



VERIFICATION REPORT

MANANTIALES BEHR WIND FARM



Document Prepared by AENOR INTERNACIONAL S.A.U

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Summary:

AENOR Internacional SAU, hereinafter AENOR, has made the verification for the monitoring period 01-08-2018 to 31-12-2020 of the “Manantiales Behr Wind Farm” project of YPF Energía Eléctrica S.A. located in the San Jorge Gulf, province of Chubut, approximately 40 km north-west from Comodoro Rivadavia city, Argentina.

It consists of 30 aero-generators Vestas, model V-112 3.3 MW IEC IB Class, of 3.3 MW each, totalizing 99 MW of installed capacity, with a hub height of 84 meters and a sweep area of 112 meters.

It was constructed in two phases of 49.5 MW each one. The construction started on 19/09/2016. The operation starting dates of the first and second phases were 01/08/2018 and 22/12/2018, respectively.

The net electricity generated by the Project during this first monitoring period, from the 1st of August 2018 until 31 of December 2020, was 1,182,118 MWh.

The project has been verified on the basis of UNFCCC criteria for the CDM methodology (ACM0002 version 19.0), Verified Carbon Standard (VCS) version 4.0, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria. The field visit did not take place, instead remote interviews with key stakeholders and staff were held on 3 February 2021. Besides the MR, registered PD and supporting documents were reviewed.

The purpose of the verification was to determine the conformance of the project with respect to the VCS Standard. The scope of the verification was to assess the conformance of validated project, once implemented, with the VCS requirements and requirements in the validated PD. The process was performed through a combination of desk review, interviews, and communications with relevant personnel.

This is the first verification event, corresponding to the monitoring period from 01 August 2018 to 31 December 2020.

During the verification, 3 CLs and 3 CARs were reported. All these issues raised during the verification process were appropriately closed by means of corrections, more clear explanations and other supported documents.

Once all issues detected were appropriately resolved, AENOR carried out this final verification report and deems with reasonable level of assurance that the project complies with all the verification criteria. The assessment team has no restrictions or uncertainties with respect to the compliance of the project with the verification criteria, hence, the audit team concludes that the cumulative net GHG emissions reductions or removals of 601,698 t CO₂e over the monitoring period has been quantified in accordance with VCS rules.

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1 INTRODUCTION

1.1 Objective

The objective of the verification audit was to conduct an independent third-party assessment of the project to determine:

- The extent to which methods and procedures, including monitoring procedures, have been implemented in accordance with the project description (PD), including the monitoring plan.
- The extent to which GHG emission reductions reported in the monitoring report are materially accurate.

1.2 Scope and Criteria

The scope of the verification audit is to verify the emissions reductions of the project, against the Verified Carbon Standard, the identified methodology and the validated PD throughout the monitoring period from 1 August 2018 – 31 December 2020.

The objectives of this audit included a verification of the Project's calculated reductions with the Verified Carbon Standard requirements and any additional requirements. In addition, the audit assessed the project with respect to the validated baseline scenarios presented in the PD.

In accordance with VCS Standard, the criterion for validation and verification was the VCS Version 4, including the following documents:

- VCS Program Guide v.4.0
- VCS Standard v.4.0

Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document.

1.3 Level of Assurance

The assessment was conducted to provide a reasonable level of assurance of conformance against the defined audit criteria and materiality thresholds within the audit scope. Based on the audit findings, a positive evaluation statement reasonably assures that the project GHG assertion is materially correct and is a fair representation of the GHG data and information.

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent AENOR instructions required. The technical review was performed by a technical reviewer qualified in accordance with AENOR's qualification scheme for VCS validation and verification.

1.4 Summary Description of the Project

Manantiales Behr wind farm project is a Greenfield wind power plant located in the department of Escalante, Province of Chubut, in the south of Argentina. Its total installed capacity is 99 MW and it is connected to the Argentine Interconnection System.

It consists of 30 aero-generators Vestas, model V-112 3.3 MW IEC IB Class, of 3.3 MW each, totalizing 99 MW of installed capacity, with a hub height of 84 meters and a sweep area of 112 meters.

It was constructed in two phases of 49.5 MW each one. The construction started on 19/09/2016. The operation starting dates of the first and second phases were 01/08/2018 and 22/12/2018, respectively.

The first crediting period will last for 10 years and it is planned to be renewed 2 times, adding up 30 years in total.

The emissions reduction for the current monitoring period is 601,698 tCO₂e.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification was performed through a combination of document review and interviews with relevant personnel, as discussed in Sections 2.2 through 2.4 of this report. At all times, the project was assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 2.5, findings were issued to ensure that the project was in full conformance to all requirements.

