



**Monitoring report form for CDM programme of activities  
(Version 05.0)**

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

**MONITORING REPORT**

<b>Title of the PoA</b>	Small-scale solar electrical programme, South Africa		
<b>UNFCCC reference number of the PoA</b>	7484		
<b>Version number of the PoA-DD applicable to this monitoring report</b>	Version 12 dated 24/09/2020		
<b>Version number of this monitoring report</b>	01		
<b>Completion date of this monitoring report</b>	03/12/2021		
<b>Monitoring period number</b>	First monitoring period under renewed PoA period 26/11/2019 – 25/11/2026 for both 7484-P2-MP1-MRP1 and 7484-P2-MP2-MRP1		
<b>Duration of this monitoring period</b>	From 16/12/2020 to 30/06/2021 (first and last days included)		
<b>Monitoring report number for this monitoring period</b>	1		
<b>Coordinating/managing entity</b>	Blue World Carbon Asset Management (Pty) Ltd		
<b>Host Parties</b>	<b>Host Party of the PoA</b>	<b>Is this the host Party of a CPA covered in this monitoring report? (yes/no)</b>	
	Republic of South Africa (host Party)	Yes	
<b>Applied methodologies and standardized baselines</b>	AMS-I.F.: Renewable electricity generation for captive use and mini-grid (Version 03) AMS-I.D.: Grid connected renewable electricity generation (Version 18) Standardized baseline: ASB0040-2018: Grid emission factor for the Southern African power pool (Version 01.0)		
<b>Sectoral scopes</b>	01 – Energy Industries (renewable/non-renewable sources)		
<b>Amount of GHG emission reductions or net anthropogenic GHG removals achieved by all CPAs covered in this monitoring report in this monitoring period</b>	<b>Amount achieved before 1 January 2013</b>	<b>Amount achieved from 1 January 2013 until 31 December 2020</b>	<b>Amount achieved from 1 January 2021</b>
	0 tCO <sub>2</sub> e	1,593 tCO <sub>2</sub> e	14,069 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 CPA-DDs for the CPAs</b>	20,028 tCO <sub>2</sub> e		

covered in this monitoring report

## PART I Monitoring of programme of activities (PoA)

### SECTION A. Description of PoA

#### A.1. General description of PoA

Solar energy is the most readily accessible renewable energy resource in the Republic of South Africa (RSA). Most areas in the country have more than 2 500 hours of sunshine per year, and average solar radiation levels range between 4.5 and 6.5 kWh/m<sup>2</sup> in one day .

However, most electricity in the RSA is generated by burning coal. The energy system of the country is managed by the state-owned company Eskom which is in charge of generation, transmission and distribution of power to end-users. The company's total net maximum capacity as of 31 March 2010 was 40 870 MW, most of which was coal-fired (34 658 MW) . The energy system of the RSA is integrated into the grid of the Southern African Power Pool (SAPP), where South Africa is represented by Eskom.

The objective of this programme is to boost the use of renewable energy by domestic consumers and private companies of the RSA. A typical CPA under this PoA is either:

Type 1: The group of the independent activities under the predetermined province of the RSA, each of which is no larger than 0.15 MW installed capacity. Activities are added ex post during the crediting period of the corresponding CPA (actual independent activities may not be known before the registration of the CPA under the PoA); or

Type 2: The identified independent activity or a group of identified independent activities of any capacity which taken together do not exceed 15 MW. The activities are included in the corresponding CPA ex ante (actual independent activities are known before the registration of the CPA under the PoA).

Activities included into a typical CPA envisage:

Option (1) Installation of a solar electrical system where there was no solar electrical system operating prior to the implementation of the activity; or/and

Option (2) a capacity addition.

Electricity which is produced by the independent activity (solar electrical systems installed) may under the CPA be supplied to:

Scenario (a) An identified consumer (end user) or the group of consumers, which would have been supplied with electricity from the national grid of the RSA in the absence of the activity, furthermore excess electricity may be supplied to the grid; or/and

Scenario (b) The national grid of the RSA.

The coordinating entity of this PoA is Blue World Carbon Asset Management (Pty) Ltd (BWC). Participation in this programme enables the solar electrical system owners to discount the purchased price of the solar electrical system or to get an annual income in the form of rebate in exchange for cession of their rights to claim greenhouse gas (GHG) emission reductions to the coordinating entity of this PoA. The owners of large installation may also be given an option to sell CERs generated to an independent buyer.

Each CPA may apply: (1) only AMS-I.F. or (2) only AMD-I.D. or (3) a combination of both methodologies. There are no cross effects between the technologies/measures applied. Moreover, both methodologies define that in the absence of the project activity (baseline scenario) electricity supplied by the CPA would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources.

GHG emissions from the electricity generation for the solar electrical systems amount to zero. The reduction of GHG emissions as a result of the implementation of the independent activities is achieved due to reduction of CO<sub>2</sub> emissions from combustion of fossil fuel at the existing grid-connected power plants and plants which would likely be built in the absence of the independent activities.

