



**Monitoring report form for CDM programme of activities  
(version 01.0)**

*Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form for CDM programme of activities" at the end of this form.*

**MONITORING REPORT**

<b>Title of the programme of activities (PoA)</b>	Green Power for South Africa	
<b>UNFCCC reference number of the PoA</b>	7167	
<b>Version number(s) of the PoA-DD(s) applicable to this monitoring report</b>	Version 10	
<b>Coordinating/managing entity (CME)</b>	Additional Energy Limited	
<b>Version number of this monitoring report</b>	03	
<b>Completion date of this monitoring report</b>	22/06/2016	
<b>Monitoring period number and dates covered by this monitoring report</b>	Monitoring Period Number: 01 Dates Covered: 01/06/2013 to 30/06/2015	
<b>Monitoring report number for this monitoring period</b>	01	
<b>Host Party(ies)</b>	Host Party(ies) of the PoA	Is this a host Party to a specific-case CPA covered in this monitoring report?(yes/no)
	Republic of South Africa	Yes
<b>Sectoral scope(s)</b>	1:Energy industries (renewable / non-renewable sources)	
<b>Selected methodology(ies)</b>	ACM0002 ver. 12.3.0- Consolidated baseline methodology for grid-connected electricity generation from renewable sources	
<b>Selected standardized baseline(s)</b>	N/A	
<b>Total amount of GHG emission reductions or net GHG removals by sinks for all specific-case CPAs in the PoA covered in this monitoring report</b>	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	N/A	341,254

## **PART I - Programme of activities**

### **SECTION A. Description of PoA**

#### **A.1. Brief description of the PoA**

The Green Power for South Africa Programme of Activities ("PoA") consists of a series of projects consisting of wind and solar power, implemented by participating organisations.

Additional Energy Limited is the Coordinating/Managing Entity ("CME") of the PoA, and has provided an open platform for different technology and service suppliers to participate in the PoA by developing their own CPAs. The emission reductions in this programme therefore arise from the substitution of grid electricity, which mainly comes from centralised coal-fired power stations, with the utilisation of solar and wind energy. The renewable energy plants will provide electricity into the national grid system.

The PoA is designed in such a way that individual, national and international project developers and financiers are able to join the programme to improve the financial viability of the projects with the introduction of carbon revenues. Each CPAs are technology specific, i.e. either solar power or wind power, and will be developed as separate facilities. Additional Energy Limited as the coordinating entity will ensure that all participating organisations/ subcontractors and technologies meet the specified standards of the programme, thereby ensuring that the quality of both the systems and the installations are not compromised

The stated goals of the PoA are to supply, install and finance wind and solar CPAs to provide renewable energy into the South African grid and reduce greenhouse gas ("GHG") emissions through the avoidance of electricity generated by the combustion of fossil fuels.

**A.1.1. Generic CPA(s)**

<b>Title, identification/reference number and/or version number of the generic CPA(s) of the PoA</b>	<b>Sectoral scope(s)</b>	<b>Applied methodology(ies) or combination of methodologies and/or standardized baseline(s)</b>
<b>CPA[XXX], Version 10</b>  <b>Title of the generic CPA is described as CPA [XXX] in the PoA-DD (Version 10).</b>	1:Energy industries (renewable / non-renewable sources)	(a)ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12.3.0)  Tool to calculate the emission factor for an electricity system (Version 02.2.1)  Combined tool to identify the baseline scenario and demonstrate additionality (Version 04.0.0)  Tool for the demonstration and assessment of additionality (Version 06.1.0)  Tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion (Version 02)

**A.1.2. Specific-case CPA(s) covered in this monitoring report**

<b>Reference number of the specific-case CPA included in the PoA as of the end of this monitoring period</b>	<b>Title, identification/reference number and version number of the generic CPA to which the specific-case CPA applies</b>	<b>Crediting period dates of the specific-case CPA</b>	<b>Is this specific-case CPA covered in this monitoring report? (yes/no)</b>
7167-0001:Scatec Solar Linde CPA-001 ("SSL CPA-001")	CPA[XXX], Version 10	01/07/2014 - 30/06/2024	Yes
7167-0002:Scatec Solar Kalkbult CPA-002 ("SSK CPA-002")	CPA[XXX], Version 10	01/06/2013 - 31/05/2023	No
7167-0003:AE-AMD Herbert CPA-003 ("AEH CPA-003")	CPA[XXX], Version 10	09/12/2013 - 08/12/2023	No
(b)7167-0004:Erika Energy Soutpan CPA-004 ("EES CPA-004")	CPA[XXX], Version 10	09/12/2013 - 08/12/2023	No
(c)7167-0005:Core Energy Witkop CPA-005	CPA[XXX], Version 10	10/03/2014 - 09/03/2024	No

("CEW CPA-005")			
7167-0006:Solar Capital De Aar 1 CPA-006 ("SCDA1 CPA-006")	CPA[XXX], Version 10	01/03/2014 – 29/02/2024	Yes
7167-0007:Solar Capital De Aar 3 CPA-007 ("SCDA3 CPA-007")	CPA[XXX], Version 10	01/01/2015 - 31/12/2024	No
7167-0008:Lesedi 74.96 MW Solar PV Project CPA-008	CPA[XXX], Version 10	01/01/2014 - 31/12/2023	No
7167-0009:Letsatsi 74.96 MW Solar PV Project CPA-009	CPA[XXX], Version 10	01/01/2014 - 31/12/2023	No
7167-0010:Scatec Solar Dreunberg CPA-010	CPA[XXX], Version 10	01/07/2014 - 30/06/2024	Yes
7167-0011:Boshof Solar Park CPA-011	CPA[XXX], Version 10	01/12/2014 - 30/11/2024	No

## A.2. Contact information of the coordinating/managing entity (CME) and/or responsible persons(s)/entity(ies)

Anil Bhatta  
Additional Energy Limited  
anil@additionalenergy.com

Additional Energy Limited is the CME of the PoA.