A project specific Verification Plan was developed to guide the verification auditing process to ensure efficiency and effectiveness. The purpose of the Verification Plan was to present a risk assessment for determining the nature and extent of verification procedures necessary to ensure the risk of auditing error was reduced to a reasonable level. The Verification Plan methodology was derived from all items in our verification process stated above. Any modifications applied to the Verification plan were made based upon the conditions observed for monitoring in order to detect the processes with highest risk of material discrepancy.

The verification activities in which risks were assessed were the evaluations of the monitoring system (data flow, data control procedures, etc.) but mainly the quality of raw data as well as sources and the spreadsheet calculations. AENOR reproduced and verified 100% of data in the “Manantials Behr Wind Farm_ER_calculator_v2” for the monitoring period. The project boundary and project area for the monitoring period were checked using the evidence provided by the PP and the interviews carried out with the plant staff who showed the main facilities of the project.

AENOR carried out a deep and meticulous review of the spreadsheet in order to verify the correct application of the methodology (formulae, equations.) and checked that data required calculating the GHG reductions were appropriately provided. Based on the assessment carried out, AENOR confirms with a reasonable level of assurance that the claimed emission reductions are free from material errors, omissions, or misstatements.

AENOR confirms that sufficient evidence was presented for the reported net anthropogenic GHG emission reductions and that there is a clear audit trail that contains the evidence and records that validate the stated figure in this verification report since:

- Sufficient evidence available: The project participant has provided the 100% of data used in the calculations to achieve the final amount of GHG emission reductions reported, or the source of data in case of default values, or conservative approaches in case of estimated values.

- Nature of evidence: The raw data were collected from reliable sources. They are detailed in the project documents and have been provided to the verification team and were checked during the interviews.
- Cross-checked evidence: AENOR cross-checked the collected information through interviews with stakeholders and reproducing calculations.

Hence, AENOR confirms that the stated figures in the monitoring report are correct and confirms that is able to certify net anthropogenic GHG reductions based on verifiable and reliable evidence

2.2 Document Review

A detailed review of all project documentation was conducted to ensure consistency with, and identify any deviation from, VCS program requirements, the methodology applied (ACM0002 version 19.0), and the validated PD. Initial review focused on the Monitoring Report (MR) and included an examination of the project details, implementation status, data and parameters, and quantification of GHG emission reductions. Documents reviewed included data from monitoring, calculation spread sheets, and responses to Corrective Action Requests (CARs) and Clarifications (CLs).

The verification included a review of the validated PD and MR, relative to the field conditions and interviews with project management staff and stakeholders.

For a listing of all documents received from the client for this verification, please see Appendix 1.

2.3 Interviews

Interviews were performed as part of the overall verification process which was additional to that provided in the project description, monitoring report and any supporting documents. The AENOR verification team met with individuals with various roles in the project. This included a series of interviews with in-country staff that support the mission of the project. In addition, interviews discussions were conducted with project members. The following table summarizes the interviews carried out during the process.

Name	Title/Organization/Community
Álvarez, Ezequiel	Commercial analyst
San sebastian, Rodrigo	Head cmass south environment and security south ypf base manantiales behr
Magariños, Maximiliano	Head of Term Market
Gonzalez, Jorge Federico	South operations manager
Surt, Javier Osvaldo	South operations manager - behr manantiales operation
Lopez Pintar, Marcelo	Head of energy movement energy movement central offices ypf ee
Aguirregabiria, Joaquin -	Analyst public affairs and servants' institutional relations
Torchelo, Adriana,	Consultant

Due to the COVID-19 pandemic situation, all interviews were carried out through videoconference or email, as explained in Section 2.4. The interviews were carried out on February 3rd, 2020.

2.4 Site Inspections

Due to the exceptional situation caused by the COVID-19 crisis and the travel restrictions established by governments for safety reasons, it was not possible to carry out a site visit as part of the verification process of the project.

In accordance with VERRA's COVID-19 Travel Guidance for Projects (dated 18 March 2020) and since that the VCS Programs does not explicitly mandate site visits, an exemption of the site was requested on the ground of the crisis situation and considering that a reasonable level of assurance was achievable by other means. AENOR as VVB proposed to carry out a remote verification audit that ensured the achievement of the assurance level required by VCS program.

