



SAINT NIKOLA WIND FARM


VERIFICATION REPORT



Document Prepared By RINA Services S.p.A (RINA)

Project Title	Saint Nikola Wind Farm
Version	2.0Aa
Report ID	2020BGMD06

Report Title	Saint Nikola Wind Farm
Client	AES Geo Energy OOD

Pages	24
Date of Issue	16-06-2021
Prepared By	Rina Services S.p.A (RINA)
Contact	RINA Services S.p.A, Via Corsica 12, 16128 Genova, Italy, phone: +39 010 53851, fax: +39 0105351000, Website: rina.org, Contact person: Laura Severino (laura.severino@rina.org)
Approved By	Laura Severino (Authorized officer signing for the VVB) 
Work Carried Out By	Konstantin Rachev - Team Leader/Verifier/Technical Expert TA 1.2

Summary:

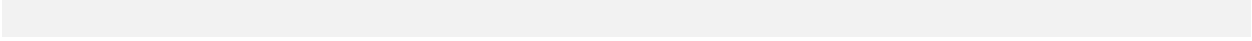
RINA Services S.p.A. (RINA), commissioned by AES Geo Energy OOD, has been verifying the greenhouse gas emission reductions reported for the project activity “Saint Nikola Wind Farm” in Bulgaria, VCS Registry Project ID N° VCSR 1258, for the period 01/05/2016 to 30/11/2020, with regard to the relevant requirements for VCS activities (VCS Version 4) and for GHG program applied by the project activity. The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS requirements in order to be certified.

The project was validated by Carbon Check (Pty) Ltd. (Validation report N° CCL220/VAL/AESGE/CWPP/20130910, ver. 4, issued on 22/10/2014) who performed the validation and it was registered on 27/10/2014 under the VCS Registry Project ID N° VCSR 1258.

The GHG emission reductions were calculated based on the approved Methodology, documented in the registered PD, based on ACM 0002 Large Scale Consolidated Methodology “Grid connected electricity generation from renewable sources”, ver. 14.0 of 04/10/2013.

A Monitoring Plan ver. 1 of 06/11/2020 and amended version 2 of 03/12/2020 and ver. 3 of 15/06/2021 for the current verification period (01/05/2016 to 30/11/2020) was presented and assessed.

In conclusion, it is RINA’s opinion that the project activity “Saint Nikola Wind Farm” in Bulgaria, as described in the Monitoring Report version ver. 1 of 06/11/2020 and amended ver. 2 of 03/12/2020 and ver. 3 of 15/06/2021 /3/, meets all relevant requirements for VCS activities (Version 4) and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002 Large Scale Consolidated Methodology “Grid connected electricity generation from renewable sources”, ver. 14.0 of 04/10/2013 /06/. Hence RINA is able to certify that the emission reductions from the project during the monitoring period 01/05/2016 to 30/11/2020 amount to: **1,151,085 tCO₂e**.



CONTENTS

1	Introduction	6
1.1	Objective.....	6
1.2	Scope and Criteria	6
1.3	Level of Assurance.....	7
1.4	Summary Description of the Project	8
2	Verification Process.....	8
2.1	Method and Criteria.....	8
2.2	Document Review	9
2.3	Interviews.....	9
2.4	Site Inspections.....	10
2.5	Resolution of Findings	10
2.6	Eligibility for Validation Activities	11
3	Validation Findings.....	11
3.1	Participation under Other GHG Programs	11
3.2	Methodology Deviations.....	11
3.3	Project Description Deviations.....	11
3.4	Grouped Project.....	11
4	Verification Findings.....	12
4.1	Project Implementation Status	12
4.2	Safeguards	12
4.3	AFOLU-Specific Safeguards	13
4.4	Accuracy of GHG Emission Reduction and Removal Calculations	13
4.5	Quality of Evidence to Determine GHG Emission Reductions and Removals	16
4.6	Non-Permanence Risk Analysis.....	17
5	Verification conclusion	17
	APPENDIX 1: <Abbreviations>	19
	APPENDIX 2: <Competence of team members and technical reviewer>	19

