



**Monitoring report form for CDM project activity**  
**(Version 07.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**MONITORING REPORT**

<b>Title of the project activity</b>	Coega IDZ Windfarm	
<b>UNFCCC reference number of the project activity</b>	8954	
<b>Version number of the PDD applicable to this monitoring report</b>	14	
<b>Version number of this monitoring report</b>	1	
<b>Completion date of this monitoring report</b>	19/10/2020	
<b>Monitoring period number</b>	1	
<b>Duration of this monitoring period</b>	01/08/2013 – 29/02/2020	
<b>Monitoring report number for this monitoring period</b>	1	
<b>Project participants</b>	Electrawinds Africa and Indian Ocean Islands (Pty) Ltd CO2logic Electrawinds NV	
<b>Host Party</b>	South Africa	
<b>Applied methodologies and standardized baselines</b>	ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.3.0	
<b>Sectoral scopes</b>	1: Energy industries (renewable/ non-renewable sources)	
<b>Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period</b>	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	0	29,264 tCO <sub>2</sub> e
<b>Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD</b>	23,956 tCO <sub>2</sub> e	

## SECTION A. Description of project activity

### A.1. General description of project activity

The project entails the installation of wind turbines with a combined maximum capacity of 10 MW. Altogether, the 10 MW of installed wind turbines will generate 19.2 GWh annually. The renewable electricity is fed into the grid. The project will be undertaken in phases.

The project was initiated by the commissioning of a 1.8 MW turbine in 2010. Further construction of additional turbines is planned, contingent on the financial feasibility of the expansions. Construction of a second turbine, of 2.5 MW, was initiated in early 2020 and is expected to become operational in the second crediting period, which starts on 1 August 2020. Further construction of additional turbines is planned, contingent on the financial feasibility of the expansions.

### A.2. Location of project activity

The wind farm is located in the Coega Industrial Development Zone (IDZ), in the Eastern Cape Province in South Africa.



Figure 1



Figure 2 (Source: Google Earth)

The location for the installed turbine related to this monitoring period is:

No.	Y (m)	Y Longitude d	X (m)	X Latitude dms
WTG1	-62 680,00	25.80985	3 736 580,00	-33.75399

### A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
South Africa	Electrawinds Africa and Indian Ocean Islands (Pty) Ltd	No
Belgium	CO2logic	No

Belgium	Electrawinds NV	No
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#### **A.4. References to applied methodologies and standardized baselines**

Methodology:

ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.3.0.

Related tools:

Tool for the demonstration and assessment of additionality, Version 6.

Tool to calculate the emission factor for an electricity system, Version 2.2.0.

#### **A.5. Crediting period type and duration**

7 years, renewable. The first crediting period is from 01/08/2013 to 31/07/2020.

### **SECTION B. Implementation of project activity**

#### **B.1. Description of implemented project activity**

The project was initiated by the commissioning of a 1.8 MW turbine in 2010. Further construction of four additional turbines is planned, contingent on the financial feasibility of the expansions.

#### **B.2. Post-registration changes**

##### **B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents**

Not applicable.

##### **B.2.2. Corrections**

Not applicable.

##### **B.2.3. Changes to the start date of the crediting period**

Not applicable.

##### **B.2.4. Inclusion of monitoring plan**

Not applicable.

##### **B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents**

Not applicable.

##### **B.2.6. Changes to project design**

Not applicable.

##### **B.2.7. Changes specific to afforestation or reforestation project activity**

Not applicable.

## SECTION C. Description of monitoring system

The total responsibility for the monitoring as defined in this monitoring plan will be held by the project owner.

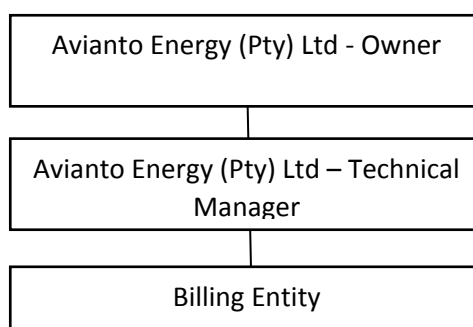
A CDM Manager has been appointed by the project owner and is fully responsible for the monitoring and reporting related to the entirety of this wind farm.

According to version 12.3.0 of ACM0002, there is no need to monitor project emissions and leakage under this project activity.

The output from this project is monitored and recorded using a primary meter installed at the onsite substation.

The meter readings are used for both CDM purposes and sales of the electricity generated. The generation figures are cross checked against the records for sold electricity.

