

VALIDATION OPINION OF POST REGISTRATION CHANGES

VENTIKA WIND FARM

UNFCCC Reference Number: 9341

Project No.: CV-13309-13

Client: Carbon Solutions de Mexico, S.A. de C.V.

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9341	03/12/2014	2	15/01/2015
Subject	Validation Opinion of Post Registration Change		
Client	Carbon Solutions de Mexico, S.A. de C.V.		
Project Title	Ventika Wind Farm		
Registered PDD:	Version 4 dated on 30/11/2012		
Revised PDD	Version 5 dated on 01/09/2014		
Applied Methodology	ACM0002 Version 12.3.0, Consolidated baseline methodology for grid-connected electricity generation from renewable sources.		
Requested by	<input checked="" type="checkbox"/> PP/DOE <input type="checkbox"/> CDM EB <input type="checkbox"/> PP/DOE and CDM EB		
The DOE conducted validation of the changes:	<input checked="" type="checkbox"/> Prior to commencement of a verification for the project activity or PoA stated above. <input type="checkbox"/> When performing a verification for the project activity or PoA stated above.		
Type of proposed or actual changes	<input checked="" type="checkbox"/> Change to the start date of the crediting period <input checked="" type="checkbox"/> Other changes: Technology change in turbines and changes that occur as a consequence of these changes.		
Is prior approval by CDM EB required?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
<p>Summary:</p> <p>LGAI Technological Center, S.A. (hereafter referred to as "Applus+ LGAI") was contracted by Carbon Solutions de Mexico, S.A. de C.V. to perform a validation of the post registration change to the registered PDD of Ventika Wind Farm Project (UNFCCC Reference No. 9341) according to the Clean Development Mechanism validation and verification standard version 07.0. The validation of the proposed post registration change was conducted prior to commencement of the verification for the project activity.</p> <p>Applus+ LGAI confirms that the proposed changes to the project activity comply with the requirements established in the Project Standard.</p>			
Validation Team	Role	Organization	
Miquel Picas Martínez	Lead Auditor / Team Leader	Applus+ LGAI	

TABLE OF CONTENTS

1	INTRODUCTION	4
1.1	Objective	4
1.2	Scope	4
1.3	Description of the Project Activity	4
2	METHODOLOGY	5
2.1	Validation Team	5
2.2	Technical Reviewer	5
2.3	Validation Approach	5
2.4	Document Review	5
2.5	Follow-Up Interviews	6
2.6	Internal Quality Control	6
3	VALIDATION FINDINGS	6
3.1	Overview	6
3.2	Description of the proposed or actual changes	7
3.3	Assessment of the proposed or actual changes	7
4	VALIDATION OPINION.....	14
5	REFERENCES	16

1 INTRODUCTION

1.1 Objective

Applus⁺ LGAI was contracted by **Carbon Solutions de Mexico, S.A. de C.V.** to perform a validation of the post registration change to the registered PDD of Ventika Wind Farm (UNFCCC Reference No. 9341) according to the Clean Development Mechanism validation and verification standard version 07.0. The purpose of the validation is to make an independent third party assessment of the proposed or actual changes to the registered PDD, in particular, the technology change in the turbines and changes that occur as a consequence of this technology change, such as the financial analysis and the emission reductions update, also the starting date of the crediting period has been changed, using objective evidences.

The validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM) and the host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

Applus⁺ LGAI assessed the post-registration changes to the registered PDD using a risk based approach and conducted follow-up interviews

1.2 Scope

The scope of the validation is defined as an independent and objective review of the post-registration changes to the registered PDD. The information in the documents is reviewed against the Kyoto Protocol requirements, the UNFCCC rules and associated interpretations.

The validation is not meant to provide any consulting towards the Client/the project. However, Applus⁺ LGAI may issue requests for clarifications and/or corrective actions which may provide input for improvement of the project design.

