

**GOLD STANDARD FOR THE GLOBAL GOALS (GS4GG)**  
**REPORT**  
-  
**VERIFICATION**



<b>Project Title:</b>	72 MW Wind Power Project in the South Sulawesi Province of Indonesia
<b>Monitoring Period:</b>	10/12/2018 to 31/10/2020 (Inclusive of both days)
<b>GS project ID:</b>	GS7164
<b>Internal ID:</b>	24220
<b>Customer:</b>	PT Energi Bayu Jeneponto
<b>Date:</b>	13/01/2021
<b>Revision:</b>	02

SUMMARY			
Reference No.	Date (first version)	Version No.	Date (last version)
GS 7164	10/11/2020	01	Ver. 02 dated 01/02/2021
GS4GG Verification			
GS4GG Certified Product (sought):		GHG Emission Reductions	
GS4GG SDG Impact Statement (sought):		Impact Certification	
General Information			
Client	PT Energi Bayu Jenepono		
Project Title	72 MW Wind Power Project in the South Sulawesi Province of Indonesia		
Project Participants	PT Energi Bayu Jenepono		
Project Location	South Sulawesi, Jenepono Regency, Indonesia		
Contact Person	Mr. Gourisankar Sesetti		
Monitoring Period:	10/12/2018 to 31/10/2020 (Inclusive of both days)		
GS4GG Version: GS4GG Principles and Requirements 1.2 GS4GG Activity Requirements: RE Activity Requirements Applied Methodology Version: ACM0002 Version 20.0. Consolidated baseline methodology for grid-connected electricity generation from renewable sources. Current Methodology Version: As this is verification applied methodology is equal to current methodology		GS4GG Sectoral Scope: 2 UNFCCC CDM Sectoral Scope: 1 Technical Area: 1.2	
Published Monitoring Report Version: 01 Date: 10/11/2020		Final Monitoring Report Version: 02 Date: 22/12/2020	
Certified Project Design Document Version: 03 Date: 23/09/2020 GS Passport Version (if applicable): NA			
Estimated SDG outcome as per registered PDD  SDG 3: Good health and wellbeing – 6 developmental activities SDG 7 : Affordable and clean energy – 447,768 MWh of electricity SDG 8 : Decent work and economic growth – 19 training provided to O&M staff, 8.1 million USD spent on O&M and 75 jobs created SDG 13 : Climate action – 326,870 tCO2e  Actual SDG impacts achieved during the monitoring period SDG 3: Good health and wellbeing – 33 developmental activities SDG 7 : Affordable and clean energy – 433,587 MWh of electricity SDG 8 : Decent work and economic growth – 10 training provided to O&M staff, 6.34 million USD spent on O&M and 88 jobs created SDG 13 : Climate action – 359,070 tCO2e			
Actual Emission reduction achieved: 359,070 tCO2e			
Selected Sustainable Development Goals (SDGs): 3, 7, 8 and 13			
Verification Summary			
LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by			

PT Energi Bayu Jeneponto to perform the 1<sup>st</sup> periodical verification of “72 MW Wind power project in the South Sulawesi Province of Indonesia” (Ref. No. GS 7164) applying the methodology ACM0002 version 20.0 The management of PT Energi Bayu Jeneponto is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions.

A desk review and a remote audit have been conducted to verify the data submitted in the monitoring report. Applus+ Certification confirms the following have been reviewed:

- The GS4GG PDD V02 including the monitoring plan and the corresponding validation report;
- Monitoring report(s);
- The applied monitoring methodology;
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- The Gold Standard for Global Goals “Principles and Requirements” Version 1.2 and GS4GG guideline and related Annex.
- All information and references relevant to the project activity’s resulting in emission reductions.

PT Energi Bayu Jeneponto has implemented a Greenfield “**72 MW Wind power project in the South Sulawesi Province of Indonesia**” large-scale grid connected wind power project (“Project activity”) in the province of South Sulawesi, Indonesia. Project activity comprises of state-of-the-art, environment friendly wind-based power project. Project activity comes under the purview of large-scale, wind-based power project implemented in Indonesia.

Electricity generated from the project activity is sent to Selselbar regional Grid of Indonesia. As per GS4GG PDD V02, the gross electricity generation from the project activity is estimated as 236,520 MWh/year and abates 863,259 tonnes of Carbon Dioxide emissions during its entire crediting period (10/12/2018 to 09/12/2023).

Applus+ Certification confirms that the project is implemented in accordance with the validated PDD V02. The monitoring plan complies with the applied methodology ACM0002, Version 20.0 /13/ and the Gold Standard for Global Goals “Principles and Requirements” V 1.2/15/, GS4GG guideline the monitoring has been carried out in accordance with the monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ Certification confirms that the implementation of the project has resulted in 359,070 tCO<sub>2</sub>e emission reductions during period 10/12/2018 to 31/10/2020 (Both days included).

ASSESSMENT TEAM		
Team Members	Type of Resource <sup>1</sup>	Organization (for OEs)
Lead Auditor: Mr. Pankaj Kumar	<input type="checkbox"/> IR <input type="checkbox"/> EI <input checked="" type="checkbox"/> OE	M/s True Quality Certifications Private Limited
Auditor: Sukanta Das	<input type="checkbox"/> IR <input type="checkbox"/> EI <input checked="" type="checkbox"/> OE	M/s True Quality Certifications Private Limited
Technical Expert: Mr. Pankaj Kumar	<input type="checkbox"/> IR <input type="checkbox"/> EI <input checked="" type="checkbox"/> OE	M/s True Quality Certifications Private Limited
Technical Reviewer :Mr. Simon Shen	<input type="checkbox"/> IR <input checked="" type="checkbox"/> EI <input type="checkbox"/> OE	

<sup>1</sup> IR (Internal Resource); EI (External Individual); OE (Outsourced Entity)

ABBREVIATIONS	
<b>ACM</b>	Approved Consolidated Methodology
<b>AM</b>	Approved Methodology
<b>AMS</b>	Approved Methodology Small Scale
<b>BM</b>	Build Margin
<b>CAR</b>	Corrective Action Request
<b>CDM</b>	Clean Development Mechanism
<b>CDM EB</b>	CDM Executive Board
<b>CER</b>	Certified Emission Reduction
<b>CL/CR</b>	Clarification Request
<b>CM</b>	Combined Margin
<b>CMP</b>	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
<b>DNA</b>	Designated National Authority
<b>DOE</b>	Designated Operational Entity
<b>EF</b>	Emission Factor
<b>EIA</b>	Environmental Impact Assessment
<b>ER</b>	Emission Reduction
<b>FAR</b>	Forward Action Request
<b>GHG</b>	Greenhouse Gas(es)
<b>GS4GG (or GS)</b>	Gold Standard for Global Goals
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>KP</b>	Kyoto Protocol
<b>MP</b>	Monitoring Plan
<b>MR</b>	Monitoring Report
<b>NGO</b>	Non-Governmental Organization
<b>SDG</b>	Sustainable Development Goal
<b>TAC</b>	Gold Standard Technical Advisory Committee
<b>OM</b>	Operational Margin
<b>PDD</b>	Project Design Document
<b>PP</b>	Project Participant
<b>UNFCCC</b>	United Nations Framework Convention for Climate Change
<b>VVB</b>	Validation and Verification Body
<b>VVS</b>	Validation and Verification Standard

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## **1. INTRODUCTION**

### **1.1 Objective**

LGA Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by PT Energi Bayu Jeneponto to perform the 1<sup>st</sup> periodical verification of "72 MW Wind power project in the South Sulawesi Province of Indonesia" applying the methodology ACM0002, Version 20.0 and GS4GG guideline. Gold Standard projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Gold Standard VERs.

