Validation report form for post-registration changes for CDM project activities

(Version 03.0)

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

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	**Title**: Broadlands Hydropower Project **UNFCCC reference number**: 9252
Process track	☒ Prior approval ☐ Issuance ☐ Renewal of crediting period
Version number of the validation report	03
Completion date of the validation report	28/01/2021
Type(s) of PRCs	☐ Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[1] ☒ Corrections ☒ Changes to the start date of the crediting period ☐ Inclusion of a monitoring plan ☒ Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents ☒ Changes to the project design ☐ Changes specific to afforestation and reforestation project activities
Version number of PDD to which this report applies	06
Project participants	1. Ceylon Electricity Board 2. Ecoeye Co. Ltd.
Host Party	Sri Lanka
Applied methodologies and standardized baselines	Applied methodology: ACM0002, version 13.0.0 - Consolidated baseline methodology for grid-connect electricity generation from renewable sources Standardized baseline: Not applicable
Mandatory sectoral scopes	01 - Energy industries (renewable/non-renewable sources)
Conditional sectoral scopes, if applicable	N/A

[1] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

Name and UNFCCC reference number of the DOE	4K Earth Science Private Limited UNFCCC Ref No. CDM-E-0069
Name, position and signature of the approver of the validation report	 S. Jagajothi Director

SECTION A. Executive summary

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4K Earth Science Pvt. Ltd. has been contracted by 'Ecoeye Co. Ltd.' to perform a validation of post-registration changes of the CDM registered project 'Broadlands Hydropower Project' (UNFCCC Ref. No. 9252) in Sri Lanka.

The validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism, latest version of Validation and Verification Standard for Project Activities and related Standards/Guidance and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project applies for post registration changes with the following changes applied in the revised PDD /02/ as summarized below in accordance with the CDM PS for project activities version 02 /10/:

a) Corrections in accordance with para 232 of CDM project standard for project activities /10/;
b) Changes to the start date of the crediting period in accordance with para 236 of CDM project standard for project activities /10/;
c) Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents in accordance with para 238 of CDM project standard for project activities /10/;
d) Project design changes in accordance with para 241 (e) of CDM project standard for project activities/10/;

The report is based on the assessment of the project design document, application of standard auditing techniques including but not limited to desk review, follow up actions (e.g., electronic (Skype/Zoom) interviews) and also the review of the applicable approved methodological and relevant tools, guidance and CDM decisions.

The main purpose of the project is to generate electricity from the renewable energy resources, secure energy security and be energy independent in some extent and to contribute sustainable development of the country. The Broadlands Hydropower Project is a run-of-river type. The Main Dam and the other Weir would be located in the Ambagamuwa Korale division; Nuwaraeliya district of the Central Province and the powerhouse would be located in Yatiyantota division, Kegalle district in the Sabaragamuwa.
In this proposed project, a diversion weir will be erected in Kehelgamu Oya to divert its water to the Maskeliya Oya via an approximately 1km long tunnel. This weir is proposed to be located approximately a kilometer above the confluence of two streams. The other diversion, which is the main dam of the project, will be erected in Maskeliya Oya, and purpose of this dam is to divert water collected from both the streams to the proposed powerhouse. The dam would be located downstream of the said tunnel and this location will be about 0.5km downstream of the existing Polpitiya power station.

Water from the said main dam will be conveyed to the proposed 35MW powerhouse, first via a cut-and cover conduit and then through a tunnel. Combined length of the cut–and-cover conduit and the tunnel is approximately 3km. The tailrace of the powerhouse will join the Kattaran Oya at a location close to its confluence with Maskeliya Oya. This location is situated approximately 3.5km downstream of the confluence of Kehelgamu Oya and Maskeliya Oya.