## SECTION B. Implementation of PoA

### B.1. Implementation of the management system of the PoA

As the CME for this PoA, Additional energy Limited is responsible for managing the CDM cycle and coordinating the issuance of CERs.

#### Record keeping system for each CPA and systems/procedures to avoid double counting

All CPAs under the Green Power for South Africa Programme will be technology specific (i.e. either solar or wind power) and will be fixed or non-transferable, commercial plants that can be easily identified with GPS coordinates, which will prevent incidences of double counting. In addition, Addiional Energy has a recordkeeping system which maintains data relating to each CPA such as project developer details, site addresses, GPS Coordinates which are compared against the record of projects under the CDM undergoing validation or those that are registered to further avoid double counting.

The management of this system is relatively simple considering the nature of the programme activities which will limit each CPA to a small number of installations. Operation and management of the various projects is at the CPA level and each CPAs are provided with the monitoring manual that provides guidelines on montroring requirements, roles and responsibilities of the CME and the CPA implementer.

In line with the paragraph 19 of the CDM Project Standard (ver. 03.0, EB74, 26 Jul 2013), Additional Energy has developed a “CME Management System” that is made available to the Designated Operational Entity (DOE). The “CME management system” provides the processes and tools necessary to ensure compliance of the PoA and CPAs with the CDM Project Standard (ver. 03.0).

## **B.2. Implementation of single sampling plan(s)**

Each CPAs are monitored individually. Therefore, sampling plan is not required for the CPAs.

## **SECTION C. Post-registration changes to the PoA (including the generic CPA(s))**

### **C.1. Corrections**

N/A

### **C.2. Inclusion of a monitoring plan to the registered PoA-DD (including its generic CPA-DD(s)), if a monitoring plan was not included at the time of registration**

N/A

### **C.3. Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline**

N/A

### **C.4. Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic CPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case CPAs in the PoA**

N/A

### **C.5. Types of changes specific to afforestation and reforestation activities**

N/A

## **PART II - Specific-case component project activity(ies)**

### **SECTION D. Description of specific-case CPA(s)**

#### **D.1. Brief description of implemented specific-case CPA(s)**

##### **7167-0001:Scatec Solar Linde CPA-001 (“SSL CPA-001”)**

SSL CPA-001 comprises of one 39.74 MWp (which is the peak capacity) solar PV plant located near the town of De Aar in the Northern Cape Province of South Africa. The PV design incorporates a single axis tracking system. Description of technical parameters of Solar PV plant is provided in Table A.1 below.

Table A.1: Description of Technical Parameters of CPA 001 Solar PV Plant

Parameter	Value	Unit
Technology	-	Solar PV
Installed Capacity	39.74	MWp
Average Yield	2,341	kWh/kWp
System Uptime	98.5	%
Grid Downtime	5	%
Net Average Yield	2,191	kWh/kWp
Capacity Factor	25.01	%

Parameter	PV Modules	Inverters
Manufacturer	Jinko	SMA
Model	JKM 290 P-72	SC 850 CP XT / SC 900 CP XT
Individual power in KW	290Wp	850 and 900 kW
Number of equipment installed	138,000	43

The construction of the plant was commenced from 08/05/2013 and the plant started feeding electricity into the grid from 01/ 07/ 2014. In this monitoring period, the CPA reduced 86,814 tCO<sub>2e</sub>. The CME has a recordkeeping system which has maintained data relating to each CPA such as project developer details, GPS Coordinates of the project site that has avoided double counting.

#### **7167-0006:Solar Capital De Aar 1 CPA-006 ("SCDA1 CPA-006")**

CPA-006 comprises of a solar PV plant (De Aar 1) with a nominal capacity of 75 MW which is the first phase of the maximum/peak capacity facility of 300 MW. This project has been split up into phases (such as De Aar 1) on account of the capacity cap (of 75MW) set by the South African Department of Energy's Renewable Energy Independent Power Producer (REIPP) Procurement Programme. The plant concept is "non-integrated", which consists of amorphous thin film silicon modules assembled on fixed structures, which are, in turn, affixed to the ground. Description of technical parameters of Solar PV plant is provided in Table A.2 below

Table A. 2: Description of Technical Parameters of CPA 006 Solar PV Plant

Parameter	Value	Unit
Technology	-	Solar PV
Installed Capacity	75	MWp
System Uptime	98.5	%
Grid Downtime	2	%
Net Average Yield	1,761	kWh/kWp
Performance Ratio at Feed in	81.20	%

Parameter	PV Modules	Inverters
Manufacturer	Moncada	EEI
Model	MSE S1	8YF250Q2AF40

Individual power in KW	365 to 436	250
Number of equipment installed	203,904	328

The construction of the plant was commenced from 27/11/2012 and the plant started feeding electricity into the grid from 15/08/2014. In this monitoring period, the CPA reduced 134,488 tCO<sub>2</sub>e. The CME has a recordkeeping system which has maintained data relating to each CPA such as project developer details, GPS Coordinates of the project site that has avoided double counting.