The objective of the verification work is to assess the compliance with the requirements of paragraph 62 of the CDM Modalities and Procedures as well as the GS4GG guidelines and relevant Principles and Requirements. According to this assessment Applus+ Certification shall:

- Ensure that the project activity has been implemented and operated as per the registered PDD and transitional documents for registration and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place;
- Ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable CDM VVS for project activities version 02 for the project activity and Gold Standard i.e. and GS4GG requirements;
- Ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;
- Evaluate the data recorded and stored as per the ACM0002 version 20.0.

### **1.2 Scope**

The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification is based on the submitted monitoring report, the validated PDD V05 as well as its validation report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB, GS4GG guideline and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures, GS4GG guideline and relevant Principles and Requirements, as well as their related rules and guidance.

Based on the requirements in the CDM VVS for project activities version 02 for the project activity as well as the GS4GG guideline, Applus+ Certification has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considers both quantitative and qualitative information on emission reductions. The verification also considers the monitoring of sustainable parameters.

The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

### 1.3 Description of the project activity

PT Energi Bayu Jenepono has implemented a Greenfield “72 MW Wind power project in the South Sulawesi Province of Indonesia” (Project activity). Project activity comprises of state-of-the-art, environment friendly, wind power technology. Project activity comes under the purview of large-scale, wind power technology-based project implemented in Indonesia. Electricity generated from the project activity is sent to Selselbar regional Grid of Indonesia. As per validated PDD V02, the gross electricity generation from the project activity is estimated as 236,520 MWh/year resulting in estimated emission reductions of 172,659 tCO<sub>2</sub>e and abates 863,259 tonnes of Carbon Dioxide emissions during its entire crediting period (10/12/2018 to 09/12/2023). The project has obtained requisite clearances and has already commissioned and was confirmed during site visit.

Project activity is a grid-connected large-scale 72 MW wind power generation facility.

#### Technical Description:

The total installed capacity of the project is 72 MW, which involves operation of 20 WTGs of 3.6 MW each in the province of South Sulawesi of Indonesia owned by PT Energi Bayu Jenepono. The WTGs used in the project activity are of Gamesa’s SWT-3.6-130 model.

Technical specifications of 72 MW Wind Energy Project by PT Energi Bayu Jenepono is as follows:

TECHNICAL SPECIFICATIONS	
Nominal power	3600 kW
Number of WTG	20
Installed Capacity	72 MW
Average total height	200 m
Wind class	IIA
Concept	3-bladed; horizontal axis direct drive; pitch regulation with variable speed upwind clockwise rotation
Control System	Built-in computer control system coupled with remote access system (Supervisory Control and Data Acquisition or SCADA in short).
TOWER	
Tubular	135 m
Material	Tubular Steel

Color	White (non-glossy) to light grey
Crane Hardstand	44m x 144 m
<b>OPERATIONAL DATA</b>	
Cut-in wind speed	3-5 m/s
Cut-out wind speed	25 m/s
Nominal power at approximate	11-12 m/s
<b>ROTOR</b>	
Diameter	130 m
Blade length	63.5 m
Swept area	13,300 M <sup>2</sup>
Material	Glass reinforced epoxy fibre (GRE)
Speed	6.5 – 12.8 rpm
<b>GENERATOR</b>	
Type	Synchronous, Permanent Magnet Generator
<b>INDICATIVE WEIGHT</b>	
Blade	17 metric tons
Rotor	96 metric tons
Nacelle	103 metric tons
Tower	80 metric tons
<b>FOUNDATION</b>	
Shape	Octagonal
Horizontal dimension	About 20 m diameter
Thickness	Up to 4 m
Material	Up to 650 m <sup>3</sup> of reinforced concrete
Foundation type	Floating foundation
<b>SUB STATION COMPLEX</b>	
Area	approximately 2 ha
Comprises	Distribution substation and switchgear with 33 kV ratings; 45 MVA Power transformers; Control/management facility and service; Parking,; Traffic access; Landscape area; Internal infrastructure supply; Sewage
	Low voltage power supply 33/0.4 kV internal transformer
<b>TRANSMISSION LINE</b>	
Voltage	150 kV
Length	3.5 km



## 2. **METHODOLOGY**

Applus+ Certification approach to the verification is a two-stage process. In the 1<sup>st</sup> stage, Applus+ Certification completed a strategic review and risk assessment of the project's activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

Applus+ Certification used a periodical Verification Checklist which, based on the risk-based assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the 2<sup>nd</sup> stage, using the Verification Checklist, Applus+ Certification verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved interviewing PP representative on Skype and a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

### 2.1 **Appointment of the assessment team**

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center, S.A. (Applus+ Certification) has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center, S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAI Technological Center, S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA)
- Auditor (A) / Auditor in Training (AiT)
- Technical Expert (TE)
- Technical Reviewer (TR)

The sectoral scope/technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Mr. Pankaj Kumar	LA/TE	YES	YES	NA	YES
Mr. Sukanta Das	A	YES	YES	NA	YES
Mr. Simon Shen	TR	YES	YES	NA	NA

The complete list of CVs is included as Appendix 3 of this report.

## **2.2 Document review**

The Monitoring Report version 01 was submitted to DOE before the verification activities started. The MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- Verify the completeness of the data and the information presented in the MR;
- Check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures of the power plant was checked by the assessment team.
- Evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.
- Please check section 4 of this report for detail of the documents checked.

## **2.3 On site assessment and follow up interviews**

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on site visit. As COVID -19 situation is going to stay for a while, and it seems that restoration of normal situation will take time and PP has requested to proceed with project verification as delay could have some financial implication on PP. Hence the site visit could not be postponed for this project activity

However as per the COVID 19 Interim Measures by GS4GG, the VVB may use alternative measures for auditing like remote audits. As per para 4.1.1 (b) of COVID 19 Interim Measures, Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification of the PA. Along with desk review, audit team has conducted remote audit interview corresponding to the PA as follows:

A complete desk review of the MR and supportive evidences have been checked by the verification team.