The remote audit was based on the following auditing techniques:

- Document review and cross checks between the information provided in the MR, the PD and supporting information and evidence provided by the PP Emissions calculations and supporting information and evidence provided.
- Review, based on the selected methodology, tools and the other applied methodological regulatory documents, of the appropriateness of formulae and accuracy of calculations.

- Telephone, teleconference and/or e-mail interviews for the implementation of project activities and the elaboration of project's documents.
- Cross checks between information provided by interviewees to ensure that not relevant information has been omitted.

2.5 Resolution of Findings

All documentation provided by the PP was assessed against the applicable version of the relevant VCS guidance document. Several clarification requests (CL) and corrective action requests (CAR) were raised and submitted to the PP, which addressed them either by providing to the audit team the requested information or by making the appropriate corrections. Updated versions of the documentation were submitted by the PP and the audit team reassessed them against the guidance documentation. This process was repeated iteratively until all CL and CAR were fully closed. Specifically, 3 CL and 3 CARs were raised.

All findings issued by the AENOR audit team during the verification process have been closed. In accordance with Section 4.1.14 of the VCS Standard, all findings issued during the verification process, and the inputs for their closure, are described in Appendix 2 of this report.

2.5.1. Forward Action Requests

No FARs were raised to the PP during the verification process.

2.6 Eligibility for Validation Activities

AENOR holds accreditation for validation for the relevant sectorial scope under which this project activity is classified.

3. VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The verification team is not aware of project involvement in other forms of environmental credits from its activities. The project has not been registered, and is not seeking registration, under any other GHG programs.

3.2 Methodology Deviations

No methodology deviation has been applied to the project.

3.3. Project Description Deviations

There have not been any project description deviations during the present monitoring period.

3.4 Grouped Project

N/A. The project is not a grouped project.

4. VERIFICATION FINDINGS

4.1 Project Implementation Status

The MR provides in its Section 3.1 a detailed description of the activities implemented by the project since its start. During this verification process, AENOR has not detected project changes in regards of the project title, its purposes and objectives. As such, the project activity accurately reflects the proposed project which reduces the GHG emissions specifically by avoiding the emissions of CO₂ produced by the combustion of fossil fuels, delivering clean energy to the grid that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources. Additionally, renewable energy is produced to be fed in the power grid.

During the verification process, the audit team checked the actual implementation of project activities through the analysis of evidences provided by the PP and through interviews to project staff. No discrepancies have been found between the gathered evidence and the implemented activities reported in the MR, as well between the MR and the planned activities in the PD.

After the review of the MR, spreadsheet calculation and the other document to support calculations, AENOR deems that project status is in compliance with applicable methodology and implementation is in support of the VCS principles of Conservativeness and Accuracy.

Related to the compliance with the Monitoring Plan, section 4.3 of the MR provides information about the monitoring plan and actions carried out for the current monitoring period. AENOR reviewed the procedures put in place to perform the different parameters and data monitored and deems that they are in accordance with the procedures

described in the validated monitoring plan and no different were found. AENOR checked the monitoring plan contained in the validated PD and compared it with the MR.

On the other hand, the net GHG emission reductions of Manantiales Behr (MB) project activity in the present monitoring period have been 5.7% higher than the estimated GHG emission reductions of MB registered PD (569,497 tCO₂). The reason is that, during the present monitoring period the actual net electricity generated by the wind farm has been 1,182,118 MWh, which is 5.7% higher than the projected net electricity generation for the period. The period covered by the present monitoring report from 01/08/2018 until 31/12/2020 has been an exceptional period of wind resource in the region where MB is located which is a privileged Patagonian location for the development of wind power projects. Also, the higher net electricity generation and emission reductions compared to the ex-ante estimations in the PD are mostly explained by the lower unavailability losses during the present monitoring period than the estimated ex ante by the study conducted by a third-party specialized company EAPCSUR Wind Energy.

AENOR has confirmed that no discrepancy between the actual monitoring system and the monitoring plan set out in the project description and the applied methodology has been described and not impact to the applicability of the methodology and the conservativeness of the quantification of GHG emission reductions have occurred.

Regarding the sustainable contribution of the project, the project proponent has a 2019 Sustainability Report, where it is stated that the company is committed to contribute to the achievement of the SDGs and is focused on those ones that relate to reduction of carbon emissions and sustainable production, in addition to supporting education.

AENOR could check this against the 2019 Sustainable Report.

Besides, the host country of the project, Argentina, has prioritized its targets based on the SDG 1 and is among the 150 countries that adopted the 2030 Agenda for Sustainable Development, including the Sustainable Development Goals (SDGs) at the United Nations Sustainable Development Summit on 25 September 2015.