Location of project: Sri Lanka, Central Province and Sabaragamuwa Province, Ambagamuwa Korale division, Nuwaraeliya district, Central province and Yatiyantota division, Kegalle district, Sabaragamuwa Province.
This project is situated in the margins of the central highlands of Sri Lanka in the Kelani river basin about 95 km away from Colombo. The area is widely underlain by pre-cambrian geneiss. The tributaries of the Kelani River, the Maskeliya Oya and Kehelgamu Oya, originate from the southwest slope of Mt. Kerigalpota (2,395m) and flow northwestward.
The main dam and the other weir would be located in the Ambagamuwa Korale division, Nuwaraeliya district of the Central Province and the powerhouse would be located in Yatiyantota division, Kegalle district in the Sabaragamuwa Province. Following figure shows the project location.
The co-ordinates of the site are;
Main Dam: 6^0 58' 44.78"N and 80^0 27' 14.80"E
Power Plant: 6^0 59' 2.38''N and 80^0 25' 27.46''E

Thus, this project activity generates GHG emission reductions up to a total expected CO2 emission reduction of 685,321 tCO2 over the first crediting period of 7 years.

Scope:
The validation is an independent and objective review of the post registration changes in the registered PDD. The information in these documents is reviewed against the CDM Validation and Verification Standard for Project Activities (version 02), Project Cycle Procedure for Project Activities (version 02), Project Standard for Project Activities (version 02), Kyoto Protocol requirements and UNFCCC rules. The scope of the validation of post registration changes is to determine whether there are proposed or actual changes in registered CDM project activity. 4KES 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.

Validation methodology and process
The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.
The overall validation, was conducted using 4KES internal procedures. The validation of the post-registration changes consisted of following three phases:
i) A desk review of the project design and the baseline and monitoring plan;
ii) Follow-up interviews with project stakeholders;
iii) The resolution of outstanding issues and the issuance of the final validation report and opinion.

Conclusion
The report is based on the assessment of the revised PDD undertaken through application of standard auditing techniques including but not limited to document reviews and stakeholder interviews, review of the applicable/applied methodology and its underlying formulae and calculations.

This report contains the findings and resolutions from the validation and a validation opinion on the post-registration changes thus confirming the revised project design as document is sound and reasonable and meets the stated requirements and identified criteria. The validation confirms that the implementation of the post registration changes is in line with the applied methodology and all other applicable tools and guidance.

This report contains the opinion for all the Post registration changes that are reported in the PDD.

Furthermore, we confirm that:

- the revision points have been described, and an assessment has been provided to substantiate the reasons for each of the revision points of the registered PDD, using objective evidence;
- the revision of the PDD ensures that the level of accuracy and completeness in the monitoring and verification process is not reduced as a result of the revisions;
- the information included in the latest PDD template is materially the same as the information in the registered PDD.

The review of the project design documentation and the subsequent follow-up interviews have provided 4KES 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/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader	IR	Sharma	Chetan	Central Office	x		x	x

	and Technical expert (TA 1.2)			Swaroop					

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 & Expert (TA 1.2)	IR	Puratchikkanal	Ma Paa	Central office
2.	Approver	IR	Jagajothi	S	Central Office

SECTION C. Means of validation

C.1. Desk/document review

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The report is based on the assessment of the updated project design document, application of standard auditing techniques including but not limited to desk review, follow up actions (e.g., electronic (Skype/Zoom) interviews), and also the review of the applicable approved methodological and relevant tools, guidance and CDM decisions.

All the documents used for arriving validation conclusion are listed in Appendix 03 and referenced accordingly in validation report.

C.2. On-site inspection

Complete desk review of the final PDD (version 06, dated 28/01/2021) /02/, as well as all the supportive evidences has been checked by the Validation team.

In addition, validation team has conducted Skype/Zoom interviews with PP and other stakeholders, in order to confirm on the post-registration changes in the project activity as well as request for supportive evidence. Based on the interview and the desk review of the supportive documents, validation team has found that the changes in the PDD are in line with the VVS for PA, version 02 /11/.

Based on the Skype/Zoom Interview, PDD document review, as well as the review of UNFCCC procedures and guidelines, 4KES Validation team has proceeded to skip the site visit. As per para 31 of CDM validation and verification standard for project activities version 02, Validation team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of validation.

