women empowerment for the entrepreneur group at the wineru village i.e, banana chips and meatball bussiness up-scilling assistance. Aside from that ,

some community has also stated that the existence of the solar Farm has been contributed to electrification increase within the north Sulawesi region.

Labor Management

On the recruitment process, the company and its contractors have been implemented an open recruitment process, where the local workers were accommodated as long as their qualification fits the project requirements. During this reporting period there is no new recruitment except for replacement of one security guard position. However, the Project through its subcontractor has provided work opportunity as the project construct drainage and settlement pond. Based on the information from the site representative, the contractor has recruited around 30 casual worker on this particular works.

As of January 2020, the composition of the workforce at the site is shown on **Table 6** below.

Table 5 Total Workforce as of January 2021

No	Company	Non-Local Recruitment			Local Recruitment			TOTAL		
		Male	Female	Sum	Male	Female	Sum	Male	Female	Sum
1	PT. Infrastruktur Terbarukan Adhiguna (ITA)	2	0	2	1	1	2	3	1	4
2	PT Syntek	1	0	1	16		16	17	0	17
3	NARI	0	0	0	2	0	2	2	0	2
TOTAL WORKFORCE ON SITE		3			20			22	1	23
Percentage		Non-Local		13%	Local		87%	95%	5%	100%

The Project employed 23 people, out of which 20 were hired locally. Four (4) personnel were hired directly under PT ITL (vena energy) including the CLO and HSE personnel which are a local hire. 1 female employee were hired as admin and Community Liaison Officer (ESG).

Based on document review and discussion with the site management, the site has implemented the labour management in accordance with the requirement as stated in the AMDAL document:

- Site has prioritized the local workforce, especially for unskilled workforce to be employed during operations phase;
- Site has informed the job vacancies to community and surrounding Wineru Village through head of village and district government of Likupang Timur; and
- Site has provided decent labour wages which at least equal to the provincial minimum wage of Sulawesi Utara i.e. 3.1 million rupiah (IDR).

Company Regulation

PT Infrastruktur Terbarukan Lestari has established the Company Regulation for 2017-2020, dated 2 October 2017. The Company Regulation includes the labor practices relating to term of employment, work hours, payment of wages, and maintaining good working relationships with worker; respect workers' right to associate and engage in the collective bargaining process pursuant to local labor practices; guarantee from all form of harassment and discrimination based on race, color, region, national origin, gender, age,

disability, sexual orientation, gender identity, HIV status, marital status, or any other status protected by laws and regulation in the location where they operate; and protect workers' rights by allowing each worker to deal directly with management in issues of importance to that worker. Based on the document review, we consider that company regulation has deemed appropriate.

Social Security

In accordance with Law No. 24 of 2011 on Social Security Organizing Agency, the Company shall enroll the employee in the following social security programs:

- Work social security, administered by Manpower Social Security Organizing Agency (BPJS Manpower) covering Senior citizenship Security (JHT), Occupational Accident Security (JKK), life Insurance (JK)m and Pension Security (JP) programs; and
- Health security program administered by Health Social Organizing Agency (BPJS Health)

The Project has registered all personnel to the national health program. All personnel is protected through the national insurance scheme during their appointment of work.

3.1.3 Occupational Health and Safety

HSSE Management System

PT. Infrastruktur Terbarukan Lestari (ITL) has developed an Environmental and Social Management System (ESMS) to identify the environmental and social management and mitigation actions required for the Project to comply with the requirements of the International Finance Corporation's (IFC) Performance Standards and applicable Indonesian National and Local Laws, Standards, and Regulations. The ESMS provides an overview of the environmental and social baseline conditions of the project area, summarizes the potential impacts associated with the solar Farm and sets out the management measures required to mitigate any potential impacts presented in the Environmental and Social Management Plan (ESMP). The ESMP is also being utilized by the O&M contractors commissioned by Infrastruk Terbruken Lestari as the basis of the site-specific management plans during operation phase.