APPENDIX 3: <Documents reviewed or referenced>.....20

**APPENDIX 4: <Clarification requests, Corrective Action Requests and Forward
Action Requests>.....22**

1 INTRODUCTION

1.1 Objective

AES Geo Energy OOD has commissioned RINA to carry out the verification of emission reductions reported for the registered “Saint Nikola Wind Farm” project in Bulgaria, VCS Registration Reference N° VCSR 1258, for the period 01/05/2016 to 30/11/2020. This report summarizes the findings of the verification of the project, performed based on VCS Version 4 criteria, GHG program applied, as well as criteria given to provide for consistent project operations, monitoring and reporting. The objective of the verification is to have an independent review ex post determination by a VVB of the monitored reductions in GHG emissions that have occurred as a result of the registered VCS project activity during a defined monitoring period. Certification is the written assurance by the VVB that, during a specific time period, the VCS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified.

1.2 Scope and Criteria

The verification scope is:

- to verify that actual monitoring systems and procedures are following the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS Standard Version 4 and all the GHG program requirements in order to be certified. Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

1.3 Level of Assurance

The verification audit of this project activity was conducted to a reasonable level of assurance because all the information, records and technical data is available during the verification process. All the monitoring data involved in the ER estimation is also available. The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme VCS VER validation and verification. The verification team and the technical reviewers consist of the following personnel

Verification team member:

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader, Verifier and Local expert	IR	RACHEV	KONSTANTIN	RINA BULGARIA	x	x	x	x

Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer and Technical expert	IR	Amalorpavanathan	Cyril Augustus A	RINA India
...	Approver				

1.4 Summary Description of the Project

The Saint Nikola Wind Farm project is a 156 MW, grid-connected, renewable energy wind farm in the Municipality of Kavarna, Bulgaria initiated and operated by "AES Geo Energy OOD /01-03/. The Project consists of a new electrical substation, 52 Vestas V90 – 3.0 MW wind turbine, each with a capacity of 3 MW and an upgrade of the local grid to allow the export of the full capacity. The Project import the generated electricity to the Energy System Operator – ECO network and sells electricity to third contracted parties for this monitoring period. The area of the project site is approximately 6,000 hectares (60 km²) and apart for a small area around the turbines base and some supporting infrastructure, most of the land is used for agriculture. The design life time of the turbines according to the DNV Type Certificate of the V90-3.0 MW turbine /15/ is 20 years and therefore they are expected to operate at least until 2030. The construction of the wind farm started in 2008 and the project was implemented in full according to the technical design without any deviations. The wind farm is expected to generate over 300,000 MWh/y depending on wind conditions and average wind turbines technical availability. The owner of the project AES Geo Energy OOD was granted a "Permit of Use" for the wind farm by the Ministry of Regional Development and Public Works - Directorate for National Construction Supervision in two stages /13, 14/. On December 22nd 2009, a Permit of Use was granted for Saint Nikola sub-site C, and on March 15th 2010 for Saint Nikola sub-site A & B. Together, sub-sites A, B, and C constitute the full operational wind farm and include the 52 wind turbines, the energy collection system, the substation, and the overhead line connecting the wind farm to the grid. Since March 15th 2010 the wind park is in continuous operation. The registration of the project under VCS took place on October 27th 2014 when the registration documents had been uploaded at VCS web-site.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification was conducted using RINA procedures in line with the requirements specified in in the VCS Standard (Version 4) and in the GHG program applied, the latest version of the VCS Program Guide, of the VCS Procedural Document and applying standard auditing techniques. The verification consisted of the following three phases:

- Desk review;
- On-site assessment:
- The resolution of outstanding issues and the issuance of the final verification report and certification.

2.2 Document Review

The Monitoring Report version 01 of 06/11/2020 and amended version 2 of 03/12/2020 /03/ and ver. 3 of 15/06/2021, the emission reduction calculations provided in the form of a spread sheet “AES_3rd_MR_Energy_generated”, version 01 of 06/11/2020 and amended version 2 of 03/12/2020 and ver. 3 of 15/06/2021 /07/ were assessed as part of the verification. In addition, the Project Design Document (VCS PD) /01/, the baseline estimations and the monitoring plan and the validation report /02/ for the project were also reviewed. Annex 3 lists the documentation that was reviewed during the verification process. The project complies with the latest applicable requirements for completing the Monitoring Reports. The detailed documents reviewed or referenced can be viewed in Appendix 3 of this Report.