- Complete desk review of the final PDD (version 06, dated 28/01/2021) /02/, as well as all the supportive evidences have been checked by the Validation team;
- By taking follow up actions by conducting skype/zoom interview with PP along with other stakeholders to gather information about knowledge of project design, Baseline assessment, additionality, monitoring plan, Methodology applicability etc. Cross-checked evaluation under the scope of all information and references provided in PDD.
- Cross checks between information provided by interviewed personnel (i.e. by checking sources) to ensure that no relevant information has been omitted.

Details of interviewees, topics covered and additional information presented in the below section “C.3 Interviews”.

Validation team has also checked the site visit requirements mentioned in the VVS for Project Activities Version 02 /11/ and concluded that no-site visit is required at this stage of project activity. The justification for the site visit requirements of VVS Project Activities Version 02 /11/ have been mentioned below.

VVS PA Version 02 Requirements	Validation team Justification
Para 29 (b) (b) Follow-up actions (e.g. on-site inspection and telephone or e-mail interviews), including:	Validation team has done the follow-up actions by: 1. Skype/Zoom interview with PP along with other

(i) Interviews with relevant stakeholders in the host country, such as personnel with knowledge of the project design and implementation; (ii) Cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted;	stakeholders. 2. Cross checks between information provided by interviewed personnel (i.e. by checking sources) to ensure that no relevant information has been omitted.
Para 30 It is mandatory for the DOE to conduct an on-site inspection at validation for the proposed CDM project activity if: (a) Its estimated annual average of greenhouse gas (GHG) emission reductions or net anthropogenic GHG removals is more than 100,000 t CO2 eq; or (b) There is pre-project information that is relevant to the requirements for registration of the project activity and may not be traceable after the registration.	The validation is for the post-registration changes in the registered project activity and hence the paragraph 30 is not applicable to the current validation. Hence the validation team has not considered the site visit as mandatory in line with the VVS PA Version 02 Requirements.

~~**Duration of on-site inspection**: DD/MM/YYYY to DD/MM/YYYY~~				
~~**No.**~~	~~**Activity performed on-site**~~	~~**Site location**~~	~~**Date**~~	~~**Team member**~~
~~1.~~				
~~…~~				

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Rai	Mr. Rahul	Project Manager Asia Carbon Project, Ecoeye Co. Ltd.	10/11/2020 (Skype Interview)	The project status, additionality, baseline, emission factor calculation, change in project design, monitoring procedure etc.	Mr. Chetan Swaroop Sharma (Skype /Zoom interviews)
2.	Wickramarathna	Mrs. Tharanga	Project Manager, Broadlands Hydropower Project	10/11/2020 (Skype Interview)		
3.	Myungock Hong	Ms. Jane	Managing Director, Koho Trading and Consultancy Pvt. Ltd Associate to Ecoeye Co. Ltd.	10/11/2020 (Skype Interview)		
4.	Wickramasinghe's	Mr. Harsha	Deputy Director General, Sri Lanka Sustainable Energy Authority	04/12/2020 (Zoom interview)		

C.4. Sampling approach

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Not Applicable

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	00	02	00
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	00	00	00
Corrections	00	00	00
Changes to the start date of the crediting period	01	00	00
Inclusion of a monitoring plan	00	00	00
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents	00	00	00
Changes to the project design	00	01	00
Changes specific to afforestation and reforestation project activities	00	00	00
Others (please specify)	00	00	00
Total	01	03	00

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	Validation team checked the Project Design Document with latest version of PDD template available in the UNFCCC website (i.e., version 11) /09/ and "Instructions for completing this form" mentioned as attachment to PDD form (version 11) /09/. 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 completing this form" provided in the PDD template.
Findings	CAR-01 and CAR-03 are raised and closed successfully. Refer Appendix 4 of this report for more details
Conclusion	The following is confirmed: 1. The PDD /02/ is completed using the valid version of PDD at the time of submission. 2. All the information has been correctly transferred from registered PDD /05/ to the current PDD /02/ which is filled in the latest PDD form available in UNFCCC website. Validation 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 PDD /05/. 3. PDD is in compliance with the instruction provided in the template. 4. As per the requirement of PRC, both clean and track change copy of PDD is submitted for validation.