1.3 Description of the Project Activity

The basic information of the project activity is available at UNFCCC website:

<https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356678953.67/view>

The project was registered on 28-Dec-2012 with UNFCCC reference number 9341.

2 **METHODOLOGY**

2.1 **Validation Team**

Name	Qualification	Coverage of Scope	Coverage of Technical Area	Host Country Experience
Miquel Picas M.	Lead Auditor	Yes (1)	Yes (1.2)	Yes

Miquel Picas Martinez (B. Sc. Degree in Environmental Science, Farleigh Dickinson University, NJ, USA) He has more than 10 years of work experience in quality and environmental management systems consultancy and auditing, since he joined Applus+ LGAI he has performed quality and environmental audits and CDM, VCS, greenhouse gases verifications and others. He also worked in the spanish construction industry for 3 years as Quality, Environmental and Health and Safety Manager.

2.2 **Technical Reviewer**

Miquel Sitjes Cabanas

Miquel Sitjes Cabanas (B. Sc. degree in Chemistry 1975, Universidad de Barcelona – Spain). He has 15 years of experience in a Spanish chemical group company specialized in the manufacturing of raw chemical products, where he worked as the Manager of Quality Control, Production Manager and Environmental Manager. He also worked in the Spanish pharmaceutical industry for 7 years as Quality, Manufacturing and Environmental Manager. He has been working in the LGAI Technological Centre since 1999: he started working there as an auditor (quality, environment, CDM, VCS, greenhouse gas verification and others) and since 2006 he has been the Systems Certification Technical Manager.

2.3 **Validation Approach**

The validation is performed primarily via a document review of the publicly available project documents and the revised PDD containing the proposed or actual changes. In order to complete and validate the information obtained during the document review stage, also an on-site validation visit has been performed.

During the validation process objective evidences have been reviewed by the assessment team for validating the authenticity and compliance of the changes.

The assessment is performed by qualified lead auditor supported by sectoral expertise.

2.4 **Document Review**

The Project Design Document /1/ submitted by the Client was reviewed against the approved and registered one /2/ and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in this report.

2.5 Follow-Up Interviews

During the period from 25-Nov-2014 to 26-Nov-2014, Applus⁺ LGAI performed interviews and physical site inspection with project participants to confirm selected information and to resolve issues identified in the document review. The main topics of interviews are summarized in the following table.

INTERVIEWED ORGANIZATION/PERSONNEL	INTERVIEW TOPICS
CO ₂ Global Solutions International <ul style="list-style-type: none"> Alejandro Eliud Araizaga Esquivel Yasmany Mancilla 	PPD changes. Financial Model. Emission reductions. Additionality.
CEMEX: <ul style="list-style-type: none"> Karla Arrambide Francisco Con Victor Romo Diego Tejada 	On-Site Visit Project technology, operation , maintenance. Project status
Acciona Energía: <ul style="list-style-type: none"> Justo de Castro 	

2.6 Internal Quality Control

As a final step of validation, the final documentation including the validation report have to undergo an internal quality control by the Technical Review Committee, i.e. each report has to be finally approved either by the Head of the Technical Review Committee or the Deputy. In case one of these two persons is part of the audit team, the approval can only be given by the person who is not a part of the audit team. If the documents have been satisfactorily approved, the Approval for Issuance is submitted to the CDM-EB along with the relevant documents.

3 VALIDATION FINDINGS

3.1 Overview

In the registered PDD /2/, it was stated that the installed capacity was 124.0MW of energy using wind power, and that this would avoid the emissions of 244,110tCO₂e/year mainly obtained from fossil fuel burning, the project activity and its revised PDD /1/ have been modified since its original registration with a technology change in the turbines, resulting that the project will have an installed capacity of 126.0MW of energy from wind power source, and will avoid the emissions of 245,566 tCO₂e/year. A change on the starting date of the crediting period has also been included, the registered PDD /2/ indicated that it would be the 15-Jul-2014, and in the revised PDD /1/ it will be on 14-Jul-2016.