- Verification team has performed Skype interview with PP in order to check implementation, current situation, evaluation of data management, QA/QC system, project technology, training provided, monitoring, calibration etc. Interview questions were filled as per Verification team interview checklist. Cross checks between information provided by interviewed personnel (i.e. by checking sources) to ensure that no relevant information has been omitted.

- Verification team has performed interview with randomly selected Local stakeholders to check the monitoring of GS sustainable parameters like employment and training, environmental and other relevant issues.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in the MR and supporting documents.

Details of interviewees, topics covered and additional information presented below:

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Purnomosunu	Donni Yanuar	Manager, PT Energi Bayu Jeneponto	18/12/2020	Project implementation , Baseline emissions, ER calculations, Sustainable monitoring etc.	Mr. Pankaj Kumar
2	Nataatmadja	Adi	Head, HSE PT Energi Bayu Jeneponto	18/12/2020	Stakeholder meeting-Soil Erosion if any, Standard of Livings etc.	Mr. Pankaj Kumar
3	Negara	Adi	HSE Officer (O&M) PT Energi Bayu Jeneponto	18/12/2020	Stakeholder meeting- Employment opportunities, Standard of Livings etc.	Mr. Pankaj Kumar
4	Kumar	Narendra	Consultant Kosher Climate India Private Limited	18/12/2020	Stakeholder meeting- Noise pollution if any, Standard of Livings etc.	Mr. Pankaj Kumar

The objective of the remote audit is to:

- Confirm the implementation and operation of the project;
- Review the data flow for generating, aggregating and reporting the monitoring parameters;
- confirm the correct implementation of procedures for operations and data collection;
- Cross-check the information provided in the MR documentation with other sources;
- Check the monitoring equipment against the requirements of the PDD, Passport and the approved methodology, including calibrations, maintenance, etc.;
- Review the calculations and assumptions used to obtain the GHG data and ER;
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

- Confirm the Sustainability monitoring plan as per the registered Passport
- To understand grievance (if any) from the villagers during the monitoring period.

## 2.4 Quality of evidences

Sufficient evidence covering the full verification period in the required frequency is available to verify the figures stated in the final MR Version 02. Specific cross-checks have been done in cases that further sources were available. The monitoring report's figures were checked by the assessment team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

## 2.5 Reporting of findings

As an outcome of the verification process, the assessment team can raise different types of findings.

Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CR) if information is insufficient or not clear enough to determine whether the applicable CDM/GS requirements have been met.

All CARs and CRs raised during verification shall be resolved prior to submitting a request for issuance.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period.

Please refer Appendix 1 of this report. Total Numbers of CARs: CAR: 00, CL: 04, FARs: 00

## 2.6 Internal Quality Control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. This approval process also includes another quality assurance check in terms of Administrative Review. In case one of

these two persons is part of the assessment team, the final approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the GS Registry along with the relevant documents.

### **3. VERIFICATION FINDINGS**

#### **3.1 FARs from Validation / Previous Verification**

No FARs envisaged from previous verification and or Validation. This is 1<sup>st</sup> periodic verification for the project activity.

#### **3.2 Project Implementation in accordance with the registered Project Design Document**

The project activity was fully implemented according to the description presented in the registered PDD. The assessment team confirms, through the visual inspection that all physical features of the proposed project activity including data collecting systems and storage have been implemented in accordance with the validated PDD.

The project activity was in normal operational during the monitoring period and the same has been confirmed during the interview on Skype view. No unusual activates observed during the monitoring period and plant was undergone scheduled maintenance as per the recommendation of the manufactures. No forced breakdown observed and the same is confirmed by the assessment team with the plant log details.

Project Participants	PT Energi Bayu Jeneponto
Title of project activity	72 MW Wind power project in the South Sulawesi Province of Indonesia
GS Registration No.	GS 7164
GS Version applied	The project has been submitted to GS4GG as per the guidelines of Gold Standard for Global Goals "Principles & Requirements" Version 1.2 Hence the current verification of the project activity has followed the GS4GG version of the Gold Standard.
Baseline and monitoring methodology	ACM0002 Version 20.0 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources.
Project type	The purpose of the project activity is to generate electricity using wind power technology. It is a 72 MW large-scale grid connected wind energy power project.
Project scale	Large
Location of the project activity	The project located at Jeneponto Regency in the province of South Sulawesi province of Indonesia

Project's crediting period	10/12/2018 to 09/12/2023 (1 <sup>st</sup> Crediting Period)
Total duration of the project	15 years (Renewable crediting period)
Period verified in this verification	10/12/2018 to 31/10/2020 (Inclusive of both days)

Based on interview with PP representative the verification team was able to confirm that the project implementation is in accordance with the project description contained in the GS PDD (version 02, dated 26/06/2020/10/)

The project activity is a 72 MW large-scale grid connected Wind Energy project at Jeneponto Regency in the province of South Sulawesi province of Indonesia. The geo-coordinates of WTGs have been provided below in table and the same was confirmed referring to the website Google maps/06/ and found to be correct.

<b>Turbine</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Village</b>	<b>Subdistrict</b>
TO01	05°36'15.542"S	119°46'31.670"E	Bontomatene	Turatea
TO02	05°36'26.181"S	119°46'24.479"E	Bontomatene	Turatea
TO03	05°36'38.271"S	119°46'19.893"E	Bontomatene	Turatea
TO04	05°37'23.507"S	119°45'50.071"E	Parasangan Beru	Turatea
TO05	05°37'34.111"S	119°45'41.550"E	Kayuloe Barat	Turatea
TO06	05°37'43.468"S	119°45'30.230"E	Kayuloe Barat	Turatea
TO07	05°37'52.789"S	119°45'19.753"E	Kayuloe Barat	Turatea
TO08	05°38'20.780"S	119°45'23.360"E	Kayuloe Timur	Turatea
TO09	05°38'31.709"S	119°45'16.722"E	Empoang Utara	Binamu
TO10	05°38'42.961"S	119°45'9.8604"E	Empoang Utara	Binamu
TO11	05°38'56.268"S	119°45'13.397"E	Empoang Utara	Binamu
TO12	05°39'3.9134"S	119°45'3.1389"E	Empoang Utara	Binamu
TO13	05°37'37.076"S	119°46'35.270"E	Kayuloe Timur	Turatea
TO14	05°37'49.064"S	119°46'31.658"E	Kayuloe Timur	Turatea
TO15	05°38'1.7234"S	119°46'30.647"E	Kayuloe Timur	Turatea
TO16	05°38'16.473"S	119°46'27.600"E	Kayuloe Timur	Turatea
TO17	05°38'32.523"S	119°46'24.883"E	Kayuloe Timur	Turatea
TO18	05°38'46.094"S	119°46'23.714"E	Kayuloe Timur	Turatea
TO19	05°38'58.612"S	119°46'24.780"E	Empoang Utara	Binamu
TO20	05°39'11.627"S	119°46'24.193"E	Empoang Utara	Binamu

The project activity (part of the project site) involves generation of electrical energy derived from wind energy. The baseline scenario identified is import of electricity from grid.

