



**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

Title of the programme of activities (PoA)	Green Power for South Africa	
UNFCCC reference number of the PoA	7167	
Version number(s) of the PoA-DD(s) applicable to this monitoring report	Version 10	
Coordinating/managing entity (CME)	Standard Bank Plc	
Version number of this monitoring report	01	
Completion date of this monitoring report	28/08/15	
Monitoring period number and dates covered by this monitoring report	Monitoring Period Number: 01 Dates Covered: 01/06/2013 to 30/06/2015	
Monitoring report number for this monitoring period	01	
Host Party(ies)	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
Sectoral scope(s)	1:Energy industries (renewable / non-renewable sources)	
Selected methodology(ies)	ACM0002 ver. 12 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources	
Selected standardized baseline(s)	ASB0001 "Standardized baseline: Grid emission factor for the Southern African power pool" (version 01.0)	
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	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	668,190

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.

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)

Title, identification/reference number and/or version number of the generic CPA(s) of the PoA	Sectoral scope(s)	Applied methodology(ies) or combination of methodologies and/or standardized baseline(s)
<p>CPA[XXX], Version 10</p> <p>Title of the generic CPA is described as CPA [XXX] in the PoA-DD (Version 10).</p>	<p>1:Energy industries (renewable / non-renewable sources)</p>	<p>ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.3.0</p> <p>ASB0001 "Standardized baseline: Grid emission factor for the Southern African power pool"</p> <p>Tool to calculate the emission factor for an electricity system (Version 02.2.1)</p> <p>Combined tool to identify the baseline scenario and demonstrate additionality (Version 04.0.0)</p> <p>Tool for the demonstration and assessment of additionality (Version 06.1.0)</p> <p>Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion (Version 02)</p>

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

Reference number of the specific-case CPA included in the PoA as of the end of this monitoring period	Title, identification/reference number and version number of the generic CPA to which the specific-case CPA applies	Crediting period dates of the specific-case CPA	Is this specific-case CPA covered in this monitoring report? (yes/no)
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7167-0001:Scatec Solar Linde CPA-001 ("SSL CPA-001")	CPA[XXX], Version 10	01 Jul 2014 - 30 Jun 2024	Yes
7167-0002:Scatec Solar Kalkbult CPA-002 ("SSK CPA-002")	CPA[XXX], Version 10	01 Jun 2013 - 31 May 2023	Yes
7167-0003:AE-AMD Herbert CPA-003 ("AEH CPA-003")	CPA[XXX], Version 10	09 Dec 2013 - 08 Dec 2023	Yes
7167-0004:Erika Energy Soutpan CPA-004 ("EES CPA-004")	CPA[XXX], Version 10	09 Dec 2013 - 08 Dec 2023	No
7167-0005:Core Energy Witkop CPA-005 ("CEW CPA-005")	CPA[XXX], Version 10	10 Mar 2014 - 09 Mar 2024	No
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 Jan 2015 - 31 Dec 2024	No
7167-0008:Lesedi 74.96 MW Solar PV Project CPA-008	CPA[XXX], Version 10	01 Jan 2014 - 31 Dec 2023	No
7167-0009:Letsatsi 74.96 MW Solar PV Project CPA-009	CPA[XXX], Version 10	01 Jan 2014 - 31 Dec 2023	No
7167-0010:Scatec Solar Dreunberg CPA-010	CPA[XXX], Version 10	01 Jul 2014 - 30 Jun 2024	Yes
7167-0011:Boshof Solar Park CPA-011	CPA[XXX], Version 10	01 Dec 2014 - 30 Nov 2024	No

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

Geoff Sinclair
geoff@additionalenergy.com

Standard Bank Plc is the CME of the PoA.

SECTION B. Implementation of PoA**B.1. Implementation of the management system of the PoA**

All CPAs under the Green Power for South Africa Programme are technology Solar technology specific and are identified with GPS coordinates. The CME has a recordkeeping system which has maintained data relating to each CPA such as project developer details, site addresses.

Operation and management of the CPAs are conducted by the respective CPA implementers.

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 comprise 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 the Figure A.1 below.

Figure 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	2341	kWh/kWp
System Uptime	98.5	%
Grid Downtime	5	%
Net Average Yield	2191	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	138000	43

The plant started feeding electricity into the grid from 30/ 05/ 2014. In this monitoring period, the CPA reduced 88,305 tonnes of CO_{2-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.