D.2. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

Means of validation	Not Applicable
Findings	Not Applicable
Conclusion	Not Applicable

D.3. Corrections

Means of validation	Following corrections have been done in the registered PDD/05/.

Corrections in the PDD	Validation team justification
Date of completion of PDD has been updated;	Date of completion of PDD has been revised and found acceptable.
CDM-PDD-FORM (Version 11.0 which is used for this document) has been updated;	Latest PDD template has been used in accordance with para 229 of the project standard for project activity

		version 02 /10/ and found acceptable.
	Incorrect reservoir area was reported incorrectly in the registered PDD due to typing error. The same and calculation of power density has been corrected.;	Incorrect reservoir area was reported in the registered PDD /05/ which has been corrected. Two different values were reported in the registered PDD /05/ i.e. 37,700m2 and 38,000m2. PP has used single value i.e. 37,700 m2 which is consistent with the FSR /17/ and hence accepted. This was a typo error in the registered PDD /05/. Validation team confirm that this correction do not have any impact on the project activity. Since reservoir is used for the calculation of power density, hence power density has been revised from 921 W/m2 (registered pdd /05/) to 928.38 W/m2 (revised pdd /02/). Since the power density is still more than 10 W/m2, hence the project emission is still zero. Hence this change do not have any impact on emission reduction calculation. Hence the correction is accepted.
	Contact information of project participants has been updated	Contact information of project participants has been updated under appendix 1 of the revised PDD /02/ and found acceptable. Revised information was confirmed during the remote interview.
	PP has documented the changes in the revised PDD/02/. Validation team has checked the revised PDD /02/ and found OK. Revised PDD /02/ in clean and track change mode in the latest available form has been submitted. The change is as per the para 232 of the project standard for project activities version 02 /10/. The changes are correctly reported in the revised PDD /02/.	
Findings	No CAR/CL raised in this regard.	
Conclusion	The validation team confirms the below: • PP has submitted the revised PDD in the latest format. • The changes are correctly applied in the revised PDD. • The correction does not affect the design of the project activity. • The change is as per the para 232 of the project standard for project activities version 02 /10/. Hence, validation team accepts the correction reported in the revised PDD /02/.	

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

Means of validation	Project activity did not started its operation on the date forcasted in the registered PDD /05/. Thus, project participants requested the change of start date of crediting period in accordance with provisions from CDM project standard for project activity version 2.0 /10/. As discussed with PP during remote audit and also verified from the letter /21/ for

the reason of delay, The project implementation has been delayed due to the following reasons:

i. Due to a delayed processing in the Bank funding, the project affecting the loan disbursements.
ii. Long time taken in getting the approvals to release the required lands for the Project from other government departments.

Hence, crediting period start date was postponed from the expected date in the registered PDD /05/ of 01/06/2015 to 25/12/2020 (as stated in the revised PDD /02/) i.e. expected commissioning as per the long term generation expansion plan published by CEB /20/. Project is still under construction as observed during remote audit and verified from monthly progress report /23/ and CEB Annual reports /24/. Therefore, the PP has applied the permanent changes "**Changes to the start date of the crediting period**" for this project activity in order to shift the start date of the first crediting period to 25/12/2020. Validation team has verified the expected commissioning as per the long term generation expansion plan published by CEB /20/ and found acceptable. PP has also revised the ex-ante ER sheet /04/ accordingly.

The proposed change of start date of crediting period is from 01/06/2015 to 25/12/2020 (more than two years). Thus, following paragraph of project standard /10/ is applicable:

236. If the proposed change to the start date of the crediting period of a registered CDM project activity is more than two years, or more than four years for a registered CDM project activity hosted by a least developed country, the project participants shall: (a) Demonstrate that the project activity remains additional; (b) Demonstrate that the original baseline scenario established in the registered PDD remains valid, or update the baseline scenario using the latest data, as appropriate; (c) Demonstrate that substantive progress has been made by the project participants to start the project activity.