Project activity comprises of state-of-the-art, environment friendly, wind energy generation using wind power technology. Project activity comes under the purview of large-scale, wind power technology-based project implemented in Indonesia.

The project has obtained the requisite clearances and has already commissioned on as verified from the review of relevant document /17/ and operating successfully /18/.

Project equipment and the technology are employed as mentioned in the registered PDD /10/.

The technical details of the project activity as confirmed during the interview on skype explained in sec. 1.3 above.

The operation of the project activity complies with all statutory requirements as the PP is submitting the monthly invoice to government authorities.

The monitoring data is recorded on continuous basis and available on hourly/daily basis as ERP and MIS reports /18/ and stored at plant site.

Training has been provided to the operators handling the operation of the critical equipment such as solar panels, power evacuation systems and other equipments. The company has recruited personnel with relevant experience in the operation of the plant.

There is no event or situation including emergency situations occurred during this monitoring period which has impacted the applicability of methodology/13/. The outage record or breakdown report/07/ for this monitoring period was discussed during the remote audit and verified from logbooks shared by PP and found OK.

The timeline of the project's implementation is as follows:

Milestone of the project activity	Timeline	Assessment by the verification team
Registration of the project activity under GS4GG Principles and Requirements version 1.2	23/09/2020	The end date of the review period "6 week registration review period under GS4GG version 1.2" i.e. 23/09/2020 has been considered as the registration date of the project activity and has been verified by the verification team from the review document
Crediting period		
1 <sup>st</sup> Monitoring period	10/12/2018 to 31/10/2020	Verification team has verified same from the registered documents. Also, this monitoring period is within the first crediting period.

Assessment of actual emission reductions with the estimate emission reductions in PDD:

Estimated Emission Reduction as per registered PDD	326,870 tCO <sub>2</sub> e As per PDD V02, ER for 365 days- 172,659 tCO <sub>2</sub> e and for this MP, total days are 691. Accordingly, emission reduction for this MP, estimated. Plz refer calculation in ER Spread sheet
Actual Emission Reduction for the	359,070 tCO <sub>2</sub> e



monitoring period	
Is any increase of VERs occurred?	Yes
Reason for increase of VERs	Higher emission factor applicable for the year 2020. Since the project chooses, ex-post option for the calculation of emission factor, the PP has used the emission factor of year 2018 for the calculation of year 2020 emission reduction.

In summary, verification team confirms that actual emission reduction is higher than the estimate of the registered for the current monitoring period.

Verification team considers the project and monitoring description of the project contained in the Monitoring report to be complete and accurate. The Monitoring report complies with the relevant methodology, tools, forms and guidance which are in line with that available in the registered documents (including PDD) with Gold Standard.

Opinion:

- a) In opinion of the assessment team the implementation and operation of the project activity is in compliance with the description in the PDD V02.
- b) There is no revision in monitoring plan or post registration change for the current monitoring period.
- c) The actual emission reductions for the current monitoring period are 359,070 tCO<sub>2</sub>e which are higher than the estimated ERs (326,870 tCO<sub>2</sub>e) for the comparable period.

### 3.3 Compliance of the Monitoring Plan with the Monitoring Methodology

The DOE verification team is able to confirm that the monitoring plan contained in the PDD (version 02.0, dated 26/06/2020) is in accordance with the approved methodology applied by the project activity — ACM0002 Version 20 /13/ Consolidated baseline methodology for grid-connected electricity generation from renewable sources.

The monitoring plan and the monitoring system implemented are in compliance to the applied monitoring methodology ACM0002 Version 20. All other requirements of the applied methodology are met. Furthermore, it can be confirmed that the ex-ante value for grid emission factor (EF) sourced from Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia) database in the registered PDD has been correctly applied in the calculation of emission reductions. The DOE verification team confirms that the monitoring plan of the CDM project activity complied with the applied methodology.

During the verification all relevant monitoring parameters (as listed in the PDD) have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures.



Opinion:

The monitoring plan mentioned in the registered PDD is in line with the applied methodology i.e. — ACM0002 Version 20, Consolidated baseline methodology for grid-connected electricity generation from renewable sources. The monitoring mechanism is in line with the methodology and is effective and reliable.

### 3.4 Completeness of Monitoring

The monitoring has been carried out in accordance with the monitoring plan contained in the PDD (version 02.0, dated 26/06/2020) /10/. During the course of verification, all relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement / determination method and applied QA/QC procedures. It is confirmed that the monitoring parameters have been measured / determined without material misstatements.

The verification team reviewed the actual monitoring during the interview on skype and from document review and compared it against the requirements of the monitoring plan in the PDD /10/ and found in line.

The verification team assessed the monitoring techniques and each monitoring value in the monitoring report; and provided a short summary on the verification of every parameter listed in the monitoring plan and used for calculation of emission reductions.

#### a. Data and parameters fixed ex ante or at renewable of crediting period

$EF_{grid,OM,y}$ ,  $EF_{grid,BM,y}$  &  $EF_{grid,CM,y}$  were mentioned as ex-ante fixed parameter.

The value for  $EF_{grid,OM,y}$ ,  $EF_{grid,BM,y}$  &  $EF_{grid,CM,y}$  was considered from CO<sub>2</sub> Baseline Database for the Indonesian Power Sector, published by Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia), Year 2018. Since the OM data is published 18 months after the end of year y, the emission factor of the year proceeding the previous year y-2 has been used.

The default value as mentioned in the registered PDD and MR are same. The value of combined margin in Indonesia is being given by DNA Indonesia and thus assessment team concludes that the value is correct and appropriate. The default value in turn is used for baseline calculation as per the formula given in the registered PDD for the current monitoring period. Assessment team checked the values, source of data, choice of data, purpose of the data mentioned in the MR from the registered PDD and confirms that the similar approach was considered for the current monitoring period also.

The relevant Emission factor values used for emission reduction calculation are as below. Also, as GS4GG "Principles and Requirements" V 1.2 the ex-ante fixed parameters are now connected to relevant SDG indicator which is acceptable to the assessment team.