2.3 Interviews

On 02/12/2020 the team has conducted a remote audit with the project participations and all staff involved in the project. The interview process was held with the WPP staff as per the following table. During the conversations with the responsible persons were checked the used monitoring equipment (electro meters owned by the Energy System Operator – ECO, roles and responsibilities of the staff as well as data collection and archiving. The whole technical process was also verified as well as the applicable legal requirements. All Protocols for the current verification period /12/, electricity meter calibration Protocols /08-09/, have been presented to the verification team and verified. There are no technical amendments in the WPP.

The key personnel interviewed, and the main topics of the interviews are summarized in the table below:

	Date	Name and Role	Organization	Topic
/a/	02/12/2020	Bisera Stoeva – commercial analyst Radomir Draganov – O&M Manager Petar Georgiev – Health and Safety Expert Rositsa Rikova – Administration Assistant Veselin Marinov – O&M Team Lead	AES Geo Energy	Monitoring equipment and measurement; Monitoring parameters; Calibration and maintenance of the used monitoring equipment; Roles, responsibilities, training and legal environmental and safety requirements; Organization scheme and responsibilities; Data collecting and archiving; Monitoring Workbook; Social and Environmental Responsibilities; Energy System Operator – ECO Protocol records

/b/	02/12/2020	Radostina Yanakieva – Environmental Manager	AES Energy Geo	Environmental performance and compliance
/c/	02/12/2020	Viktor Milkov – consultant	Greencarbon Bulgaria	MP records, ER estimations, baseline and monitoring estimations and data

2.4 Site Inspections

On 02/12/2020, RINA has conducted a remote audit with the staff of the Wind Power Plant, located near Kavarna, North West Bulgaria. During the documentation assessments and conducted conversations the verification team assessed the implementation and operation of the proposed project activity, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment including calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. Due to the reasonable level of assurance and COVID-19 situation in the host country, during this verification process no on-site inspection is been conducted.

2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;

A clarification request (CR) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during verification for actions if the monitoring and reporting.

Detailed information for the documented CARs and CRs clarifications can be seen in the Appendix 4 of this Report.

2.5.1 Forward Action Requests

During the previous verification process no FARs have been documented.

2.6 Eligibility for Validation Activities

N/A

3 VALIDATION FINDINGS

No deviation from the used Methodology /06/ as well from the VCS PD /01/ and validated Report /02/ for the estimation of the emission reduction have been applied during this monitoring period. No deviation from the project design /01, 02/ have been also applied.

3.1 Participation under Other GHG Programs

There are no other GHG emission reduction requirements in Bulgaria that the project is subject to and the project does not participate in any other emission trading program.

3.2 Methodology Deviations

No deviation from the used Methodology /06/ as well from the VCS PD /01/ and validated Report /02/ for the estimation of the emission reduction have been applied during this monitoring period. No deviation from the project design /01, 02/ have been also applied.

3.3 Project Description Deviations

No deviation from the used Methodology /06/ as well from the VCS PD /01/ and validated Report /02/ for the estimation of the emission reduction have been applied during this monitoring period. No deviation from the project design /01, 02/ have been also applied.

3.4 Grouped Project

N/A

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The Saint Nikola Wind Farm project is a 156 MW, grid-connected, renewable energy wind farm in the Municipality of Kavarna, Bulgaria initiated and operated by "AES Geo Energy /01-03/. The Project consists of a new electrical substation, 52 Vestas V90 wind turbine, each with a capacity of 3MW and an upgrade of the local grid to allow the export of the full capacity. The Project import the generated electricity to the Energy System Operator – ECO network and sells electricity to third contracted parties for this monitoring period. The construction of the wind farm started in 2008 and the project was implemented in full according to the technical design without any deviations. The owner of the project AES Geo Energy OOD was granted a "Permit of Use" for the wind farm by the Ministry of Regional Development and Public Works - Directorate for National Construction Supervision in two stages /13, 14/. On December 22nd 2009, a Permit of Use was granted for Saint Nikola sub-site C, and on March 15th 2010 for Saint Nikola sub-site A & B. Together, sub-sites A, B, and C constitute the full operational wind farm and include the 52 wind turbines, the energy collection system, the substation, and the overhead line connecting the wind farm to the grid. Since March 15th 2010 the wind park is in continuous operation. The registration of the project under VCS took place on October 27th 2014 when the registration documents had been uploaded at VCS web-site. The first verification phase conducted from RINA covered the period from 01/11/2012 to 31/12/2014 /19/ and the second verification period was also conducted from RINA covered the period 01/01/2015 to 30/04/2016.