3.2 Description of the proposed or actual changes

As mentioned above, due to the technology change in the wind turbines, the project activity and its registered PDD /2/ have been modified resulting in a revision of the PDD /1/ which includes the following changes:

- ⊕ Installed capacity.
- ⊕ Technology in wind turbines, also number and location of them.
- ⊕ Baseline scenario.
- ⊕ Emission reductions.
- ⊕ Start date of the project activity and start date of crediting period.
- ⊕ Environmental impacts (environmental permit).

Within this report post registration changes as listed in the following Table are assessed.

#	General evaluation of the change	Type of post registration change	Description
1	Project is in construction phase Applus+ LGAI confirms the change of technology in the site visit	Change to project design of a registered project activity	Change of wind technology and capacity of the project activity
2	Applus+ LGAI confirms that the project activity has not started yet, the baseline scenario is the same.	Change to the start date of the crediting period	Change of the start of the crediting period from 15/07/2014 to 14/07/2016

3.3 Assessment of the proposed or actual changes

The post registration change involves the changes that are listed above and that every one of them will be analyzed in the following section.

CHANGE(s)	REGISTERED PDD /2/	REVISED PDD /1/	AUDITOR CONCLUSION
Installed Capacity (MW)	124.0	126.0	After crosschecking information contained in documents /3/, /4/ and /5/ it can be concluded that the proposed changes is correct.
Wind turbines technology	Siemens SWT 2.3MW	AW116/3000 MW Acciona	After crosschecking information contained in documents /4/ and /5/ it can be concluded that the proposed changes are correct.
Wind turbines number and location	54 at different locations	42 at different locations	After crosschecking the information contained in document /4/ and during the on-site visit checking its location with a cell-phone with GPS equipped it can be concluded that the proposed changes are correct.
Baseline Scenario			
Capacity factor (%)	37.90	37.58	The new plan load factor is obtained from the division of the equivalent hours 3292 /4/ into 8760hours/year, the proposed change is correct.
Date of completion of baseline study	04/11/2011	12/02/2013	After crosschecking information contained in document /4/ the proposed change is found correct.
Timeline of events prior the development of the project activity	Various dates	Various dates continuing from 28-12-2012	After crosschecking the information contained in documents /5/, /6/, /7/ and /8/ it can be concluded that the proposed changes are correct.
Project's IRR (%)	10.88	11.46	After checking information contained in document /9/ it can be concluded that the change is correct.
Electricity annual production (MWh)	412,349	414,792	The new amount of electricity produced is obtained by multiply the installed capacity (126.0MW) times the equivalent hours 3,292h, than the proposed change is correct.
Investment Analysis			
Annual Income (US\$)	50,015,171	52,070,782	Is determined taking into account the average price of the electricity multiplied by the expected energy generation, it can be concluded that the proposed change is correct.

CHANGE(s)	REGISTERED PDD /2/	REVISED PDD /1/	AUDITOR CONCLUSION
Total Investment (US\$)	278,362,600	265,700,400	After crosschecking the information contained in documents /5/, /9/, /10/ /13/, /14/, /15/ and /16/ it can be concluded that the proposed change is correct.
Average Annual Operations Costs (US\$/year)	11,323,243	13,226,658	After checking the /9/ document it can be concluded that the change is correct.
IRR (%) with CERs	12.83	12.58	After checking the /9/ document it can be concluded that the changes is correct.
Sensitivity Analysis	Various data	Various data	After crosschecking the information contained in document /9/ it can be concluded that the proposed change is correct.
Common Practice Analysis (MW \pm 50%)	124	126	The proposed change is found correct.
Emission reductions			
Total Baseline emissions (tCO ₂ e)	1,718,891	1,718,892	After checking the information contained in document /17/ it can be concluded that the change is correct.
Total Emission Reductions (tCO ₂ e)	1,718,891	1,718,892	After checking the information contained in document /17/ it can be concluded that the change is correct.
Annual average over the crediting period (tCO ₂ e)	244,110	245,556	After checking the information contained in document /17/ it can be concluded that the change is correct.
Monitoring Plan Parameter: EG _{facility,y} (MWh)	412,349	414,792	After crosschecking the information contained in the PDD /1/ the change is found correct.
Start date of the project activity	28/02/2013	03/06/2013	After crosschecking the information contained in document /5/ the proposed change is found correct.
Start date of crediting period	15/07/2014	14/07/2016	The proposed change if found correct.
Environmental Permit	08/10/2012	08/07/2013	After checking the document /18/ the proposed change is found correct.