HSSE Policy

ITL is committed to the effective implementation Environmental, Safety, Health, and Social (ESHS) Policy and to the continual improvement of ESHS performance. The principles related to environmental:

- Compliance with applicable environmental laws and regulations;
- Efficient use of resources, cleaner production principles in product design and production processes; and
- Prevention of pollution and minimizing the environmental impacts of our operations including the material that we use.
- The company does not compromise to health and safety of worker and contractor workers. ITL will provide a safe and comfortable working environment to the worker. The target the company is to achieve a Zero Harm track record for all worker and the surrounding communities.

The action of ITL to meet ESHS commitment is to :

- Ensure that all activities undertaken by the company, the contractor and consultants are complying with the applicable regulation of the Republic of Indonesia as well as an international standard;
- Continuously review, measure, and evaluate our environmental, social, health, and safety objectives;
- Perform Environmental, Social, Health, and Safety Management System (ESHS-MS) performance reviews, which will be reported to Senior Management to ensure the effectiveness of ESHS-MS implementation;
- Take any necessary and appropriate follow up action to ensure the intents of the ESHS policy is met, that producers and plans are being implemented, and are seen to be effective;
- Ensure that all workers, shareholders, and other stakeholders understand company ESHS Policy commitments; and
- Manage external interaction through an active stakeholder's engagement program and a mechanism to receive, analyze, and address stakeholders grievances.

Occupational Health Monitoring

Electric and Magnetic Fields

The electric and magnetic fields were also measured through direct reading equipment at the site area. The measurement results were then compared to the standard in the Ministry of Health Decree No. 261 of 1998 regarding Occupational Health Requirements. The measurement result of electricity and a magnetic field is tabulated in **Table 6** below.

Table 6 Electric and Magnetic Field Measurement

No	Parameter	Period	Zone 3/Transmission line	Zone 4	Site Entrance	In front of office	Regulation of Minsiter of Health No. 261 of 1998
1	Magnetic Field (mT)	Semester 1	0.0032	0.000096	0.26	0.00085	0.5
		Semester 2	0.0006	0.0008	0.0003	0.0001	
2	Electrical Field (kV/m)	Semester 1	1.552	0.004	0.004	0.004	10
		Semester 2	0.298	0.013	0.158	0.052	

Source: RKL-RPL Monitoring Results, July 2020 and January 2021

Based on the measurement results above, the electricity and magnetic fields at the site area were still below the standard of Regulation of Health Minister No. 261 of 1998. Thus, no issues were identified with regards to magnetic fields. The measurement activities of magnetic and electrical field is presented in **Figure 9** below.



Figure 9 - Measurement of Magnetic and Electrical Field

Health and Safety Implementation at the Site

The EHS documents have been reviewed and considered to comply with the regulatory requirements and company's commitment. **Table 7** below shows the list of documents reviewed.

Table 7 List of EHS Document Reviewed

No	Document Name	Document Type	Issued by	Validation
Environmental Document				
1	KA, ANDAL, RKL-RPL	Report	DLH of North Minahasa province	Information only
2	ESIA document	Report	PT ERM Indonesia	Information only
3	Environmental Permit	Permit	Investment and One-Stop Service office of North Sulawesi Province	Valid as long as no changes in the capacity or major changes in project layout.
4	Water abstraction Permit (SIPA)	Permit	Investment and One-Stop Service office of North Sulawesi Province	Valid for 5 years
5	Temporary hazardous waste permit (TPS-B3)	Permit	Investment and One-stop service office of North Sulawesi Province	Under approval process. Site visit already conducted by the DLH of Minut
6	Agreement on Hazardous waste disposal	Agreement	PPLi	Valid for 3 year
Health and Safety				
1	Fire Emergency Response	SOP	Vena	Active
2	Earthquake Emergency Response	SOP	Vena	Active
3	Fatigue Emergency Response	SOP	Vena	Active
4	Medical Injury Emergency Response	SOP	Vena	Active
5	PPE Procedure	SOP	Vena	Active
6	Thermal Stress Procedure	SOP	Vena	Active
7	Bussiness Continuity Plan	SOP	Vena	Active
8	Tender Evaluation	SOP	Vena	Active
9	Training and Competency	SOP	Vena	Active
10	Traffic Management	SOP	Vena	Active
11	Manual Handling	SOP	Vena	Active
12	Noise and Vibration Procedure	SOP	Vena	Active
13	Working at Height Procedure	SOP	Vena	Active
14	Emergency Preparedness and Response Plan	SOP	Vena	Active
15	Electrical Safety Procedure	SOP	Vena	Active
16	Isolation and Tagging	SOP	Vena	Active
17	Chemical and Hazardous Substance	SOP	Vena	Active