### **7167-0010:Scatec Solar Dreunberg CPA-010**

Scatec Solar Dreunberg CPA-010 comprises of a 75 MW (peak capacity) solar PV plant located near the town of Burgersdorp in the Eastern Cape Province of South Africa. The facility is fitted with a single axis tracking system. Description of technical parameters of Solar PV plant is provided in Table A.3 below

Table A.3: Description of Technical Parameters of CPA 010 Solar PV Plant

Description	Unit	Parameter
Technology	-	Solar PV
Installed Capacity	74.995	MWp
Average Yield	2,307	kWh/kWp
System Uptime	98.5	%
Grid Downtime	3	%
Net Average Yield	2,204	kWh/kWp
Capacity Factor	25.16	%

Parameter	PV Modules	Inverters
Manufacturer	Jinko	SMA
Model	JKM 290 P-72	SC 850 CP XT SC 760 CP XT
Individual power in KW	290Wp / 295W	850 / 760 kW
Number of equipment installed	290W: 154,440 295W: 103,800	82

The construction of the plant was commenced from 08/05/2013 and the plant started feeding electricity into the grid from 29/08/2014. In this monitoring period, the CPA reduced 119,952 tCO<sub>2</sub>e. The CME has a recordkeeping system which has maintained data relating to each CPA such as project developer details, GPS Coordinates of the project site that has avoided double counting.

### **D.2. Geographical references or other means of identification of the location of the specific-case CPA(s)**

CPA	Host Party(ies)	Location/Province	City/Town/Municipality	Geographical Location(GPS Coordinates)
CPA 7167-0001	Republic of South Africa	Northern Cape Province	De Aar Town	S 30° 00.07 E 24° 39.53
CPA 7167-0006	Republic of South	Northern Cape	Approximately 7km	S 30° 35' 35.2"

	Africa	Province	northeast of De Aar Town	E 24° 06' 07.5"
CPA 7167-0010	Republic of South Africa	Eastern Cape Province	Near the town of Burgersdorp	S 30°49'49" E 26°12'40"

## SECTION E. Post-registration changes to specific-case CPA(s)

### E.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

N/A

### E.2. Corrections

N/A

### E.3. Changes to the start date of the crediting period of the specific-case CPA(s)

Start date of crediting period for CPA-001 has been changed to 01 Jul 2014. The revised crediting period for CPA-001 is 01 Jul 2014 - 30 Jun 2024. Please refer to the following UNFCCC link that outlines the revised date of crediting period for CPA-001.

[http://cdm.unfccc.int/ProgrammeOfActivities/cpa\\_db/WV0J8PTF24ZODECRY51XKHSALB63QM/vi  
ew](http://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/WV0J8PTF24ZODECRY51XKHSALB63QM/vi<br/>ew)

### E.4. Inclusion of a monitoring plan into the specific-case CPA(s) that was not included at registration

N/A

### E.5. Permanent changes to the monitoring plan as described in the registered specific-case CPA-DD(s), applied methodology or standardized baseline

