

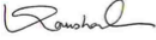


Validation report form for post-registration changes for CDM programme of activities

(version 01.0)

VALIDATION REPORT ON POST-REGISTRATION CHANGES (PRCs)

Title and reference number of the programme of activities (PoA)	Solar Water Heater Program in India
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 PoA PRCs	01
Completion date of the validation report on PoA PRCs	22/09/2016
Version number of PoA-DD and/or CPA-DD applicable to this validation report	PoA 8855: Version 07 CPA 8855-0001: Version 07 CPA 8855-0002: Version 05 CPA 8855-0003: Version 06 CPA 8855-0004: Version 05
Type(s) of PoA PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline <input 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 PoA <input checked="" type="checkbox"/> Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline <input type="checkbox"/> Types of changes specific to afforestation and reforestation activities <input type="checkbox"/> Changes to the programme design of a registered PoA <input type="checkbox"/> Changes to project design of generic component project activities or specific-case component project activities
Coordinating/managing entity (CME)	Nuetech Solar Systems Pvt. Ltd.
Host Party(ies)	India
Sectoral scope(s)	Sectoral Scope: 1 : Energy industries (renewable - / non-renewable sources)
Selected methodology(ies)	Methodology: AMS-I.C- Thermal energy production with or without electricity, Version 19.
Selected standardized baseline(s), where	NA

applicable	
Name of DOE	KBS Certification Services Pvt. Ltd
Name, position and signature of the approver of the validation report on PoA PRCs	 Kaushal Goyal Managing Director

SECTION A. Executive summary

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KBS has been commissioned by “Nuetech Solar Systems Pvt. Ltd.” to perform an independent verification of its registered PoA “Solar Water Heater Program in India” UNFCCC Ref# 8855 for the reported GHG emission reductions for the given monitoring period 01/04/2015 to 31/03/2016 (both dates included). The CME has proposed post registration changes in the PoA-DD and the following CPA-DDs:

1. Solar Water Heater Program in India – “CPA-1” UNFCCC Ref# 8855-0001
2. Solar Water Heater Program in India – “CPA-2” UNFCCC Ref# 8855-0002
3. Solar Water Heater Program in India – “CPA-3” UNFCCC Ref# 8855-0003
4. Solar Water Heater Program in India – “CPA-4” UNFCCC Ref# 8855-0004

Scope:

The scope of the PRC validation is defined as an independent and objective review of the PoA-DD and CPA-DDs, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against the CDM Validation and Verification Standard (version 09) and Project Standard (version 09), Kyoto Protocol requirements and UNFCCC rules. The report is based on the assessment of the revised project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to desk review, follow up actions (e.g., on site visit, electronic (telephone or e-mail) interviews) and also the review of the applicable approved methodological and relevant tools, guidance and CDM decisions.

Description:

The programme of activity involves installation of solar water heater in residential and commercial buildings throughout India. Solar water heater will produce heat from solar radiation which is a renewable energy. The solar water heater will replace the electricity based water heating system. The electricity is generated mostly through fossil fuel based power plants and hence the PoA will result in associated CO₂ emission reduction. The Coordinating/managing entity (CME) of the PoA is Nuetech Solar Systems Pvt. Ltd.

Methodology:Validation methodology and process

The validation has been performed as described in the VVS version 09.0 and constitutes the following steps:

- Desk review of the revised CPA-DDs and the relevant documents
- Interviews
- Issuance of Validation Report for the post-registration changes

Validation criteria

The following CDM requirements have been considered:

- Article 12 of the Kyoto Protocol,
- Modalities and procedures for CDM (Marrakech Accords)
- Subsequent decisions by the COP/MOP and CDM Executive Board
- Host country criteria
- Criteria given to provide for consistent project operations, monitoring and reporting.

The review of the PoA & CPA design documentations and the subsequent follow-up interviews have provided KBS with sufficient evidence to determine the project’s fulfilment of all the stated criteria. In our opinion, the project meets all applicable UNFCCC requirements for the CDM.

