


Validation report form for post-registration changes for CDM project activities
(Version 01.0)

Complete this form in accordance with the "Attachment: Instructions for filling out the validation report form for post-registration changes for CDM project activities" at the end of this form.

VALIDATION REPORT ON POST-REGISTRATION CHANGES (PRCs)

Title and reference number of the project activity	NURU Light - Cameroon UNFCCC Ref. No.: 10291
Process track	<input checked="" type="checkbox"/> Prior approval <input type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
Version number of the validation report on PRCs	04
Completion date of the validation report on PRCs	06/09/2017
Type(s) of PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan to a registered project activity <input type="checkbox"/> Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline <input checked="" type="checkbox"/> Changes to the project design of a registered project activity <input type="checkbox"/> Types of changes specific to afforestation and reforestation project activities
Version number of PDD to which this report applies	Version: 04.2; Dated: 30/08/2017
Project participant(s)	S2 Services Sarl Swedish Energy Agency
Host Party	Cameroon
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral Scope: 01 AMS-III.AR. – "Substituting fossil fuel based lighting with LED/CFL lighting systems" (version 05.0).
Name of DOE	Carbon Check (India) Private Limited
Name, position and signature of the	Vikash Kumar Singh, Compliance Officer

approver of the validation report on PRCs

Vinash L. S. S.

SECTION A. Executive summary

The Project Participant has appointed Carbon Check (India) Private Ltd., (CC IPL) to perform an independent validation of the Post Registration Changes (PRC) to the CDM Project Activity titled “NURU Light - Cameroon” (hereafter referred to as “Project Activity”).

The term “UNFCCC criteria” refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board. The independent validation by the DOE is required on the Registered PDD to confirm the post registration changes. This report summarises the post registration changes of the project with respect to requirements of CDM Validation and Verification Standard for Project Activities (version 01.0). This report contains the findings and resolutions from the validation and a validation opinion.

The objective of the Project Activity is dissemination of LED lighting systems (solar lanterns and solar lighting kits) in the Republic of Cameroon (host country), which will replace kerosene lanterns and tin lamps with renewable energy based LED lighting systems.

Scope:

This validation is an independent and objective review of the post registration changes in the registered PDD. The scope of the validation of post registration changes is to determine whether there are proposed or actual changes to the project design of the registered CDM project activity. CC IPL also determined whether the description in the revised PDD submitted by project participants, which describe the nature and extent of the actual changes, accurately reflects the implementation, operation and monitoring of the modified project activity. The validation of post registration changes in the revised PDD were based on the following:

- (i) Approved methodology AMS-III.AR (version 05.0) /B02/ and the applied tools;
- (ii) Revised PDD (in track change and clean mode) /03/;
- (iii) CDM Validation and Verification Standard for Project Activities (Version 01.0) /B01-a/;
- (iv) CDM Project Standard for Project Activities (Version 01.0) /B01-b/; and
- (v) CDM Project Cycle Procedure for Project Activities (Version 01.0) /B01-c/
- (vi) Relevant decisions, guidance and clarifications of the CMP and CDM EB.

Validation process:

The validation process for post registration changes includes the following steps:

- (a) Contract with the project participants and the appointment of the validation team and the technical review team
- (b) Desk review of the revised PDD by the validation team
- (c) Follow up interviews by the validation team
- (d) Reporting and closure of findings (CARs/CLs/FARs) and preparation of validation report
- (e) Independent technical review of the validation report
- (f) Issuance of the final validation report to the contracted PP(s) and submission to the UNFCCC for approval of post registration changes as appropriate.

Conclusion:

In summary, the post registration changes consist of corrections, and changes to the project design. The validation team confirms that the post registration changes in the project activity require prior approval from the Board. The DOE therefore accepts the changes and notifies the EB of request for the approval of the post registration changes: “Corrections/ changes to the project design of the registered Project Activity”. The validation team confirms that the proposed post

registration changes are in line with the applied methodology and all other applicable tools and guidance.

This report¹ is the combined assessment opinion for all the proposed changes in the PDD and is being submitted for approval by CDM EB.

SECTION B. Validation team, technical reviewer and approver

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B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader / Technical Expert	IR	Anand	Amit	CC IPL	X		X	X

B.2. Technical reviewer and approver of the validation report on PRCs

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Singh	Vikash Kumar	CC IPL
2.	Approver	IR	Singh	Vikash Kumar	CC IPL

SECTION C. Means of validation

C.1. Desk review

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List of all documents reviewed or referenced during the validation is provided in Appendix-3 below.

¹ The validation of Post Registration Changes (PRC) of this project activity has been performed in accordance with the requirements of new CDM regulations, which have come into effect post CDM EB's 93rd meeting. An existing version of CDM-PRCV-FORM has been used by DOE for preparation of PRC validation report, as a new version of CDM-PRCV-FORM for project activities is not available on UNFCCC website.