During the current 3rd monitoring period (01/05/2016 to 30/11/2020) the project was found in normal operation and there were no events impacting the current generation of GHG emission reductions. The project has been implemented according the description and technical data presented in the PD /01/. There are no concerns related to conformity of the actual project activity and its operation with the project design document. All project technical data and parameters have been verified during the verification process /08, 09, 12, 15, 16, 17/. As per the applied CDM approved Methodology /06/ the only figures that are taken into consideration are the net generating energy /12/ and emission factor of the grid, which is publicly available /11/. The used electric meters are periodically calibrated /08,09/

4.2 Safeguards

4.2.1 No Net Harm

The environmental impact assessment (EIA) of the project activity has been carried out in 2006 (20). Based on the EIA report, recommendations were made. The actions as recommended in the EIA report has been acted and fulfilled. After the EIA process approval, the company follows the issued EIA Permissions during exploitation phase. Since 2009 the company has been certified against ISO 14001. Two company sites give actual information about Environmental situation and performance as well as continuous monitoring of Environmental aspects: <https://www.aesgeoenergy.com/> and <https://aes.bg/?lang=en> /22/.

The last periodically checks made by the competent Authority – RIOSV – Varna was on 13/09/2019, documented in Protocol 3584. No observations had documented /21/. No observations and comments have been also documented from local stakeholders.

During the years, company strictly follows the requirements lay down in the Environmental Monitoring Procedure (latest version of 03/05/2019) /23/. As per it the next periodical monitoring is conducted: Air Monitoring; Water and Soil Monitoring; Waste Monitoring; Chemical substances and mixture Monitoring; Noise Monitoring and Biodiversity Monitoring.

For the whole region there is available Integrated System for protection of Birds. Monitoring and reports can be seen on website: <https://kaliakrabirdmonitoring.eu/> /24/

4.2.2 Local Stakeholder Consultation

During the period 2003 – 2006 the necessary administrative and legal procedures about the territorial development have been started and carried out, as per the applicable legal requirements. During this period a public discussion was organized; the autumn and spring migration of the birds was also monitored. The project was coordinated with all interested / competent institutions. The project Saint Nikola wind farm has a continuous public disclosure and consultation plan. The comments and inputs are continuously invited through the above-mentioned websites, as the reports related to environment and social concerns are published on the websites /22,24/. The concerned reports related to EIA and the actions completed for the stakeholder consultation have also been provided on the website.

4.3 AFOLU-Specific Safeguards

N/A

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The PP applied approved CDM Methodology – ACM 0002 /06/. The main data for the calculation of emission reduction are quantity of net electricity generation (Protocols) /12/ and official Grid Emission Factor published by the Bulgarian Ministry of Environment and Water /11/. During the current verification all data has been available and cross-checked. All estimations and data documented in Excel sheet /07/ are correct and reliable and were cross-checked. The Baseline emission factors of Bulgarian Electricity and Heat Power System can be found on the web site /11/. The EF was estimated ex ante and it is fixed for the crediting period of the project activity (EF = 0.791 tCO₂e/MW h) /01, 02/. During this periodic verification no deviations with the MP described in PD is applied. The emission reduction estimations are

presented in the excel file /07/ and Monitoring Report /03/. The ER estimations are reliable and correct. The following parameters have been monitored in accordance with the monitoring plan in the monitoring report /02/:

Grid Emission Factor – $E_{grid,y}$.GEF as published by the Bulgarian Ministry of Environment and Water (tCO₂e/MWh) /11/. The accepted EF for the project in the PD is the same for the whole crediting period, validated during the validation process.