Also, the project proponent effectively monitors the required parameters to determine the project's emissions by sources as required by the monitoring plan and the applicable methodology.

The parameters reported, including source, frequency and review criteria as indicated in the monitoring plan were verified to be correct and in line with the monitoring plan of the validated PD. Necessary management system procedures including responsibility and authority of monitoring activities have been verified to be consistent with the PD. Knowledge of personnel associated with the project activity was also found to be satisfactory.

Regarding leakage emission, they account 0. In this regard, AENOR has checked evidence provided which confirms the information included in the MR.

There is no evidence of double counting or that the project has participated nor been rejected under any other GHG programs. GHG emission reductions generated by the project are not included in an emission trading program or any other mechanism that includes GHG allowance trading. The project has not received or sought any other form of environmental credit. After a complete review of the different documents provided and the information gathered through the remote audit process, AENOR is able to confirm that the project implementation is in accordance with the validated PD.

4.2 Safeguards

4.2.1. No Net Harm

The Manantiales Behr wind farm project potential environmental and socio-economic impacts and the steps to mitigate them have been identified in the EIA approved by the Ministry of Environment and Sustainable Development Control of Chubut on 22/07/2016 (Disposición N°137/16-SGAyDS).

The conclusion of the EIA is that the project activity does not generate significant negative impacts. There are low negative impacts (40%), moderate negative impacts (23%) and positive impacts (37%).

Regarding the wind farm operational stage, the only negative aspects are the impacts on birds' life, the generation of noise and visual impact, although the latter are low impacts given that the project is in an area of hydrocarbon exploitation, not an urban settlement.

To prevent, mitigate and or revert the project negative impacts, an Environmental Management Plan has been designed as part of the EIA and has been implemented.

Furthermore, the wind farm has in place a Biodiversity Management Plan that defines methodology for revegetation of affected areas, describes the risk management measures for birds and bats during the different phases of the project and establishes methods to reduce wildlife mortality events.

AENOR has checked that the Environmental Management Plan and the Biodiversity Management Plan have been applied to mitigate the negative impacts of the wind farm and considers it correct.

4.2.2. Local Stakeholder Consultation

The Project proponent has a 2019 Sustainability Report of the company and the PP is committed to encouraging the growth of the country and to create value for shareholders, clients, and the communities where it operates.

During the present monitoring period the project proponent has conducted several activities with local stakeholders to provide information and engage the community as stated in section 2.2. of the MR.

AENOR has checked against the handling system records that during this monitoring period, none of the 119 questions and grievances received by YPF Luz in 2019 were regarding Manantiales Behr wind farm project. AENOR deems that according to the records provided, none of the comments received to the company were related with Manantiales Behr wind farm project.

AENOR has checked this issue against the 2019 Sustainability report, although the PP has a website, YPF Luz website (<http://www.ypluz.com>), in order to communicate with the community.

Since the project operation start date on 1st August 2018 until the end of the present monitoring period, the wind farm has not received comments and/or questions from local stakeholders.

4.3 AFOLU-Specific Safeguards

Not applicable since the project is not an AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

According to the methodology applied by the project, the project emissions are zero and the leakage emissions are not considered. Therefore, the emission reductions are coincident with the baseline emissions which are calculated as follows:

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

Where:

BE_y = Baseline emissions in year y (t CO₂)

$EG_{PJ,y}$ = 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)

$EF_{grid,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y

The combined margin CO₂ emission factor of 0.509 tCO₂/MWh was calculated ex-ante for the duration of the first crediting period as per “Tool to calculate the emission factor for an electricity system” (Version 07.0) and fixed in the registered PD.

The energy generation of 1,182,118 MWh in the whole monitoring period was measured through the monitoring period in accordance with the methodology ACM0002 “Grid-connected electricity generation from renewable sources” (Version 19.0). Sectoral Scope 01 and the emission factor calculation is detailed in the Project Description document and meters data is compiled in the attached spreadsheet “Manantials Behr Wind Farm_ER_calculator_v2”.

The verification activities in which risks were assessed were the evaluations of the monitoring system (data flow, data control procedures, etc.) but mainly the quality of raw data as well as sources and the spreadsheet calculation. AENOR reproduced and verified 100% of data in the “Manantials Behr Wind Farm_ER_calculator_v2” for the monitoring period.