The impact of the change to this registered project activity is justified as follows:

Requirement 1	**Demonstrate that the project activity remains additional;**
PP Justification	Project cost has increased because of the delay. The electricity tariff has increased from Lankan Rupees 11.30 to Lankan Rupees 16.63. However, the increase is not enough to make project financially attractive. Parameters - Total Investment, O & M Cost, Revenue, Net Generation and Tariff have been included in the sensitivity analysis. The sensitivity analysis shows that project remains additional to reasonable variations in the critical assumptions. Impact of delay on the project Additionality is summarized below:

Investment Cost Comparison

Particular	Amount USD	Source
Initial Investment Cost	82027771	Original Contract
Revised Investment Cost	97494069	Revised Contract
The cost has increased. Therefore, project remains additional	15466298	Difference

Initial IRR as per the Registered PDD [2]

Scenario	-10%	0%	+10%
Benchmark	15.58%	15.58%	15.58%
Total Investment	12.76%	11.62%	10.66%
O & M	11.70%	11.62%	11.54%
Net generation	10.47%	11.62%	12.73%
Tariff	10.47%	11.62%	12.73%

Revised IRR as per the Revised Investment Cost and Tariff [3]

Scenario	-10%	0%	+10%
Benchmark	15.58%	15.58%	15.58%
Total Investment	9.95%	9.00%	8.20%
O & M Cost	9.08%	9.00%	8.91%
Revenue	8.02%	9.00%	9.94%
Net Generation	8.02%	9.00%	9.94%
Tariff	8.02%	9.00%	9.94%

Conclusion

The delay has increased the project cost, resulting in IRR which is lower than the benchmark. The sensitivity analysis shows that project IRR will remain lower than the benchmark. Therefore, the project remains additional even after the delay.

Validation team justification

To check if the project remains additional, the project proponent demonstrated the IRR analysis using the actal values. It is noted that the project proponent had to invest more due to delay in project work. However, the capacity still remains the same as per registered PDD /05/. The actual investment cost increased 18.85% compare to the value at the time of making investment decision which is confirmed from the registered PDD /05/, Extract of Signed contract /18/ with China National Electric Equipment Corporation limited and from revised project cost supportive /19/.

Cost comparison is as follows:

Project cost as per registered PDD /05/ in USD	Revised project cost as verified from supportive /19/ in USD
82,027,771	97,494,069

Further the Electricity tariff (US$/kWh) was also compared with the registered PDD /05/. In the registered PDD /05/ 0.0993 (US$/kWh) was used. Now the latest tariff is 0.0917 US$/kWh (considering average selling price of 16.63 LKR/kWh as per CEB STATISTICAL DIGEST REPORT 2019 /28/ and currency conversion rate of 181.3354 LKR/US$ on 31/12/2019 from /29/). The latest available tariff data of 2019 from CEB

[2] Registered IRR Sheet

[3] Revised IRR Sheet

	(CEB is a government authority) has been used for the additionality check which is acceptable to the validation team. The project IRR with actual investment cost and electricity price has decreased to 9.00% as compare to project IRR in the registered PDD of 11.62% and is much lower than the benchmark at the time of decision making of 15.58%. The Calculation of the revised project IRR has been checked from revised IRR sheet /16/ and found correct. Thus, the validation team confirms that the project still remains to be additional.

Requirement 2	**Demonstrate that the original baseline scenario established in the registered PDD remains valid, or update the baseline scenario using the latest data, as appropriate**
PP Justification	Grid emission factor has been reassessed as per the Tool 07: Tool to Calculate the Emission Factor for an Electricity System Version 07.0. Therefore, value of grid emission factor and emission reduction have been updated accordingly in the relevant sections;
Validation team justification	In accordance with the "Ceylon Eletricity Board, Long Term Generation Expansion plan 2018-2037" /20/, the consumption of fossil fuels in the power sector gradually increases with growing demand for coal. Since coal is identified as an economically attractive fuel operation for electricity generation in Sri Lanka. In accordance with the National Energy Policy & Strategies of Sri Lankka, Gaette No. 1553/10 of 10/06/2008 which is still latest policy, NRE(Non-conventional Renewable Energy) Resources (including small-scale hydropower) are the leading sustainable, non-coventional form of renewable energy promoted in Sri Lanka for electricity generation into the grid. These policies do not affect the current baseline of the project. Therefore, Validation team confirms that there have been no changes in the relevant national and/or sectoral regulations for hydro projects to generated electricity and sell to grid since the previous crediting period. As demonstrated in the registered PDD/05/, if the project activity is the installation of a new grid connected renewable power plant, the baseline scenario is as following "*Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin calculations described in the "Tool to calculate the emission factor for an electricity system*". Since the project activity is the installation of new hydropower plant connected to the Sri Lanka grid. The above mentioned baseline is applicable to the project activity. As mentioned in the registered PDD /05/, The state-owned company Ceylon Electricity Board (CEB) dominates power generation, transmission, and distribution in Sri Lanka. One of the key assumptions made in determining the baseline is to treat the whole grid system as one entity. In Sri Lanka the grid system is not divided into provincial sub-groups. Thus the baseline scenario of the project is the delivery of