Net electricity delivered by the Project to the grid in a year – E_{gy} . The electricity output from Saint Nikola Wind Farm is measured by Energy System Operator – ECO using their own meters which are installed at the site. The electricity distributed is measured and monitored by two meters and the Grid takes a reading on a monthly basis. The monthly readings are confirmed with the project owner (AES Geo Energy). All protocols, that stated the net produced electricity for the current monitoring period have been checked /12/. The calibration status of the used meters was also checked /08/ and /09/. The meters are calibrated as per the host country requirements /18/. Two internal electricity meters used for crosschecking are also available and verified.

Data fixed ex-ante:

DATA/PARAMETER	Source of data	Reported value for the project period	Assessment/Observation
Grid Emission Factor – $EF_{grid,y}$	MOEW web site /11/: https://www.moew.government.bg/en/helpful-documents/	0.791 tCO ₂ e/MWh	The data is public available

Monitored data:

DATA/PARAMETER	Net electricity delivered by the Project to the grid (monthly and yearly) – E_{gy} .
Data Unit	MWh
Description	Net electricity delivered by the Project to the grid in a year
Source of data to be used	Measurement of electricity meters
Value data for the monitoring period	2016 – 195,969.2768 MWh 2017 – 351,849.0976 MWh 2018 – 316,780.4904 MWh 2019 – 290,089.7560 MWh 2020 – 300,542.877 MWh
Measuring and reporting frequency; recording procedure.	Continuously by the used electricity meters. Reporting data is performed on monthly and yearly basis through the AES excel sheet /07/.
Reporting frequency and recording procedure	Continuously by the used electricity meters. Reporting data is performed on monthly and yearly basis through the AES excel sheet /07/. The company also uses a SCADA program for monitoring of the required data.
Type of monitoring equipment and its accuracy.	All listed electric meters are property of Energy System Operator (ECO). Meter (serial number 07120785) – type: ELSTER AINRTAL-X, class 0.2 S, +/- 0.3%

	<p>Meter (serial number 50464143) – type: Landis + Gyr, class 0.2 S, +/- 0.3%</p> <p>Meter (serial number 51198158) – type: Landis + Gyr, class 0.2 S, +/- 0.3%</p> <p>Meter (serial number 50464143) – type: Landis + Gyr, class 0.2 S, +/- 0.3%</p> <p>Meter (serial number 51369628) – type: Landis + Gyr, class 0.2 S, +/- 0.3%</p> <p>Meter (serial number 07120786) – type: ELSTER AINRTAL-X, class 0.2 S, +/- 0.3%</p> <p>Meter (serial number 50464144) – type: Landis + Gyr, class 0.2 S, +/- 0.3%</p> <p>Meter (serial number 51198159) – type: Landis + Gyr, class 0.2 S, +/- 0.3%</p> <p>Meter (serial number 50464144) – type: Landis + Gyr, class 0.2 S, +/- 0.3%</p> <p>Meter (serial number 51369629) – type: Landis + Gyr, class 0.2 S, +/- 0.3%</p>
Calibration frequency/interval	<p>Period – Early /18/.</p> <p>Calibration Protocols /08-09/.</p> <p>The latest available meters are valid up to 07/2021. Through the current monitoring period the measuring equipment has been properly calibrated. The responsibility for the electricity meter calibration is the Grid.</p>
How were the values in the monitoring report verified and cross-checked?	All official Protocols for produced electricity have been physically available and cross – checked /12/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	Based on the monthly readings, Energy System Operator – ECO sends a protocol to the PP, which is countersigned by PP and returned to the Grid. The protocol contains the gross generation of the plant, the own consumption and the net generation. An internal procedure for that process is also available in the site (Instruction O-01.23). There are also two internal meters that are used for controlling of the used official electric meters. In case of difference above a 1% an investigation will be applying as per the documented Instruction O-01.23.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	All the data necessary for the ER calculation in the monitoring period were available.