The assessment of the additionality contemplates specifically in the assessment of the investment analysis; Applus+ LGAI verifies every input data of the investment analysis and confirms that:

- a. All the changes of the investment analysis are related with the change of technology.
- b. The project participant uses clear and valid evidence to demonstrate the investment analysis.
- c. The investment analysis was performed according the Tool for the demonstration and assessment of additionality Version 06.1.0.

Investment Analysis assessment

The change of the technology of the project activity implies in different changes of the inputs of the investment analysis. Applus+ LGAI confirms that the following inputs are the only inputs that were affected due to the change of technology:

- Electricity generation: The project activity present the Wind Resource Assessment which confirms the use of the turbine AW 116/3000 MW from Acciona, Applus+ LGAI confirms that the report present a technical value of 3,292 equivalent hours. The date of this evaluation is dated as 12/02/2013. /4/
- Investment: The project activity presents a change in the investment due to the change of the technology. Applus+ LGAI confirms that the costs involved with the change of technology are: EPC cost (including the cost of the common facilities).
- Operation cost: Cost related to the maintenance and the operation of the wind farm.

Applus+ LGAI confirms that all the evidence show are before the starting date/management decision, the investment analysis confirms that the project activity still additional. **The economic analysis was performed on May 15, 2013; Applus+ LGAI confirms that the evidence is correct and valid by the time of the management decision /25/.**

The changes to the financial model, to the emission reductions calculation, and to the monitoring plan contained in the registered PDD /2/ proposed by the project participants are in compliance with the CDM project standard version 7.0.

Change of the Technology of the project activity

Based on the paragraph 4 of Appendix 1 of the CDM project standard version 7.0, the prior approval is not required by the board for this proposed or actual changes to the project design of a registered project activity as them do not adversely impact the additionality of the project activity. It's compliant with the CDM project standard.

Additionally based on the section 13.8.3.4 of the CDM project standard version 7.0, stated the project participants shall report in the revised PDD the impacts of the proposed or actual changes to the registered CDM project activity on the following:

- a. The applicability and application of the applied methodology and the applied standardized baseline under which the project activity has been registered.

Applus+ LGAI confirms that the proposed changes of the description of the project activity do not affect any of the applicability conditions of the methodology ACM 002 version 12.3.0; this means that the project activity still meets all applicability conditions of the applied methodology.

- b. Compliance of the monitoring plan with the applied methodology and, where applicable, the applied standardized baseline.

Applus+ LGAI confirms that the monitoring plan has not change; therefore, this point is accomplished.

- c. The level of accuracy and completeness in the monitoring of the project activity.

Applus+ LGAI confirms that the monitoring plan has not change; therefore, this point is accomplished.

- d. The additionality of the project activity.

Applus+ LGAI confirms that the project activity remains additional, given that the changes proposed for the project activity affect the IRR from 10.88% to 11.46%, the new IRR of the project activity still below the benchmark (13.66%).

The sensibility and breakeven analysis confirms that the additionality of the project activity prevails.

Applus+ LGAI has also confirmed that the project activity is in line with all the national regulations, based on the following:

- The electricity generation permit RES/235/2012 /22/ emitted on July 11, 2012 establishes that the total capacity approved is 126 MW. Based on this evidence Applus+ LGAI confirms that an additional update of the electricity generation permit is not required.
- The environmental license of the project activity was updated for the type of turbine, the number of turbines and the total capacity of the project activity. This updated environmental license was emitted on July 25, 2013. /23/

- e. The scale of the project activity

Applus+ LGAI confirms that the scale of the project activity remains the same.

