

**SMALL-SCALE CDM PROGRAMME ACTIVITY DESIGN DOCUMENT FORM
(CDM-SSC-CPA-DD) - Version 01**



NAME /TITLE OF THE PoA: New Energies Commercial Solar Heating
Programme in South Africa



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**CLEAN DEVELOPMENT MECHANISM
SMALL-SCALE PROGRAM ACTIVITY DESIGN DOCUMENT FORM (CDM-SSC-CPA-DD)
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NOTE:

- (i) This form is for submission of CPAs that apply a small scale approved methodology using the provision of the proposed small scale CDM PoA.
- (ii) The coordinating/managing entity shall prepare a CDM Small Scale Programme Activity Design Document (CDM-SSC-CPA-DD)^{1,2} that is specified to the proposed PoA by using the provisions stated in the SSC PoA DD. At the time of requesting registration the SSC PoA DD must be accompanied by a CDM-SSC CPA-DD form that has been specified for the proposed SSC PoA, as well as by one completed CDM-SSC CPA-DD (using a real case). After the first CPA, every CPA that is added over time to the SSC PoA must submit a completed CDM-SSC CPA-DD. [11:20:43]

¹ The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

² At the time of requesting validation/registration, the coordinating managing entity is required to submit a completed CDM-POA-DD, the PoA specific CDM-CPA-DD, as well as one of such CDM-CPA-DD completed (using a real case).

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SECTION A. General description of small scale CDM programme activity (CPA)

A.1. Title of the small-scale CPA:

>>

New Energies Commercial Solar Water Heating Programme in South Africa CPA Nr 1
Version 01
24 June 2008

A.2. Description of the small-scale CPA:

>>

The proposed small-scale CDM programme activity (CPA) is an aggregation of Solar Water Heater (SWH) installations in South Africa. It is a voluntary initiative taken by the participating entities.

The CPA includes SHW installation at commercial or large-scale users of hot water in the health, hospitality, residential or industrial sectors and may include both SWH installation types defined in the corresponding PoA-DD:

- Installations retrofitting existing water heating technologies with solar based water heating technologies; and
- New installations at newly built facilities (no existing heating technologies are in place).

All SWH in the CPA are installed under the NewEnergies Commercial Solar Water Heating Programme in South Africa (hereafter referred to as the Programme of Activities (PoA)) developed by Prostart Traders 40 (Pty) Ltd, t/a NewEnergies Pty Ltd (hereafter referred to as the coordinating/managing entity of the PoA).

The CPA reduces greenhouse gas (GHG) emissions as currently hot water used for various purposes (mostly for sanitary purposes) is predominantly heated by electrical water geysers using coal based electricity from the grid.

The proposed CPA contributes to sustainable development of the Host Country (Republic of South Africa). Specifically, the project:

- Increases employment opportunities in the solar water heating sector. Permanent employment will be created for the installation of the systems, project operation and monitoring;
- Contributes to poverty alleviation through income and employment generation. The Project will employ people throughout project operation;
- Enhances the local investment environment and therefore improves the local economy;
- Diversifies the sources of water heating, which is important for meeting growing energy demands, and facilitating the transition away from fossil fuelled water heating and electricity generation;
- Makes greater use of renewable energy resources for sustainable energy production;
- Contributes to ‘energy poverty’ alleviation by helping large scale hot water consumers to access clean energy, improves energy efficiency and reduces energy consumption;
- Demonstrates replicable clean energy technology; and
- Reduces GHG emissions by displacing fossil fuels and electricity that would otherwise have been used to heat water.

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A.3. Entity/individual responsible for the small-scale CPA:

>>

- Prostart Traders 40 (Pty) Ltd, t/a NewEnergies (Pty) Ltd is the entity responsible for the CPA.
- Prostart Traders 40 (Pty) Ltd, t/a NewEnergies (Pty) Ltd is also the coordinating/managing entity of the corresponding PoA.
- EcoSecurities Group PLC is project participant registered in relation to the PoA and is the entity which communicates with the CDM Executive Board (EB) according to the Modalities of Communication which is submitted together with the corresponding PoA-DD to the UNFCCC EB (according to EB 32 Report Annex 39 Paragraph 23).