The emission reduction calculations provided in the spreadsheet /07/ has been verified and found correct and in line with the registered VCS-PD /01/ and Monitoring Plan /03/.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The electricity output from St. Nikola Wind Power Farm is measured by Energy System Operator – ECO using their own meters which are installed at the site. Grid takes readings on a monthly basis at 12.00 a.m. on the last day of the month by distance reading. Based on the monthly readings /12/ Grid sends a protocol to AES Geo Energy. The protocol /12/ contains the gross generation of the plant, the own consumption and the net generation. The protocols /12/ are stored on site of the AES Geo Energy. The used monitoring workbook /07/ states monthly and yearly energy generation figures. Emission Factor is fixed for the crediting period in the PD /01/, as it was chosen as the most conservative value for the crediting period. Emission factor is publicly available in the website of the Bulgarian Ministry of Environment and Water /11/. The used EF for this monitoring period is 0.791 tCO_{2e}/MWh /01/.

According to the applied Large-Scale Consolidated Methodology ACM 0002 /06/, the emission reductions have been calculated based on the following formula:

The baseline emissions are to be calculated as follows:

$$Bey = E_{gy} * E_{fgrid}$$

Where:

Bey = Baseline emissions in year y (tCO₂/yr)

Egy = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh/yr)

Efgrid,y = Grid Emission Factor as published by the Bulgarian Ministry of Environment and Water (tCO₂/MWh).

Project and Leakage emissions are 0 for this project activity /01/ and /06/.

The emission reductions generated by the project are calculated as follows:

$$ER_y = (BE_y - PE_y - LE_y)$$

Where:

BE_y – Baseline emissions in year (tCO₂/y)

PE_y – Project emissions in year (tCO₂/y)

LE_y – Leakage emissions in year (tCO₂/y)

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk rating determined by the project proponent /01/.

5 VERIFICATION CONCLUSION

RINA Service SpA (RINA) has performed verification of the emission reductions reported for the project activity “Saint Nikola Wind Farm” in Bulgaria, VCS Registry Project ID N°VCSR 1258, for the period 01/05/2016 to 30/11/2020, regarding the relevant requirements for VCS activities. The project participants of the “Saint Nikola Wind Farm” project are responsible for:

- the preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered project design document version 05 of 18/10/2014
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

It is the responsibility of RINA to express an independent verification opinion about the project’s conformity with the requirements of VCS Standard version 4 and GHG program applied, on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- the project has been implemented and operated as per the registered VCS-PD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4 requirements;
- the monitoring is in place as per the applied baseline and monitoring methodology;
- the Monitoring plan in the registered VCS-PD is as per the applied baseline and monitoring methodology.

It is RINA’s opinion that the GHG emission reduction stated in the Monitoring Report, version 3 of 15/06/2021 /3/ for the “Saint Nikola Wind Farm” in Bulgaria for the period 01/05/2016 to 30/11/2020 are fairly stated. The GHG emission reductions were calculated correctly based on the Approved Monitoring Methodology CDM Executive Board: ACM 0002 Large Scale Consolidated Methodology “Grid connected electricity generation from renewable sources”, ver. 14.0 of 04/10/2013 and the monitoring plan contained in the registered PDD. Hence RINA is able to certify that the emission reduction from the project during the monitoring period 01/05/2016 to 30/11/2020 is amount to:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 2016	155,011	0	0	155,011
Year 2017	278,312	0	0	278,312
Year 2018	250,573	0	0	250,573
Year 2019	229,460	0	0	229,460
Year 2020	237,729	0	0	237,729
Total	1,151,085	0	0	1,151,085

APPENDIX 1: <ABBREVIATIONS>

Abbreviations	Full texts
VCS	Verified Carbon Standard
CDM	Clean Development Mechanism
CAR	Corrective Action Request
CR	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
VVB	Validation and Verification Body
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
PD	Project Design
PE	Project Emission
LE	Leakage Emission
BE	Baseline Emissions
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
UNFCCC	United Nations Framework Convention on Climate Change
VER	Voluntary Emission Reduction
MOEW	Ministry of Environment and Water
RIOSV	Regional Environmental and Water Expectorate