In summary, Applus+ LGAI also confirms that the changes in the project's design document have no effects on the additionality, the scale of project activity and the applicability of the approved methodology.

The change of the technology is confirmed, the reason of the change was due to a revaluation of the project, Applus+ LGAI confirms the installation of the new technology in the site interviews with the project company Acciona, which are in charge of the construction of the project activity.

Change of the crediting period start date of the project activity

Based on the paragraph 275 of the CDM project standard version 7.0, is required a prior approval by the board due the crediting period changes more than 1 year but less than 2 years (Registered PDD 15/07/2014, revised PDD 14/07/2014). Applus+ LGAI confirms that no changes have occurred to the project activity that would result in a less conservative baseline.

Applus+ LGAI confirms that in spite of the changes that the Mexican Law had related to the energy sector, those changes are not applicable to the project activity. The main change is that some projects that generate energy coming from "clean sources" may receive an additional incentive named Clean Energy Certificate (Certificado de Energías Limpias in Spanish) as long as they comply with some newly established requirements. The Ventika Wind Farm does not have access to this type of incentives for the reasons described below /20/:

The Electric Industry Law, published in the Official Journal of the Federation in August 11 2014 /21/ includes in its Chapter III a section describing in general terms the creation of an incentive for the generation of electricity from clean sources. This incentive is the Clean Energy Certificate (CEL), and generators may obtain one CEL for each MWh produced from these clean sources (wind included), which may be acquired by load centers to confirm that they have accomplished the minimal quantity required by law in order to avoid penalizations. Articles 121 to 123 of the mentioned Law state:

Article 121. The Ministry will implement mechanisms to enforce the policy of diversifying energy sources, energy security and promoting clean energy sources. The Ministry will establish obligations to acquire Certified Clean Energy and will implement other mechanisms that are required to comply with the existing policy on the matter, and may enter into agreements that allow its homologation with relevant instruments of other jurisdictions.

Article 122. The requirements to acquire Clean Energy Certificates will be set as a proportion of the total electrical energy consumed in load centers.

Article 123. The Suppliers, Qualified Participant Users of the market and End Users to be supplied by isolated supply, as well as holders of Bequeathed Interconnection Contracts that load centers, whether public or private, will be subjected to the fulfillment of the obligations of Clean Energy in terms of this Law.

It is important to remark that not all the electricity generators using clean sources are subjected to receive this kind of incentives. Some restrictions have been included in the transitional articles of this law; particularly the transitional article 16, which applies to this project activity, establishes the following:

The Load Centers that are included in a Bequeathed Interconnection Contract are exempt from the requirement of obtaining Clean Energy Certificates, provided that the Power Plants included in the Contracts produce electricity from Clean Energy in sufficient amount to cover the total consumption of said load centers, in terms of the existing criteria for granting Clean Energy Certificates. **No Clean Energy Certificates will be awarded for the production of such Power Plants**, even if their production exceeds requirements associated load centers.

The law that was in force at the time that the permits for this project were obtained was the "Law of Public Service of Electricity" /24/ and the only scheme under which a project as Ventika Wind Farm could be developed, according to the Article 36, paragraph I of such Law; was under a scheme where The Load Centers were included in a Bequeathed Interconnection Contract, where the electricity from Clean Energy must be produced in sufficient amount to cover the total consumption of said load centers; which are exactly the type of contracts mentioned in the newly developed law that restrict the project activity from obtaining the CELs.

In summary, it has been confirmed that by Law, the developers of the project Ventika Wind Farm cannot obtain Clean Energy Certificates for this project activity.

Additionally, Applus+ LGAI confirms that the project developers have made efforts to start the project activity operation, in this case the visit confirms that the project activity follows the chronogram of implementation /19/.