This is the second monitoring period of the PoA from 16/12/2020 to 30/06/2021 (first and last days included). The CERs generated during this monitoring period is 15,662 tCO<sub>2</sub>e.

#### A.1.1. Corresponding generic component project activities (CPAs)

Title and reference number of the corresponding generic CPA	Version of the PoA-DD	Sectoral scopes	Applied methodologies and standardized baselines
Generic CPA under PoA 'Small-scale solar electrical programme, South Africa' Reference number: gCPA-7484-1	12	01 - Energy industries (renewable - / non-renewable sources)	AMS-I.F.: Renewable electricity generation for captive use and mini-grid (Version 03) <sup>1</sup> AMS-I.D.: Grid connected renewable electricity generation (Version 18) <sup>2</sup> Standardized baseline: ASB0040-2018: Grid emission factor for the Southern African power pool (Version 01.0) <sup>3</sup>

#### A.1.2. CPAs included in the PoA

Title and UNFCCC reference number of the CPA	Version of the PoA-DD	Title and reference number of the corresponding generic CPA	Crediting period type and duration	Covered in this monitoring report? (yes/no)
Small-scale solar electrical programme, South Africa – CPA-004 Ref no: 7484-P2-0004-CP1	12	Generic CPA under PoA 'Small-scale solar electrical programme, South Africa' Reference number: gCPA-7484-1	Renewable 11/06/21 – 10/06/28	Yes
Small-scale solar electrical programme, South Africa – CPA-003 Ref no: 7484-P2-0003-CP1	12	Generic CPA under PoA 'Small-scale solar electrical programme, South Africa' Reference number: gCPA-7484-1	Renewable 16/12/20 – 15/12/27	Yes
Small-scale solar electrical programme, South Africa – CPA-002 Ref no: 7484-P2-0002-CP1	12	Generic CPA under PoA 'Small-scale solar electrical programme, South Africa' Reference number: gCPA-7484-1	Renewable 16/12/20 – 15/12/27	Yes

#### A.2. Coordinating/managing entity

The coordinating/managing entity (CME) of the PoA is Blue World Carbon Asset Management (Pty) Ltd (BWC).

<sup>1</sup> <https://cdm.unfccc.int/methodologies/DB/9KJWQ1G0WEG6LKHX21MLPS8BQR7242>

<sup>2</sup> <https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTFQOQFQQH4SBK>

<sup>3</sup> [https://cdm.unfccc.int/methodologies/standard\\_base/2015/sb131.html](https://cdm.unfccc.int/methodologies/standard_base/2015/sb131.html)

## SECTION B. Implementation of PoA

### B.1. Description of implemented PoA

The operational and management system of the PoA is described in Section B of the PoA-DD (version 12). It was implemented in accordance with applicable UNFCCC requirements as detailed in Table B.1-1 below.

Table B.1-1: Requirements for a management system of a PoA, management system of the PoA and its implementation status

Requirements for a management system of a PoA	Management system of the PoA	Management system implementation status
(a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;	BWC's team is in charge of data collection, checking data from the solar park management, preparation of the CPA and monitoring reports, conducting procedures for CPA inclusion and CER issuance as well as maintaining, updating and enforcing this management system. BWC's team will communicate with the DOE and CDM EB regarding this PoA and provide them with required supporting documents.	Implemented  All CPAs forwarded to a DOE for the purpose of the inclusion into the PoA were successfully included into the PoA.  BWC's team has the relevant experience in the field of renewable energy and CDM.
(b) Records of arrangements for training and capacity development for personnel	BWC's management will ensure that the company staff that will collect the data has been trained for this, to guarantee that monitoring is correctly performed. Records of training shall be collected by BWC.  BWC shall keep records of training at least for 2 years after the end of the crediting period.	Implemented  The data gathering system was developed by the BWC's team in order to insure that the CPA inclusion and further monitoring is correctly performed.
(c) A procedure for technical review of inclusion of CPAs	CPA inclusion will be conducted in 5 phases: gathering of information, checking of eligibility criteria, drafting, reviewing and submitting of CPA-DD.  BWC will only submit the CPA to the DOE when it has checked that the CPA satisfies the eligibility criteria of the latest version of the PoA-DD. Once CPA drafting is complete the document will be sent to the CME for approval.	Implemented  All CPAs forwarded to a DOE for the purpose of the inclusion into the PoA were successfully included into the PoA.

Requirements for a management system of a PoA	Management system of the PoA	Management system implementation status
(d) A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or included as a CPA in another registered CDM PoA)	The required supporting documents must be collected by BWC.	Implemented  All CPAs forwarded to a DOE for the purpose of the inclusion into the PoA were successfully included into the PoA.  All required checks have been done and the signed declarations have been received in due course.
(e) Records and documentation control process for each CPA under the PoA	All documents that are requested from the solar electrical system developers/owners will be checked and stored by BWC. A summary of CPA information, including the activities within the CPA, will be available on the PoA-database.  For CPA Type 1, not all of the activities will be known before inclusion; therefore, they will be added and recorded once they have met the requirements for CPA Type 1.  The information required for the monitoring report will be collected by BWC or other company employed by BWC. BWC will check the data and draft the monitoring report.	Implemented  The document storage system was implemented by BWC.  The data gathering system was developed by the BWC's team.
(f) Measures for continuous improvements of the PoA management system	The CDM documentation in connection with this PoA shall be updated in accordance with the UNFCCC rules. The management system will be updated, if necessary, by BWC to facilitate more efficient management of the PoA.	Implemented  The management system is constantly improving.
(g) Any other relevant elements	Not applicable	Not applicable

This PoA and all CPAs included into this monitoring report do not use the sampling method for monitoring.