AENOR carried out a deep and meticulous review of the spreadsheet in order to verify the correct application of the methodology (formulae, equations.) and checked that data required calculating the GHG reductions were appropriately provided. Based on the assessment carried out, AENOR confirms with a reasonable level of assurance:

- The accuracy of GHG emission reductions, including accuracy of spreadsheet formulae, conversions and aggregations, and consistent use of the data and parameters.
- The methods and formulae set out in the project description for calculating baseline emissions, project emissions and leakage have been followed.
- The appropriateness of any default values used in the monitoring report.
- The claimed emission reductions are free from material errors, omissions, or misstatements.

Hence, AENOR confirms that GHG emission reductions have been quantified correctly in accordance with the project description and applied methodology and the stated figures in the monitoring report are correct.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

AENOR confirms that sufficient evidence was presented for the reported net anthropogenic GHG emission reductions and that there is a clear audit trail that contains the evidence and records that validate the stated figure in this verification report since:

- Sufficient evidence available: The project participant has provided the 100% of data used in the calculations to achieve the final amount of GHG emission reductions reported, or the source of data in case of default values, or conservative approaches in case of estimated values.
- Nature of evidence: The raw data were collected from reliable sources. They are detailed in the project documents and have been provided to the verification team and were checked during the interviews.
- Cross-checked evidence: AENOR cross-checked the collected information through interviews with stakeholders and reproducing calculations.

All documents received from the client for this verification have been listed in the Appendix 1.

Hence, AENOR confirms that is able to certify net anthropogenic GHG reductions based on verifiable and reliable evidence.

4.6 Non-Permanence Risk Analysis

Since this project activity is not an AFOLU project and its emission reductions do not have risk of reversibility, it is not necessary to perform a non-permanence risk analysis.

5. VERIFICATION CONCLUSION

AENOR has verified that the “Manantiales Behr Wind Farm” is in compliance with the VCS Standard v4.0 and has been implemented in accordance with the validated PD.

As this verification has been the first one of the project, the verification assessment covers the monitoring period from the start of the crediting period on 01/08/2018 to 31/12/2020, and verifies that calculated emission reductions were achieved during the monitoring period with a reasonable level of assurance and confirms that the project has reduced and not emitted GHG emissions for the period between 01/08/2018 and 31/12/2020. Therefore, AENOR is able to issue a positive verification opinion for the 601,698 tCO₂e, as reported in the Monitoring Report version 2.1 dated on 3 May 2021, for the current monitoring period (01/08/2018 - 31/12/2020) corresponds to the emission reductions achieved during the monitoring period, as the following table:

Verification period: From 01-08-2018 to 31-12-2020.

Verified GHG emission reductions and removals in the above verification period:

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 2018 (from 01/08/2018)	71,676	0	0	71,676
Year 2019	268,062	0	0	268,062
Year 2020 (up to 31/12/2020)	261,960	0	0	261,960
Total	601,698	0	0	601,698

AENOR is able to confirm that this verification event complies with all validation criteria for projects set out in VCS Version 4.0 without any qualifications or limitations.

Date: 04 May 2021



Lead Auditor
Elena Llorente Pérez

APPENDIX 1: LIST OF EVIDENCES PROVIDED

General documents

Monitoring report:

- VCS-Monitoring-Report-Manantiales Behr_v2.1
- VCS-Monitoring-Report-Manantiales Behr_v2
- VCS Monitoring Report v1 dated on 06/01/2021

Previous monitoring report:

- NA

Previous verification report:

- NA

Project description:

- PD v3 on 28/01/2019

Validation report:

- Validation Report v01 dated on 01/02/2019

Carbon Accounting

Spreadsheets:

- Manantiales Behr Wind Farm_ER_calculator_v2
- Manantiales Behr Wind Farm_ER_calculator_v1

Supporting documents

- CAMMESA monthly Economic Transactions Documents (DTE)
 - Environmental Audit Report (end of construction); CONSULPLAN – Gestión Ambiental; April 2019.
 - Certificate of the resource and annual energy production (PAE) – Wind Power Project Manantiales Behr; EAPCSUR Wind Energy.
 - CAMMESA's Technical Procedure 14 (SMEC External Audits).
 - CAMMESA's letter from 21/12/2018, regarding the commercial authorization of the total installed capacity of the MB also states that it is 99 MW.
 - *EAPCSUR Wind Energy*
- Real net generation vs P50 net yield and adjusted net yield calculator, which contains the calculations and comparisons of the real net electricity generation, net yield, and adjusted net yield in the present monitoring period, according to MB ex post data.
- EIA approved by the Ministry of Environment and Sustainable Development Control of Chubut on 22/07/2016 (Disposición N°137/16-SGAyDS).
 - Biodiversity Management Plan

- 2019 Sustainability Report of the company

Remote Audit Evidences (Appendix S)

Video testimonies:

- Remote interview recording with project staff.
- Remote interview recording with stakeholder.