7167-0002:Scatec Solar Kalkbult CPA-002 (“SSK CPA-002”)

SSK CPA-002 comprise of 75 MWp (Kalkbult) solar PV plant between Potfontein and 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 the Figure A.2 below.

Figure A.2: Description of Technical Parameters of CPA 002 Solar PV Plant

Parameter	Value	Unit
Technology	-	Solar PV
Installed Capacity	75	MWp
Average Yield	1935	kWh/kWp
System Uptime	98.5	%
Grid Downtime	5	%
Net Average Yield	1811	kWh/kWp
Capacity Factor	20.67	%

Parameter	PV Modules	Inverters
Manufacturer	BYD	SMA
Model	BYD P6-30 Deries 3BB	SMA CP 800XE
Individual power in KW	240Wp	800 kW
Number of equipment installed	312504	84

The plant started feeding electricity into the grid from 27/09/2013. In this monitoring period, the CPA reduced 259,031 tonnes of CO_{2-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.

7167-0003:AE-AMD Herbert CPA-003 ("AEH CPA-003")

CPA-003 comprise of a solar PV plant (Herbert) with a maximum capacity of 20 MW, located adjacent to the Herbert Substation near Douglas, within the boundaries of the Local Siyancuma and the District Pixley ka Seme Municipalities in the Northern Cape Province of South Africa. Description of technical parameters of Solar PV plant is provided in the Figure A.3 below.

Figure A.3: Description of Technical Parameters of CPA 003 Solar PV Plant

Parameter	Value	Unit
Technology	-	Solar PV
Installed Capacity	22	MWp
Average Yield	1960	kWh/kWp
System Uptime	98.5	%
Grid Downtime	5	%
Net Average Yield	1811	kWh/kWp
Capacity Factor	22.37	%

Parameter	PV Modules	Inverters
Manufacturer	Tenesol	Kaco
Model	TE220/240-60P+	Powador 39.0 TL3
Individual power in KW	240 Wp	33 kW
Number of equipment installed	91908	600

The plan started exporting electricity to the grid from 1/04/2014 . In this monitoring period, the CPA reduced 63,542 tonnes of CO_{2-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.

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

CPA-006 comprise 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 the Figure A.4 below

Figure A. 4: 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	1761	kWh/kWp
Performance Ratio at Feed in	81.20	%

Parameter	PV Modules	Inverters
Manufacturer	Moncada	EEI
Model	MSE TF-365-436	8YF250Q2AF40
Individual power in KW	365 to 436	250
Number of equipment installed	203904	328

The plant started feeding electricity into the grid from 15/08/2014. In this monitoring period, the CPA reduced 136,384 tonnes of CO₂-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 comprise 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 the Figure A.5 below

Figure A.5: 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 and 760 kW
Number of equipment installed	154440 x 290W / 103800 x 295W	82

The plant started feeding electricity into the grid from 24/07/2014. In this monitoring period, the CPA reduced 120,928 tonnes of CO_{2-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 7167-0002	Republic of South Africa	Northern Cape Province	Between Potfontein and De Aar Town	S 30°09' 34" E 24° 07' 50"
CPA 7167-0003	Republic of South Africa	Northern Cape Province	Near Douglas Town	29° 00' 13" S / 23° 48' 11" E
CPA 7167-0006	Republic of South Africa	Northern Cape Province	Approximately 7km northeast of De Aar Town	30° 35' 35.2" S 24° 06' 07.5 E
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 CPA001 has been changed to 01 Jul 2014. The revised crediting period for CPA001 is 01 Jul 2014 - 30 Jun 2024. Please refer to the following UNFCCC link that outlines the revised date of crediting period for CPA001.

http://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/WV0J8PTF24ZODECRY51XKHSALB63QM/vi 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)