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	R	Narendra Kumar	Central Office	X	x	x	x

B.2. Technical reviewer and approver of the validation report on PoA 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	Ma Paa	Puratchikkanal	Central Office
2	Expert to TR	IR	Pal	Kaushik	Central Office
3	Manager Technical & Certification	IR	Sharma	Chetan Swaroop	Central Office

SECTION C. Means of validation**C.1. Desk review**

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The revised PoA-DD & CPA-DDs and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data. The list of documents reviewed during the validation process is mentioned in the Appendix-3 of this report.

C.2. On-site inspection

Duration of on-site inspection: NA				
No.	Activity performed on-site	Site location	Date	Team member
	NA			

The site visit was not conducted as the changes are mainly related to changes in the sampling plan and alternative approach for the monitoring parameters related to category II system when these are not monitored. Hence, validation team decided site visit is not necessary as the changes not related to any design change or any change in physical monitoring which require site visit.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	T	Ananth	CEO, Neutech	02/09/2016	- Changes in monitoring plan - Revised sampling plan	Narendra Kumar R
2	Padmanabha	Sudha	CDM Consultant	02/09/2016		

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 PoA-DD and/or CPA-DD form(s)	-	-	-
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 in a registered PoA	-	-	-
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	-	-	-
Types of changes specific to afforestation and reforestation project activities	-	-	-
Changes to the programme design of a registered PoA	-	-	-
Changes to project design of generic component project activities or specific-case component project activities	-	-	-
Others (please specify)	-	-	-
Total	-	-	-

SECTION D. Validation findings**D.1. Compliance with PoA-DD and/or CPA-DD form(s)**

Means of validation	The revised PoA DD & CPA-DDs for all four CPAs viz. CPA-01, CPA-02, CPA-03 & CPA-04 are submitted. The revised PoA-DD and CPA-DDs are filled in the template CDM-SSC-PoA-DD-FORM, version 5 and CDM-SSC-CPA-DD-FORM, version 5 respectively which are the valid versions at the time of submission for request for approval. The template has not been altered and no modifications have been made to the font, format, headings and logo. All the sections of the PDD are checked for the compliance with the Instructions for filling out the PoA-DD & CPA-DD provided in the respective template.
Findings	No findings.
Conclusion	<p>The following is confirmed:</p> <ol style="list-style-type: none"> 1. The PoA-DD & CPA-DDs are completed using the valid version of PoA-DD & CPA-DD respectively at the time of submission and PP used appropriate type of template i.e., Small scale. 2. All the information has been correctly transferred from registered PoA-DD & validated CPA-DDs/1/ to the current PoA-DD & CPA-DDs/2/ respectively which is filled in the latest PoA-DD & CPA-DD forms/6/ available in UNFCCC website. Verification team confirms that the transfer of information from the old form to the new form is correct and materially the same as the information in the registered PoA-DD & validated CPA-DD CPA-DDs/1/. 3. Revised PoA-DD & CPA-DD are in compliance with the instruction provided in the template. 4. As per the requirement of PRC, both clean and track change copies of PoA-DD & CPA-DDs are submitted for validation.

D.3. Corrections

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

D.5. Inclusion of a monitoring plan in a registered PoA

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

Version 01.0

			<p>Verification team checked the correction and additions in the revised DDs and found to be correct and in line with the latestst 'Guideline for sampling and surveys for CDM project activities and programmes of activities' Version 4</p>
	<p>No description is given for accounting emission reduction for any category II system when the parameters 'EG_{thermal, CAT II,y}' and/or 'EC_{PJ,n,y}' are not monitored.</p>	<p>In case the parameters EG_{thermal, CAT II,y}' and/or 'EC_{PJ,n,y}' are not monitored for any category II system, then the emission reduction from those category II systems will not be considered for the entire crediting period .</p>	<p>Verification team checked the approach provided by CME. As per the revised DDs, the emission reduction will not be considered for the specific category II systems for the complete crediting period when any of the parameter EG_{thermal, CAT II,y}' and/or 'EC_{PJ,n,y}' is not monitored. Hence, the this permanent change provided by CME acceptable.</p>
	<p>No explanation on monitoring requirement as per Paragraph 51 of AMS-I.C. version 19 is provided</p>	<p>The project activity does not involve the complete replacement of the electric geyser as the electric geyser will be used as backup option during cloudy days. The users of the solar water heaters continue operating the electric geyser as back-up until it breaks down. The baseline emissions and related emission reduction is calculated based on the actual number of operating days of the project equipment. Hence there is no need to consider leakage from the continued use of the baseline equipment.</p>	<p>As per para 51 of AMS I.C, version 19, in case the project activity involves the replacement of equipment, and the leakage from the use of the replaced equipment in another activity is neglected, because the replaced equipment is scrapped, an independent monitoring of scrapping of replaced equipment needs to be implemented.”</p> <p>However, the baseline equipment is not expected to be completely replaced which will be used during the non-sunny days. Also, it is found that the emission reduction is calculated based on the actual number of operating days of the project system and hence it is considered that no requirement of calculating leakage and monitoring scraping of replaced equipments.</p>