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

### **B.2.1. Corrections**

Not applicable.

### **B.2.2. Inclusion of monitoring plan**

Not applicable.

### B.2.3. 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.2.4. Changes to programme design

Not applicable.

### B.2.5. Changes specific to afforestation or reforestation activities

Not applicable.

## PART II Monitoring of CPAs

This monitoring report includes all activities of CPA 7484-P2-0002-CP1, CPA 7484-P2-0003-CP1, and CPA 7484-P2-0004-CP1.

CPA 7484-P2-0002-CP1 ("CPA-002") comprises the group of the independent activities (32 sites with solar electrical systems with the total Wp capacity of 14.51703 MW).

CPA 7484-P2-0003-CP1 ("CPA-003") comprises the group of the independent activities (18 sites with solar electrical systems with the total Wp capacity of 7.81944 MW).

CPA 7484-P2-0004-CP1 ("CPA-004") comprises the group of the independent activities (118 sites with solar electrical systems with the total Wp capacity of 12.00847 MW).

All activities included into CPA-002, CPA-003, and CPA-004 are located in South Africa and use photovoltaic (PV) technology which enables to convert solar radiation into electrical energy. The CPAs are homogeneous and apply the same generic CPA, gCPA-7484-1. So all the CPAs in this monitoring report are clubbed under one group and reported in Part II of this monitoring report.

## SECTION C. Implementation of CPAs

### C.1. Description of implemented CPAs

CPA reference no.	CPA name	Inclusion date	Number of activities	Total installed Wp capacity (MWp)
CPA 7484-P2-0004-CP1	Small-scale solar electrical programme, South Africa – CPA-004	11/06/2021	118	12.00847
CPA 7484-P2-0003-CP1	Small-scale solar electrical programme, South Africa – CPA-003	16/12/2020	18	7.81944
CPA 7484-P2-0002-CP1	Small-scale solar electrical programme, South Africa – CPA-002	16/12/2020	32	14.51703
<b>Total:</b>			168	34.34494

CPA 7484-P2-0002-CP1 comprises 32 activities with the total Wp capacity of 14.51703 MW, CPA 7484-P2-0003-CP1 – 18 activities with the total Wp capacity of 7.81944 MW and 7484-P2-0004-CP1 – 118 activities with the total Wp capacity of 12.00847 MW. The CPAs combinedly comprise 168 rooftop solar PV systems located on independent sites with the total Wp capacity of 34.34494 MW to produce electricity. Electricity which is produced by the solar electrical systems installed is supplied to the end users, furthermore excess electricity may be supplied to the grid.

The activities displace fossil fuel based electricity from the grid, thereby resulting in the GHG emission reductions.

In the absence of the project activity (the baseline scenario) electricity supplied by CPAs would have otherwise been generated by the operation of grid-connected power plants of the SAPP and by the addition of new generation sources.

Each activity under the CPAs is a Greenfield activity. The solar electrical systems were not transferred from outside the boundary to the CPA.

Each activity under CPAs uses solar electrical technologies which enable to convert solar radiation into electrical energy, taking advantage of the photovoltaic effect. The photovoltaic cell absorbs solar radiation which energizes the electrons inside the cell and produces electricity. Individual solar cells are linked and placed behind a protective glass sheet to form a PV panel. PV panels are connected together to form a string. Each string is connected to the inverter that changes direct current to alternating current.

The list of activities and their implementation status is presented in tables below.