equivalent amount of annual power output from the Sri lanka national grid to which the proposed project is also connected.

In the registered PDD /05/, Combined margin emission factor of 0.688 tCO2/MWh has been fixed ex-ante for the 1st crediting period.

In accordance with para 236 (b) of the project standard for project activities version 02 /10/ i.e. "*Demonstrate that the original baseline scenario established in the registered PDD remains valid, or update the baseline scenario using the latest data, as appropriate.*", PP has used the latest available combined margin emission factor calculated by Sri Lanka Sustainable Energy Authority (Government authority) in Sri Lanka Energy balance 2017 /23/ with the value of 0.8108 tCO_2/MWh. SLSEA is a government body and calculated the combined margin emission factor for *Sri Lanka'*s electricity system in collaboration with DNA Sri Lanka/Climate Change Division as confirmed from the link /30/ and hence accepted to the validation team.

The Combined margin emission factor calculated by SLSEA /23/ is based on the Methodological Tool 07 'Tool to calculate the emission factor for an electricity system' (Version 05.0).

Validation team compared the revision details from Version 5.0 of "Tool to calculate the EF for an electricity system" to Version 7.0 and find out that there was no revision to affect the calculated combined margin emission factor.

Version change	**Key revision**	**Validation opinion**
From tool version 05.0 – 06.0	Inclusion of simplified approaches on small isolated grids in SIDS and LDC.	No impact There is no revision or update for EF calculation regarding grid-connected electricity generation.
	Enhancement of the clarity of the requirements related to determine transmission constraints	No impact In Sri Lanka, there is only one electricity transmission system which is owned and operated by the national utility known as Ceylon Electricity Board (CEB). Therefore Option 1 is used and project will be connected to this network. Therefore, there is no impact of EF calculation for updated tools.
From tool version 06.0 – 07.0	Revision to include	No impact there is only one

	monitoring requirements for parameters used to determine the emission factor of the isolated gird.	electricity transmission system which is owned and operated by the national utility known as Ceylon Electricity Board (CEB).

Under section B.6.1 of the revised PDD /02/, PP has justified the emission factor calculation with the steps of the "Tool to calculate the emission factor for an electricity system" version 07.0 /14/ which is found OK. Section B.6.2 of the revised PDD /02/ is also revised accordingly.

The EF calculation contained in the revised PDD /02/ has been cross-checked with Sri Lanka energy balance 2017 issued by SLSEA /23/, "Statistical Digest Report" issued by CEB /25/, CEB annual reports /24/, Sales and generation data annual books /26/ and found correct. Validation team also interviewed the official of SLSEA about the EF calculation procedures and can confirm that the emission factor calculation is in accordance with "Tool to calculate the emission factor for an electricity system" version 07.0 /14/ and calculated from the data source /23/, /24/, /25 and /26/.
Justification for the emission factor calculation with the Tool "Tool to calculate the emission factor for an electricity system" version 07.0 /14/ is justified below.