			Validation team found this approach to be acceptable.
Findings	No findings		
Conclusion	The revised monitoring plan described above is appropriate and in line with the requirement of the section 13.8.3.4 of project standard, version 9/7/. Hence, validation team accept the above permanent changes from the registered monitoring plan reported in the revised PoA-DD and all four CPA-DDs.		

D.7. Types of changes specific to afforestation and reforestation activities

Means of validation	This is not afforestation or reforestation project activity.
Findings	NA
Conclusion	NA

D.8. Changes to the programme design of a registered PoA

Means of validation	No change in programme design is Sought
Findings	NA
Conclusion	NA

D.9. Changes to project design of generic component project activities or specific-case component project activities

Means of validation	No change in the project design of generic component project activity or specific-case project activity is sought.
Findings	NA
Conclusion	NA

SECTION E. Internal quality control

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Following the completion of the assessment process and a recommendation by the assessment team, the validation opinion prepared by Team Leader is independently reviewed by internal Technical Reviewer. TR reviews if all the KBS procedures have been followed and all conclusions are justified in accordance with applicable standards, procedures, guidance and CDM decisions. The TR either is qualified for the technical area within the CDM sectoral scope(s) applicable to project activity or is supported by qualified independent technical expert at this stage

The Technical Reviewer will either accept or reject the recommendation made by the assessment team. The findings can be raised at this stage and PP must resolve them within agreed timeline

The opinion recommended by Technical Reviewer will be confirmed by Manager Technical & Certification and finally authorized by the Managing Director on behalf of KBS as final validation opinion.

SECTION F. Validation opinion

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KBS Certification Services Pvt. Ltd. has been contracted by M/s. Nuotech Solar Systems Pvt Ltd to undertake independent validation of the post registration changes of the CDM PoA “Solar Water Heater Program in India” and UNFCCC Reference Number 8855 as described in the revised PoA-DD, (version 07, dated 29/08/2016) and revised CPA-DDs mentioned below:

1. Solar Water Heater Program in India – “CPA-1” version 07, dated 29/08/2016
2. Solar Water Heater Program in India – “CPA-2” version 05, dated 29/08/2016
3. Solar Water Heater Program in India – “CPA-3” version 06, dated 29/08/2016
4. Solar Water Heater Program in India – “CPA-4” version 05, dated 29/08/2016

This is to ensure that the post registration changes meet all relevant requirements of the UNFCCC for CDM project activities including CDM VVS.

Validation methodology and process:

The validation has been performed as described in the VVS, version 09.0, and consists of the following steps:

- Review of the Registered PoA-DD and validated CPA-DDs,
- Desk review of the revised PoA-DD & CPA-DDs, and the relevant documents
- Site visit & Interviews
- Preparation of the Validation Report,

The validation team confirms that the revised PoA-DD & CPA-DDs have been submitted in the new format and is materially the same as the information in the registered PoA-DD and validated CPA-DDs.