N/A

### E.6. Changes to project design of the specific-case CPA(s)

N/A

### E.7. Types of changes specific to afforestation and reforestation specific-case CPA(s)

N/A

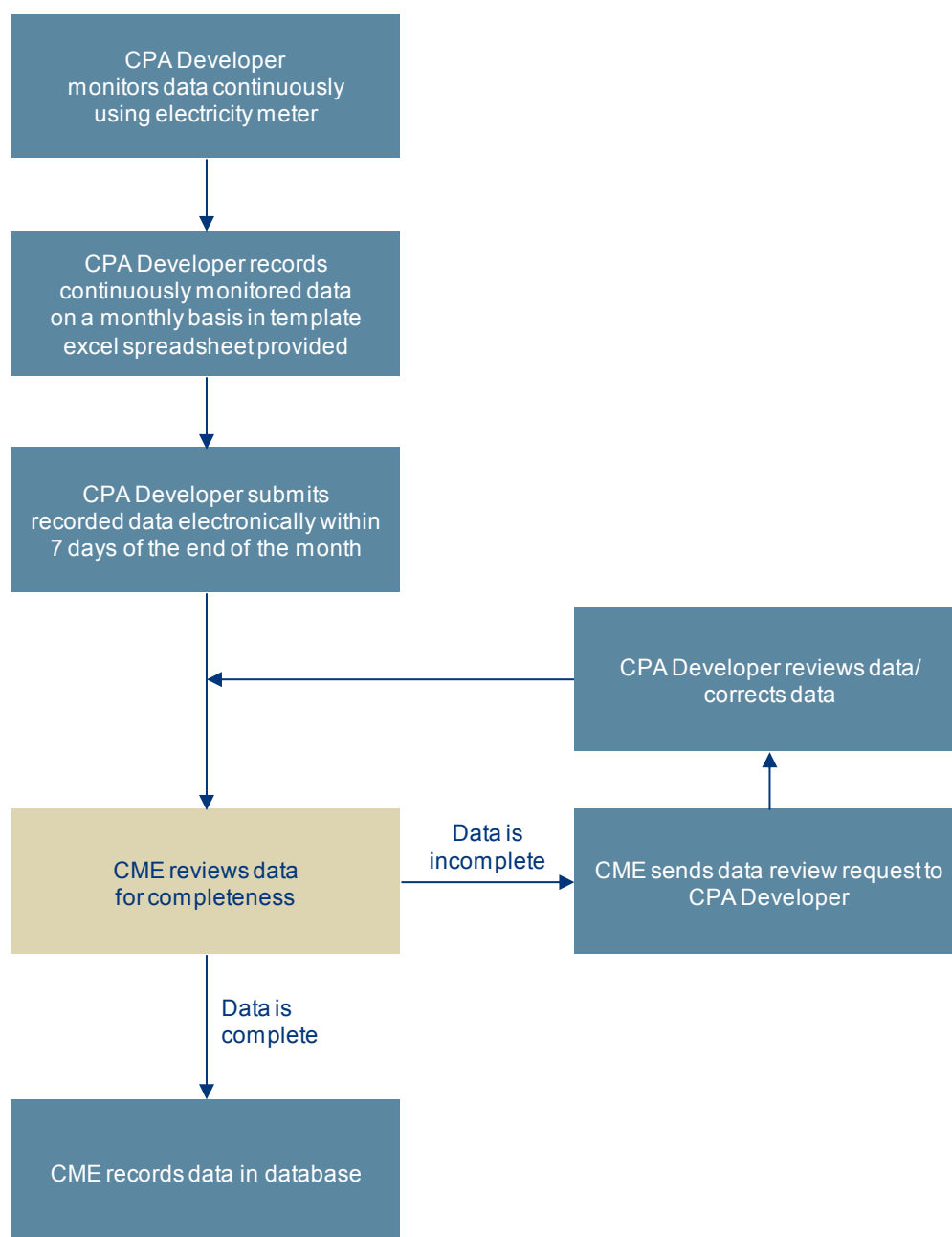
## SECTION F. Description of the monitoring system of specific-case CPA(s)

Each CPAs were monitored by the respective CPA implementers. The following parameters were monitored for CPA 7167-0001, CPA 7167-0006 and CPA 7167-0010.

$EG_{facility, y}$ : Quantity of net electricity generation supplied by the project plant/unit to the grid in year  $y$ .

$EG_{imported, y}$ : Quantity of electricity imported into the power plant/used by the power plant and supplied by the grid in year  $y$ .

The following flow chart depicts the roles and responsibility of CPA Developer and the CME in terms of data monitoring.



**Figure 1. Monitoring Roles and Responsibility and Data Flow**

In terms of data flow, the CPA implementer sends the project data to the CME who reviews and records the data in the CME database. If CME finds any issues or have any questions in the data, it goes back to the respective CPA implementer for clarification or correction. The CME has utilized the monitored data for calculating emissions reductions and preparing monitoring reports for the CPAs.

The CME has provided trainings to CPA implementers on data monitoring and recording methods that is in compliance with CDM requirements. The CPA implementers were trained on CDM and project monitoring requirements on the following dates:

7167-0001: Training conducted on 6 August 2014

7167-0006: Training conducted on 1 August 2014

7167-0010: Training conducted on 6 August 2014

As part of QA/QC process, the CME has developed a manual called "Monitoring Guideliness for CPA Developers" that outlines information on project data to be collected, data to be reported and managed. Furthermore, the CME has developed a data template for the CPA implementes to record and report project data to the CME. Both these two documents were provided to all CPA implementers under the PoA. The CME would cross-check project data provided by the CPA implementers. If any inconsistency in data were found the CME would go back to the CPA implementer and ask for clarification or request for the correct data. The CME has utilised its internal QA/QC guidelines to cross-check the reported data. Each CPAs are monitored individually. Therefore, sampling plan is not required for the CPAs.

## SECTION G. Data and parameters

### G.1. Data and parameters fixed ex ante, at registration, inclusion or renewal of crediting period

#### CPA 7167-0001

Data/parameter	$EF_{grid,CM,y}$
Unit	tCO <sub>2</sub> /MWh
Description	Combined margin CO <sub>2</sub> emission factor for the project electricity system applicable to the wind and solar power generation
Source of data	Grid emission factor calculated in the registered PoA-DD
Value(s) applied	0.9721
Choice of data or measurement methods and procedures	Grid emission factor calculated in the registered PoA-DD
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

#### CPA 7167-0006

Data/parameter	$EF_{grid,CM,y}$
Unit	tCO <sub>2</sub> /MWh
Description	Combined margin CO <sub>2</sub> emission factor for the project electricity system applicable to the wind and solar power generation
Source of data	Grid emission factor calculated in the registered PoA-DD
Value(s) applied	0.9721
Choice of data or measurement methods and procedures	Grid emission factor calculated in the registered PoA-DD
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

## CPA 7167-0010

Data/parameter	$EF_{grid,CM,y}$
Unit	tCO <sub>2</sub> /MWh
Description	Combined margin CO <sub>2</sub> emission factor for the project electricity system applicable to the wind and solar power generation
Source of data	Grid emission factor calculated in the registered PoA-DD
Value(s) applied	0.9721
Choice of data or measurement methods and procedures	Grid emission factor calculated in the registered PoA-DD
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