Pictures of the main equipment of the project, such as wind mills, electrical meters, substation etc.

APPENDIX 2: CLARIFICATIONS AND CORRECTIVE ACTIONS REQUESTED

NC ID:	01	Date: 04/02/2021
Description of NC		
The table of the cover page shall be completed in accordance with the VCS MR template.		
Project participant response		Date: 11/02/2021
The table of the cover page has been updated according to the VCS MR template.		
Documentation provided by the project participant		
VCS-Monitoring-Report-Manantiales Behr		
VVB Assessment		Date: 19/02/2021
The correct information has been established in the MR, NC 1 is closed.		

NC ID:	02	Date: 04/02/2021
Description of NC		
In the excel spreadsheet, sheet EGy, the entire month of November it is not included in the calculation. This issue shall be corrected.		
Project participant response		Date: 11/02/2021
The Excel spreadsheet “Manantiales Behr Wind Farm_ER_calculator” has been updated the correct the above mentioned value. Additionally, by the beginning of February 2021 the “Monthly Report of the Wholesale Electricity Market (MEM)” from December 2020 was already publicly available (https://cammesaweb.cammesa.com/2021/01/18/sintesis-mensual/?wpdmc=sintesis-mensual), as well as CAMMESA monthly Economic Transactions Documents (DTE), utilized to cross-check the project monthly EG published in CAMMESA monthly report, as stated in the MR section 4.2. Thus, the calculator and the MR have been updated to include EG from December 2020 and consequently, the project emissions reductions from this month.		
Documentation provided by the project participant		
Manantiales Behr Wind Farm_ER_calculator_v2 VCS-Monitoring-Report-Manantiales Behr		
VVB Assessment		Date: 19/02/2021
The spreadsheet from Manantiales project has been corrected and the generation data are considered correct, therefore NC 2 is closed.		

NC ID:	03	Date: 04/02/2021
Description of NC		
Some errors have been detected in the MR, for instance section 5.1 and section 5.4. These issues shall be corrected.		
Project participant response		Date: 11/02/2021
The errors in sections 5.1 and 5.4 of the MR have been corrected.		
Documentation provided by the project participant		
VCS-Monitoring-Report-Manantiales Behr		
VVB Assessment		Date: 19/02/2021
The correct MR has been provided and it is considered in accordance with the MR template, therefore NC 3 is closed.		

CL ID	01	Date: 04/02/2021
Description of CL		
Documented evidence of the current status of the project shall be provided, for instance, permit or generation license. Evidence of the total installed capacity of the wind farm, 99 MW, and the two phases.		
Project participant response		Date: 11/02/2021
Regarding the current status of the project, the following documents are provided: Videos of MB wind farm recorded by the operational staff on 02/02/2021 are provided. The videos illustrate the wind farm, the control room, MB substation, and the SMEC electricity meters located at Escalante substation. Environmental Audit Report (end of construction); CONSULPLAN – Gestión Ambiental; April 2019. The report describes and illustrates with pictures the entire wind farm. Particularly, pages 22 to 87 states the total installed capacity of the wind farm, the capacity of each turbine, the description of each phase, the identification and location of each turbine and photographs of each of them. CAMMESA “Monthly Report of the Wholesale Electricity Market (MEM)” from December 2020 (https://cammesaweb.cammesa.com/2021/01/18/sintesis-mensual/?wpdmc=sintesis-mensual) that demonstrate that the project has been operational since its COD in 2018. Regarding MB total installed capacity of 99 MW and its licences, the following documents are provided as evidence: Resolution E 468/2016 from the Argentinean Secretariat of Electric Energy that authorized "YPF ENERGIA ELECTRICA S.A." to become a generation agent of the MEM for Manantiales Behr wind farm with a nominal installed capacity of 99 MW. Available at: http://servicios.infoleg.gob.ar/infolegInternet/verNorma.do?id=269266 As stated in section 1.11 of the registered PD: “Additionally, in the context of the Argentinean electricity market, all new agents (generators, self-generators, cogenerators or transmission agent) that aim to participate in the Wholesale Electricity Market (MEM, due to its name in Spanish) have to present the request to be a MEM agent in conjunction with the Environmental Impact Assessment to the Argentinean Ministry of Energy.		