No	Document Name	Document Type	Issued by	Validation
18	Management of Asbestos	SOP	Vena	Active
19	Confined Space Procedure	SOP	Vena	Active
20	Health & Hygiene Procedure	SOP	Vena	Active
21	Waste Management	SOP	Vena	Active
22	Environmental & Social Impact Assessment	SOP	Vena	Active
23	COVID-19 protocol for employee and visitor and reporting procedure	SOP	Vena	Active

Source: PT Infrastruktur Terbarukan Lestari 2020

Safety Committee

The site has established the safety committee (Panitia Pembina Kesehatan Keselamatan Kerja/ P2K3), which consist of a chairman, vice of chairman and four team members. The safety committee consist of VEI site management, NARI representative and PT Syntek Otomasi (NARI subcontractor) representative from each division (i.e. Operator, security, and General sevice division). The safety committee conduct monthly meeting to discuss and update any development on HSE aspect at the site. The site also has appointed one personnel as Health & Safety Expert. This practice has complied with the regulatory requirements in Indonesia.

Work Permit System

All activities conducted at the site is required to get approval from the safety officer. The on-site safety officer has determined the type of permit that required permit according to the nature of the work (e.g.. electircal work, working at height, working at night, etc) . The permit to work form shall submit and assessed by the safety officer prior to work execution. This Permit to Work (PTW) system has been implemented at the site.

Personal Protective Equipment

Based on field observation, all personnel involved in the Project have been provided with appropriate Personal Protective Equipment (PPE) according to the nature of work. The minimum PPE comprises of a safety helmet, high visibility vest, safety glasses, and safety shoes. The worker shall use masks in several dusty areas. There was no working at height observed during the visit. The site has assessed the type of PPE required during construction and operation phase based on its activity as presented in **Table 8** below.

Table 8 Standard PPE at the Site

No	Activity	Potential Hazard	Type of PPE	Standards
1	General activity	Skin exposure UV radiation	Protective clothing	Uniform - Long-sleeved clothing Cotton 100%, Japan drill material yellow and navy blue color
		Falling and Sharp Objects	Safety Shoe	ANSI Z41.1 or ASTM 2413 Complete with midsole and toe cap
		Impact from flying Particles	Safety helmet	ANSI Z89.1-2009 Type 1, Class E & G
		Dust UV Radiation Dazzling	Safety glasses clear (for night)	ANSI Z87.1 AS/NZS 1337 Clear or mirror clear lens color UV385

No	Activity	Potential Hazard	Type of PPE	Standards
		Dust Airborne contaminant	Dust mask	OSHA 29 CFR 1910.134 NIOSH – N95
2	Chemical handling	Chemical splash	Chemical gloves	EN 374-3 100% Nitrile compound material
			Safety glasses	ANSI Z87.1
			Respirator with a specific cartridge	TPR Material ANSIZ88.2 or AS/NZS 1715:2009
3	Working at Height	Fall	Full body harness double lanyard	ANSI Z359.1 and F2413
			Gloves	Cotton material with one side PVC dots
4	Noise area	Hearing loss	Earplugs/Earmuff	AS/NZS1270:1999
6	Manual handling	Sharps objects Lightweight Slippery objects	Gloves	Cotton material with one side PVC dots
			Cut resistsents gloves	EN388 Impact Cut
7	Electrical	Electrical shock and burns	20 kV Rubber gloves	ASTM D 120-87 Rubber material EN60903
8	Personnel movement and interaction among employees/visitor related to covid-19 virus	Virus infection	Mask	Clothes mask N-95 mask

Source: PT Infrastruktur Terbarukan Lestari, 2020.