A.4. Technical description of the small-scale CPA:

A.4.1. Identification of the small-scale CPA:

>>

New Energies Commercial Solar Water Heating Programme in South Africa. CPA Nr 1

A.4.1.1. Host Party:

>>

Republic of South Africa

A.4.1.2. Geographic reference or other means of identification allowing the unique identification of the small-scale CPA (maximum one page):

>>

Table A.4.1.1: Relevant information for all SWHs included in the CPA

Nr.	Name of Institution	Postal Address (road and postcode)	City/Town	Province	Number of m ² (SWH) installed	GPS co-ord
1	Madrasah Arabia Islamia-Arab University	1 Baagh Street, Mogale City, 1754	Azaadville	Gauteng	450	S 26 10.597' E 027 45.463'
2	Emily Hobhouse Centre	55 Malherbe Street, Capital Park, 0084	Pretoria	Gauteng	150	S25 43.704 E28 10.751
3	Louis Trichardt	127 Dan Road, Danville, 0183	Pretoria	Gauteng	108	S25 44.640 E28 07.828
4	Ons Tuis	180 Soutpansberg Road, Riviera, 0084	Pretoria	Gauteng	300	S25 44.049 E28 13.041
5	Pretoria Boys Highschool	Roper Street, Brooklyn, 0181	Pretoria	Gauteng	60	S25 45.489 E28 13.856 (approximate)

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A.4.2. Duration of the small-scale CPA:

A.4.2.1. Starting date of the small-scale CPA:

>>

1/5/04 (The starting date of the CPA is the date of the commissioning of the first SWH installation aggregated under the CPA.)³

A.4.2.2. Expected operational lifetime of the small-scale CPA:

>>

Approximately 15 years

A.4.3. Choice of the crediting period and related information:

Fixed crediting period

A.4.3.1. Starting date of the crediting period:

>>

01/10/08 or whenever CPA1 is added to the corresponding registered SSC PoA.

A.4.3.2. Length of the crediting period, first crediting period if the choice is renewable CP:

>>

10 years (the duration of each CPA will be limited to the end date of the corresponding PoA)

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

>>

Year	Cumulative number of SWH installed	Cumulative energy produced (MWh/year)	Cumulative ER (tCO2/year)
2008	5	1043.58	967.80
2009	5	1043.58	967.80
2010	5	1043.58	967.80
2011	5	1043.58	967.80
2012	5	1043.58	967.80
2013	5	1043.58	967.80
2014	5	1043.58	967.80
2015	5	1043.58	967.80
2016	5	1043.58	967.80
2017	5	1043.58	967.80

³ The Louis Trichardt SWH installation was commissioned in May 04 as a pilot and demonstration project of NewEnergies.

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Total amount of ER (tCO ₂)	9,678
number of years	10
average number of ER (tCO ₂ /year)	967.80

A.4.5. Public funding of the CPA:

>>

There is no public funding allocated for the implementation of this CPA.

A.4.6. Information to confirm that the proposed small-scale CPA is not a de-bundled component

>>

1. For the purposes of registration of a Programme of Activities (PoA)⁴ a proposed small-scale CPA of a PoA shall be deemed to be a de-bundled component of a large scale activity if there is already an activity⁵, which:
 - (a) Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same sectoral scope, and;
 - (b) The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.
2. If a proposed small-scale CPA of a PoA is deemed to be a debundled component in accordance with paragraph 2 above, but the total size of such a CPA combined with a registered small-scale CPA of a PoA or a registered CDM project activity does not exceed the limits for small-scale CDM and small-scale A/R project activities as set out in Annex II of the decision 4/CMP.1 and 5/CMP.1 respectively, the CPA of a PoA can qualify to use simplified modalities and procedures for small-scale CDM and small-scale A/R CDM project activities.

The proposed SSC-CPA is not considered a de-bundled component of a large-scale activity since no other CDM project activity has been undertaken by the same activity implementer as the proposed small scale CPA; or has a coordinating or managing entity, which also manages a large scale PoA of the same sectoral scope.

A.4.7. Confirmation that small-scale CPA is neither registered as an individual CDM project activity or is part of another Registered PoA:

>>

The CPA is neither registered as an individual CDM project activity and it is not part of another Registered PoA.

⁴ Only those POAs need to be considered in determining de-bundling that are: (i) in the same geographical area; and (ii) use the same methodology; as the POA to which proposed CPA is being added

⁵ Which may be a (i) registered small-scale CPA of a PoA, (ii) an application to register another small-scale CPA of a PoA or (iii) another registered CDM project activity

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The location and address of each SWH installation of the CPA are specified in section A.4.1.2 and can be compared with any other registered PoA or individual CDM project.