## G.2. Data and parameters monitored

## CPA 7167-0001

Data/parameter	EG <sub>facility,y</sub>																																																		
Unit	MWh/y																																																		
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y.																																																		
Measured/calculated/ default	Measured																																																		
Source of data	Direct, physical measurements as recorded by metering equipment (electricity meter) at project site																																																		
Value(s) of monitored parameter	89,306																																																		
Monitoring equipment	<p>Electricity data are monitored by the bi-directional electricity meter installed at the TRF-1 and TRF-2 lines, respectively. Information on electricity meter is as follows:</p> <p>TRF-1 line</p> <table><tr><td>Descritption</td><td>Main Meter</td><td>Check Meter</td></tr><tr><td>Manufacturer</td><td>Elster</td><td>Elster</td></tr><tr><td>Type</td><td>A1700</td><td>A1700</td></tr><tr><td>Serial Number</td><td>3514711204393</td><td>3514711204401</td></tr><tr><td>Accuracy Class</td><td>0.5S</td><td>0.5S</td></tr><tr><td>Calibration Frequency</td><td>5 years</td><td>5 years</td></tr><tr><td>Date of last calibration</td><td>13/09/2013</td><td>13/09/2013</td></tr><tr><td>Validity of meters</td><td>12/09/2018</td><td>12/09/2018</td></tr></table> <p>TRF-2 line</p> <table><tr><td>Descritption</td><td>Main Meter</td><td>Check Meter</td></tr><tr><td>Manufacturer</td><td>Elster</td><td>Elster</td></tr><tr><td>Type</td><td>A1700</td><td>A1700</td></tr><tr><td>Serial Number</td><td>3514811205985</td><td>3514811206140</td></tr><tr><td>Accuracy Class</td><td>0.5S</td><td>0.5S</td></tr><tr><td>Calibration Frequency</td><td>5 years</td><td>5 years</td></tr><tr><td>Date of last calibration</td><td>20/01/2014</td><td>20/01/2014</td></tr><tr><td>Validity of meters</td><td>19/01/2019</td><td>19/01/2019</td></tr></table>			Descritption	Main Meter	Check Meter	Manufacturer	Elster	Elster	Type	A1700	A1700	Serial Number	3514711204393	3514711204401	Accuracy Class	0.5S	0.5S	Calibration Frequency	5 years	5 years	Date of last calibration	13/09/2013	13/09/2013	Validity of meters	12/09/2018	12/09/2018	Descritption	Main Meter	Check Meter	Manufacturer	Elster	Elster	Type	A1700	A1700	Serial Number	3514811205985	3514811206140	Accuracy Class	0.5S	0.5S	Calibration Frequency	5 years	5 years	Date of last calibration	20/01/2014	20/01/2014	Validity of meters	19/01/2019	19/01/2019
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Date of last calibration	20/01/2014	20/01/2014																																																	
Validity of meters	19/01/2019	19/01/2019																																																	
Measuring/reading/ recording frequency	Continuous measurement and at least monthly recording.																																																		

Calculation method (if applicable)	$EG_{facility, y} = \text{Total electricity exported to the grid} - EG_{imported, y}$
QA/QC procedures	Monitored data is cross-checked with sales/purchase invoices. The electricity meter is periodically calibrated according to the national standard NRS 057: 2009.
Purpose of data	Calculation of baseline emissions
Additional comments	--

Data/parameter	EG <sub>imported , y</sub>		
Unit	MWh/y		
Description	Quantity of electricity imported into the power plant/used by the power plant and supplied by the grid in year y.		
Measured/calculated/ default	Measured		
Source of data	Direct, physical measurements as recorded by metering equipment (electricity meter) at project site		
Value(s) of monitored parameter	325		
Monitoring equipment	Electricity data are monitored by the bi-directional electricity meter installed at the TRF-1 and TRF-2 lines, respectively. Information on electricity meter is as follows:		
	TRF-1 line		
	Description	Main Meter	Check Meter
	Manufacturer	Elster	Elster
	Type	A1700	A1700
	Serial Number	3514711204393	3514711204401
	Accuracy Class	0.5S	0.5S
	Calibration Frequency	5 years	5 years
	Date of last calibration	13/09/2013	13/09/2013
	Validity of meters	12/09/2018	12/09/2018
	TRF-2 line		
	Description	Main Meter	Check Meter
	Manufacturer	Elster	Elster
	Type	A1700	A1700
	Serial Number	3514811205985	3514811206140
	Accuracy Class	0.5S	0.5S
	Calibration Frequency	5 years	5 years
	Date of last calibration	20/01/2014	20/01/2014
	Validity of meters	19/01/2019	19/01/2019
Measuring/reading/ recording frequency	Continuous measurement and at least monthly recording.		
Calculation method (if applicable)	N/A		
QA/QC procedures	Monitored data is cross-checked with sales/purchase invoices. The electricity meter is periodically calibrated according to the national standard NRS 057: 2009.		
Purpose of data	Calculation of baseline emissions		
Additional comments	--		