**Table C.1-1. Activities of CPA 7484-P2-0002-CP1**

<b>No</b>	<b>Activity Location</b>	<b>Wp Capacity, kWp</b>	<b>Start date of construction</b>	<b>Commercial operational date</b>
1	Carnival shopping centre	4,240	11/04/2016	02/09/2016
2	Emba shopping centre	1,020	18/10/2015	14/12/2015
3	Lebo shopping centre	1,094	15/06/2017	29/07/2017
4	55 shopping centre	710.13	05/10/2017	29/11/2017
5	Mfula shopping centre	807.30	15/03/2017	28/04/2017
6	Reds shopping centre	2,116.92	02/05/2016	20/07/2016
7	Simarlo Rainbow retail facility	89.38	15/09/2019	11/10/2019
8	Siya shopping centre	807.30	17/10/2017	28/11/2017
9	Eldoraine shopping centre	425.00	08/02/2018	01/04/2018
10	Midrand Mall	555.75	06/02/2019	01/04/2019
11	The Stellenbosch Waldorf School	15.00	24/06/2016	24/07/2016
12	Kal Tire Recycling Plant	45.00	01/02/2017	01/03/2017
13	CROW – Center for Rehabilitation of Wildlife	17.00	01/05/2017	11/05/2017
14	Knysna Elephant Park	66.00	30/07/2017	06/03/2018
15	SouthSouthNorth	18.56	06/02/2018	12/06/2018
16	Sacred Heart College	117.00	02/11/2018	28/01/2019
17	Protea Heights Academy	34.17	25/05/2019	25/06/2019
18	Wynberg Boys High School	73.24	23/07/2019	23/08/2019
19	Welverdiend Retirement Resort	96.48	22/07/2019	22/08/2019
20	Spar Hoedspruit	203.80	10/09/2019	10/10/2019
21	Wynberg Girls Junior School	53.60	10/11/2019	10/12/2019
22	Wynberg Girls High School	84.80	20/11/2019	20/12/2019
23	Wynberg Boys Junior School	42.88	20/11/2019	20/12/2019
24	Spar Warrenton	85.80	30/10/2019	30/11/2019
25	Groote Schuur High School	90.45	20/08/2019	03/03/2020
26	Bellville High School	64.68	15/01/2020	15/02/2020
27	Spar Belfast	185.60	30/02/2020	30/03/2020
28	Pinelands Place	150.10	30/02/2020	30/03/2020
29	Bergvliet High School	64.00	30/02/2020	30/03/2020
30	Ushaka Mall	530.60	01/06/2020	01/07/2020
31	Norman Henshilwood High School	53.60	01/04/2020	01/05/2020
32	Alternative Property Ventures (Pty) Ltd	558.90	28/10/2019	29/11/2019

**Table C.1-2. Activities of CPA 7484-P2-0003-CP1**

No	Activity Location	Wp Capacity, kWp	Start date of construction	Commercial operational date
1	Kameeldoring Plein Shopping Centre	502.84	13/08/2015	16/10/2015
2	New Park Shopping Centre	501.38	12/10/2015	03/12/2015
3	Shoprite Kimberley Shopping Centre	212.00	19/10/2015	14/12/2015
4	Riverside Shopping Centre	122.76	25/01/2016	25/02/2016
5	Sibilo Shopping Centre	718.00	14/06/2016	05/07/2016
6	Kim Park Shopping Centre	409.20	01/04/2016	27/07/2016
7	Rocklands Shopping Complex	358.40	21/11/2016	01/02/2017
8	Barkly Road Shopping Centre	360.80	03/02/2017	24/03/2017
9	The Ridge Shopping Centre	326.40	01/02/2017	23/05/2017
10	Massmart Dc Gosforth Park	706.86	22/08/2018	31/05/2019
11	Shoprite Cilmor Dry Goods Warehouse	499.38	20/02/2019	12/02/2020
12	Gordon's Bay Shoprite	501.60	25/07/2019	26/09/2019
13	Checkers Phalaborwa	1,020.80	01/06/2020	28/08/2020
14	Shoprite Strand	99.40	01/04/2020	12/06/2020
15	Mountain Mill Shopping Centre	1,052.30	01/09/2018	12/03/2019
16	OK Foods Danielskuil	58.20	05/02/2019	02/03/2019
17	OK Grocer Hotazel	84.50	01/01/2019	01/03/2019
18	Shoprite Cilmor Refrigeration	784.00	20/02/2019	22/06/2020

Table C.1-3. Activities of CPA 7484-P2-0004-CP1

No	Activity Location	Wp Capacity, kWp	Start date of construction	Commercial operational date
1	Willow Flair Body Corporate	25	13/12/2017	31/01/2018
2	Sentosa Body Corporate	9.75	27/11/2017	23/03/2018
3	Gowanlea Body Corporate	27.6	12/02/2018	18/10/2018
4	The Village Square B.C.	65.3	11/05/2018	12/11/2018
5	Plaisir Terrace Sectional Title Scheme	19.5	01/12/2018	24/08/2018
6	Toskana Complex	30	01/04/2018	24/08/2019
7	Elbert Heights Complex	24.7	01/06/2018	21/08/2019
8	Crestone Hill Complex	57	01/08/2019	15/08/2019
9	Blue Ridge Body Corporate	26	01/11/2019	27/01/2020
10	Eureka Body Corporate	20	01/11/2019	17/02/2020
11	Mount Sophia Body Corporate	20	14/10/2019	23/02/2020
12	Reizis Square	308	01/08/2020	06/11/2020
13	Carletonville Centre	340	01/08/2020	Under construction
14	Freesia	33.2	01/09/2020	06/11/2020
15	Jo-Andma Park	21.5	01/11/2020	Under construction
16	Mont Blanc	58	01/04/2020	01/01/2021
17	Bake It Easy	114	01/11/2020	Under construction
18	Hercules Body Corporate	39	05/02/2018	01/03/2018
19	Metson World	37	17/08/2018	30/11/2018
20	Westwood Village Body Corporate	60.5	01/08/2018	24/08/2018
21	Villa Nicoli Complex	27	15/09/2018	07/05/2019
22	Comet Oaks Body Corporate	124.8	02/08/2018	23/08/2019
23	Gosforth Park	30	01/08/2019	Under construction
24	Ipanema Body Corporate	30	01/11/2019	15/02/2020
25	Malakite	90	01/02/2020	08/01/2021
26	Prince George Park	190	01/04/2020	10/12/2020