**EF<sub>grid,OM,y</sub> – Relevant SDG Indicator= SDG13: Climate Action=**

- OM for year 2017: 0.59 tCO<sub>2</sub>e/MWh (Applicable for year 2019)
- OM for year 2018: 0.85 tCO<sub>2</sub>e/MWh (Applicable for year 2020)

**EF<sub>grid,BM,y</sub> – Relevant SDG Indicator= SDG13: Climate Action= 0.8811 tCO<sub>2</sub>e/MWh**

- BM for year 2017: 1.15 tCO<sub>2</sub>e/MWh (Applicable for year 2019)
- BM for year 2018: 1.17 tCO<sub>2</sub>e/MWh (Applicable for year 2020)

**EF<sub>grid,CM,y</sub> – Relevant SDG Indicator= SDG13: Climate Action=**

- CM for year 2017: 0.73 tCO<sub>2</sub>e/MWh (Applicable for year 2019)
- CM for year 2018: 0.93 tCO<sub>2</sub>e/MWh (Applicable for year 2020)

**b. Data and parameters monitored**

Relevant SDG Indicator	SDG 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix SDG13 : Take urgent action to combat climate change and its impacts																	
Data/parameter:	EG facility,y																	
Unit	MWh/y																	
Description	Quantity of net electricity supplied to the grid during the year y.																	
Measured/calculated/default	Continuous measurement and monthly recording																	
Source of data	Monthly energy generation statement issued by PLN. These are called JMR (Joint Meter Reading) or BA-I																	
Value(s) of monitored parameter	Period	Actual (MWh)																
	10/12/2018 to 31/12/2018	0																
	01/01/2019 to 31/12/2019	220,824																
	01/01/2020 to 31/10/2020	212,763																
Monitoring equipment	Monitoring equipment: Energy meters (installed at TRAFO 1 and TRAFO 2 lines) <table><tr><th>Meter</th><th>Meter Number</th><th>Accuracy</th></tr><tr><td>Main meter TRAFO1</td><td>1712A587-02</td><td>0.2</td></tr><tr><td>Main meter TRAFO2</td><td>1801A140-02</td><td>0.2</td></tr><tr><td>Check meter TRAFO1</td><td>1712A590-02</td><td>0.2</td></tr><tr><td>Check meter TRAFO1</td><td>1712A589-02</td><td>0.2</td></tr></table> Metering Location: 150 kV side of Tolo Substation Accuracy of Energy meters: 0.2 Monitoring Method: recording export & import in “generation statement” This statement includes, monthly recording of electricity export & import.			Meter	Meter Number	Accuracy	Main meter TRAFO1	1712A587-02	0.2	Main meter TRAFO2	1801A140-02	0.2	Check meter TRAFO1	1712A590-02	0.2	Check meter TRAFO1	1712A589-02	0.2
Meter	Meter Number	Accuracy																
Main meter TRAFO1	1712A587-02	0.2																
Main meter TRAFO2	1801A140-02	0.2																
Check meter TRAFO1	1712A590-02	0.2																
Check meter TRAFO1	1712A589-02	0.2																
Measuring/reading/recording frequency:	Measurement: Continuous Recording: Monthly																	
Calculation method	Net electricity supplied will be calculated based on the																	

(if applicable):	difference between values of “export” and “import” on the energy meter at the sub-station (evacuation point). The net electricity will be calculated by PLN and provided in the monthly generation statement. Hence, the net electricity reading will be directly sourced from the monthly generation statement.
QA/QC procedures:	Quantity of net electricity supplied is cross-verified with the invoice raised. The energy meters are calibrated as per the minimum calibration frequency mentioned in the PDD.
Cross Checks	The value was cross checked between JMR, Invoices and site log book.

Relevant SDG Indicator	SDG 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value														
Data/parameter:	Quantitative employment and income generation														
Unit	<ul style="list-style-type: none"><li>Number of O&amp;M staffs involved in the project</li><li>Cost spent for O&amp;M</li></ul>														
Description	<ul style="list-style-type: none"><li>Total employment generated due to the implementation of project activity and</li><li>The amount spent for O&amp;M activities due to the project.</li></ul>														
Measured/calculated/default	Not Applicable														
Source of data	Plant employment records, DOE interview with employees, local stakeholders etc.														
Value(s) of monitored parameter	<p>Total no. of persons employed during this monitoring period provided by the PP was cross checked with plant records and through interviews. Total amount spent for O&amp;M activities due to the project during the monitoring period is as below: 2019: 3.46 Mn USD 2020: 2.88 Mn USD</p> <table><tr><th>Period</th><th>Number of staffs</th><th>Cost Spent in O&amp;M (Mn USD)</th></tr><tr><td>10/12/2018 to 31/12/2018</td><td>-</td><td>-</td></tr><tr><td>01/01/2019 to 31/12/2019</td><td>88</td><td>3.46</td></tr><tr><td>01/01/2020 to 31/10/2020</td><td>88</td><td>2.88</td></tr></table> <p>Further, the same has been crosschecked by the VVB by means of attendance register, salary slips shared by PD and also confirmed during remote audit interviews. The Project thus provides employment opportunities, pays salaries and welfares, and helps to increase the income and living standards of the employees.</p>			Period	Number of staffs	Cost Spent in O&M (Mn USD)	10/12/2018 to 31/12/2018	-	-	01/01/2019 to 31/12/2019	88	3.46	01/01/2020 to 31/10/2020	88	2.88
Period	Number of staffs	Cost Spent in O&M (Mn USD)													
10/12/2018 to 31/12/2018	-	-													
01/01/2019 to 31/12/2019	88	3.46													
01/01/2020 to 31/10/2020	88	2.88													
Monitoring equipment	-														
Measuring/reading/recording frequency:	Yearly once														
Calculation method	-														

(if applicable):	
QA/QC procedures:	-
Cross Checks:	Employment records

<b>Relevant SDG Indicator</b>	<b>SDG 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value</b>	
<b>Data/parameter:</b>	<b>Quality of employment</b>	
Unit	Nos	
Description	Trainings provided to employees & O&M staffs	
Measured/calculated/default	Not Applicable	
Source of data	HR records/DOE interview with employees, local stakeholders etc	
Value(s) of monitored parameter	PP has confirmed, total 10 no. of trainings conducted during this monitoring period. 5 training each conducted in year 2019 and in 2020. VVB confirmed the details provided in MR with training register and the attendance sheet and also cross checked by conducting interviews during remote audit	
Monitoring equipment	Not applicable.	
Measuring/reading/recording frequency:	Annually	
Calculation method (if applicable):	-	
QA/QC procedures:	The data crosschecked annually with the CSR records by the consultant.	
Cross Checks:	Training records.	