C.2. On-site inspection

No on site assessment was carried out for the validation of post registration changes for the project activity. However, telephonic and Skype based interviews were conducted with the project participants.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	NDONGSOK	Durando	S2 Servies Sarl	14/07/2017 & 28/08/2017 (Via Skype)	Discussion on changes in the PDD including corrections, changes done in the project design, and compliance of changes with the provision provided in the PCP for changes applicable for a project activity.	Amit Anand

C.4. Clarification requests, corrective action requests and forward action requests raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	--	07	--
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	--	--	--
Corrections	--	--	--
Changes to the start date of the crediting period	--	--	--
Inclusion of a monitoring plan to a registered project activity	--	--	--
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	--	--	--
Changes to the project design of a registered project activity	01	04	--
Types of changes specific to afforestation and reforestation project activities	--	--	--
Others (Editorial)	--	01	--
Total	01	12	--

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	DR, I
Findings	CARs 01, 02, 03, 04, 10, 11 and 12 have been raised in this regard. Please refer to appendix 4 for the detailed closure of the validation finding.
Conclusion	<p>The revised PDD /03/ has been completed using the latest available template of CDM-PDD-FORM /B06/ and has been submitted in both track change and clean versions /02/.</p> <p>Both the registered and revised PDD were reviewed for the consistency of the information and it is confirmed that the information transferred from the previous template to the new template is materially the same as in the registered PDD /B04/ except the changes due to the proposed PRC.</p> <p>This confirms to the requirements of §279 and 280 of the VVS for project activities (version 01.0) /B01-a/.</p>

	<p>Furthermore in accordance with §281 (a) of VVS for project activities (version 01.0) /B01-a/, the validation team confirms that:</p> <ul style="list-style-type: none"> (i) The revised PDD /03/ is compliant with the valid version of the CDM-PDD-Form /B06/ and instructions therein; and (ii) The information transferred to the revised PDD /03/ is materially the same as that provided in the registered PDD /B04/.
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D.2. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

Means of validation	DR, I
Findings	Not Applicable
Conclusion	Not Applicable

D.3. Corrections

Means of validation	DR, I
Findings	N/A
Conclusion	<p>Following corrections have been made in the registered PDD:</p> <ol style="list-style-type: none"> 1. Corrections (addition or deletions) are primarily due to change of the project technology from NURU Lights (which were a combination of a product (Nuru Light lamps) and a service (mechanical Recharge of the lamps) to Solar Lantern and Kits /03/ i.e., replacement of Nuru lights in the document by solar lantern and kits. 2. Other corrections (addition or deletions) are primarily due to the adoption of latest template of the CDM-PDD-FORM (version 10.1) /B06/. <p>Validation team has accepted all the proposed corrections in the PDD in accordance with requirements of §287, 288 and 289 of VVS for project activities (version 01.0) /B01-a/ and confirms that the corrected information is an accurate reflection of actual project information and the corrected parameters are in accordance with the applied methodology, the monitoring plan.</p>

D.4. Changes to the start date of the crediting period

Means of validation	DR, I
Findings	Not Applicable
Conclusion	Not Applicable

D.5. Inclusion of a monitoring plan to a registered project activity

Means of validation	DR, I
Findings	Not Applicable
Conclusion	Not Applicable

D.6. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

Means of validation	DR, I
Findings	Not Applicable
Conclusion	Not Applicable

D.7. Changes to the project design of a registered project activity

Means of validation	DR, I
Findings	CL 01 and CARs 05, 06, 07, 08 have been raised in this regard. Please refer to appendix 4 for the detailed closure of the validation finding.
Conclusion	<p>The current project design involves changes compared to the project design in the registered project activity/B04/. The project design changes to the project activity is:</p> <ol style="list-style-type: none"> 1. Change of project technology from NURU Lights (which were a combination of a product (Nuru Light lamps) and a service (mechanical Recharge of the lamps) to Solar lantern and lighting Kits which are charged by a renewable

energy system included as part of the project lamp (solar photovoltaic) /02/.

The validation team confirms that this change is in accordance with the §242 of the CDM project Standard for Project Activities (version 01.0) /B01-b/. The validation team further confirms that this project design change does not have any adverse impact on the compliance of the monitoring plan, the level of accuracy of the monitoring activity, the applied monitoring methodology including applicable tool(s) thereby complying with paragraph 302 of VVS for project activities (version 01.0) /B01-a/.

Further in line with paragraph 309 (c) of VVS for project activities (version 01.0) /B01-a/, the validation team has assessed the effect of the project design change as below:

(i) **Additionality of the registered CDM project activity:**

The change in type of technology from from NURU Lights (which were a combination of a product (Nuru Light lamps) and a service (mechanical Recharge of the lamps) to Solar Lantern and Kits /02/. The additionality of the project was established in accordance with § 11 (c) of the methodological tool: "Demonstration of Additionality of Small Scale Project Activities" (Version 10.0) and the same arguments are valid even after the design change.

(ii) **Scale of the registered CDM project activity:**

The project is a small-scale project activity and the project design change does not adversely affect the scale of the project activity.

(iii) **Applicability and application of the approved baseline methodology under which the CDM project activity has been registered:**

The applicability conditions of the applied methodology AM0064, version 2 are demonstrated as below:

Applicability Criteria	Justification / Assessment
<p>§3: <i>This methodology is applicable only to project lamps whose batteries are charged using one of the following options:</i></p> <p>(a) <i>Charged by a renewable energy system included as part of the project lamp (e.g. a photovoltaic system or mechanical system such as a hand crank charger);</i></p> <p>(b) <i>Charged by a standalone distributed generation system (e.g. a diesel generator set) or a mini-grid, i.e. that is not connected to a national or regional grid;</i></p> <p>(c) <i>Charged by a grid that is connected to regional/national grid</i></p>	<p>The Project lamps (Solar lantern and lighting kit) are being charged by a renewable energy system included as part of the project lamp (solar photovoltaic) as confirmed through review of product technical specification sheet /04/ and verification letter /05/ from Lighting Global (a world bank initiative) /B10/.</p> <p>Part (b) and (c) is not applicable as system charging does not require any diesel generator or connection to grid including mini grid. This was confirmed from the review of the project description and interview of the PP.</p> <p>Conclusion: Based on the above assessment, the validation team concludes that the project activity complies with the requirements of the applicability criterion as laid out in §3(a) of the applied methodology.</p>
<p>§4: <i>At a minimum project lamps shall be certified by their manufacturer to have a rated average life of at least:</i></p>	<p>Based on the interview of the PP it was confirmed that the lights of rated life more than 10,000 hours</p>