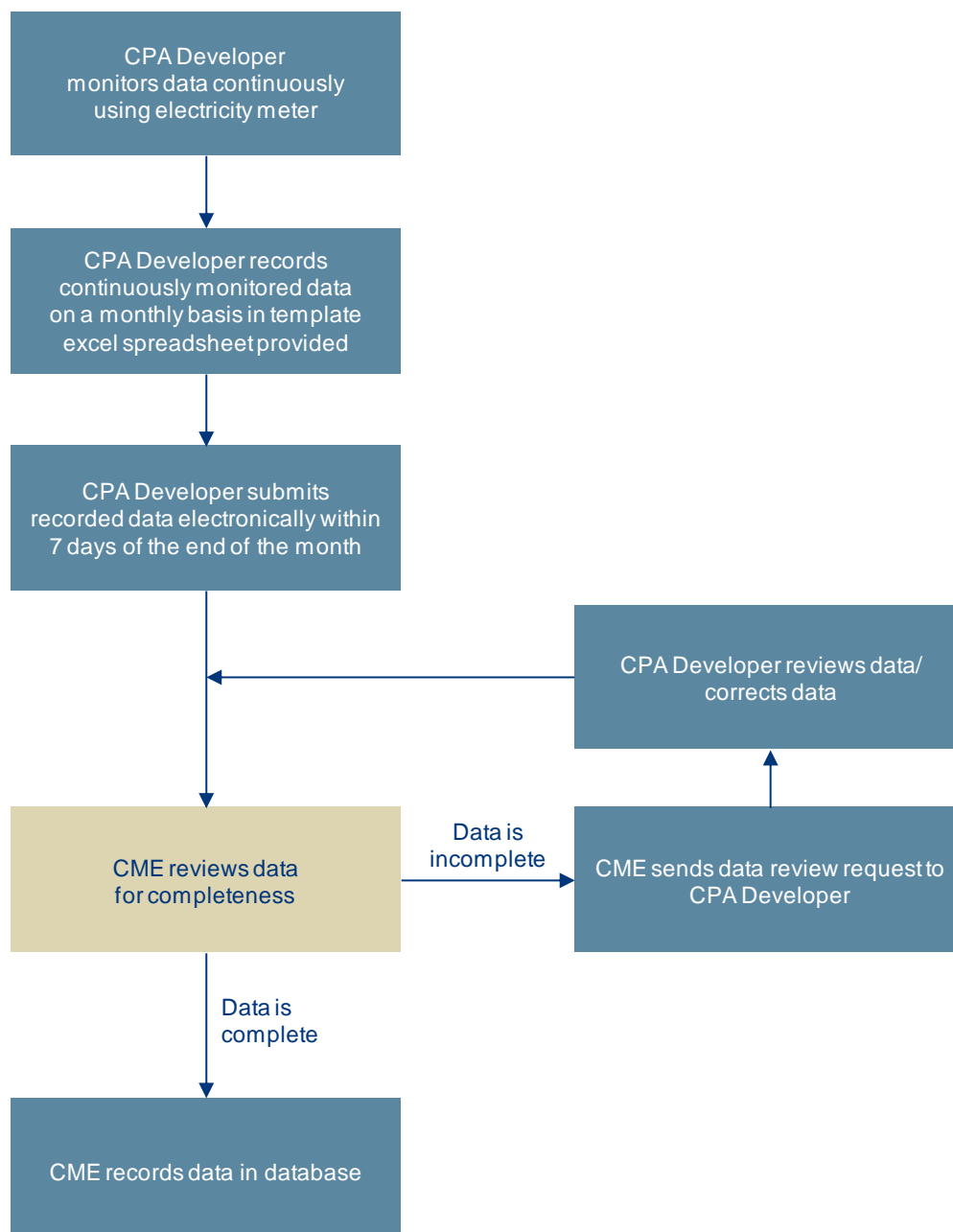
Each CPAs were monitored by the respective CPA implementers. The following parameters were monitored for CPA 7167-0001, CPA 7167-0002, CPA 7167-0003, CPA 7167-0006 and CPA 7167-0010.

$EG_{facility, y}$: 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.

Diagram 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.

Each CPAs are monitored individually therefore sampling plan is not required for the CPAs. The CME has provided guidance to the CPA implementers on how the monitoring should be conducted and data to be collected with regards to emission reduction calculations.