<b>Relevant SDG Indicator</b>	<b>SDG 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all</b>	
<b>Data/parameter:</b>	Good Health & Well being	
Unit	Nos.	
Description	Community Development Activities like Health Camps, Knowledge and information dissemination regarding natural disasters	
Measured/calculated/default	Measured	
Source of data	CSR records and photographic evidence	
Value(s) of monitored parameter	Period	Number of community development activities
	10/12/2018 to 31/12/2018	0
	01/01/2019 to 31/12/2019	21

	01/01/2020 to 31/10/2020	12
Monitoring equipment	Not Applicable	
Measuring/reading/recording frequency:	Yearly Once	
Calculation method (if applicable):	-	
QA/QC procedures:	The data crosschecked annually with the CSR records by the consultant	
Cross Checks:	Training Records	

The verification team confirms;

- The monitoring plan implemented is in line with monitoring plan included in approved GS4GG PDD.
- The monitoring complies with the requirement of the applied methodology.
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the approved PDD.
- The values included in the monitoring report and corresponding emission reduction sheets are verified, cross checked and included under each monitoring parameter, wherever appropriate
- The findings relevant to each parameter, wherever appropriate are discussed in detail in Appendix 1 of this report.

In summary, the verification team confirms that all the ex-post parameters are monitored in accordance with the approved monitoring plan and applied methodology.

### **c. Implementation of sampling plan**

PP did not apply sampling plan to determine data and parameters monitored during this monitoring period. The verification team has checked all the documents such as JMR issued by State electricity board /Invoices etc. and hence sampling plan was not required. The verification team hereby confirms that has checked all the documents.

### **d. Compliance with the calibration frequency requirements for measuring instruments**

The calibration details such as make, accuracy class serial number is as per the meter available onsite which was shared by PP and checked by verification team and found the details in line with approved PDD. The Calibration details are presented in Appendix 2 of this report.

Assessment team checked the same and found that the calibration is appropriate and correct as traceability is ensured. The meters were calibrated as per the applicable norms and the meters are within the permissible error limit.

## **3.5 SDG Outcomes Monitoring**

### **For Contributions to Sustainable Development**

The verification team checked the sustainable development indicator parameters during the site visit and interview.

In Summary, it is Applus+ Certification's opinion that the monitoring of the project owner regarding to sustainability is in line with requirement of the GS4GG guideline.

As per the sustainability monitoring plan in the approved PDD, verification team evaluated all sustainable development indicators as followed in the table:

Item	Baseline estimate	Project estimate	Net benefit
<b>SDG 3: Good Health and Well-Being</b>	-	Number of community development activities: 33	Number of community development activities: 33
<b>SDG 7: Affordable and Clean Energy</b>	-	433,587 MWh	433,587 MWh
<b>SDG 8: Decent Work and Economic Growth</b>		No. of employment opportunities created: 88 No. of trainings given: 10 Cost spent for O&M: 6.34	No. of employment opportunities created: 88 No. of trainings given: 10 Cost spent for O&M: 6.34
<b>SDG 13: Climate Action</b>	359,070 tCO <sub>2</sub> e	-	359,070 tCO <sub>2</sub> e

Comparison of actual value of outcomes with estimates in approved GS PDD

Item	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period						
<b>SDG 3: Good Health and Well-Being</b>	6 local development activities	33 local development activities						
<b>SDG 7: Affordable and Clean Energy</b>	447,768 MWh electricity generation	433,587 MWh electricity generation						
<b>SDG 8: Decent Work and Economic Growth</b>	19 Training provided to O&M Staff 8.1 million USD spent on O&M 75 jobs created	10 Training provided to O&M Staff 6.34 million USD spent on O&M 88 jobs created						
<b>SDG 13: Climate Action</b>	326,870 tCO <sub>2</sub> e emission reduction	359,070 tCO <sub>2</sub> e						
		The vintage wise breakup of Emission Reductions obtained during this monitoring period						
		<table><tr><td>Year</td><td>Emission Reductions achieved</td></tr><tr><td>2019</td><td>161,201 tCO<sub>2</sub>e</td></tr><tr><td>2020</td><td>197,869 tCO<sub>2</sub>e</td></tr></table>	Year	Emission Reductions achieved	2019	161,201 tCO <sub>2</sub> e	2020	197,869 tCO <sub>2</sub> e
		Year	Emission Reductions achieved					
2019	161,201 tCO <sub>2</sub> e							
2020	197,869 tCO <sub>2</sub> e							

The adequacy and compliance of the monitoring plan in the Monitoring report was found as per the requirements laid by the approved GS4GG PDD. The information flow (from data

generation, aggregation, to recording, calculation and reporting) is already included under respective parameter above. The verification team has verified all the data and collected evidence as per the required monitoring frequency and found to be correct and appropriate meeting the requirements of the applied methodology and registered PDD.

As a part of continuous feedback from stakeholders, the grievances register is being placed at site and is being continuously monitored and addressed through the grievances cell on regular basis and maintained in a register at PT Energi Bayu Jeneponto site office. The comments received have been described in the Monitoring report along with the actions undertaken. The grievance register provide to verification team was also checked it was found that during the current monitoring period, no comments/feedbacks were received from the local stakeholders.

The project is also registered under International REC (I-REC) mechanism (Device ID: JENEPON1) and the I-REC credits are issued during the following period

- From 10/12/2018 to 31/01/2019
- From 01/01/2020 to 31/01/2020

PP does not claim GS VER for the above mentioned period to avoid double counting. Thus double counting for the current monitoring period is ruled out.

Also during the interview on skype, Applus+ Certification conducted an interview with the project owner and local stakeholders please find the summary of the interview as below:

Sections	Debriefing
Trainings & salaries of the employees	During interview on Skype Mr. Donny Yanuar Purnomosunu of PP representative team was interviewed. It was noted that regular technical & nontechnical trainings were conducted and the salaries are in line with the industry standard.

In Summary, it is Applus+ Certification's opinion that the monitoring of the project owner regarding to sustainability is in line with requirement of the GS4GG guideline.

### 3.6 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

As a result of verification of the ER calculation process, the assessment team confirmed that all the parameters required for the determination of the emission reductions have been included in the Monitoring report Version 01 & Monitoring report Version 02 and corresponding ER calculation spreadsheets and are consistent with the applied methodology ACM0002 version 20 and the monitoring plan contained in the registered PDD. The parameters are complete in this monitoring period.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the Monitoring Report Version 02 and corresponding ER calculation spreadsheets. The verification process for the same has been clearly described in above section of the report. See below for the detailed data:

Baseline Emissions for the amount of electricity supplied by project activity,  $BE_y$  is calculated as:

**Project emissions:**

Project Emissions,  $PE_y = 0$

**Emission reductions:**

Calculation of baseline emission is as follows;

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

Where,

$BE_y$  = Baseline emissions in year  $y$  ( $tCO_2/yr$ )

$EG_{PJ,y}$  = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year  $y$  (MWh/yr).