## CPA 7167-0006

Data/parameter	EG <sub>facility,y</sub>			
Unit	MWh/y			
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y.			
Measured/calculated/ default	Measured			
Source of data	Direct, physical measurements as recorded by metering equipment (electricity meter) at project site			
Value(s) of monitored parameter	138,349			
Monitoring equipment	Electricity data are monitored by the bi-directional electricity meter installed at the TRF-1 and TRF-2 lines, respectively. Information on electricity meter is as follows:			
	TRF-1 line			
	Description	Main Meter	Check Meter	
	Manufacturer	Landis+Gyr	Landis+Gyr	
	Type	ZMD402CT	ZMD402CT	
	Serial Number	3507509761343	3507509651742	
	Accuracy Class	0.2S	0.2S	
	Calibration Frequency	5 years	5 years	
	Date of last calibration	26/09/2014	26/09/2014	
	Validity of meters	25/09/2019	25/09/2019	
	TRF-2 line			
	Description	Main Meter	Check Meter	
	Manufacturer	Landis+Gyr	Landis+Gyr	
	Type	ZMD402CT	ZMD402CT	
	Serial Number	3507509761350	3507509651759	
	Accuracy Class	0.2S	0.2S	
	Calibration Frequency	5 years	5 years	
	Date of last calibration	26/09/2014	26/09/2014	
	Validity of meters	25/09/2019	25/09/2019	
	Measuring/reading/ recording frequency	Continuous measurement and at least monthly recording.		
	Calculation method (if applicable)	EG <sub>facility,y</sub> = Total electricity exported to the grid – EG <sub>imported,y</sub>		
	QA/QC procedures	Monitored data is cross-checked with sales/purchase invoices. The electricity meter is periodically calibrated according to the national standard NRS 057: 2009.		
	Purpose of data	Calculation of baseline emissions		
Additional comments	--			

Data/parameter	$EG_{imported,y}$
Unit	MWh/y
Description	Quantity of electricity imported into the power plant/used by the power plant and supplied by the grid in year $y$ .
Measured/calculated/ default	Measured
Source of data	Direct, physical measurements as recorded by metering equipment (electricity meter) at project site

Value(s) of monitored parameter	1,766		
Monitoring equipment	Electricity data are monitored by the bi-directional electricity meter installed at the TRF-1 and TRF-2 lines, respectively. Information on electricity meter is as follows:		
	TRF-1 line		
	Description	Main Meter	Check Meter
	Manufacturer	Landis+Gyr	Landis+Gyr
	Type	ZMD402CT	ZMD402CT
	Serial Number	3507509761343	3507509651742
	Accuracy Class	0.2S	0.2S
	Calibration Frequency	5 years	5 years
	Date of last calibration	26/09/2014	26/09/2014
	Validity of meters	25/09/2019	25/09/2019
	TRF-2 line		
	Description	Main Meter	Check Meter
	Manufacturer	Landis+Gyr	Landis+Gyr
	Type	ZMD402CT	ZMD402CT
	Serial Number	3507509761350	3507509651759
	Accuracy Class	0.2S	0.2S
	Calibration Frequency	5 years	5 years
Date of last calibration	26/09/2014	26/09/2014	
Validity of meters	25/09/2019	25/09/2019	
Measuring/reading/recording frequency	Continuous measurement and at least monthly recording.		
Calculation method (if applicable)	N/A		
QA/QC procedures	Monitored data is cross-checked with sales/purchase invoices. The electricity meter is periodically calibrated according to the national standard NRS 057: 2009.		
Purpose of data	Calculation of baseline emissions		
Additional comments	--		

**CPA 7167-0010**

Data/parameter	$EG_{facility,y}$
Unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y.
Measured/calculated/ default	Measured
Source of data	Direct, physical measurements as recorded by metering equipment (electricity meter) at project site
Value(s) of monitored parameter	123,396

Monitoring equipment	Electricity data are monitored by the bi-directional electricity meter installed at the TRF-1 and TRF-2 lines, respectively. Information on electricity meter is as follows:		
	TRF-1 line		
	Description	Main Meter	Check Meter
	Manufacturer	Elster	Elster
	Type	A1700	A1700
	Serial Number	351491125632	351491125633
	Accuracy Class	0.2S	0.2S
	Calibration Frequency	5 years	5 years
	Date of last calibration	20/03/2014	20/03/2014
	Validity of meters	19/03/2019	19/03/2019
	TRF-2 line		
	Description	Main Meter	Check Meter
	Manufacturer	Elster	Elster
	Type	A1700	A1700
	Serial Number	351491125634	351491125635
	Accuracy Class	0.2S	0.2S
	Calibration Frequency	5 years	5 years
Date of last calibration	20/03/2014	20/03/2014	
Validity of meters	19/03/2019	19/03/2019	
Measuring/reading/recording frequency	Continuous measurement and at least monthly recording.		
Calculation method (if applicable)	$EG_{facility, y}$ = Total electricity exported to the grid – $EG_{imported, y}$		
QA/QC procedures	Monitored data is cross-checked with sales/purchase invoices. The electricity meter is periodically calibrated according to the national standard NRS 057: 2009.		
Purpose of data	Calculation of baseline emissions		
Additional comments	--		

Data/parameter	$EG_{imported, y}$
Unit	MWh/y
Description	Quantity of electricity imported into the power plant/used by the power plant and supplied by the grid in year y.
Measured/calculated/ default	Measured
Source of data	Direct, physical measurements as recorded by metering equipment (electricity meter) at project site
Value(s) of monitored parameter	516