	<p>(a) 5,000 hours for Option 1, paragraph 17; (b) 10,000 hours for Option 2, paragraph 18.</p>	<p>would be used.</p> <p>Further, the lighting global testing report confirms that at least 85% of the initial brightness is maintained over 2000 hours for both solar lantern and lighting kit. The same was confirmed through review of product verification letter /05/ from Lighting Global (a world bank initiative) /B10/.</p> <p>Thus, the rated life has been confirmed for the shorter period based on the procedures described in paragraph 18(b) of the applied methodology.</p> <p>Conclusion: Based on the above assessment, the validation team concludes that the project activity complies with the requirements of the applicability criterion as laid out in §4(b) of the applied methodology.</p>
	<p><i>§5: Rated average life is the life certified by the manufacturer or responsible vendor as being the time at which the lamp's initial light output will decline by no more than 30%. In addition, for project lamps charged using Option 3(c) as provided for in paragraph 3 above, the manufacturer shall certify that the battery-charging-circuit efficiency of the project lamps, at the time of the purchase, is at least 50%. For project lamps charged under option indicated in paragraph 3(b), if the mini-grid or distributed generation system is not entirely powered by renewable energy generation unit(s), the manufacturer shall certify that the project lamp's battery charging circuit efficiency, at the time of purchase, is at least 50%.</i></p>	<p>Validation team confirmed the rated life of the LED lamp from the review verification letter /05/ from Lighting Global (a world bank initiative) /B10/. It meets the requirement by using the shorter period of 2000 hours as specified in paragraph 18(b) of the applied methodology.</p> <p>Conclusion: Based on the above assessment, the validation team concludes that the project activity complies with the requirements of the applicability criterion as laid out in §5 of the applied methodology.</p>
	<p><i>§6: Project lamps shall meet warranty requirements of the Lighting Global Minimum Quality Standard. The project lamps shall have a warranty of a minimum of one year from the time the end-user takes ownership or begins using the lamp. At a minimum, the warranty shall cover free replacement or repair of any failed lamps, batteries, and where applicable solar panels. The warranty shall be clearly communicated and supported through the supply chain and available to end-users of the project lamps during the warranty period. In a situation where the project lamps are distributed through intermediaries, the one year warranty shall commence from the time that the project lamps are distributed to end-users. The full warranty terms shall be available in writing, in a</i></p>	<p>The validation team checked product technical specification sheet /04/ and verification letter /05/ from Lighting Global (a world bank initiative) /B10/ and confirms that the project lamps have a warranty of a minimum of one year from the time the end-user takes ownership and that the project lamps meet warranty requirements of the Lighting Global Minimum Quality Standard.</p> <p>Conclusion: Based on the above assessment, the validation team concludes that the project activity complies with the requirements of the applicability criterion as laid out in §6 of the applied methodology.</p>