No	Activity Location	Wp Capacity, kWp	Start date of construction	Commercial operational date
27	K101 Business Park	124.4	01/04/2020	11/06/2021
28	Grosvenor Place	16.8	01/08/2020	20/11/2020
29	Process Print Duction	60.9	01/08/2020	Under construction
30	Noah's Village	90.8	01/08/2020	01/06/2021
31	Flora Shopping Centre	481.1	01/08/2020	Under construction
32	Glenhurst Kew	97	01/09/2020	12/01/2021
33	Oak Mews	29.9	01/09/2020	21/01/2021
34	Sunset Place	87.7	01/09/2020	Under construction
35	Golf View Office Park	55.4	01/11/2020	07/01/2021
36	Alteryon Mansions	20	01/03/2021	23/06/2021
37	Hairleader	129	01/11/2020	22/01/2021
38	Little Creek	20.4	01/11/2020	17/12/2020
39	PEC Goedgedacht	524	28/02/2021	Under construction
40	Acaica Park	55.3	01/10/2020	Under construction
41	Cradleview Park	25.8	01/01/2021	Under construction
42	Cranberry Park	66.2	01/01/2021	Under construction
43	Engineering Close	60.2	01/01/2021	Under construction
44	Ferngate Studios Park	16.3	01/01/2021	Under construction
45	Hillview Park	50.7	01/01/2021	Under construction
46	Princess Square Park	13.8	01/01/2021	Under construction
47	Raft Park	13.8	Under construction	Under construction
48	Signal Square Park	66.2	01/01/2021	Under construction
49	Ashbow Properties	50.7	Under construction	Under construction
50	Printech Park South	34.8	01/08/2020	08/03/2021
51	The Pavillion	26.3	01/12/2020	01/06/2021
52	Yonder Hill Body Corporate	46	01/03/2018	11/05/2018
53	Eben Park Body Corporate	19	01/03/2018	23/03/2018
54	Malonica Body Corporate	19	01/03/2018	23/03/2018
55	Unipark Body Corporate	56.6	01/09/2018	05/06/2018
56	Rentspuy Body Corporate	29	01/07/2018	23/11/2018
57	Naledi Body Corporate	37.4	01/01/2019	06/09/2019
58	Lakeview Palms Complex	29.9	01/06/2019	20/08/2019
59	Yellow Wood	40	01/11/2019	24/09/2020
60	Wonderpark Estate	650	01/01/2020	10/01/2020
61	Kingfisher	83	01/12/2019	02/10/2020
62	Magaliesberg	20	01/03/2020	10/06/2020
63	Fleureville	126.7	01/08/2020	14/10/2020
64	Midcity Square	94	01/07/2020	10/12/2020
65	Midcity Corner	77	01/07/2020	25/09/2020
66	Midcity Markel	67	01/07/2020	18/09/2020
67	Glevera Carenet Home	44.5	01/06/2020	18/04/2020
68	Waterglen shopping centre	389	01/08/2020	Under construction
69	441 @Kirkness	28.2	08/05/2020	14/01/2021
70	Letaba Flats	29.9	01/02/2020	12/12/2020
71	Del Judor Mall	695.6	01/09/2020	Under construction
72	The Village	220.3	01/08/2020	Under construction
73	Courtside Centre	257	01/08/2020	Under construction
74	Migmatite Mews	30.9	01/08/2020	06/11/2020
75	SB Packaging	69.4	01/11/2020	24/01/2021