$EF_{grid,CM,y}$  = Combined margin  $CO_2$  emission factor for grid connected power generation in year  $y$  calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" ( $tCO_2/MWh$ )

AS per para 44 of ACM0002, version 20, when the project activity is installation of Greenfield power plant, then:

$$EG_{PJ,y} = EG_{facility,y}$$

Where,

$EG_{facility,y}$  = Quantity of net electricity generation supplied by the project plant/unit to the grid in year  $y$  (MWh/yr)

Year	Net Generation (MWh)	Grid Emission Factor ( $tCO_2/MWh$ )	Baseline emission ( $tCO_2$ )	Emission Reduction ( $tCO_2$ )
Year 2019	220,824	0.73	161,201	161,201
Year 2020	212,763	0.93	197,869	197,869
<b>Total</b>	<b>433,587</b>	<b>-</b>	<b>359,070</b>	<b>359,070</b>

### 3.7 Management and Operational System

The responsibilities of data measurement, collection, verifying, archiving etc. have been clearly defined in the approved PDD V02. The same practice is followed onsite and it is confirmed by the assessment team during the verification site visit. The data related to ER calculation as well as data monitoring, collection process etc. have been internally reviewed by the management of the Monitoring team regularly. The responsibility of each function is consistent with the monitoring plan in the registered PDD.

The information flow of each parameter has been verified by the assessment team via interviewing with responsible personnel.

It's verified during the on-site verification, the monitoring procedure as well as the internal quality management and control procedures are stipulated in the PDD. The monitoring personnel have been interviewed by the assessment team and it's confirmed that the monitoring is implemented as per the procedure. Also, the training record (Training register and



attendance sheet) has been checked by the assessment team and it is confirmed that the monitoring personnel are get sufficient train to perform the monitoring.

All the data and documents, either hard copies or soft copies, will be kept for two years after the end of the last crediting period or the last issuance of GS VERs for this Project, whichever occurs later.

#### 4. **REFERENCE**

LIST OF DOCUMENTS	
S. No.	Document/Evidence/Reference/Web link, Version, Date
/01/	GS MR 7164 version 1
/02/	GS MR 7164 Version 2
/03/	Emission reduction Sheet version 1
/04/	Emission reduction Sheet version 2
/05/	Joint Meter Reading (JMR)/ Invoices
/06/	Actual geo-coordinates
/07/	Break Down details of plant
/08/	Calibration certificates
/09/	Training record
/10/	Registered PDD
/11/	EHS Policy
/12/	GS registered Validation Report
/13/	Methodology
/14/	CDM VVS version 02 for the project activities
/15/	The Gold Standard for Global Goals "Principles and Requirement" V 1.2
/16/	Employment records
/17/	Commissioning certificates for the power plant
/18/	Log book records for scheduled maintenance of the power plant for the complete monitoring period
/19/	Grievance register
/20/	CSR records
/21/	CSR Policy of PT Energi Bayu Jenepono
/22/	Project O&M HSE logbook, or interview with maintenance staff

## **5. FINAL VERIFICATION STATEMENT**

Applus+ Certification has been engaged by PT Energi Bayu Jeneponto to perform the 1<sup>st</sup> periodical verification of the "72 MW Wind power project in the South Sulawesi Province of Indonesia"

The management of PT Energi Bayu Jeneponto is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the registered PDD and the applied methodology ACM0002 version 20.0.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board and Gold Standard. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is operated as planned and described in the approved GS4GG project design document;
- the monitoring plan is as per the applied methodology;
- the monitoring in Monitoring Report is as per the PDD and the monitoring plan approved by GS4GG;
- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for "72 MW Wind power project in the South Sulawesi Province of Indonesia" for the monitoring period 10/12/2018 to 31/10/2020 (Both days included) as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: 10/12/2018 to 31/10/2020 (Both days included)

Verified emissions in the above reporting period:

Leakage emissions	0 tCO <sub>2</sub> e equivalents
Project emissions	0 tCO <sub>2</sub> e equivalents
Baseline emissions	359,070 tCO <sub>2</sub> e equivalents
Emission reductions	359,070 tCO <sub>2</sub> e equivalents

Vintage wise yearly data is as below:

Emission Reduction for this monitoring period	359,070	tCO <sub>2</sub> e
Emission Reduction for 2019	161,201	tCO <sub>2</sub> e
Emission Reduction for 2020	197,869	tCO <sub>2</sub> e

**Date:** 13/01/2021



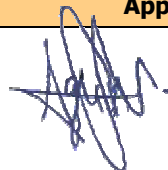
**Lead Auditor:** Mr. Pankaj Kumar

**Auditor** Mr. Sukanta Das

**Tech. Expert:** Mr. Pankaj Kumar

**Tech. Reviewer:** Mr. Simon Shen

**Approver** (*Applus+ Certification CDM Technical Manager*)

ASSESSMENT TEAM	
<b>Lead Auditor:</b> Mr. Pankaj Kumar	<b>Technical Reviewer:</b> Mr. Simon Shen
Signature: 	Signature: 
<b>Approver:</b> Mr. Agustin Calle de Miguel	
Signature: 	

**Appendix 1: Corrective Action Request/Clarification Request/Forward Action Request resolution table**

Type:	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	01
Raised by:	Pankaj Kumar	Ref. to checklist in above tables:	A.1
Description of the audit finding	Date: 19/12/2020		
1. The commissioning date of project activity stated in the MR doesn't match with the one in the PDD. PP is requested to clarify.			
Project Participant's response	Date: 22/12/2020		
The commissioning date of the project activity is now corrected in the MR to match with the date mentioned in the PDD.			
Documentation provided as evidence by Project Participant			
Revised MR			
Auditor's assessment comment	Date: 31/12/2020		
PP has clarified that the commissioning date of the project activity is 09/12/2018 and corrected in revised MR, Ver. 02 dated 22/12/2020. <b>Comment closed</b>			

Type:	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	02
Raised by:	Pankaj Kumar	Ref. to checklist in above tables:	D.2, E.2
Description of the audit finding	Date: 19/12/2020		
1. PP shall provide the description of the QA/QC procedures for monitoring the contribution to SDG 3 and SDG 8 in section D.2.			
2. In the calculation of SDG 3 outcome achieved for this monitoring period, the total project value for community development activities is incorrect. PP is requested to state the correct value.			
Project Participant's response	Date: 22/12/2020		
1. The description of the QA/QC procedures for monitoring the contribution to SDG 3 and SDG 8 is now included in section D.2.			
2. The total value of SDG 3 outcome is now corrected in the MR			
Documentation provided as evidence by Project Participant			
Revised MR			
Auditor's assessment comment	Date: 31/12/2020		
1. PP has included the details of the QA/QC procedures for monitoring the contribution to SDG in section D.2 of revised MR, Ver. 02 dated 22/12/2020. <b>Comment closed</b>			
2. PP corrected the value of SDG 3 outcome achieved in the revised MR, Ver. 02 dated 22/12/2020. <b>Comment closed</b>			