	<p><i>regionally appropriate language and included with each unit.</i></p> <p><i>§7: Project lamps shall meet or exceed the following minimum performance characteristics, which should be proven by third-party test results:</i></p> <p><i>(a) Light Output: luminous flux of 25 lumens or illuminance of 50 lux over an area $\geq 0.1 \text{ m}^2$ when suspended at a distance of 0.75 meters or self-supported. The light output over a 2,000 hour lumen maintenance test should not decline by more than 15%;</i></p> <p><i>(b) Run Time and Battery Capacity: Daily Burn Time (DBT) shall meet the following requirements:</i></p> <p><i>(i) DBT shall be equal to or greater than 4 hours;</i> <i>For charging Option 3(a) with solar PV, the DBT is defined by the Solar Run Time for the project lamp (as determined per paragraph 9(g))</i></p> <p><i>(ii) For other technologies in option 3(a) the DBT is defined based on typical expected patterns of use.</i></p> <p><i>(iii) For charging Options 3(b) and 3(c):</i></p> <p><i>(a) The maximum claimed DBT shall be less than or equal to the typical capabilities of the regional or local energy system at delivering reliable power sufficient for recharging;</i></p> <p><i>(b) The autonomous (full battery) run-time of the project lamps shall be equal to or greater than 200 per cent of the DBT of the project lamps;</i></p> <p><i>(c) The project lamp shall be fully recharged from a discharged state after eight hours of charging.</i></p> <p><i>§8: The project design document shall explain the proposed distribution method of the project lamps. It shall also explain how the proposed project activity will:</i></p> <p><i>(a) Ensure that the replaced baseline lamps are those that directly consume fossil fuel. This can be done through documentation of the common practice of fuel usage for lighting in the project region (e.g. based on representative sample surveys, official data or peer reviewed literature) that demonstrates that fossil fuel is a commonly used fuel for</i></p>	<p>The validation confirmed the details of illuminance, and DBT provided in the PDD through review of product technical specification sheet /04/ and verification letter /05/ from Lighting Global (a world bank initiative) /B10/ and found it to be appropriate as it fulfills the requirement of the approved methodology.</p> <p>Conclusion: Based on the above assessment, the validation team concludes that the project activity complies with the requirements of the applicability criterion as laid out in §7 of the applied methodology.</p> <p>There are no changes to the applicability condition from the registered PDD /B04/.</p> <p>Conclusion: Based on the above assessment, the validation team concludes that the project activity complies with the requirements of the applicability criterion as laid out in §8 of the applied methodology.</p>
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	<p><i>lighting;</i></p> <p>(b) <i>Encourage the consumers, targeted by the project activity, to use the project lamps and discourage hoarding;</i></p> <p>(c) <i>Eliminate potential double counting of emission reductions that could occur, for example, if more than one entity (e.g. lamp manufacturers, suppliers of solar and/or battery equipment, etc.) claims credit for emission reductions for the project lamps. At a minimum, project lamps shall be marked as CDM project lamps;</i></p> <p>(d) <i>Ensure compliance with prevailing regulations pertaining to the use and disposal of batteries.</i></p> <p>§9: <i>The project design document shall include the minimum requirements for the design specifications of project lamps including the following specifications:</i></p> <p>(a) <i>Lamp wattage (in Watts) and luminous flux output (in lumens);</i></p> <p>(b) <i>Rated lamp life (in hours);</i></p> <p>(c) <i>Where applicable, the type and rated capacity of the renewable energy equipment used for battery-charging (in Watts);</i></p> <p>(d) <i>Type (e.g. NiMH, Lead-Acid, Li-ion), and rated capacity of the batteries (in Ampere hours);</i></p> <p>(e) <i>Type of charge controller (e.g. active or passive);</i></p> <p>(f) <i>Autonomous time and DBT;</i></p> <p>(g) <i>Solar Run Times(s) (SRT) for products with solar energy charging systems. If regional solar data are available, the maximum, minimum and average estimated SRT values for each month of a typical year shall be provided. If regional solar data are not available the standard solar day (5 kWh/m²) shall be used to estimate SRT;</i></p> <p>(h) <i>Where applicable, the amount of time to fully charge the product using mechanical means or a centralized charging system (e.g. the national grid);</i></p> <p>(i) <i>Physical protection against environmental factors (e.g. rain, heat, insect ingress).</i></p>	<p>(a) <u>Lamp wattage (in watts):</u></p> <ul style="list-style-type: none"> Solar lantern: 3 Solar lighting kit: 10 <p><u>Luminous Flux (in lumens):</u></p> <ul style="list-style-type: none"> Solar lantern: 170 (high) & 67 (low) Solar lighting kit: 320 (high) <p>(b) <u>Rated life (in hours):</u></p> <ul style="list-style-type: none"> Solar lantern: 10,000 hours Solar lighting kit: 10,000 hours <p>(c) <u>Not Applicable</u></p> <p>(d) <u>Type of batteries</u></p> <ul style="list-style-type: none"> Solar lantern: Li – ion Solar lighting kit: Li – ion <p><u>Rated capacity of batteries:</u></p> <ul style="list-style-type: none"> Solar lantern: 3900 mAh Solar lighting kit: 8600 mAh <p>(e) <u>Type of Charge controller</u></p> <ul style="list-style-type: none"> Solar lantern: Passive Solar lighting kit: Passive <p>(f) <u>Autonomous Time (hours)</u></p> <ul style="list-style-type: none"> Solar lantern: 7.9 (high) & 17 (low) Solar lighting kit: 11 (high) <p><u>DBT (in hours):</u></p> <ul style="list-style-type: none"> Solar lantern: 5.4 Solar lighting kit: 7.7 <p>(g) <u>Solar Run Time (in hours)</u></p> <ul style="list-style-type: none"> Solar lantern: 5.4 (high) & 11 (low) Solar lighting kit: 7.7 <p>(h) <u>Not Applicable</u></p> <p>(i) <u>Physical protection against environmental factors:</u> The product technical specification sheet /04/ and</p>
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		<p>verification letter /05/ from Lighting Global (a world bank initiative) /B10/ certify that both solar lanterns and lighting kit have passed the physical ingress protection, water ingress protection, drop test and mechanical durability tests.</p> <p>The validation confirmed the fulfillment of this applicability criteria of methodology through review of product technical specification sheet /04/ and verification letter /05/ from Lighting Global (a world bank initiative) /B10/.</p> <p>Conclusion: Based on the above assessment, the validation team concludes that the project activity complies with the requirements of the applicability criterion as laid out in §9 of the applied methodology.</p>
	<p><i>§10: Measures are limited to those that result in emissions reductions of less than or equal to 60 kt CO2 equivalent annually.</i></p>	<p>There are no changes to the applicability condition from the registered PDD/B04/.</p> <p>Conclusion: Based on the above assessment, the validation team concludes that the project activity complies with the requirements of the applicability criterion as laid out in §8 of the applied methodology.</p>
	<p>(iv) <u>The compliance of the monitoring plan with the applied monitoring methodology:</u> The validation team confirms that due to the project design change, there is no change in the monitoring plan of the registered PDD and the monitoring methodology. Hence the original monitoring plan is being retained. This is appropriate and deemed acceptable.</p>	
	<p>(v) <u>The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan:</u> The validation team confirms that due to the project design change, there is no change in the monitoring plan of the registered PDD. Hence, there is no change in the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.</p> <p>The verification team confirms that PP has submitted the revised PDD /03/ in the latest valid applicable PDD Form /B06/ as per the requirement of paragraph 230 of PS for Project Activities (version 01.0) /B01-b/ and paragraph 279 of VVS for Project Activities (version 01.0) /B01-a/ for the applicable project design change for the project activity. The verification team also confirms that information transferred to the later valid version of the PDD form is materially the same as that in the registered PDD /B04/ in line with paragraph 280 of VVS for project activities (version 01.0) /B01-a/.</p>	

D.8. Types of changes specific to afforestation and reforestation project activities

Means of validation	DR, I
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Findings	Not Applicable
Conclusion	Not Applicable

SECTION E. Internal quality control

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The final validation report passed a technical review before being submitted to the UNFCCC Executive Board. A technical reviewer qualified in accordance with the CCIPL's qualification scheme for CDM validation and verification performed the technical review.