It is DOE's opinion that the revised documentation submitted is conforming to the requirements for Post Registration Changes as stipulated in the Clean Development Mechanism Validation and Verification Standard and thus DOE is recommending the approval of the post registration changes reported in the revised PoA-DD and all the CPA-DDs.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CERs	Certified Emission Reductions
CH ₄	Methane
CL	Clarification Request
CO ₂ e	Carbon dioxide equivalent
COP	Conference of Parties
CME	Coordinating/managing entity
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CPA	Component Project Activities
CPAI	CPA Implementer
CPA-DD	Component Project Activities-Design Document
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
Ers	Emission Reductions
ETC	Evacuated Tube Collector
FAR	Forward Action Request
FPC	Flat Plate Collector
GHGs	Greenhouse Gas(es)
GWP	Global Warming Potential
ISO	International Organization of Standardization
IPCC	Intergovernmental Panel on Climate Change
KBS	KBS Certification Services Pvt. Ltd.
KP	Kyoto Protocol
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
NGO	Non Governmental Organisation
OP	Operating Procedure
PE	Project Emissions
PoA	Programme of Activity
PoA-DD	Programme of Activity – Design Document
PS	Project Standard
PCP	Project Cycle Procedure
SWH	Solar Water Heater
QA/QC	Quality Assurance/Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation & Verification Standard

Appendix 2. Competence of team members and technical reviewers

Personnel Name:		Narendra Kumar	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy Demand	TA 3.1: Energy Demand		
Approved by (Manager C& T)	Akhilesh Joshi		
Approval date:	16/01/2016		

Personnel Name:		M.P. Kanal	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal		
Agriculture	TA 15.1 Agriculture		
Approved by (Manager C & T)	Gagandeep Kakkar		
Approval date:	03/11/2015		

Personnel Name:		Kaushik Pal	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
	TA 1.2 Energy generation from renewable energy sources		
Energy Demand	TA 3.1 Energy Demand		
Approved by (Manager C & T)	Gagandeep Kakkar		
Approval date:	31/12/2014		

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Nuotech	Registered PoA-DD	Version 06, dated 11/12/2012	Publically available
	Nuotech	Validated CPA-DD of CPA-1	Version 06, dated 12/12/2012	Publically available
	Nuotech	Validated CPA-DD of CPA-2	Version 04, dated 19/05/2016	Nuotech
	Nuotech	Validated CPA-DD of CPA-3	Version 05, dated 17/08/2016	Nuotech
	Nuotech	Validated CPA-DD of CPA-4	Version 04, dated 13/05/2016	Nuotech
2	Nuotech	Revised PoA-DD	Version 07, dated 29/08/2016	Nuotech
	Nuotech	Revised CPA-DD of CPA-1	Version 07, dated 29/08/2016	Nuotech
	Nuotech	Revised CPA-DD of CPA-2	Version 05, dated 29/08/2016	Nuotech
	Nuotech	Revised CPA-DD of CPA-3	Version 06, dated 29/08/2016	Nuotech
	Nuotech	Revised CPA-DD of CPA-4	Version 05, dated 29/08/2016	Nuotech
3	UNFCCC	CDM Methodologies: AMS.I.C – “Thermal energy for the user with or without electricity”	Version 19	Publically available
4	IPCC	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	Web link	Publically available
5	UNFCCC	Kyoto Protocol (1997)	Web link	Publically available
6	UNFCCC	CDM-SSC-PoA-DD-FORM - Programme design document form for small-scale CDM programmes of activities *	Version 05	Publically available
	UNFCCC	CDM-SSC-CPA-DD-FORM - Component project design document form for small-scale component project activities	Version 05	Publically available
7	UNFCCC	CDM Project Standard	Version 9.0	Publically available
8	UNFCCC	CDM Validation and Verification Standard	Version 09	Publically available
9	UNFCCC	Standard: Sampling and surveys for CDM project activities and programme of activities	Version 05	Publically available
	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programme of activities	Version 04	Publically available
10	UNFCCC	Glossary “CDM terms”	Version 08	Publically available

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

Table 1. CL from this validation

CL ID	xx	Section no.		Date: DD/MM/YYYY
Description of CL				
AA				
CME's response				Date: DD/MM/YYYY
Documentation provided by CME				
DOE assessment				Date: DD/MM/YYYY

Table 2. CAR from this validation

CAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of CAR				
AA				
CME's response				Date: DD/MM/YYYY
Documentation provided by CME				
DOE assessment				Date: DD/MM/YYYY

Table 3. FAR from this validation

FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of FAR				
AA				
CME's response				Date: DD/MM/YYYY
Documentation provided by CME				
DOE assessment				Date: DD/MM/YYYY

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Document information

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01.0	5 June 2015	Initial publication.

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