The CDM operating and management structure is illustrated as follows:



Data management procedures:

## SECTION D. Data and parameters

### D.1. Data and parameters fixed ex ante

Data/Parameter	$EG_{m,y}$
Unit	MWh
Description	Net quantity of electricity generated and delivered to the grid by power unit m in year y
Source of data	Eskom make this data available on their website specifically for CDM calculations it includes electricity produced and fuel consumption. These data sets have been included in the ex ante calculation sheet.
Value(s) applied	See separate calculation sheet
Choice of data or measurement methods and procedures	The selection of data satisfies the guidance in the “Tool to calculate the emission factor for an electricity system” (Version 2.2.0). The figures used are the data for the three most recent years available.
Purpose of data	Calculation of baseline emissions

Additional comment	For calculation $EF_{grid,OMsimple,y}$ as well as $EF_{EL,m,y}$ and $EF_{grid,BM,y}$
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<b>Data/Parameter</b>	$EF_{EL,m,y}$
Unit	tCO <sub>2</sub> /MWh
Description	CO <sub>2</sub> emission factor of power unit <i>m</i> in year <i>y</i>
Source of data	Using the figures provide on the Eskom website specifically for CDM calculations it includes electricity produced and fuel consumption one can calculate this value. These data sets have been included in the ex ante calculation sheet.
Value(s) applied	See separate calculation sheet
Choice of data or measurement methods and procedures	The selection of data satisfies the guidance in the “Tool to calculate the emission factor for an electricity system” (Version 2.2.0). The figures used are the data for the three most recent years available.
Purpose of data	Calculation of baseline emissions
Additional comment	-

<b>Data/Parameter</b>	$FC_{i,m,y}$
Unit	Mass or volume unit
Description	Net quantity of fossil fuel type <i>i</i> consumed by power unit <i>m</i> in year <i>y</i>
Source of data	Using the figures provide on the Eskom website specifically for CDM calculations it includes electricity produced and fuel consumption one can obtain this value. These data sets have been included in the ex ante calculation sheet.
Value(s) applied	See separate calculation sheet
Choice of data or measurement methods and procedures	The selection of data satisfies the guidance in the “Tool to calculate the emission factor for an electricity system” (Version 2.2.0). The figures used are the data for the three most recent years available.
Purpose of data	Calculation of baseline emissions
Additional comment	-

<b>Data/Parameter</b>	$NCV_{i,y}$
Data unit	GJ/mass or volume unit
Description	Net calorific value (energy content) of fossil fuel type <i>i</i> in year <i>y</i>
Source of data	NCV of Coal: Eskom website <a href="http://www.eskom.co.za/OurCompany/SustainableDevelopment/Pages/CDM_Calculations.aspx">http://www.eskom.co.za/OurCompany/SustainableDevelopment/Pages/CDM_Calculations.aspx</a>
Value(s) applied	See separate calculation sheet
Choice of data or measurement methods and procedures	The factor is calculated according the guidance given in the “Tool to calculate the emission factor for an electricity system” (Version 2.2.0).
Purpose of data	Calculation of baseline emissions
Additional comment	-

<b>Data/Parameter</b>	$EF_{CO_2,i,y}$
Data unit	tCO <sub>2</sub> /GJ
Description	CO <sub>2</sub> emission factor of fossil fuel type <i>i</i> in year <i>y</i>
Source of data	Coal emission factor (Eskom Value)
Value(s) applied	See separate calculation sheet
Choice of data or measurement methods and procedures	As found on the Eskom CDM webpage <a href="http://www.eskom.co.za/OurCompany/SustainableDevelopment/Pages/CDM_Calculations.aspx">http://www.eskom.co.za/OurCompany/SustainableDevelopment/Pages/CDM_Calculations.aspx</a> .
Purpose of data	Calculation of baseline emissions
Additional comment	-

## D.2. Data and parameters monitored

<b>Data/Parameter</b>	$EG_{facility,y}$																		
Unit	MWh/year																		
Description	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year <i>y</i> (MWh/yr).																		
Measured/calculated/default	Measured																		
Source of data	Metering equipment installed at project activity site																		
Value(s) of monitored parameter	<table border="1"> <thead> <tr> <th>Year</th><th>Electricity generated (MWh)</th></tr> </thead> <tbody> <tr><td>2013</td><td>-</td></tr> <tr><td>2014</td><td>4,727</td></tr> <tr><td>2015</td><td>5,100</td></tr> <tr><td>2016</td><td>5,292</td></tr> <tr><td>2017</td><td>5,537</td></tr> <tr><td>2018</td><td>5,079</td></tr> <tr><td>2019</td><td>5,484</td></tr> <tr><td>2020</td><td>941</td></tr> </tbody> </table>	Year	Electricity generated (MWh)	2013	-	2014	4,727	2015	5,100	2016	5,292	2017	5,537	2018	5,079	2019	5,484	2020	941
Year	Electricity generated (MWh)																		
2013	-																		
2014	4,727																		
2015	5,100																		
2016	5,292																		
2017	5,537																		
2018	5,079																		
2019	5,484																		
2020	941																		
Monitoring equipment	Type: Enermax meter. Accuracy class: The accuracy class of the meter is 0.5. Serial number: 11320019. Calibration frequency: once every 10 years, in accordance with the SANS 474-2009. Date of last calibration: 13 August 2011. Validity: 12 August 2021.																		
Measuring/reading/recording frequency	Continuous monitoring and aggregated on a monthly basis.																		
Calculation method (if applicable)	-																		
QA/QC procedures	The calibration requirements for the meter in place are determined in accordance with the SANS 474-2009, thus the meter requires calibration once every 10 years.																		
Purpose of data/parameter	Calculation of baseline emissions																		
Additional comments	-																		