SECTION F. Validation opinion

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Carbon Check (India) Private Ltd. (CC IPL) has performed the validation of the post-registration changes for the registered CDM Project Activity "NURU Light - Cameroon" having UNFCCC reference number 10291. During the validation of the post-registration changes to the project activity, corrections and design change from registered project activity have been identified. The post registration changes (PRC) to registered project activity have been validated in line with the requirements of PCP for project activities (version 01.0) /B01-c/ and VVS for project activities (versions 01.0) /B01-a/. In line with §308 of VVS for project activities (version 01.0), CCIPL confirms that the post registration changes information in the revised PDD (version 04.2, Dated 30/08/2017) /02/ reflects actual changes related to the registered PDD and are as per section 8 of the PS for project activities (version 01.0) /B01-b/. These changes fall under the category of changes that require prior approval of the Board.

The validation was performed on the basis of rules and requirements defined by UNFCCC for the CDM project activities. The review of the revised PDD /02/, supporting documentation and subsequent follow-up actions (including interviews), have provided CCIPL with sufficient evidence to determine the fulfilment of stated criteria.

The description in the revised PDD (version 04.2, Dated 30/08/2017) /02/ meets all relevant UNFCCC requirements for the CDM and correctly applies the selected baseline and monitoring methodology.

This report² is the assessment opinion for the changes that are proposed in the PDD /02/ and request is submitted for acceptance of the Board in line with paragraph 130 of the PCP for project activities (version 01.0) /B01-c/.

² The validation of Post Registration Changes (PRC) of this project activity has been performed in accordance with the requirements of new CDM regulations, which have come into effect post CDM EB's 93rd meeting. An existing version of CDM-PRCV-FORM has been used by DOE for preparation of PRC validation report, as a new version of CDM-PRCV-FORM for project activities is not available on UNFCCC website.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CA	Corrective Action/ Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final Validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval(s)
LE	Leakage Emissions
MoC	Modalities of Communication
MP	Monitoring Period
MR	Monitoring Report
MWh	Mega Watt Hour
OSV	On Site Visit
PE	Project Emissions
PP(s)	Project Participant(s)
PRC	Post registration change
QC/QA	Quality Control/ Quality Assurance
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers



Carbon Check (India) Private Ltd.

Amit Anand

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

For following functions:

Validator	<input checked="" type="checkbox"/>	Team Leader	<input checked="" type="checkbox"/>	Technical reviewer	<input checked="" type="checkbox"/>
Verifier	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>	Local Expert ¹	<input checked="" type="checkbox"/>

In the following Technical Areas:

TA 1.1	<input type="checkbox"/>	TA 3.1	<input checked="" type="checkbox"/>	TA 5.2	<input type="checkbox"/>	TA 9.2	<input type="checkbox"/>	TA 13.2	<input type="checkbox"/>
TA 1.2	<input checked="" type="checkbox"/>	TA 4.1	<input type="checkbox"/>	TA 8.1	<input checked="" type="checkbox"/>	TA 10.1	<input type="checkbox"/>	TA 14.1	<input checked="" type="checkbox"/>
TA 2.1	<input type="checkbox"/>	TA 5.1	<input type="checkbox"/>	TA 9.1	<input type="checkbox"/>	TA 13.1	<input checked="" type="checkbox"/>		

Mr. Vikash Kumar Singh
Compliance Officer

Date of Approval
23/12/2016

Valid Till
22/12/2017

Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2016	Annual Revision

¹India, South Africa

CARBON CHECK (INDIA) PRIVATE LIMITED

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has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

For following functions:

Validator	<input checked="" type="checkbox"/>	Team Leader	<input checked="" type="checkbox"/>	Technical reviewer	<input checked="" type="checkbox"/>
Verifier	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>	Local Expert ¹	<input checked="" type="checkbox"/>

In the following Technical Areas:

TA 1.1	<input type="checkbox"/>	TA 3.1	<input checked="" type="checkbox"/>	TA 5.2	<input type="checkbox"/>	TA 9.2	<input type="checkbox"/>	TA 13.2	<input checked="" type="checkbox"/>
TA 1.2	<input checked="" type="checkbox"/>	TA 4.1	<input checked="" type="checkbox"/>	TA 8.1	<input type="checkbox"/>	TA 10.1	<input type="checkbox"/>	TA 14.1	<input type="checkbox"/>
TA 2.1	<input type="checkbox"/>	TA 5.1	<input type="checkbox"/>	TA 9.1	<input type="checkbox"/>	TA 13.1	<input checked="" type="checkbox"/>		


Mr. Amit Anand
CEO

Date of Approval
23/12/2016

Valid Till
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Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2016	Annual Revision