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 ₂ /MWh
Description	Combined margin CO ₂ emission factor for the project electricity system applicable to the wind and solar power generation
Source of data	Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Value(s) applied	0.9801
Choice of data or measurement methods and procedures	Default value as provided by Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

CPA 7167-0002

Data/parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor for the project electricity system applicable to the wind and solar power generation
Source of data	Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Value(s) applied	0.9801
Choice of data or measurement methods and procedures	Default value as provided by Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

CPA 7167-0003

Data/parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor for the project electricity system applicable to the wind and solar power generation
Source of data	Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Value(s) applied	0.9801
Choice of data or measurement methods and procedures	Default value as provided by Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

CPA 7167-0006

Data/parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor for the project electricity system applicable to the wind and solar power generation
Source of data	Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Value(s) applied	0.9801
Choice of data or measurement methods and procedures	Default value as provided by Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

CPA 7167-0010

Data/parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor for the project electricity system applicable to the wind and solar power generation
Source of data	Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Value(s) applied	0.9801
Choice of data or measurement methods and procedures	Default value as provided by Standardized Baseline: Grid Emission Factor for South African Power Pool (Version 01.0)
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

G.2. Data and parameters monitored

CPA 7167-0001

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	90,098
Monitoring equipment	Electricity meter

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	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

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	400
Monitoring equipment	Electricity meter
Measuring/reading/recording frequency	Continuous measurement and at least monthly recording.
Calculation method (if applicable)	N/A
QA/QC procedures	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Project emissions
Additional comments	N/A

CPA 7167-0002

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	264,291
Monitoring equipment	Electricity meter
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	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

CPA 7167-0003

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	1,163
Monitoring equipment	Electricity meter
Measuring/reading/recording frequency	Continuous measurement and at least monthly recording.
Calculation method (if applicable)	N/A
QA/QC procedures	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Project emissions
Additional comments	N/A

CPA 7167-0003

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	64,832
Monitoring equipment	Electricity meter
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	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

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	268
Monitoring equipment	Electricity meter
Measuring/reading/recording frequency	Continuous measurement and at least monthly recording.
Calculation method (if applicable)	N/A
QA/QC procedures	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Project emissions
Additional comments	N/A

CPA 7167-0006

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	139,153
Monitoring equipment	Electricity meter
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	Cross check measurement results with records for sold electricity.

Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

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	1,990
Monitoring equipment	Electricity meter
Measuring/reading/recording frequency	Continuous measurement and at least monthly recording.
Calculation method (if applicable)	N/A
QA/QC procedures	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Project emissions
Additional comments	N/A

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	123,384
Monitoring equipment	Electricity meter
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	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Baseline Emissions
Additional comments	N/A

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	528
Monitoring equipment	Electricity meter
Measuring/reading/recording frequency	Continuous measurement and at least monthly recording.
Calculation method (if applicable)	N/A
QA/QC procedures	Cross check measurement results with records for sold electricity.
Purpose of data	Calculation of Project emissions
Additional comments	N/A

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 are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

The baseline emissions (BE_y) are calculated using **equation (1)** of AMS-I.D version 17:

$$BE_y = EG_{BL,y} * EFCO2,grid,y$$

Where,

BE_y = Baseline Emissions in year y (tCO₂)

$EG_{BL,y}$ = Quantity of net electricity supplied to the grid as a result of implementation of the CDM project activity in year y (MWh)

$EFCO2,grid,y$ = CO₂ emission factor of the grid in year y (t CO₂/MWh)

Summary of Baseline Emissions):

<i>Period</i>	<i>BE_y (tCO₂)</i>
25/06/2014 to 30/06/2015	88,305

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

CPA 7167-0002

The baseline emissions are the product of electrical energy baseline $EGBL,y$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

The baseline emissions (BE_y) are calculated using **equation (1)** of AMS-I.D version 17:

$$BE_y = EGBL,y * EFCO2,grid,y$$

Where,

BE_y = Baseline Emissions in year y (tCO₂)

$EGBL,y$ = Quantity of net electricity supplied to the grid as a result of implementation of the CDM project activity in year y (MWh)

$EFCO2,grid,y$ = CO₂ emission factor of the grid in year y (t CO₂/MWh)

Summary of Baseline Emissions):

<i>Period</i>	<i>BE_y (tCO₂)</i>
9/27/2013-30/06/2015	259,031

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

CPA 7167-0003

The baseline emissions are the product of electrical energy baseline $EGBL,y$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

The baseline emissions (BE_y) are calculated using **equation (1)** of AMS-I.D version 17:

$$BE_y = EGBL,y * EFCO2,grid,y$$

Where,

BE_y = Baseline Emissions in year y (tCO₂)