4 VALIDATION OPINION

Applus+ LGAI was contracted by **Carbon Solutions de Mexico, S.A. de C.V.** to perform a validation of the post registration change to the registered PDD of Ventika Wind Farm (UNFCCC Reference No.9341) according to the Clean Development Mechanism validation and verification standard version 07.0.

As the conclusion of the validation, Applus+ LGAI confirms that:

- a) the proposed changes affect the calculation of the emission reductions;
- b) the proposed changes do not affect the additionality, scale and applicability of the project activity.
- c) the change of the start date of the crediting period needs an approval of the board, Applus+ LGAI confirms that the baseline scenario is the same as the project activity registered.

As a result, Applus+ LGAI confirms that proposed or actual changes to the project activity comply with the requirements established in the Project Standard.


Bellaterra, April 21, 2015

Validation Team



Miquel Picas Martínez (Lead Auditor)

DOE Representative



Miquel Sitjes Cabanas (CDM Technical Manager)

B.U. Systems Certification Area Manager



Juan Sendín Caballero

5 REFERENCES

- /1/ Revised Project Design Document for the Ventika Wind Farm, Version 5.0 dated on 01/09/2014.
- /2/ Registered Project Design Document for the Ventika Wind Farm, Version 4.0 dated on 30/11/2012.
- /3/ Acciona Windpower AW-3000 Brochure, Acciona Windpower.
- /4/ Wind Resource Study, EREDA, dated on 12 February, 2013.
- /5/ Engineering, procurement and construction agreement between Ventika II and Acciona Energía Servicios México, S de R.L de C.V., dated on 03 June, 2013.
- /6/ Registered Project webpage (<https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356678953.67/view>).
- /7/ Notification letter to Siemens dated on 21 March, 2013.
- /8/ Notification letter to Acciona dated on 21 March, 2013.
- /9/ Financial Model for the Project Ventika Wind Farm, dated on 17 June 2014.
- /10/ Operation and Maintenance Agreement between Ventika II and Acciona Energía México, S de R.L. de CV on 03 June, 2013
- /11/ Terrorism Insurance dated on 11 March, 2013.
- /12/ Operation Insurance from AON dated on March, 2013.
- /13/ Fifth Amendment Agreement to the Engineering, procurement and construction agreement between Ventika II and Acciona Energía Servicios México, S de R.L de C.V., dated on 03 June, 2013.
- /14/ Common facilities agreement between Ventika and Ventika II dated on 03-Jun-2013
- /15/ Land Rent cost contract between Ventika and land owners dated on 05-Sep-2011.
- /16/ Investment distribution
- /17/ Emission Reductions spreadsheet for the Ventika Wind Farm project.
- /18/ Environmental Permit approved by SEMARNAT on 08-Jul-2013 with number S.G.P.A./D.G.I.R.A./D.G./04710.
- /19/ Construction Chronogram of the Project Activity which confirms that the starting date of the project activity is on July 2016.
- /20/ Dictamen de las Comisiones Unidas de Energía y de Medio Ambiente y Recursos Naturales, con Proyecto de decreto por el que se expide la ley de transición energética, dated on November 27, 2014.
- /21/ Electricity Industry Law published in the Official Journal of the Federation, dated on August 11, 2014. Webpage (http://dof.gob.mx/nota_detalle.php?codigo=5355986&fecha=11/08/2014)
- /22/ Electricity generation permit of the project Ventika Wind Farm (RES/235/2012) emitted by the Energy Regulatory Commission on July 11, 2012.
- /23/ Environmental license with the update of the wind turbine and total capacity emitted by Secretary of Environment and Natural Resources on July 25, 2013.
- /24/ Law of the Public Service of Electricity published in the Official Journal of the Federation, dated on December 22, 1975. (And modified multiple times) Webpage

(<http://www.metro.df.gob.mx/transparencia/imagenes/fr1/normaplicable/2014/1/lsp14012014.pdf>)

/25/ Economic Assessment of the project activity made by the Project Participant on May 15, 2013 (before the management decision).