¹India, South Africa

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
01	S2 Services Sarl	Initial Revised PDD	Version: 04.0; Dated: 10/07/2017	PP
02	S2 Services Sarl	Interim versions of the Revised PDD	Version: 04.1; Dated: 24/07/2017 Version: 04.1; Dated: 31/07/2017	PP
03	S2 Services Sarl	Revised Final PDD	Version: 04.2; Dated: 30/08/2017	PP
04	Lighting Global	Technical Specification Sheet: 1. Solar Lighting Kit: Solar Home Power Station with 3 Lights Bulbs and Flashlight (RNTS063) ³ 2. Solar Lamp: G3 Solar Power Lantern (RNG3-3W) ⁴	1.Version: 2017.04 2.Version: 2016.01	PP
05	Lighting Global	Product Verification Letter: 1. Solar Lighting Kit: Solar Home Power Station with 3 Lights Bulbs and Flashlight (RNTS063) ⁵ 2. Solar Lamp: G3 Solar Power Lantern (RNG3-3W) ⁶	1.Reference #: ri-hpsf-2017 2.Reference #: ri-g3l-2016	PP
/B01/	UNFCCC	a. CDM Validation and Verification Standard for Project Activities b. CDM Project Standard for Project Activities c. CDM Project Cycle Procedure for Project Activities	Version: 01.0	Others
/B02/	UNFCCC	AMS-III.AR. “Substituting fossil fuel based lighting with LED/CFL lighting systems” (version 05.0).	http://cdm.unfccc.int	Others
/B04/	UNFCCC	Registered PDD (version 03.5; Dated: 27/06/2016) and the corresponding validation report	http://cdm.unfccc.int	Others
/B05/	UNFCCC	UNFCCC website: http://cdm.unfccc.int	-	Others
/B06/	UNFCCC	Project Design Document form (CDM-PDD-FORM) and filling instructions	Version: 10.1	Others
/B10/	Lighting Global	Websites: https://www.lightingglobal.org	-	Others

³ https://www.lightingglobal.org/wp-content/uploads/2017/05/LG-SSS_HomePowerStationFlashlight-v3-1.pdf

⁴ https://www.lightingglobal.org/wp-content/uploads/2016/02/LG-SSS_ri-g3l.pdf

⁵ https://www.lightingglobal.org/wp-content/uploads/2017/05/TypeApproval_ri-hpsf-kt.pdf

⁶ https://www.lightingglobal.org/wp-content/uploads/2016/02/TypeApproval_ri-g3l.pdf

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CL from this validation

CL ID	01	Section no.	D.7	Date:	19/07/2017
Description of CL					
<p><i>In section B.2 of revised PDD, PP has stated the rated average lifetime of project lamps as 2000 hours in the justification provided against requirements of §4, 5 and 9 of the applied methodology whereas PP has opted for §4 (b) of the applied methodology which puts the average lifetime of lamps at 10000 hours and the same has been demonstrated in accordance with provisions of §18 (b).</i></p> <p><i>In the light of above observation, PP shall explain why the rated average lifetime of lamp is considered as 2000 hours?</i></p>					
Project participant response					Date: 24/07/2017
<p><i>The rated average lifetime is 10 000 hours. There was a mistake in the PDD and it has been corrected now in paragraph 5 and 9. Paragraph 4 is okay as it's not meant to indicate the rated average lifetime, but rather the use of 10 000 hours.</i></p>					
Documentation provided by project participant					
<p><i>Provided the revised PDD</i></p>					
DOE assessment					Date: 01/08/2017
<p>PP has revised the PDD to correctly state the rated average lifetime of project lamps as 10,000 hours in the justification provided against requirements of §5 and 9 of the applied methodology.</p> <p>Furthermore, PP has clarified that option (b) of §4 of the methodology (i.e., ERS can be claimed up to seven years per lamp) has been opted for the project activity and their manufacturer has certified the project lamps to have a rated average operational life of 10000 hours and the same has been proven in accordance with § 18 (b) of the applied methodology.</p>					
Finding is closed.					

Table 2. CAR from this validation

CAR ID	01	Section no.	D.1	Date:	12/07/2017
Description of CAR					
<p><i>In accordance with requirements of § 229 of CDM Project Standard for project activities (version 01.0), PP has not identified and documented any of the actual or proposed changes to the operation, implementation and/or monitoring of the registered CDM project activity.</i></p>					
Project participant response					Date: 24/07/2017
<p><i>The core change here is the substitution of Nuru system (Nuru Lights and mechanical pedals recharging periodically lights) by solar lanterns and solar lighting kits that are stand-alone solutions that come with integrated batteries and solar panels and end users recharge directly.</i></p> <p><i>There is no change in the monitoring</i></p> <p><i>In the operation and implementation, slight changes have been indicated in the PDD. They are:</i></p> <ul style="list-style-type: none"> <i>Retailers (Village level entrepreneurs – VLEs) now sell lanterns and kits in one time and do not do the recharges anymore. They collect their money directly from end-users. In case end-users will pay through Pay-As-You-Go (PAYG) platform, retailers can be paid upfront or later by the PP, depending on their specific arrangement.</i> 					
Documentation provided by project participant					
<p><i>Provided the revised PDD</i></p>					
DOE assessment					Date: 01/08/2017
<p>In the revised PDD, the changes related to the change in technology have been well documented. However, the changes related to distribution and implementation mechanism of project lamps has not been identified and documented.</p>					
<p>Finding is not closed.</p>					
Project participant response					Date: 26/08/2017