The efforts of the site management to improve the occupational health was performed by minimizing the accident through the following management:

- Upgrade knowledge and skill of the employee through training;
- Increase dicipline and obedience of employee during working, including usage of PPE;
- Equip the infrastructure of occupational health and safety; and
- Improve the communication of health and safety information through announcement board & safety signage.
- Perform toolbox meeting prior to start the work
- Monthly Rapid test in order to ensure all personnel has no risk of COVID -19.
- Strict COVID-19 health protocol implementation such as mandatory rapid test result (shall be negative) for visitor before entering the site, body temperature check, wash hand and social distancing.

The following figures show the implementation of health and safety program/effort at the site.



Figure 10 - Safety committee meeting and safety training at the site



Figure 11 – Safety equipment at the site



Figure 12 – COVID -19 mitigation measures at the site



Figure 13 – Safety campaign with regards to the 365 man-days free of LTI

Hazard identification and Observation

The hazard identification has been developed at the beginning of the Project through provision of Risk Register and EHS Management Plan. A Job Safety Analysis (JSA) shall be prepared for each activity at the site as a pertinent document to propose PTW. All JSA were available for review and documented properly at the site. The site documented the hard copy of the JSA, which stored at the site office.

The site personnel together with all contractor are encouraged to submit the hazard observation to identify any potential hazards at the site. The safety performance of the site is presented in **Table 9** below.

Table 9 Safety Statistic as of December 2020

Category	Year to Date (2020)
Fatality	0
Lost Time Injury (LTI)	0
Restricted Work Injury (RWI)	0
Medical Treatment Injury (MTI)	0
First Aid Injury	0
Property Damage Incident	0
Environment Incident	0
Near Miss	1
Working days without lost time injury	365
Manhours without Lost Time Injury	32,125
Toolbox talk	205 hours
EHS Training	16
Safety Observation / Hazard report	34
Site safety inspection	27

Source: HSE Metric, Period of December 2020, Vena Energy

Based on the table above, no recordable injury nor LTI were occurred during 2020. However, 1 near miss involving the land fire case occurred during this reporting period, the site team were able to response quickly as the additional equipment e.g. water tank and water tap is readily available.

In 2020, Vena energy indonesia has also established the safety observation apps which allow personnel including contractor to conduct safety observation or hazard report (unsafe condition/unsafe act/safe behaviour). Total of 34 observation has been submitted by personnel at the site, the follow up action frequently checked and updated together with the site PIC to ensure timely closure of any observation/hazard reported through this new system.

EHS Training

Based on the training record, it is understood that the site has completed number of trainings that already planned which comprises of; basic fire safety training, ISO 45001 training, electrical safety, risk assessment & hazard identification and site specific induction. Total of participant of these training is 23 participants (or all the personnel at the site has been given training based on their nature of work). Tabel 10 below shows the type of training and which personnel has been assigned to each of the training.