SECTION B. Eligibility of small-scale CPA and Estimation of emissions reductions

B.1. Title and reference of the Registered PoA to which small-scale CPA is added:

>>

New Energies Commercial Solar Water Heating Programme in South Africa

B.2. Justification of the why the small-scale CPA is eligible to be included in the Registered PoA :

>>

The proposed CPA is eligible to be included in the corresponding PoA as:

- All SWH installations of the CPA are installed either by the coordinating/managing entity or by affiliated companies or by companies appointed by the coordinating/managing entity acting in the name of the coordinating/managing entity.
- All SWH installations of the CPA have monitoring equipment installed, and access for monitoring is granted to the coordinating/managing entity by the owner of the facility where the SWH systems are installed
- All owners of the facilities of the SWH installations of the CPA have signed a contract with the coordinating/managing entity, specifying the ownership rights of the CERs generated by the installation
- For installations which are not directly installed by the coordinating/managing entity, the coordinating/managing entity is the owner of the monitoring equipment and is responsible for setting up and operating the monitoring equipment⁶.
- No water heating equipment is removed from site due to the installation of the SWH system.
- All SWH installations of the CPA are within the project boundary as described in Section A.4.1.2. of the PoA-DD of the corresponding PoA.

B.3. Assessment and demonstration of additionality of the small-scale CPA , as per eligibility criteria listed in the Registered PoA:

>>

According to section E.5.2. of the corresponding PoA-DD, the CDM enables the coordinating/managing entity to provide its renewable energy services.

The assessment of additionality is therefore done at the PoA level and all SWH installations aggregated under the CPA, which is part of the SSC-CDM-PoA, are therefore deemed to be additional themselves.

⁶ This eligibility criteria is necessary as the coordinating/managing entity is pursuing a dual approach (explained in more detail in section A.4.3 of the corresponding PoA-DD under Investment barriers): (1) SWH systems are installed for free by the coordinating/managing entity and the client is charged for the energy produced by the SWH. (2) If a client wishes to buy the whole system he may do so. In this case the coordinating/managing entity will install the monitoring equipment but the installation of the SWH in itself may be done by a different company.

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Therefore all SWH installations which are included in the CPA, and hence the CPA, are deemed to be additional, provided the CPA meets the eligibility criteria for inclusion of a CPA in the PoA as set in section A.4.2.2 of the corresponding PoA-DD and Section B.2. of the SSC CPA DD.

B.4. Description of the sources and gases included in the project boundary and proof that the small-scale CPA is located within the geographical boundary of the registered PoA.

>>

The GHG reduced through the CPAs under the PoA is CO₂. The reduction takes place through the avoidance of fossil fuel used for generating the electricity which would have been used to heat the water in the absence of the CPA.

Table B.4.1. Emission sources and gases included in the CPA boundary

	Source	Gas	Included?	Justification / Explanation
Baseline	South African grid electricity production	CO ₂	Yes	According to AMS.I.C which refers to AMD.I.D and thus the “Tool to calculate the emission factor for an electricity system”, only CO ₂ emissions from electricity generation should be accounted for.
		CH ₄	No	According to AMS.I.C.
		N ₂ O	No	According to AMS.I.C.
SSC-CPA Activity	Solar water heaters thermal energy production	CO ₂	No	According to AMS.I.C.
		CH ₄	No	According to AMS.I.C.
		N ₂ O	No	According to AMS.I.C.

In section A.4.1.2 the exact addresses and locations of each SWH installation of the CPA are provided. The list shows that all installations are within the project boundary.

B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation:

>>

Data / Parameter:	EF_{grid}
Data unit:	tCO ₂ e/MWh
Description:	Emission factor of the grid
Source of data to be Used:	Eskom (South African electricity supply company) 2008; NER (National Electricity Regulator), Electricity Supply Statistics for South Africa 2002 – 2005; IPCC 2006.
Value applied:	0.930
Justification of the choice of data or	EF_{grid} is calculated according to the ‘Tool to calculate the emission factor for an electricity system’.

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description of measurement methods and procedures actually applied:	
Any comment:	Detailed information can be found in Annex 3.

B.5.2. Ex-ante calculation of emission reductions:

>>

Emission reductions are calculated as:

$$BE = ER - PE \tag{1}$$

Where:

BE Baseline Emissions
ER Emission Reductions
PE Project Emissions

According to AMS.I.C, no project emissions need to be taken into account.
Therefore, $PE = 0$ tCO₂e and $BE = ER$.

According to AMS.I.C no leakage has to be considered if no energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. This is the case for all SWH installations of this CPA (see section B.2.).