<p>We have explained the distribution mechanism in the PDD. In page 2 (section A.1) it's stated:</p> <p><i>"Entrepreneurs will be identified and selected based on location, local experience, capacity (i.e. management and financial capacity) to implement the activities (i.e. selling project solar lanterns and solar lighting kits), credit history and membership of groups (e.g. cooperatives and microfinance organized lending groups). Entrepreneurs can be any person willing to sell project's products, such as individuals, NGOs, Associations, Cooperative, small shop owners in rural area. The staff of S2 available in the field will provide training to prospective entrepreneurs. The training sessions will cover all the necessary information for the entrepreneurs to successfully operate their own micro franchises, taking into account the specific needs of each entrepreneur.</i></p> <p><i>The solar lanterns and solar lighting kits will be bought in cash by end users through S2 trained entrepreneurs, or directly from S2's staff, in cash or using Pay As You Go systems whereby end users pay periodically a small amount of money against energy credits."</i></p> <p>This is how we plan to do the distribution, which is changing slightly from the previous system where all the distribution was focused on the so called Village Level Entrepreneur</p>
Documentation provided by project participant
<i>Provided the revised PDD</i>
DOE assessment
Date: 31/08/2017
In the revised PDD, the changes with regards to distribution and implementation mechanism of project lamps have been identified and documents.
Hence, in accordance with requirements of § 229 of CDM Project Standard for project activities (version 01.0), PP has identified and documented any of the actual or proposed changes to the operation, implementation of the registered CDM project activity.
Finding is closed.

CAR ID	02	Section no.	D.1	Date: 12/07/2017
Description of CAR				
<i>In accordance with requirements of § 230 CDM Project Standard for project activities (version 01.0), PP has not provided a summary of the changes, including the reasons for the changes and any additional information relating to the changes to the PDD.</i>				
Project participant response				Date: 24/07/2017
<i>A summary of changes has now been included in Appendix 7</i>				
Documentation provided by project participant				
<i>Provided the revised PDD</i>				
DOE assessment				Date: 01/08/2017
The summary of the changes provided in Appendix 7 of the revised PDD, is incomplete with regards to lack of information on changes in project lamp distribution and implementation mechanism.				
Furthermore, the changes to the registered PDD have not been clearly classified as either correction, change to project design or any other applicable type to which these changes belong.				
Finding is not closed.				
Project participant response				Date: 26/08/2017
Corrections have now been made in the PDD to include distribution mechanism				
Documentation provided by project participant				
<i>Provided the revised PDD</i>				
DOE assessment				Date: 31/08/2017
Appendix 7 of PDD has been revised to clearly classify the changes to the registered PDD as either correction, change to project design or any other applicable type to which these changes belong. The same is in accordance with requirements of § 230 CDM Project Standard for project activities (version 01.0).				
Finding is closed.				

CAR ID	03	Section no.	D.1	Date: 12/07/2017
Description of CAR				
<i>In accordance with requirements of § 230 CDM Project Standard for project activities (version 01.0), PP has not submitted the PDD using the valid / current version of the CDM-PDD-FORM.</i>				

Project participant response	Date: 31/07/2017
<i>Done</i>	
Documentation provided by project participant	
<i>PDD in new form provided</i>	
DOE assessment	Date: 01/08/2017
The revised PDD submitted to DOE uses the valid/current version of the CDM-PDD-FORM.	
Finding is closed.	

CAR ID	04	Section no.	D.1	Date: 18/07/2017
Description of CAR				
<i>In accordance with requirements of § 242 of CDM Project Standard for Project Activities (version 01.0), PP in the revised PDD has not reported the impacts of the proposed or actual changes to the registered CDM project activity on the following:</i>				
<ul style="list-style-type: none"> <i>(a) The applicability and application of the applied methodologies and, where applicable, the applied standardized baselines, with which the project activity has been registered;</i> <i>(b) The compliance of the monitoring plan with the applied methodologies and, where applicable, the applied standardized baselines;</i> <i>(c) The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan;</i> <i>(d) The additionality of the project activity;</i> <i>(e) The scale of the project activity.</i> 				
Project participant response				Date: 24/07/2017
<i>There are no impacts related to the changes since applicability, compliance of monitoring plan, level of accuracy, additionality and scale of project activity do not change</i>				
Documentation provided by project participant				
<i>Summary of changes in CDM project</i>				
DOE assessment				Date: 01/08/2017
The compliance with requirements of § 242 of CDM Project Standard for Project Activities (version 01.0) has not been provided in the revised PDD.				
Finding not closed.				
Project participant response				Date: 26/08/2017
A table has been added to Appendix 7 of the PDD to show compliance with requirements of § 242 of CDM Project Standard for Project Activities (version 01.0)				
Documentation provided by project participant				
Provided the revised PDD				
DOE assessment				Date: 31/08/2017
Appendix 7 of the PDD has been revised to provide information on the impacts of the proposed or actual changes to the registered CDM project activity on the following:				
<ul style="list-style-type: none"> (a) The applicability and application of the applied methodologies and, where applicable, the applied standardized baselines, with which the project activity has been registered; (b) The compliance of the monitoring plan with the applied methodologies and, where applicable, the applied standardized baselines; (c) The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan; (d) The additionality of the project activity; (e) The scale of the project activity. 				
The same is in accordance with the requirements of § 242 of CDM Project Standard for Project Activities (version 01.0).				
Finding is closed.				

CAR ID	05	Section no.	D.7	Date: 18/07/2017
Description of CAR				
<i>In section B.2 of the revised PDD, the proposed distribution method of project lamps has not been provided in order to justify the fulfilment of requirements of §8 of the applied methodology.</i>				
Project participant response				Date: 24/07/2017
<i>A distribution method has been provided</i>				
Documentation provided by project participant				

<i>Revised PDD</i>	
DOE assessment	Date: 01/08/2017
In section B.2 of the revised PDD, the proposed distribution method of project lamps has been provided by PP to justify the fulfilment of requirements of §8 of the applied methodology.	
Finding is closed.	