<b>No</b>	<b>Activity Location</b>	<b>Wp Capacity, kWp</b>	<b>Start date of construction</b>	<b>Commercial operational date</b>
76	Blue Berry	95.2	01/11/2020	14/01/2021
77	Upper Waterkloof	60	01/09/2020	22/12/2020
78	Citrus Park	39.5	Under construction	Under construction
79	Quin Centre	40	29/03/2021	23/06/2021
80	Carnegie Park	15	25/12/2020	01/02/2021
81	Kempstar Mall	432	09/05/2018	12/05/2018
82	Sydney Park	114	01/09/2019	31/01/2019
83	Cameron Court	10	01/12/2019	23/01/2020
84	Efythias Gardens Body Corporate	29	01/09/2019	14/09/2019
85	Falcon Crest Body Corporate	31	01/08/2019	13/01/2020
86	La Vie Body Corporate	29	01/12/2019	23/01/2020
87	Malet	33	02/02/2019	07/05/2019
88	Park Chalet Body Corporate	20	01/10/2019	20/01/2020
89	Raslouw Manor	236	01/09/2019	04/02/2020
90	The Circuits Body Corporate	59	01/06/2019	23/09/2019
91	Vasella Body Corporate	26	24/07/2019	03/02/2020
92	Cedar	51.15	19/10/2015	20/02/2016
93	Willow	51.15	19/10/2015	20/02/2016
94	Maryvale	37.2	19/10/2015	20/02/2016
95	Pridwin Preparatory School	32.64	01/08/2016	01/10/2016
96	Builders Warehouse	126	01/01/2017	01/03/2017
97	Coega Dairy	1,171.44	01/03/2019	01/11/2019
98	Merensky Project	125.4	01/07/2017	20/10/2017
99	Technical Services Project	160.71	01/07/2017	25/10/2017
100	University of Pretoria - Building Sciences	139.63	01/07/2020	20/11/2020
101	University of Pretoria - Centenary Building	131.37	01/07/2020	20/11/2020
102	University of Pretoria - Future Africa DH	69.6	01/07/2020	13/11/2020
103	University of Pretoria - Future Africa MB	60.47	01/07/2020	13/11/2020
104	University of Pretoria - Engineering 4.0	169.65	01/07/2020	02/11/2020
105	Cape Town High	25.1	14/09/2020	16/10/2020
106	Hoerskool Saloman Senekal	8.71	04/08/2020	07/10/2020
107	Wesville Vet	33.1	23/04/2020	26/05/2020
108	Spar Touws River	148.9	26/05/2020	17/08/2020
109	Senior Burger Retirement	60.6	04/08/2020	27/05/2020
110	Woodside Care Centre	45.6	08/09/2020	15/12/2020
111	Muizenberg Junior School	34.6	19/02/2020	06/03/2020
112	Helderberg College	233	01/02/2019	15/03/2019
113	Highveld Milling (Phase 1)	115.2	15/11/2020	01/12/2020
114	Panelbeating Unlimited	95	15/03/2020	01/04/2020
115	Q-Lity Meat	39.6	15/08/2019	01/09/2019
116	Saverite Durban	95	30/05/2020	15/06/2020
117	Saverite Pietermaritzburg	96	01/11/2020	15/11/2020
118	TRGK Kew	178.2	01/09/2019	01/10/2019

## C.2. Location of CPAs

All activities included into the CPAs are located within the geographical boundaries of the RSA (Figure A.2-1).



Figure A.2-1. Geographical boundaries of the RSA

A range of GPS coordinates are given to cover the whole of the RSA:

Geographical latitude: 22° to 35° South;

Geographical longitude: 16° to 33° East.

A range of GPS coordinates of the CPA-002 activities:

Geographical latitude: 23.86° to 34.05° South;

Geographical longitude: 18.43° to 31.98° East.

A range of GPS coordinates of the CPA-003 activities:

Geographical latitude: 23°56' to 34°10' South;

Geographical longitude: 18°40' to 31°09' East.

A range of GPS coordinates of the CPA-004 activities:

Geographical latitude: 25°09' to 34°09' South;

Geographical longitude: 18°24' to 31°00' East.

## C.3. Post-registration changes to CPAs

### C.3.1. Temporary deviations from the monitoring plans in the included CPA-DDs, applied methodologies, standardized baselines or other methodological regulatory documents

Not applicable

### C.3.2. Corrections

Not applicable

### C.3.3. Changes to the start date of the crediting period

Not applicable

### C.3.4. Inclusion of monitoring plan

Not applicable

### **C.3.5. Permanent changes to the included monitoring plans, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents**

Not applicable

### **C.3.6. Changes to project design**

Not applicable

### **C.3.7. Changes specific to afforestation or reforestation CPA**

Not applicable

## **SECTION D. Description of monitoring system of CPAs**

Parameters to be monitored for CPA-002, CPA-003, CPA-004 are:

- Net quantity of electricity displaced as a result of implementation of supplied to end users from all independent activities (solar electrical systems installed) under the CPA in year y; and
- Total capacity of all independent activities which supply electricity to end users under the CPA in year y.

The monitoring plan was designed based on gCPA-7484-1. The following procedures are applied:

#### **1. Monitoring period**

The 7-year renewable crediting period was chosen for CPA-002, CPA-003, and CPA-004. The first monitoring period for CPA-002 and CPA-003 started on 16/12/2020, while the first monitoring period for CPA-004 started on 11/06/2021.

#### **2. Data monitored and sources**

Quantity of net electricity displaced as a result of implementation of all independent activities (solar electrical systems installed) under the CPA in year y, including the excess electricity supplied into the grid, is determined on the basis of electricity meters.

For all activities the applicable parameter are monitored continuously and recorded at least on a monthly basis by the CPA personnel. Data on electricity supply is digitally archived and submitted to the Coordinating and Management Entity (CME).

The sources of data for calculation of GHG emission reductions in the course of monitoring are the internal electricity meter reports of the solar electrical systems.

Combined margin CO<sub>2</sub> emission factor for grid connected power generation calculated *ex ante* is fixed for all activities in the PoA.

#### **3. The monitoring team**

The management of BWC is fully responsible for the coordination and overall control of the CPA.

The personnel of the seller of solar electrical systems as well as the independent activity owners is responsible for correct installation and maintenance of solar electrical systems.