$EGBL,y$ = Quantity of net electricity supplied to the grid as a result of implementation of the CDM project activity in year y (MWh)

$EFCO2,grid,y$ = CO₂ emission factor of the grid in year y (t CO₂/MWh)

Summary of Baseline Emissions):

<i>Period</i>	<i>BE_y (tCO₂)</i>
01/04/2014 to 30/06/2015	63,542

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

CPA 7167-0006

The baseline emissions are the product of electrical energy baseline $E_{GBL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

The baseline emissions (BE_y) are calculated using **equation (1)** of AMS-I.D version 17:

$$BE_y = E_{GBL,y} * E_{FCO2,grid,y}$$

Where,

BE_y = Baseline Emissions in year y (tCO₂)

$E_{GBL,y}$ = Quantity of net electricity supplied to the grid as a result of implementation of the CDM project activity in year y (MWh)

$E_{FCO2,grid,y}$ = CO₂ emission factor of the grid in year y (t CO₂/MWh)

Summary of Baseline Emissions):

<i>Period</i>	<i>BE_y (tCO₂)</i>
15/08/2014 to 30/06/2015	136,384

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

CPA 7167-0010

The baseline emissions are the product of electrical energy baseline $E_{GBL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

The baseline emissions (BE_y) are calculated using **equation (1)** of AMS-I.D version 17:

$$BE_y = E_{GBL,y} * E_{FCO2,grid,y}$$

Where,

BE_y = Baseline Emissions in year y (tCO₂)

$E_{GBL,y}$ = Quantity of net electricity supplied to the grid as a result of implementation of the CDM project activity in year y (MWh)

$E_{FCO2,grid,y}$ = CO₂ emission factor of the grid in year y (t CO₂/MWh)

Summary of Baseline Emissions):

<i>Period</i>	<i>BE_y (tCO₂)</i>
01/08/2014-30/06/2015	120,928

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 activities P_{Ey} = 0.

CPA 7167-0002

CPA 7167-0002 generates electricity through Solar PV technology. For Solar PV power generation project activities P_{Ey} = 0.

CPA 7167-0003

CPA 7167-0003 generates electricity through Solar PV technology. For Solar PV power generation project activities P_{Ey} = 0.

CPA 7167-0006

CPA 7167-0006 generates electricity through Solar PV technology. For Solar PV power generation project activities P_{Ey} = 0.

CPA 7167-0010

CPA 7167-0010 generates electricity through Solar PV technology. For Solar PV power generation project activities P_{Ey} = 0.

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 ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
7167-0001	88,305	0	0	0	88,305	88,305
7167-0002	259,031	0	0	0	259,031	259,031
7167-0003	63,542	0	0	0	63,542	63,542
7167-0006	136,384	0	0	0	136,384	136,384
7167-0010	120,928	0	0	0	120,928	120,928
Total	668,190				668,190	668,190

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	1 Dec- 31 st Dec 2013: 7,181 2014: 82,337 2015: 82,072	25 June 2014 to 30 June 2015: 88,305
7167-0002	1st August to 31st Dec 2013: 53,875 2014: 128,671 2015: 128,165	27 September 2013 to 30 June 2015: 259,031
7167-0003	2014: 38,650 2015: 38,375	01/04/2014 to 30/06/2015: 63,542
7167-0006	2014 (1st Mar - 31st Dec): 134,154	15 August 2014 to 30 June 2015: 136,384
7167-0010	1st July 2014 – 30th June 2015: 158,429	01 August 2014 to 30 June 2015: 120,928
Total	790,853	668,190

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

CPA 7167-0001

It is precisely speculate the difference between the ex-ante estimation and actual emission reduction achieved as the length and timing of monitoring period (ex-ante) is different than the actual monitoring period of the CPA. However, if 12 months timeframe is to be considered for comparison purposes, the actual emission reduction is slightly more than the ex-ante estimation. For a 12 month duration, ex-ante emission reduction in 2014 and 2015 are 82,337 and 82,072 respectively (i.e. annual average of 82,204) . The actual emission for the period of 12 month and 5 days (25 June 2014 to 30 June 2015) is 88,305, meaning approximately 6,101 more emission reduction than estimated. The primary reason for the higher than expected emissions reduction is due the fact that the plant has actually beaten its base case budgets. The plant has generally over produced for the following reasons on average. There are slight under performance on some winter months but in general the plants have over produced because of the followings:

1. Higher than expected levels of in-plane irradiation
2. Better than budgeted plant and grid availability (Uptime)
3. Better than budgeted Performance Ratio (how much kwhs are produced on the given irradiation)

CPA 7167-0002

It is precisely speculate the difference between the ex-ante estimation and actual emission reduction achieved as the length and timing of monitoring period (ex-ante) is different than the actual monitoring period of the CPA.