**D.3. Implementation of sampling plan**

Not Applicable

**SECTION E. Calculation of emission reductions or net anthropogenic removals****E.1. Calculation of baseline emissions or baseline net removals**

As per the ACM0002 Version 12.3.0 Methodology, the baseline emissions,  $BE_y$ , are calculated using equation 6 below:

$$BE_y = EG_{PJ,y} * EF_{GRID,CM,y} \quad (\text{AMC0002, Version 12.3.0, Equation 6})$$

Where:

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

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

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

$EF_{grid,CM,y}$  was fixed ex-ante.  $EF_{grid,CM,y} = 0.9099 \text{ tCO}_2\text{e/MWh}$ .

According to ACM0002, Version 12.3.0 for Greenfield renewable energy power plants: "If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:"

$$EG_{PJ,y} = EG_{facility,y} \quad (\text{AMC0002, Version 12.3.0, Equation 7})$$

Where:

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

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

A sample calculation of  $EG_{PJ,y}$  for the monitoring period is presented below. This calculation makes use of the data obtained for the year 2015 within the selected monitoring period of this CDM project. The data from 2015 indicates that:

$$EG_{PJ,y} = EG_{facility,y} = 5,100 \text{ MWh/yr}$$

Where:

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

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

With this value  $BE_y$  was then calculated using Equation 6.

A sample calculation of  $BE_y$  for the monitoring period is presented below, for the year 2015.

$$\begin{aligned}
 BE_y &= EG_{PJ,y} \times EF_{grid,CM,y} \\
 &= 5,100 \text{ MWh/yr} \times 0.9099 \text{ tCO}_2\text{e/MWh} \\
 &= 4,641 \text{ tCO}_2\text{e/yr}
 \end{aligned}$$

## E.2. Calculation of project emissions or actual net removals

Not Applicable

## E.3. Calculation of leakage emissions

Not Applicable

## E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO <sub>2</sub> e)	Project GHG emissions or actual net GHG removals (t CO <sub>2</sub> e)	Leakage GHG emissions (t CO <sub>2</sub> e)	GHG emission reductions or net anthropogenic GHG removals (t CO <sub>2</sub> e)		
				Before 01/01/2013	From 01/01/2013	Total amount
<b>Total</b>	29,264	0	0	0	29,264	29,264

## E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO <sub>2</sub> e)	Amount estimated ex ante for this monitoring period in the PDD (t CO <sub>2</sub> e)
29,264	23,956

### E.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the PDD”

The ex ante calculations proposed for this monitoring period were calculated in accordance with the number of days within each year of the crediting period that this monitoring period covers. A ratio of the number of days covered by this monitoring period was used to determine the percentage of ex ante emission reductions that this monitoring period will cover.

This can be more easily indicated in the table below, which indicates the years stipulated per the crediting period, the period covered within that year, the number of days the period covered makes up in relation to the year, and the portion of emission reductions covered by this monitoring period.

Year	Period covered		Days	ERs (tCO <sub>2</sub> e)
1	01 August 2013	31 July 2014	365	3,640
2	01 August 2014	31 July 2015	365	3,640

3	01 August 2015	31 July 2016	366	3,650
4	01 August 2016	31 July 2017	365	3,640
5	01 August 2017	31 July 2018	365	3,640
6	01 August 2018	31 July 2019	365	3,640
7	01 August 2019	29 February 2020	213	2,118
<b>Total</b>				<b>23,956</b>

#### E.6. Remarks on increase in achieved emission reductions

The calculated emission reductions for this monitoring period are higher in relation to the estimated ex ante calculations.

The number of hours of wind activity in the region may have impacted the calculated emissions reductions when comparing to what was originally approximated for the ex-ante calculations. It was originally approximated that on average six hours per day would cause useful wind energy to the turbine. The higher CERs could be a result of more useful wind hours on an average day.

#### E.7. Remarks on scale of small-scale project activity

Not Applicable.

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#### Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
07.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN);</li> <li>• Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period;</li> <li>• Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes;</li> <li>• Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.</li> </ul>
06.0	7 June 2017	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.</li> </ul>
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> <li>• Include provisions related to delayed submission of a monitoring plan;</li> </ul>

<i>Version</i>	<i>Date</i>	<i>Description</i>
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		
		<ul style="list-style-type: none"> <li>Provisions related to the Host Party;</li> <li>Remove reference to programme of activities;</li> <li>Overall editorial improvement.</li> </ul>
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> <li>Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0));</li> <li>Include provisions related to standardized baselines;</li> <li>Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1;</li> <li>Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MRFORM</i>;</li> <li>Editorial improvement.</li> </ul>
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20). EB 54, Annex 34. Initial adoption.
01.0	28 May 2010	