The company staff that collectes the data shall undergo the necessary training for this. Operation and maintenance of the solar electrical system is done by either the trained personnel of the solar electrical system suppliers or by the trained personnel employed by the owners of the system.

#### **4. Data storage**

All data collected as part of monitoring is archived electronically and will be kept at least for 2 years after the end of the crediting period. Data collection occurs on a monthly basis.

## 5. Instrumentation calibration

BWC is responsible for timely calibration of all installed meters, instrumentation and other measurement equipment in accordance with the manufacturer's requirements and the South African Bureau of Standards (SABS)<sup>4</sup>.

## 6. Emergency situations

In case of breakdown of any of the solar electrical system the electricity generation goes down, and amount of net electricity supplied by the system is reduced. If any measuring instrument that is used in the monitoring process fails, either BWC or another company employed by BWC shall remedy or, if necessary, replace it as soon as possible.

**SECTION E. Data and parameters****E.1. Data and parameters fixed ex ante**

Data/Parameter	$EF_{grid,CM}$
Unit	tCO <sub>2</sub> /MWh
Description	Combined margin CO <sub>2</sub> emission factor for grid connected power generation calculated ex ante
Source of data	ASB0040-2018, Table 1, page 5
Value(s) applied	0.9871
Choice of data or measurement methods and procedures	Standardized baseline ASB0040-2018 is selected for the project (the applicability of ASB0040-2018 is justified CPA-DDs). Table 1 of this standardized baseline provides the value of the combined margin CO <sub>2</sub> emission factor for the project electricity system applicable to wind and solar power generation for the determination of baseline emissions of 0.9871 t CO <sub>2</sub> /MWh
Purpose of data/parameter	Calculation of baseline emissions
Additional comments	This value will be a constant for each crediting period and then recalculated for each new crediting period.

**E.2. Data and parameters monitored**

Data/Parameter	$EG^a_{Solar\ systems,y}$																
Unit	MWh																
Description	Net quantity of electricity displaced as a result of implementation of supplied to end users from all independent activities (solar electrical systems installed) under the CPA (CPA-002, CPA-003, CPA-004) in year y																
Measured/calculated/default	Measured																
Source of data	Measurement with electricity meters																
Value(s) of monitored parameter	<table border="1"> <thead> <tr> <th>Time Period</th><th>Net quantity of electricity displaced</th></tr> </thead> <tbody> <tr> <td>16/12/2020-31/12/2020</td><td>1613.559</td></tr> <tr> <td>01/01/2021-31/01/2021</td><td>2861.607</td></tr> <tr> <td>01/02/2021-28/02/2021</td><td>2485.884</td></tr> <tr> <td>01/03/2021-31/03/2021</td><td>2666.992</td></tr> <tr> <td>01/04/2021-30/04/2021</td><td>2292.574</td></tr> <tr> <td>01/05/2021-31/05/2021</td><td>2000.148</td></tr> <tr> <td>01/06/2021-30/06/2021</td><td>1946.676</td></tr> </tbody> </table>	Time Period	Net quantity of electricity displaced	16/12/2020-31/12/2020	1613.559	01/01/2021-31/01/2021	2861.607	01/02/2021-28/02/2021	2485.884	01/03/2021-31/03/2021	2666.992	01/04/2021-30/04/2021	2292.574	01/05/2021-31/05/2021	2000.148	01/06/2021-30/06/2021	1946.676
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01/06/2021-30/06/2021	1946.676																
Monitoring equipment	-																

<sup>4</sup> SANS 474:2009 Edition 1.1: Code of practice for electricity metering

Measuring/reading/recording frequency	The generated electricity is continuously measured and recorded
Calculation method (if applicable)	-
QA/QC procedures	Electricity meters are regularly calibrated. In the case of electricity sold to a third party, measurement results shall be cross-checked with records of sold/purchased electricity (e.g. invoices/receipts).
Purpose of data/parameter	Calculation of baseline emissions
Additional comments	This parameter will be used instead of $EG_{BL,y}$ , in order to clarify that this is applicable to scenario (a) of PoA DD

<b>Data/Parameter</b>	$P^a_{Solar\ system, y}$
Unit	MW
Description	Total capacity of all independent activities which supply electricity to end users under the CPA in year $y$
Measured/calculated/default	Calculated
Source of data	Actual data provided to BWC by - the owner of the independent activity; or - the nominated CER buyer; or another nominated party
Value(s) of monitored parameter	CPA-002: 12.00847 CPA-003: 7.81944 CPA-004: 8.32887
Monitoring equipment	NA
Measuring/reading/recording frequency	Continuous monitoring, at least monthly recordings
Calculation method (if applicable)	NA
QA/QC procedures	NA
Purpose of data/parameter	NA
Additional comments	NA

### E.3. Implementation of sampling plan

Not applicable

## SECTION F. Calculation of emission reductions or net anthropogenic removals

### F.1. Calculation of baseline emissions or baseline net removals

Baseline emissions for CPA-002, CPA-003, and CPA-004 are calculated as follows:

$$BE_y = (EG^a_{Solar\ systems, y} + EG^b_{Solar\ systems, y}) \times EF_{grid, CM, y} \quad (F.1-1)$$