Baseline Emissions are calculated as:

$$BE = \sum_i E_i * EF_{grid} \tag{2}$$

Where

E_i Annual energy output of all SWH systems i installed under the CPA in MWh
 EF_{grid} Emission factor (EF) for grid electricity (tCO₂/MWh)

EF_{grid} is calculated according to AMS.I.C which refers to the procedures detailed in AMS.I.D, which refers to the Tool to calculate the emission factor for an electricity system.
For the detailed steps to calculate EF_{grid} please see section E.6.2 of the corresponding PoA-DD.

B.5.3. Summary of the ex-ante estimation of emission reductions:

>>

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
2008	0	967.80	0	967.80
2009	0	967.80	0	967.80

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2010	0	967.80	0	967.80
2011	0	967.80	0	967.80
2012	0	967.80	0	967.80
2013	0	967.80	0	967.80
2014	0	967.80	0	967.80
2015	0	967.80	0	967.80
2016	0	967.80	0	967.80
2017	0	967.80	0	967.80
Total (tonnes of CO ₂ e)	0	9,678	0	9,678

B.6.1. Description of the monitoring plan:

>>

As all CPAs and all SWH installations of a CPA are individually monitored. The monitoring plans for the CPA and for the overall PoA are the same:

The monitoring methodology as defined in Appendix B for the category I.C. “Thermal energy for the user” version 13 is applied for this CPA. This methodology consists of:

- a) Metering the energy produced by a sample of the systems (a system is equivalent to one SWH installation). Emission reductions are calculated by multiplying the total energy produced by all installations of the CPA with an emission coefficient (grid emission factor).

The set up of the monitoring system for the energy produced for a typical installation is shown in Figure B.6.1. (The actual location of the temperature and flow meters may differ from installation to installation)

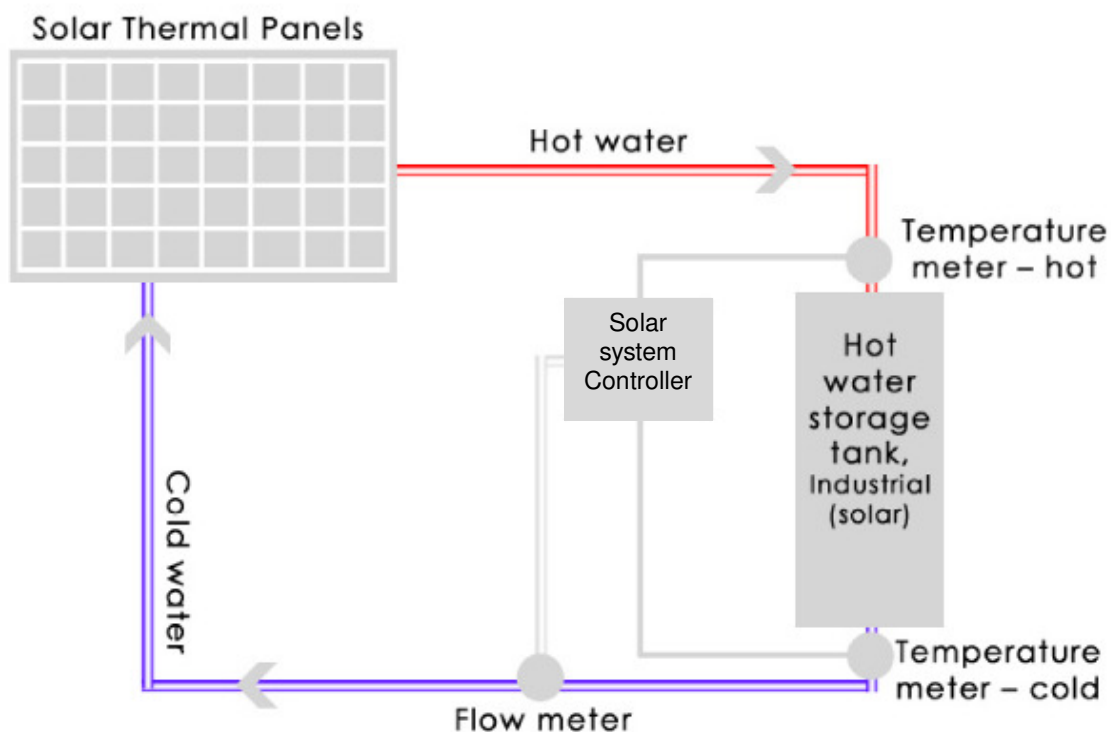
Figure B.6.1 Meter location for theoretical SWH installation⁷

⁷ The exact location of the meters may differ for different SWH installations

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The monitoring systems installed at each installation may differ slightly from the technical design but all will follow the same principle:

A solar system controller is installed that meters the amount of energy generated by the system. Such a measurement device establishes energy on the basis of temperature differences and flow of water.