Monitoring equipment	<p>Electricity data are monitored by the bi-directional electricity meter installed at the TRF-1 and TRF-2 lines, respectively. Information on electricity meter is as follows:</p> <p>TRF-1 line</p> <table border="1"> <tr> <th>Description</th><th>Main Meter</th><th>Check Meter</th></tr> <tr> <td>Manufacturer</td><td>Elster</td><td>Elster</td></tr> <tr> <td>Type</td><td>A1700</td><td>A1700</td></tr> <tr> <td>Serial Number</td><td>351491125632</td><td>351491125633</td></tr> <tr> <td>Accuracy Class</td><td>0.2S</td><td>0.2S</td></tr> <tr> <td>Calibration Frequency</td><td>5 years</td><td>5 years</td></tr> <tr> <td>Date of last calibration</td><td>20/03/2014</td><td>20/03/2014</td></tr> <tr> <td>Validity of meters</td><td>19/03/2019</td><td>19/03/2019</td></tr> </table> <p>TRF-2 line</p> <table border="1"> <tr> <th>Description</th><th>Main Meter</th><th>Check Meter</th></tr> <tr> <td>Manufacturer</td><td>Elster</td><td>Elster</td></tr> <tr> <td>Type</td><td>A1700</td><td>A1700</td></tr> <tr> <td>Serial Number</td><td>351491125634</td><td>351491125635</td></tr> <tr> <td>Accuracy Class</td><td>0.2S</td><td>0.2S</td></tr> <tr> <td>Calibration Frequency</td><td>5 years</td><td>5 years</td></tr> <tr> <td>Date of last calibration</td><td>20/03/2014</td><td>20/03/2014</td></tr> <tr> <td>Validity of meters</td><td>19/03/2019</td><td>19/03/2019</td></tr> </table>	Description	Main Meter	Check Meter	Manufacturer	Elster	Elster	Type	A1700	A1700	Serial Number	351491125632	351491125633	Accuracy Class	0.2S	0.2S	Calibration Frequency	5 years	5 years	Date of last calibration	20/03/2014	20/03/2014	Validity of meters	19/03/2019	19/03/2019	Description	Main Meter	Check Meter	Manufacturer	Elster	Elster	Type	A1700	A1700	Serial Number	351491125634	351491125635	Accuracy Class	0.2S	0.2S	Calibration Frequency	5 years	5 years	Date of last calibration	20/03/2014	20/03/2014	Validity of meters	19/03/2019	19/03/2019
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Purpose of data	Calculation of baseline emissions																																																
Additional comments	-																																																

### G.3. Implementation of specific-case CPA level sampling plan

All CPAs are individually monitored and no sampling plan was implemented.

## SECTION H. Calculation of GHG emission reductions or net GHG removals by sinks

### H.1. Calculation of baseline emissions or baseline net GHG removals by sinks

#### CPA 7167-0001

The baseline emissions ( $BE_y$ ) are calculated using **Equation (6)** of ACM0002 ver.12.3.0 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources:

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

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 ( $tCO_2/MWh$ )

If CPA is a greenfield renewable energy power plant,  $EG_{PJ,y}$  for the CPA is expressed as follows;

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

Where:

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

Therefore, the baseline emissions are calculated by the following equation:

$$\begin{aligned} BE_y &= EG_{facility,y} * EF_{grid,CM,y} \\ &= 89,306 \text{ MWh} * 0.9721 \text{ tCO}_2/\text{MWh} \\ &= 86,814 \text{ tCO}_2 \end{aligned}$$

#### **Summary of Baseline Emissions:**

<i>Period</i>	<i>BE<sub>y</sub> (tCO<sub>2</sub>)</i>
01/07/2014 to 30/06/2015	86,814

Detailed calculation has been provided to the DOE in a separate spreadsheet.

#### **CPA 7167-0006**

The baseline emissions ( $BE_y$ ) are calculated using **equation (6)** of ACM0002 ver.12.3.0 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources:

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

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 ( $tCO_2/MWh$ )

If CPA is a greenfield renewable energy power plant,  $EG_{PJ,y}$  for the CPA is expressed as follows;

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

Where:

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

in year  $y$  (MWh)

Therefore, the baseline emissions are calculated by the following equation:

$$\begin{aligned}
 BE_y &= EG_{\text{facility},y} * EF_{\text{grid},CM,y} \\
 &= 138,349 \text{ MWh} * 0.9721 \text{ tCO}_2/\text{MWh} \\
 &= 134,488 \text{ tCO}_2
 \end{aligned}$$

**Summary of Baseline Emissions):**

Period	BE <sub>y</sub> (tCO <sub>2</sub> )
15/08/2014 to 30/06/2015	134,488

Detailed calculation has been provided to the DOE in a separate spreadsheet.