Table 10 Record of EHS Training

VENA ENERGY		PT. INFRASTRUKTUR TERBARUKAN LESTARI											Project: Solar Farm										
		PLTS LIKUPANG - NORTH SULAWESI - 2020											Ref Date.: 20-Nov-20										
													Rev No.:										
													Total Pages: 1										
HSE Training Matrix																							
Name	Job Title	Emp #	Site Specific Induction	Driving Safety (Operator) / JIBC	Working at height (Wah)	Ladders (LOTO) - Level 1 & Level 2	Fatigue Management	PPE Training	JHA & WP Training	Office Safety / Awareness	Electrical Safety (K3 Listrik/ETB)	Basic Fire Fighting	Basic First Aid Awareness	Manual Handling	Noise Awareness Training	Emergency Response Drill / Community Projects	General Health Hazards	Training ISO	Mobile Elevated Work Platforms	Incident Reporting & Inv. (Notification)	Risk Assessment / HIRADC	Security Management Training	
1	Arik Nugroho	Site Engineer	✓								■												
2	Fery	Asst. Site Manager	✓								■												
3	Kezia Watania	Site Admin	✓																				
4	Supandi Sugeha	Petugas Ahli K3	✓																✓				
5	Freka Rumanggit	Site Coordinator	✓																				
6	Imam Faried Assalam	Operator & Technician	✓								✓												
7	Nofri Kamuuh	Technician	✓																				
8	Josua Ploh	Operator & Technician	✓																				
9	Zaenal	GCS	✓																				
10	Janes Kamuh	GCS Coordinator	✓																				
11	Sukardi	GCS	✓																				
12	Immanuel	GCS	✓																				
13	Donald	GCS	✓																				
14	Bryan Masloman	GCS	✓																				
15	Benny Marsadu	Security Coordinator	✓																				
16	Fridilil Surat	Security	✓																				■
17	James Sompie	Security	✓																				■
18	Aryanto Masloman	Security	✓																				■
19	Alex Hiunsee	Security	✓																				■
20	Raymond Marsadu	Security	✓																				■
21	Yanus K. Kasso	Security	✓																				■
22	Richard Wuwur	Operator & Technician	✓								✓												
23	Enriko Kristian	Operator & Technician	✓								✓												

Source: PT ITL, Training record - 2020

Emergency Preparedness and Response Plan

PT ITL has prepared the Emergency Preparedness and Response Plan (IMS_01_HSE_PLA-006). The EPRP document covers the following potential emergency:

- Emergency related to medical situation i.e. disease/epidemic & dangerous of plants, insects or animals;
- Emergency situation due to social situation i.e. bomb threat, riot, employee strike, and criminality;
- Emergency situation due to natural disaster i.e. flooding, hurricanes or typhoons, trunami, volcano eruption and earthquake; and
- Work-related i.e. fall from a height, electrical accident, vehicle accident, man lost, oil or chemical spill and fire.

PT ITL has also established the EPRP team to response in case of emergency situation occurred.

Based on site observation, the evacuation points have been identified. The evacuation routes were also noted at the site. All visitors and contractors have to undergo the EHS induction prior to entering/starting any works at the site. During this reporting period, 1 mock drill related to security aspect has been conducted. Based on field observation, document review and interview with site personnel, there are no issues related to occupational health and safety.

3.1.4 Traffic Management

PT ITL has a procedure on traffic management plan i.e. IMS_01_HSE_PRO_45, which is discussed traffic management on all Vena Energy sites, projects, operations or workplaces in order to reduce the health and safety risks associated with vehicle and pedestrian movements, especially interactions between light and heavy vehicles, mobile plant, pedestrians and other equipment and assets, as well as maintaining cost-effective and efficient traffic and work flow.

There is no incident/accident related to the traffic occurred at the site so far. The implementation of the traffic management plan is deemed appropriate. Following some pictures taken from the site related to the traffic management;



Figure 14 – Traffic Signages at the Site

3.2. STAKEHOLDER ENGAGEMENT, GRIEVANCES AND RESOLUTIONS

Stakeholder Engagement

The focus of stakeholder engagement has been related to the following main topics:

- Health program: engagement with regards to Covid-19 mitigation measures at the site and surround area of the site. Engagement and coordination with regards to positive case and Covid-19 statistics.
- Education program: Improving the quality of the schoold supplies for the elementary student at the wineru village and socialization of importance of washing hand and wearing mask. .
- Hygiene Training: engagement with the local health agency and industrial agency with regards to the Hygiene certification for the Wineru women entrepreneur group.

In addition, the CLO and site manager attended several frequent meetings with head of village, local figures, Police and Army officer to provide updates on the Project's operation as well as a goodwill visit.

It is noted and reviewed that the stakeholder engagement log is available and readily for review. For reporting purpose we attach it in the Appendix 3.

Community Grievance

The site has established the grievance mechanism procedure to provide appropriate response to grievances from the communities that related to the project activity. Numbers of channel can be used by the community and another stakeholder to submit a complaint to the company such as through telephone, verbal or written (e-mail) or filling in a grievance form.