CAR ID	06	Section no.	D.7	Date: 18/07/2017
Description of CAR				
<i>In section B.2 of the revised PDD, the DBT for the project lamps has not been provided in order to justify the fulfilment of requirements of §9 (f) of the applied methodology.</i>				
Project participant response				Date: 24/07/2017
<i>The DBT for the project lamps has been provided</i>				
Documentation provided by project participant				
<i>Revised PDD</i>				
DOE assessment				Date: 01/08/2017
In section B.2 of the revised PDD, the DBT for the project lamps has been provided by PP to justify the fulfilment of requirements of §9 (f) of the applied methodology.				
Finding is closed.				

CAR ID	07	Section no.	D.7	Date: 18/07/2017
Description of CAR				
<i>In section B.2 of the revised PDD, the justification against the fulfilment of requirements of §9 (h) of the applied methodology has not been provided.</i>				
Project participant response				Date: 24/07/2017
<i>The information has been provided</i>				
Documentation provided by project participant				
<i>Revised PDD provided</i>				
DOE assessment				Date: 01/08/2017.
In section B.2 of the revised PDD, justification provided for fulfilment of requirements of §9 (h) of the applied methodology is inappropriate to the applicability criteria of methodology. Hence, the justification shall be revised.				
Finding not closed.				
Project participant response				Date: 26/08/2017
Revision done in the PDD				
Documentation provided by project participant				
Revised PDD provided				
DOE assessment				Date: 31/08/2017
Section B.2 of the PDD has been revised to provide an appropriate and correct justification against the fulfilment of requirements of §9 (h) of the applied methodology.				
Finding is closed.				

CAR ID	08	Section no.	D.7	Date: 18/07/2017
Description of CAR				
<i>In section B.2 of the revised PDD, the type of battery stated for justifying the fulfilment of requirements of §9 (d) of the applied methodology is incorrect.</i>				
Project participant response				Date: 24/07/2017
<i>The information has been corrected</i>				
Documentation provided by project participant				
<i>Revised PDD</i>				
DOE assessment				Date: 01/08/2017
In section B.2 of the revised PDD, the type of battery has now been correctly stated to justify the fulfilment of requirements of §9 (d) of the applied methodology.				
Finding is closed.				

CAR ID	09	Section no.	N/A (editorial findings)	Date: 18/07/2017
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Description of CAR	
<i>In section B.7.2 of the revised PDD, a blank column has been provided in the table to be used for sampling.</i>	
<i>Furthermore, page 23 of the same section refers to Nuru Lights.</i>	
Project participant response	Date: 24/07/2017
Corrected. For sampling, we are considering now only the date the light is sold to end-user. The date lights are given to retailers are not important	
Nuru lights have been deleted	
Documentation provided by project participant	
Revised PDD	
DOE assessment	Date: 01/08/2017
In section B.7.2 of the revised PDD, the blank column provided in the table for sampling has been deleted.	
Furthermore, reference to Nuru Lights has also been deleted.	
Finding is closed.	

CAR ID	10	Section no.	D.1	Date: 01/08/2017
Description of CAR				
<i>In accordance with the instructions for completing CDM-PDD-FORM, Section A.1 of the revised PDD doesn't:</i>				
<ol style="list-style-type: none"> 1. Indicate the small-scale project type (Type I, Type II and/or Type III) applicable to the project activity in accordance with the project standard. 2. If applicable, indicate and demonstrate that the project activity qualifies for a microscale project type (Type I, Type II and/or Type III) in accordance with the project standard. 3. If there is more than one component in the project activity, indicate the small-scale or microscale project type for each component separately. 				
Project participant response				Date: 26/08/2017
Points 1. has been considered and the PDD has been changed accordingly				
The project activity is not a microscale and has only one component, so points 2. and 3. are not applicable				
Documentation provided by project participant				
Revised PDD provided				
DOE assessment				Date: 31/08/2017
In accordance with the instructions for completing CDM-PDD-FORM, Section A.1 of the PDD has been revised to indicate that the project qualifies as type III project activity with emission reductions not exceeding 60 kt CO ₂ e per year in any year of the crediting period.				
The same is in accordance with the instructions for completing CDM-PDD-FORM.				
Finding is closed.				

CAR ID	11	Section no.	D.1	Date: 01/08/2017
Description of CAR				
<i>Section A.6 of the revised PDD has not been completed in accordance with the instructions for completing CDM-PDD-FORM.</i>				
Project participant response				Date: 26/08/2017
The section has now been completed				
Documentation provided by project participant				
Revised PDD provided				
DOE assessment				Date: 31/08/2017
Section A.6 of the PDD has been revised in accordance with the instructions for completing CDM-PDD-FORM.				
Finding is closed.				

CAR ID	12	Section no.	D.1	Date: 01/08/2017
Description of CAR				
<i>Section B.2 of the revised PDD has not been completed in accordance with the instructions for completing CDM-PDD-FORM.</i>				
Project participant response				Date: 26/08/2017

<i>Instructions have now been followed in the PDD</i>	
Documentation provided by project participant	
<i>Revised PDD provided</i>	
DOE assessment	Date: D31/08/2017
Section B.2 of the PDD has been revised to indicate that that the project qualifies as type III project activity with emission reductions not exceeding 60 kt CO ₂ e per year in any year of the crediting period.	
The same is in line with the instructions for completing CDM-PDD-FORM.	
Finding is closed.	

Table 3. FAR from this validation

FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of FAR				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		