**CPA 7167-0010**

The baseline emissions ( $BE_y$ ) are calculated using **equation (6)** of ACM0002 ver.12.3.0 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources:

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

Where:

$BE_y$  = Baseline Emissions in year  $y$  (tCO<sub>2</sub>)

$EG_{PJ,y}$  = 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)

$EF_{\text{grid},CM,y}$  = Combined margin CO<sub>2</sub> emission factor for grid connected power generation in year  $y$  (tCO<sub>2</sub>/MWh)

If CPA is a greenfield renewable energy power plant,  $EG_{PJ,y}$  for the CPA is expressed as follows;

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

Where:

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

Therefore, the baseline emissions are calculated by the following equation:

$$\begin{aligned}
 BE_y &= EG_{\text{facility},y} * EF_{\text{grid},CM,y} \\
 &= 123,396 \text{ MWh} * 0.9721 \text{ tCO}_2/\text{MWh} \\
 &= 119,952 \text{ tCO}_2
 \end{aligned}$$

**Summary of Baseline Emissions):**

Period	BE <sub>y</sub> (tCO <sub>2</sub> )
29/08/2014-30/06/2015	119,952

Detailed calculation has been provided to the DOE in a separate spreadsheet

## H.2. Calculation of project emissions or actual net GHG removals by sinks

### CPA 7167-0001

CPA 7167-0001 generates electricity through solar PV technology. For solar PV power generation, project emissions PEy = 0 as per ACM0002.

### CPA 7167-0006

CPA 7167-0006 generates electricity through solar PV technology. For solar PV power generation, project emissions PEy = 0 as per ACM0002.

### CPA 7167-0010

CPA 7167-0010 generates electricity through solar PV technology. For solar PV power generation, project emissions PEy = 0 as per ACM0002.

## H.3. Calculation of leakage

There are no relevant leakage emissions associated with all CPAs covered in this monitoring period . Therefore, leakage is not considered.

## H.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Specific-case CPA reference number	Baseline emissions or baseline net GHG removals by sinks (tCO <sub>2</sub> e)	Project emissions or actual net GHG removals by sinks (tCO <sub>2</sub> e)	Leakage (tCO <sub>2</sub> e)	GHG emission reductions or net GHG removals by sinks (tCO <sub>2</sub> e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
7167-0001	86,814	0	0	0	86,814	86,814
7167-0006	134,488	0	0	0	134,488	134,488
7167-0010	119,952	0	0	0	119,952	119,952
<b>Total</b>	<b>341,254</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>341,254</b>	<b>341,254</b>

## H.5. Comparison of GHG emission reductions or net GHG removals by sinks with estimates in the included CPA-DD(s)

Specific-case CPA reference number	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the specific-case CPA(s) during this monitoring period
7167-0001	01/07/2014 - 30/06/2015 (365 days) : 82,205	86,814

7167-0006	15/08/2014 - 30/06/2015 (320 days) : 140,235	134,488
7167-0010	29/08/2014 - 30/06/2015 (306 days) : 132,820	119,952
<b>Total</b>	<b>355,260</b>	<b>341,254</b>

Note: The values estimated in *ex ante* calculation is based on the annual GHG emission reductions for each year in the CPA-DDs during this monitoring period.

#### H.6. Remarks on difference from the estimated value in the included CPA-DD(s)

##### CPA 7167-0001

The actual emission reductions for the 1<sup>st</sup> monitoring period is higher by 5.61% as compared to estimated GHG emission reductions for the monitoring period. During the period 01/07/2014 to 30/06/2015, the plant availability was estimated to be 98.5 %, however, in actual higher plant availability of 99.89% was achieved . Similarly, budgeted grid availability for the 1st monitoring period was estimated to be 95%, however, in actual higher grid availability of 99.80% was achieved. These factors ultimately resulted in higher electricity production than expected and hence higher emission reductions as compared to estimated value.

##### CPA 7167-0006

The actual emission reductions for the 1<sup>st</sup> monitoring period is lower by 4.10 % as compared to estimated GHG emission reductions for the monitoring period.

##### CPA 7167-0010

The actual emission reductions for the 1<sup>st</sup> monitoring period is lower by 9.69 % as compared to estimated GHG emission reductions for the monitoring period.

**Appendix 1. Contact information of coordinating/managing entity and/or responsible persons/entities**

<b>Coordinating/managing entity and/or responsible person/entity</b>	<input checked="" type="checkbox"/> Coordinating/managing entity <input type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
<b>Organization name</b>	Additional Energy Limited
<b>Street/P.O. Box</b>	34B York Way
<b>Building</b>	
<b>City</b>	London
<b>State/Region</b>	
<b>Postcode</b>	N1 9AB
<b>Country</b>	United Kingdom of Great Britain and Northern Ireland
<b>Telephone</b>	
<b>Fax</b>	
<b>E-mail</b>	geoff@additionalenergy.com
<b>Website</b>	www.additionalenergy.com
<b>Contact person</b>	Geoff Sinclair
<b>Title</b>	
<b>Salutation</b>	Mr
<b>Last name</b>	Sinclair
<b>Middle name</b>	
<b>First name</b>	Geoff
<b>Department</b>	
<b>Mobile</b>	+44 7780 706728
<b>Direct fax</b>	
<b>Direct tel.</b>	
<b>Personal e-mail</b>	

<b>Coordinating/managing entity and/or responsible person/entity</b>	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
<b>Organization name</b>	Additional Energy Limited
<b>Street/P.O. Box</b>	34B York Way
<b>Building</b>	
<b>City</b>	London
<b>State/Region</b>	
<b>Postcode</b>	N1 9AB
<b>Country</b>	United Kingdom
<b>Telephone</b>	+61 402643154
<b>Fax</b>	
<b>E-mail</b>	anil@additionalenergy.com
<b>Website</b>	www.additionalenergy.com
<b>Contact person</b>	Anil Bhatta
<b>Title</b>	Technical Director
<b>Salutation</b>	Mr
<b>Last name</b>	Bhatta
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### Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
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