APPENDIX 2: <COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWER>

APPENDIX 3: <DOCUMENTS REVIEWED OR REFERENCED>

01	AES Geo Energy: VCS-PD for project activity “Saint Nikola Wind Farm” in Bulgaria, version 05 of 18/10/2014
02	Carbon Check (Pty) Ltd.: Validation Report N° CCL220/VAL/AESGE/CWPP/20130910, ver. 4, issued on 22/10/2014
03	AES Geo Energy: Monitoring Report for project activity “Saint Nikola Wind Farm” in Bulgaria, version 1 of 06/11/2020 and version 2 of 03/12/2020 and ver. 3 of 15/06/2021
04	Voluntary Carbon Standard: VCS Program Guide, ver. 4.0 of 19/09/2019; VSC Standard ver. 4.0 of 09/03/2020 and VCS Methodology Requirements, ver. 4.0 of 19/09/2019
05	Voluntary Carbon Standard: Validation and Verification Manual, ver. 3.2 of 19/10/2016
06	CDM Executive Board: ACM 0002 Large Scale Consolidated Methodology “Grid connected electricity generation from renewable sources”, ver. 14.0 of 04/10/2013
07	Excel File: AES_3 rd _MR_Energy_generated: version 1 of 06/11/2020 and version 2 of 03/12/2020 and ver. 3 of 15/06/2021
08	<p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 07120785) of 03/06/2015</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 07120785) of 05/2016 – seal N 0932</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 50464143) of 25/04/2017</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 51198158) of 12/11/2018</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 50464143) of 19/11/2019</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 51369628) of 21/07/2020</p>
09	<p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 07120786) 03/06/2015</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 07120786) of 05/2016 – seal N 0932</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 50464144) of 25/04/2017</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 51198159) of 12/11/2018</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 50464144) of 19/11/2019</p> <p>GRID: Energy System Operator – ECO Electricity meter calibration Protocols (serial number 51369629) of 21/07/2020</p>

10	Ministry of Environment and Water of Republic of Bulgaria: Letter of Approval N26-00-3500, dated on 13/12/2014 and Ministry of Environment and Water of Republic of Bulgaria Letter P-3163 of 29/12/2020
11	Ministry of Environment and Water website: Baseline Carbon Emission Factor of Bulgarian Electricity and Heat Power System https://www.moew.government.bg/en/helpful-documents/
12	AES Geo Energy and Energy System Operator – ECO: Protocols for produced electricity (energy generation) for the whole monitoring period (01/05/2016 to 30/11/2020)
13	Ministry of Regional Development and Public Works – Directorate for National Construction Supervision: “Permit of Use” for the wind farm 1630 of 22/12/2009
14	Ministry of Regional Development and Public Works – Directorate for National Construction Supervision: “Permit of Use” for the wind farm 294 of 15/03/2010
15	DNV: Type Certificate IEC TC-205703-5 V90-3.0 MW
16	Vestas: Declaration of Conformity for Wind power generator Vestas V90, 3 MW, tower height 105m, rotor diameter 90 m of 18/01/2010
17	AES Geo Energy: Actual Wind Turbine Farm Layout
18	State Agency for metrological and technical surveillance Orders: A-333 of 29/05/2014; 791 of 30/09/2015; A616 of 11/09/2018 for calibration frequency of used measuring equipment
19	RINA: Verification Report (second verification period) – ver. 3.0 of 04/11/2016 for the period 01/01/2015 to 30/04/2016
20	Environmental Impact Assessment 1. EIA report October – November 2006 2. Ministry of Environment and Waters EIA approval dated 20/03/2007 3. AES Geo Energy Supplementary Information Report June 2008 4. EIA Permission during exploitation
21	Regional Environmental and Water Expectorate – Varna Protocol 3584/13.09.2019 for periodical check
22	AES Geo Energy sites: https://www.aesgeoenergy.com/ and https://aes.bg/?lang=en
23	AES Environmental Monitoring Procedure of 03/05/2019
24	Integrated System for protection of Birds website: https://kaliakrabirdmonitoring.eu/

APPENDIX 4: <CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS>

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of FAR				
<i>None</i>				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
VVB assessment				Date: DD/MM/YYYY

Table 2. CR from this verification

CR ID	01	Section no.	4	Date: 02/12/2020
Description of CR				
Please specify the owner of the used internal control electrometers.				
Project participant response				Date: 03/12/2020
The internal control electrometers are property of AES. The Monitoring report (ver.02) is corrected correspondingly.				
Documentation provided by project participant				
AES WPP 3rd Monitoring report, ver.02 of 03/12/2020				
VVB assessment				Date: 03/12/2020
The information provided in Monitoring report, ver.02 of 03/12/2020 is correct.				