The Project is in compliance with this requirement given that it obtained the authorization to be a MEM agent by Resolution E 468/2016 of the Secretariat of Electric Energy of the Argentinean Government.“

CAMMESA’s letter from 21/12/2018, regarding the commercial authorization of the total installed capacity of the MB also states that it is 99 MW.

CAMMESA “Monthly Report of the Wholesale Electricity Market (MEM)” from December 2020 (<https://cammesaweb.cammesa.com/2021/01/18/sintesis-mensual/?wpdmc=sintesis-mensual>). Raw 247 of the spreadsheet “Installed capacity” illustrates that the total installed capacity of MB is 99 MW.

Regarding evidence of the project two phases, the following documents are provided:

Environmental Audit Report (end of construction); CONSULPLAN – Gestión Ambiental; April 2019.

“Certificate of the resource and annual energy production (PAE) – Wind Power Project Manantiales Behr; EAPCSUR Wind Energy” also states that the project consists of two phases of 49.5 MW each one.

News “YPF advances in the construction of its wind farm in Manantiales Behr”; Electric Market (“Mercado Eléctrico” in Spanish); http://www.mercadoelectriconet.com.ar/web/index.php?option=com_content&view=article&id=1742%3Aypf-avanza-en-la-construccion-de-su-parque-eolico-en-manantiales-behr&catid=1%3Alatest-news&Itemid=1 The news indicated the wind farm would be constructed in two phases.

News “YPF Energía Eléctrica begins the second stage of construction of the Manantiales Behr Wind Farm!; Argentinean Association of Wind Energy (AAEE, due to its name in Spanish); 09/05/2018, (<https://argentinaeolica.org.ar/novedades/ypf-energia-electrica-inicia-la-segunda-etapa-de-construccion-del-parque-eolico-manantiales-behr-1>) states that the second phase of the construction of MB wind farm, consisting of 15 wind turbines, have started.

Publication of MB project to the community in YPF EE web site (<https://www.ypfluz.com/Activo/ManantialesBehr>) which also mentions that the project was constructed in two phases of approximately 50 MW each one. The report to the community can be downloaded from the link, which also states the wind farm was constructed in two phases.

Documentation provided by the project participant

The documentation provided to the VVB has been described above.

VVB assessment	Date: 19/02/2021
Documentation regarding the installed capacity of the wind farm has been provided, therefore CL 1 is closed.	

CL ID	02	Date: 04/02/2021
Description of CL		
In accordance with the registered PD, the estimated annual emission reductions are lower than the ones generated during this MR. This issue should be clarified.		
Project participant response		Date: 11/02/2021
MR section 5.4 has been updated to justify why the actual emission reductions during the present monitoring period (01/08/2018 – 31/12/2018) exceeded the estimated GHG emission reductions of the registered PD in 5.7% (601, 698 instead of 569,497 tCO₂). The reason is that the actual net electricity generation of MB during this period (1,182,118 MWh) was 5.7% higher than the projected net electricity generation for the period (1,118,855 MWh) based on a P50 basis, according to the study conducted by a third party specialized company (EAPCSUR Wind Energy) based on 3 years historical data. The period covered by the present monitoring report from 01/08/2018 until 31/12/2020 has been an exceptional period of wind resource in the region where MB is located (province of Chubut, approximately 40 km north-west from Comodoro Rivadavia city) which is a privileged Patagonian location for the development of wind power projects. Consequently, MB net electricity generation and GHG emission reductions exceeded the average annual projections. Several news confirm the above mentioned.		
Documentation provided by the project participant		
VCS-Monitoring-Report-Manantiales Behr_v2 Certificate of the resource and annual energy production (PAE) – Wind Power Project Manantiales Behr; EAPCSUR Wind Energy With nine months of operation, the Manantiales Behr wind farm breaks records; https://www.tresmandamientos.com.ar/2019/06/11/con-nueve-meses-de-operacion-el-parque-eolico-manantiales-behr-rompe-records/. Available at: 11/02/2021. YPF Luz obtains high wind performance at Manantiales Behr; Energy & Business; https://www.energiaynegocios.com.ar/2019/06/ypf-luz-obtiene-alto-rendimiento-eolico-en-manantiales-behr/. Accessed on: 11/02/2021. Manantiales Behr was the wind farm that generated the most renewable energy in 2019; YPF Luz; https://www.ypfluz.com/Noticias/NoticiaCompleta/59. Accessed on: 11/02/2021.		

VVB assessment	Date: 19/02/2021
Documentation regarding the electricity generated during this monitoring period has been provided, therefore CL 2 is closed.	