The Project has been working closely together with the Contractors in terms of receiving and closing out grievances from the community, Records of the current Grievances Log, the Grievance Form and the closeout register has been developed in accordance with requirements of the grievances mechanism. Grievances received are followed up and closed out in due course.

During this reporting period, the site did not receive any grievances from community and/or other project stakeholders.

The site has also followed the grievance mechanism procedure from Vena Energy Indonesia. The procedure includes dealing with formal and informal grievances. During this reporting period, there were no grievances from the workers addressed to the company so far.

Based on the explanation above, the availability of grievance mechanism, engagement register, and dedicated personnel handling grievance and frequent stakeholder engagement, it is concluded that the management of the grievance and stakeholder engagement is up to the applicable standard.

3.2 CORPORATE SOCIAL RESPONSIBILITY

The Project has successfully conducted three major CSR program i.e.:

Health Program

PT ITL contributed to community health by providing a set of PPE for 50 local paramedics, providing significant support on which the PPE is very scarce and expensive. The site also provides a disinfectant and wash facility for public areas such as the village office.



Figure 15 – (a) support on Covid-19 PPE for local Paramedic and (b) support on covid-19 Washing Facility at Wineru Village office.

Education Program

In November 2020, ITL donated 200 school bags and an interactive comic book regarding Solar Farm for the elementary school student at Wineru village.



Figure 16 – Donation for elementary school at Wineru Village

Women Entrepreneurship Program

In continuation to the 2019 program, the site has successfully assisted the local women entrepreneur group (Vesang Women Entrepreneur Group). This women group consists of 25 active local women who previously trained and provided assistance to establish the Banana chips business. In 2020, Vena assisted them in achieving the Hygiene certificate for processing Banana chips products. Therefore, their products can now be sold in the modern market. Providing the women group to reach a broad market and hopefully their product will reach more people and eventually provide more economic benefit to the women group.



Figure 17 – Hygiene certificate issuance ceremony for Vesang Women Group

3.3 GOVERNMENT AUDIT/ INSPECTION RESULTS

on 12 November 2020, the government representative from the DLH (environmental agency) visited the site to assess the newly built temporary hazardous waste storage area (TPS-B3) as a requirement to obtain the permit. During the visit, the representative provided some suggestions regarding the TPS-B3, which is as follow;

- To provide labelling of the waste stored inside the area
- To post the coordinate of the TPS-B3 close to the area
- Provide fire extinguisher and eyewash

The site team has fulfilled the request and suggestion from the assesor of DLH. At this point of reporting, the site is still waiting for the local Government's approval. Some pictures during the assessment and current arrangement of the TPS-B3 is presented below;



Figure 18 – Assessment from local Government and improvement of the building after the assessment

4. Conclusion and recommendation

4.1. CONCLUSION

This 2020 AESMR of the Likupang Solar Farm Project is compiled for the submission to ADB. This report presents the status of environmental monitoring and mitigation measures (as specified in the AMDAL, ESHIA) undertaken by PT ITL in 2020. The conclusions drawn from this AESMR were:

- The Project's ESMP is generally being effectively implemented at the site, and the Project has the appropriate resources and capability to enforce the plan.
- As required by the AMDAL and ESHIA documents, periodic environmental monitoring during the operation phase has been conducted frequently. It shows no significant deficiencies to the applicable regulation and ADB safeguard.
- Hazardous waste: The previously broken PV panel stored at the site has been properly disposed to the certified waste contractor according to Indonesian regulation.

Most of the ESMP from the AMDAL and ESIA documents have been fulfilled, except the temporary hazardous waste permit still pending from the local Government. It is understood that the Project has been submitted all requirements from the Government and currently waiting the permit to be issued.

No community grievances were addressed to the site during this reporting period.

4.2. RECOMMENDATION

The recommendations in terms of improving the environmental, social, health and safety performance within the reporting period is as follows:

- To frequently follow up the TPS B3 permit issuance to the local Government.
- To continue the frequency of monitoring as required and committed in the AMDAL and ESHIA, respectively.