Where:

- $BE_y$  = Baseline emissions in year  $y$  (tCO<sub>2</sub>)  
 $EG^a_{Solar\ systems, y}$  = Net quantity of electricity displaced as a result of implementation of all independent activities (solar electrical systems installed) under the CPA in year  $y$  (MWh)  
 $EG^b_{Solar\ systems, y}$  = Net quantity of electricity supplied to the national grid of the RSA from all independent activities (solar electrical systems installed) under the CPA in year  $y$  (MWh)

$EF_{grid,CM,y}$  = Combined margin CO<sub>2</sub> emission factor for the project electricity system in year y (tCO<sub>2</sub>/MWh)

Since CPA-002, CPA-003, and CPA-004 only apply AMS-I.F.:

$$EG_{Solar\ systems,y}^b = 0 \quad (F.1-2)$$

Standardized baseline ASB0040-2018 is selected for each activity in the CPAs (the applicability of ASB0040-2018 is justified in the PoA-DD). Table 1 of this standardized baseline provides the value of the combined margin CO<sub>2</sub> emission factor for the project electricity system applicable to solar power generation for the determination of baseline emissions of 0.9871 t CO<sub>2</sub>/MWh.

$EF_{grid,CM,y} = 0.9871$  t CO<sub>2</sub>/MWh.

Time period		Electricity displaced, $EG_{Solar\ systems,y}^a$ , MWh	Electricity supplied to the national grid, $EG_{Solar\ systems,y}^b$ , MWh	Total, MWh
From	To			
16/12/2020	31/12/2020	1613.559	0	1613.559
01/01/2021	31/01/2021	2861.607	0	2861.607
01/02/2021	28/02/2021	2485.884	0	2485.884
01/03/2021	31/03/2021	2666.992	0	2666.992
01/04/2021	30/04/2021	2292.574	0	2292.574
01/05/2021	31/05/2021	2000.148	0	2000.148
01/06/2021	30/06/2021	1946.676	0	1946.676
<b>Total</b>		<b>15867,439</b>	<b>0</b>	<b>15867.439</b>

Baseline emissions during monitoring period,

$$BE_y = (EG_{Solar\ systems,y}^a + EG_{Solar\ systems,y}^b) \times EF_{grid,CM,y} \quad (F.1-1)$$

$$BE_y = 15867.439 \times EF_{grid,CM,y} = 15,662 \text{ tCO}_2$$

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

According to gCPA-7484-1 no project emissions need to be taken into account. Therefore:

$$PE_y = 0 \quad (F.2-1)$$

## F.3. Calculation of leakage emissions

Solar electrical systems are not transferred from another activity, so no leakage is to be considered as per gCPA-7484-1. Therefore:

$$LE_y = 0 \quad (F.3-1)$$

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

CPA UNFCCC reference number	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 until 31/12/2020	From 01/01/ 2021	Total amount
7484-P2- 0004-CP1	0	0	0	0	0	399	399

7484-P2-0003-CP1	0	0	0	0	778	6,315	7,093
7484-P2-0002-CP1	0	0	0	0	815	7,355	8,170
<b>Total</b>	0	0	0	0	1,593	14,069	15,662

**F.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the included CPA-DDs**

CPA UNFCCC reference number	Amount achieved during this monitoring period (t CO <sub>2</sub> e)	Amount estimated ex ante for this monitoring period in the CPA-DD (t CO <sub>2</sub> e)
7484-P2-0004-CP1	399	996
7484-P2-0003-CP1	7,093	6,637
7484-P2-0002-CP1	8,170	12,396
<b>Total</b>	15,662	20,028

**F.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the CPA-DD”**

The ex ante for this monitoring period was calculated on time of CPA DD preparation, please refer to CER and Power Calculation sheet for the ex-ante emission reduction values.

**F.6. Remarks on increase in achieved emission reductions**

The overall CER generated from CPA-002, CPA-003, and CPA-004 during the reported monitoring period is less than the total estimated CERs from the respective registered CPA-DDs for this monitoring period.

**F.7. Remarks on scale of small-scale CPAs**

CPA-002, CPA-003, and CPA-004 covered in this monitoring report are small scale Type I projects include a group of identified independent activities of any capacity which taken together do not exceed 15 MW.

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
05.0	8 October 2021	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 03.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN).</li> </ul>
04.0	6 April 2021	Revision to: <ul style="list-style-type: none"> <li>• Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).</li> </ul>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 02.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN);</li> <li>• Add a section on remarks on the observance of the scale limit of small-scale CPAs during the crediting periods;</li> <li>• Add "changes specific to afforestation or reforestation activities/CPA" as a possible post-registration changes;</li> <li>• Clarify the reporting of net anthropogenic GHG removals for A/R PoAs between two commitment periods;</li> <li>• Make structural and editorial improvements.</li> </ul>
02.0	7 June 2017	Revision to: <ul style="list-style-type: none"> <li>• Ensure consistency with version 01.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN);</li> <li>• Make editorial improvements.</li> </ul>
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