CR ID	02	Section no.	2	Date: 02/12/2020
Description of CR				
Please specify the date of issued Validation Report.				
Project participant response				Date: 03/12/2020
The correct date of the last Validation report is stated in ver.02 of the Monitoring report.				
Documentation provided by project participant				
AES WPP 3rd Monitoring report, ver.02/03/12/2020				
VVB assessment				Date: 03/12/20 20
The information provided in Monitoring report, ver.02 of 03/12/2020 is correct.				

CR ID	03	Section no.	4	Date: 02/12/2020
Description of CR				
Please specify the unit for the provided data in Section 4.2 of MR				
Project participant response				Date: 03/12/2020
The correct unit of the data, provided in Section 4.2 is stated in ver.02 of the MR.				
Documentation provided by project participant				
AES WPP 3rd Monitoring report, ver.02/03/12/2020				
VVB assessment				Date: 03/12/20 20
The information provided in Monitoring report, ver.02 of 03/12/2020 is correct.				

CR ID	04	Section no.	4	Date: 02/12/2020
Description of CR				
Please provide a link for access of EF data.				
Project participant response				Date: 03/12/2020
The relevant link is added to the Monitoring report ver.02.				
Documentation provided by project participant				
AES WPP 3rd Monitoring report, ver.02/03/12/2020				

VVB assessment	Date: 03/12/2020
The information provided in Monitoring report, ver.02 of 03/12/2020 is correct.	

Table 3. CAR from this verification

CAR ID	01	Section no.	4	Date: 02/12/2020
Description of CAR				
Generated electricity Protocol for November 2019 is not being provided.				
Project participant response				Date: 03/12/2020
The corresponding Protocol is presented to the VVB.				
Documentation provided by project participant				
AES WPP 3rd Monitoring report, ver.02/03/12/2020				
VVB assessment				Date: 03/12/2020
Generated electricity Protocol for November 2019 is being provided.				



CERTIFICATO DI QUALIFICA PER GLI SCHEMI VOLONTARI*
QUALIFICATION CERTIFICATE FOR VOLUNTARY SCHEMES*

Si attesta che il sig./sig.ra:
 We declare that Mr/Mrs/Ms:

Rachev Konstantin

è qualificato come:
 is qualified as:

TEC, VAL, VER, TL

per le seguenti aree tecniche:
 for the following technical areas:

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
5.1	Chemical industry	5
13.1	Solid waste and wastewater	13

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/07/2016	First issue with new template

Responsabile di schema
 Scheme Leader
 Rita Valoroso



*SCHEMI VOLONTARI/ VOLUNTARY SCHEMES: ACR American Carbon Registry, CCB The Climate, Community & Biodiversity Alliance, GS Gold Standard, JI Joint Implementation, SCS Social Carbon Standard, VCS Verified Carbon Standard.

TEC: Technical expert; VAL: Validator; VER: Verifier; TL: Team leader; FIN EXP: Financial Expert; ITRP: Independent technical reviewer

RINA Services S.p.A. è accreditato/ricosciuto da
 RINA Services S.p.A. is accredited/recognized by

UNFCCC	quali Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects
VCSA	per condurre la Validazione e la Verifica di Progetti VCS to carry out Validation and Verification of VCS Projects
GS Foundation	per condurre la Validazione e la Verifica di Progetti GS to carry out Validation and Verification of GS Projects
Ecologica Institute	per condurre la Validazione e la Verifica di rapporti SCS to carry out Validation and Verification of SCS Reports
American Carbon Registry ACR	per condurre la Validazione e la Verifica di Progetti ACR to carry out Validation and Verification of ACR projects
The Climate, Community & Biodiversity Alliance CCB	per condurre la Validazione e la Verifica di Progetti co-benefit CCB to carry out Validation and Verification of co-benefit CCB projects