However, if 24 months timeframe is to be considered for comparison purposes, the actual emission reduction is slightly more than the ex-ante estimation. For a 24 month duration, ex-ante emission reduction in 2014 and 2015 are 128,671 and 128,165 t CO₂-e respectively making a total of 256,836 tCO₂-e . The actual emission reduction for the period of 24 months and 5 days (27 September 2013 to 30 June 2015) is 259,031, meaning approximately 2,195 tonnes of CO₂-e more than ex-ante emissions reduction of 256,836. The primary reason for the higher than expected emissions reduction is due the fact that the plant has generally over produced for the following reasons on average. There are slight under performance on some winter months but in general the plants have over produced because of the followings:

1. Higher than expected levels of in-plane irradiation
2. Better than budgeted plant and grid availability (Uptime)
3. Better than budgeted Performance Ratio (how much kWhs are produced on the given irradiation)

CPA 7167-0003

It is precisely speculate the difference between the ex-ante estimation and actual emission reduction achieved as the length and timing of monitoring period (ex-ante) is different than the actual monitoring period of the CPA.

If a 12 months timeframe is to be considered for comparison purposes, the actual emission reduction is slightly more than the ex-ante estimation. For a 12 months period, ex-ante emission reduction in 2014 and 2015 are 38,650 and 38,375 respectively (annual average of 38,512). The actual emission reduction for the period of 15 months (01/04/2014 to 30/06/2015) is 63,542 (i.e. approximately 50,833 for 12 months), which is over 12,321 tonnes more than ex-ante annual average emissions reduction of 38,512. The reason for the higher than expected emission are due to the following factors:

1. Higher solar irradiation received than modelled
2. Grid availability was 99.9% whereas modelled grid availability is 98%

CPA 7167-0006

Emission Reduction for CPA 7167-0006 is slightly less than the values estimated in ex-ante calculation. It is precisely speculate the difference between the ex-ante estimation and actual emission reduction achieved as the length and timing of monitoring period (ex-ante) is different than the actual monitoring period of the CPA. The total Emission reduction estimated ex-ante for the period 1st Mar 2014 - 31st Dec 2014 (10 months) was 134,154 and actual emission reduction for the period of 15 August 2014 to 30 June 2015 (10.5 months) is 136,384 (i.e. approximately 129, 889 for 10 month average period), meaning 4,265 tonnes less than expected. For a large operation like CPA 006 the difference in value can be considered minimal, however, the reason for lower than expected emissions can be attributed to less than planned grid uptime.

CPA 7167-0010

Emission Reduction for CPA 7167-0010 is slightly less than the values estimated in ex-ante calculation. The total Emission reduction estimated ex-ante for the period 1st July 2014 – 30th June 2015 (12 months) was 158,429 and for the period of 01 August 2014 to 30 June 2015 (11 months) is 120,928. The main reason for the lower than expected electricity generation is due to technical faults incurred as a result of the lightening damage, which the plant suffered after 31 Dec 2014. Furthermore, the lower than expected levels of irradiation had also further led to an under achievement of the production volumes.

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

Coordinating/managing entity and/or responsible person/entity	<input checked="checked" type="checkbox"/> Coordinating/managing entity <input type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
Organization name	Standard Bank Plc
Street/P.O. Box	20 Gresham Street
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City	London
State/Region	
Postcode	EC2V7JE
Country	United Kingdom of Great Britain and Northern Ireland
Telephone	+44 20 3145 6890
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E-mail	co2@standardbank.com
Website	www.standardbank.com
Contact person	Alanna FitzGerald
Title	
Salutation	Ms
Last name	FitzGerald
Middle name	
First name	Alanna
Department	Energy Sales & Trading
Mobile	
Direct fax	
Direct tel.	
Personal e-mail	

Coordinating/managing entity and/or responsible person/entity	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
Organization name	Additional Energy Limited
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