CL ID	03	Date: 04/02/2021
Description of CL		
In accordance with the registered PD, the meters will be calibrated according to CAMMESA procedures, since during this monitoring period the electricity meters were calibrated once, this issue shall be clarified.		
Project participant response		Date: 11/02/2021
As stated in the MR, in the Argentinean Wholesale Electricity Market (MEM), the Electric-Commercial Metering System (Sistema de Medición Eléctrico Comercial – SMEC) is under the total control of the Wholesale Electricity Market Company (CAMMESA due to its name in Spanish). As stated in CAMMESA’s SMEC webpage (https://cammesaweb.cammesa.com/inicio-smec/) the Commercial Measurement System (SMEC) of CAMMESA is responsible for measuring the electrical energy exchanges between the different MEM Agents. There is a specific area within CAMMESA assigned to the administration and comprehensive management of the SMEC. They are responsible for the supervision of the compliance with the established quality standards and they apply the system regulations and control the compliance with them. They receive and process all the measurements recorded by the different MEM meters and control the quality of the data and their availability. As also stated in the SMEC website, the management of the SMEC is completed by a team of external auditors who control and verify the measurement points by conducting field tests. Additionally, as stated in the MR all commercial transactions in the MEM require measurement of active energy at MEM nodes, where generators are connected to the grid (delivery point). CAMMESA’s Electric-Commercial Metering System (Sistema de Medición Eléctrico Comercial – SMEC) includes all the equipment required for the measurement and recording of energy dispatched at each node. In line with these requirements, MB SMEC comprise a main meter (the billing) meter) and a “control” (back-up) meter located at Escalante Substation. They are sealed and controlled by CAMMESA. YPF EE, as well as any other MEM Agent, are prohibited from unsealing the SMEC meters. Particularly regarding calibration, as also stated in the MR, according to CAMMESA’s Technical Procedure 14 (SMEC External Audits), CAMMESA, as responsible for the certainty of the data used in transactions between MEM Agents and to supervise the accuracy of the data generated		

in the SMEC, must carry out the tests and verifications of equipment and facilities affected to it, by itself or through the total or partial contracting of the service to third parties. Annually, verifications are conducted on a sample of SMECs of the MEM determined by CAMMESA. As a result, MB SMEC (main and back-up meters) are verified (calibrated) according to CAMMESA scheduling and as per its procedures. The MB SMEC is out of the control of the project participant.

Regarding CAMMESA quality measurement audits (verifications or calibrations) and how CAMMESA determines the sample of SMECs to be audited in a given year, further information is provided in CAMMESA webpage <https://cammesaweb.cammesa.com/auditoria/#acalidad>, which content is below transcribed: "The Measurement Quality Audits are intended to verify that the SMEC nodes that are already commercially enabled continue to meet the quality standards with which they were originally audited and are in line with current regulatory requirements. Within this framework, 240 measurement points are audited per year, divided equally between the North and South zones. The selection of the nodes to be audited is random, following a sampling grid that allows a global panorama of the entire SMEC node park. In this way, the audits to be carried out are proportionally distributed among the different types of MEM Agents in order to obtain a balanced sample. In addition to the annual audit plan, the regulations provide that CAMMESA may require a specific audit to be carried out on a SMEC node in the event of alleged deviations in its quality."

Based on the above, it is reinforced that the calibration of MB SMEC meters is out of the control of the project participant and that CAMMESA randomly determines the SMEC meters to be audited each year. Based on the above, MB SMEC meters were audited by CAMMESA on 13/08/2018 according to the documentation already provided to the VVB and up to the end of the monitoring period covered by the MR, there has not been another CAMMESA audit.

Consequently, given that the calibration of MB SMEC meters, including the frequency of calibration, is conducted in accordance with national standards or requirements set by the meter supplier or requirements set by the grid operators (CAMMESA's Technical Procedure 14 (SMEC External Audits), the calibration (including its frequency) of MB SMEC meters during the monitored period covered by the present MR is in compliance with the requirements established by ACM0002 Version 19.0.

Documentation provided by the project participant

CAMMESA's SMEC webpage: <https://cammesaweb.cammesa.com/inicio-smec/>

CAMMESA quality measurement audits: <https://cammesaweb.cammesa.com/auditoria/#acalidad>

CAMMESA's Technical Procedure 14 (SMEC External Audits): <https://cammesaweb.cammesa.com/normativa/>

VVB assessment

Date: 19/02/2021

The correct explanation about the calibration has been provided and this CL 3 is considered closed.