Type:	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	03
Raised by:	Pankaj Kumar	Ref. to checklist in above tables:	
Description of the audit finding	Date: 19/12/2020		

1. PP shall provide JMRs/ Invoices for entire monitoring period along with calibration certificates of energy meters 2. PP shall also provide pay slips/ employee roll/ attendance register and training records for SDG 8 impacts for this monitoring period 3. In the ER sheet, PP is requested to check the year mentioned against the O&M cost of 2.88 Mn USD while calculating SDG 8 outcome.		
Project Participant's response	Date:	22/12/2020
<ul style="list-style-type: none"> <li>The JMRs/invoice &amp; calibration certificate of entire monitoring period is now submitted.</li> <li>The Employment records and training records are submitted as supporting of SDG 8 impacts</li> <li>In ER sheet the year mentioned against the O&amp;M cost of 2.88 mn is now corrected</li> </ul>		
Documentation provided as evidence by Project Participant		
<ul style="list-style-type: none"> <li>JMR</li> <li>Invoices</li> <li>Calibration Certificates</li> <li>Employment record</li> <li>Revised ER sheet</li> </ul>		
Auditor's assessment comment	Date:	31/12/2020
1. PP has provided JMRs and invoices for current monitoring period along with calibration certificates of meters pertaining to current monitoring period and VVB confirmed that documents submitted are in line with monitoring requirements as per approved PDD. <b>Comment closed.</b> 2. PP has provided salary slips, employees' attendance registers and training records to support the SDG 8 outcome for this monitoring period. <b>Comment closed</b> 3. PP has made requisite correction in the revised ER spreadsheet version 2 dated 22/12/2020. <b>Comment closed.</b>		

Type:	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	04
Raised by:	Pankaj Kumar	Ref. to checklist in above tables:	
Description of the audit finding	Date:	19/12/2020	
1. PP shall provide scanned copy of grievance register.			
Project Participant's response	Date:	22/12/2020	
The grievances are recorded in the excel sheet. The grievance register in excel sheet is now submitted for verification			
Documentation provided as evidence by Project Participant			
Grievance register			
Auditor's assessment comment	Date:	31/12/2020	
Grievance register provided by PP and VVB confirmed that no grievances received during this monitoring period. <b>Comment closed.</b>			

## **Appendix 2: Calibration details of monitoring meters**

<b>Meter Number</b>	<b>Accuracy</b>	<b>Calibration date</b>	<b>Validity</b>
Main- TRAF01 (1712A587-02)	0.2 s	17/10/2018	16/10/2023
		26/02/2020	25/02/2025
Main-TRAF02 (1801A140-02)	0.2 s	17/10/2018	16/10/2023
		26/02/2020	25/02/2025
Check-TRAF01 (1712A590-02)	0.2 s	17/10/2018	16/10/2023
		26/02/2020	25/02/2025
Check-TRAF02 (1712A589-02)	0.2 s	17/10/2018	16/10/2023
		26/02/2020	25/02/2025

## **Appendix 3: Audit Team CVs**

<b>Name</b>	<b>SHORT CV. BACKGROUND INFORMATION</b>
Mr. Pankaj Kumar	<p><b>Pankaj Kumar</b> worked as team leader – Bihar for South Asia Climate Proofing and Growth Development(CPGD) – Climate Change Innovation Programme (CCIP) supported by DFID that seeks to mainstream climate change resilience into planning and budgeting at the national and sub-national level in India, Pakistan, Nepal, and Afghanistan. Pankaj Kumar has worked previously with IL&amp;FS Infrastructure Development Corporation and BUIDCO(Bihar Urban Infrastructure Development Corporation), Govt. of Bihar as Environmental Specialist for WB &amp; ADB funded projects. Prior to this, he worked with Carbon Check (UNFCCC accredited DoE), Johannesburg, RSA as Team Leader for validation, verification of around 100 GHG projects in Asia, Africa, USA, Asia Pacific &amp; Americas. Pankaj is accredited Lead Auditor, Validator, Verifier and Technical Expert for Sectoral Scope/Technical Area – 1.1, 1.2, 3.1 &amp; 13.1 by UNFCCC DoE (Designated Operational Entity), APPLUS, Spain. He is also member of task force on climate change &amp; human health, Health Department, GoB.</p> <p>He is an experienced, qualified and result oriented Environment Professional having more than 14 yrs. of relevant experience in Climate Change (Mitigation &amp; Adaptation), Environmental Due Diligence, Disaster Risk Reduction, Validation and Verification of GHG project under CDM, Verified Carbon Standard, Gold Standard &amp; Social Carbon Standard, Brazil. He provides technical support for environmental investigative, consultative and remedial projects involving air, water and soil, Waste management, EIA, Environmental Compliance, ISO 14001, OHSAS 18001, GHG accounting (ISO 14064) and Carbon foot printing</p> <p>Pankaj Kumar is Masters in Environment Management from Forest Research Institute (University), I.C.F.R.E, Dehradun, which is Centre of Excellence in South East Asia for Forestry education &amp; research and PGDEL from National Law School of India University, Bangalore (India).</p>
Mr. Simon Shen	<p><b>Mr. Simon Shen</b> has Master degree in Thermal Energy Engineering, Bacheor Degree in Environment Engineering) is a Lead Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environment protection field. Before he joined</p>



	Applus+ LGAI, he had been worked for TUV SUD as a GHG Validator/ Assessment team and ISO 9001/ 14001 Lead Auditors for 5 years.
Mr. Sukanta Das	Mr. Sukanta DAS, has done M. SC in (Electronics and Photonics) and M. Tech in (Energy technology) from Tezpur Central University/ Indian Institute of technology Bombay in India. He is a certified lead auditor for ISO 14001 EMS LA and ISO 9001 QMS LA from International registry for Certified Auditors (IRCA) and Certified Lean Management practitioner from Quality Council of India (QCI). He has more than (11) years of working experience at TUV NoRD/ Re-consult/CRA/APPLUS certifications under various categories of projects stating from Renewable to waste to supercritical projects. He was JI/ CDM Lead Assessor in TUV NoRD and was involved in more than 100 CDM validation and verifications activities in Gold Standard, VCS, CDM projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1, 13 technical areas 1.2/1.1/13.1. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.