According to the methodology a sample of the CPA will be verified while data is provided for all installations. Before the start of the crediting period a transparent monitoring system will be implemented, which will make sure that each installation of the CPA can be easily identified. The time period of each installation for which CERs are claimed will be clearly stated in order to rule out double counting.

In addition to the above, procedures will be developed to assure a transparent and complete monitoring system. Such procedures will detail:

- Data collection,
- Data QA/QC,
- Data storage and back-up,
- Maintenance and calibration of monitoring equipment, and
- Staff training.

Please note that all personnel involved in gathering, aggregating and archiving the monitoring data will be trained before the start of the crediting period.

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The coordinating/managing entity will aggregate the data for all installations and calculate the total energy generated by all SWH installations of the CPA. Total energy generated will be multiplied with the South Africa's national grid emission coefficient to derive the total emission reductions.

The system to monitor all SWH installations will be maintained by the coordinating/managing entity or by an entity appointed by the coordinating/managing entity.

Data / Parameter:	E_i
Data unit:	MWh
Description:	Energy output of each SWH installed under the specific CPA i.
Source of data to be used:	Each SWH installation
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Nr.1: 439.71 Nr.2: 146.57 Nr. 3: 105.53 Nr. 4: 293.14 Nr. 5: 58.62
Description of measurement methods and procedures to be applied:	A solar system controller will be installed that meters the amount of energy generated. Such a measurement device establishes energy on the basis of temperature differences and flow of water
QA/QC procedures to be applied:	Equipment is maintained and calibrated in line with manufacturer's recommendations.
Any comment:	Value applied for estimating emission reductions is derived by multiplying the installed m^2 with a default energy production value of 0.08142 MWh/ m^2 per month. This value is calculated using actual energy production data provided by the managing/coordinating entity.

C.1. Please indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken. Justify the choice of level at which the environmental analysis is undertaken:

Please tick if this information is provided at the PoA level. In this case sections C.2. and C.3. need not be completed in this form.

C.2. Documentation on the analysis of the environmental impacts, including transboundary impacts:

NA

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C.3. Please state whether an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA), in accordance with the host Party laws/regulations:

NA

SECTION D. Stakeholders' comments

Please refer to section D of the corresponding PoA-DD for the stakeholder consultation process.

D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:

x Please tick if this information is provided at the PoA level. In this case sections D.2. to D.4. need not be completed in this form.

D.2. Brief description how comments by local stakeholders have been invited and compiled:

NA

D.3. Summary of the comments received:

NA

D.4. Report on how due account was taken of any comments received:

NA

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Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE SMALL-SCALE CPA

Coordinating/Managing Entity

Organization:	Prostart Traders 40 (Pty) Ltd t/a NewEnergies (Pty) Ltd
Street/P.O.Box:	1207 Arcadia Street, Hatfield
Building:	
City:	Pretoria
State/Region:	Gauteng
Postfix/ZIP:	
Country:	South Africa
Telephone:	+27 (0) 12 362 3311
FAX:	+27 (0) 86 508 8670
E-Mail:	nerielh@suntank.com
URL:	www.newenergies.co.za
Represented by:	Mr Neriël Hurwitz
Title:	Marketing Director
Salutation:	Mister
Last Name:	Hurwitz
Middle Name:	
First Name:	Neriël
Department:	
Mobile:	+27 (0) 82 42 1200
Direct FAX:	+27 (0) 86 508 8932
Direct tel:	+27 (0) 12 362 3311
Personal E-Mail:	nerielh@suntank.com

Annex 1 Project participant:

Organization:	EcoSecurities Group Plc.
Street/P.O.Box:	40 Dawson Street
Building:	
City:	Dublin
State/Region:	Dublin
Postfix/ZIP:	02
Country:	Ireland
Telephone:	+353 1613 9814
FAX:	+353 1672 4716
E-Mail:	info@ecosecurities.com
URL:	www.ecosecurities.com
Represented by:	

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Title:	Group Treasurer
Salutation:	Mr.
Last Name:	Meegan
Middle Name:	
First Name:	Conor
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	cdm@ecosecurities.com

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

There is no public funding involved in this project.

Annex 3

BASELINE INFORMATION

Data and sources used to calculate the **grid emission factor** are provided in Annex 3 of the corresponding PoA-DD.

Annex 4

MONITORING INFORMATION

All the monitoring information is indicated in the relevant sections of the CPA-DD.