TOOL07/ step 1. - Identify the relevant electric systems Ceylon Electricity Board (CEB) electric power system is selected as the electric power system of project as it's only electricity transmission and distribution system in Sri Lanka owned and operated by the national utility CEB. The validation team confirmed that the identified electric power systems are appropriate and consistent with the evidence in "Sri Lanka Energy Balance 2017" published by Sri Lanka Sustainable Energy Authority /23/ and the interview with the officer of Sri Lanka Sustainable Energy Authority (SLSEA).
TOOL07/ step 2. - Choose whether to introduce off-grid power plants in the project electricity system Option I "Only grid power plants are included in the calculation" was chosen which is consistent with the evidence in "Sri Lanka Energy Balance 2017" published by Sri Lanka Sustainable Energy Authority /23/ and the interview with the officer of Sri Lanka Sustainable Energy Authority (SLSEA).
TOOL07/ step 3. - Select a method to determine the operating margin (OM) During the interview with SLSEA official, it was confirmed that Hydro, biomass, solar, Thermal (Coal) and Wind have been considered as low-cost must run which is in accordance with the tool "Tool to calculate the emission factor for an electricity system" version 07.0 /14/. The Low-cost/must-run resources constitute more than 50 per cent of total grid generation in average of the five most recent years hence point 2 of para 40 (a) of the tool /14/ has been used i.e. based on long-term averages for hydroelectricity production (minimum time frame of 15 years) which is less than 50%, Therefore Simple Operating

			Margin method has been selected for the calculation of OM. Only grid power plants are included in the calculation. The validation team has checked the calculation under the ER sheet /04/ and found correct. ex-ante option has been selected to calculate the simple OM, using the data vintages for years y, as the full generation-weighted average for the most recent 3 years for which data are available at the time of project submission. The calculation of grid emission factor will be made using the most historical years for which data is available at the time of submission of the project to the DOE for validation. The data vintage and calculated OM will not be changed during the crediting period.
			TOOL07/ step 4. - Calculating the operating margin emission factor according to the selected method *The simple OM emission factor is calculated as the generation-weighted average CO2 emissions per unit net electricity generation (t CO2/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.* Option A is used to calculate the simple OM emission factor based on the net electricity generation of each power unit and an emission factor for each power unit. Option A1 is selected to determine $EF_{EL,m,y}$. The Operating margin emission factor is calculated as the full generation weighted average for the most recent 3 years for which data are available at the time of project submission. The validation team confirms that the data sourced are deemed reasonable and the calculation complied with the TOOL07 version 07.0.
			TOOL07/ Step 5. - Calculate the build margin emission factor Option 1 has been chosen for the calculation of Build Margin (BM). AEGSET-≥20 per cent is greater than AEGSET-5-units. Therefore, AEGSET-≥20 per cent was selected as SETsample. None of the power unites in SETsample started to supplies electricity to the grid more than 10 years ago, Thus SETsample is used to calculate the build margin as per Step (a) ~ (c), the Step(d)~(f) in the Tool is not required. Equation 15 of the Tool 07 version 07.0 /14/ has been used for the build margin emissions factor calculation. The CO2 emission factor of each power unit m ($EF_{EL,m,y}$) has been determined as per the guidance in Step 4 (a) of the tool /14/ for the simple OM, using para 49 (a) Options A1, using for y the most recent historical year for which electricity generation data is available, and using for m the power units included in the build margin. The validation team hereby confirms that the data sources are deemed reliable and calculation is appropriate.
			TOOL07/ Step 6. - Calculate the combined margin (CM) emissions factor Weighted average CM i.e. para 81 (a) of the tool /14/ has been used for the combined margin emission factor calculation. According to TOOL 07 /14/, the default weights: wOM = 0.5 and wBM = 0.5 for the first crediting period, and wOM = 0.25 and wBM = 0.75 for the second and third crediting period were adopted. Therefore, the combined baseline emission factor is determined ex-ante. The $EF_{grid,y}$ for the 1st crediting period :

	0.8108 tCO2/MWh. Validation team has checked the calculation and found correct. Hence validation team confirm Baseline has been updated using the latest data and found correct.

Requirement 3	**Demonstrate that substantive progress has been made by the project participants to start the project activity.**
PP Justification	Substantive progress has been made in the implementation of the project activity; the project is in commissioning stage. • As per Ceylon Electricity Board (CEB) Annual Report 2017 page 60 – "*The construction work is in Progress in parallel at Main Dam Site, Main Tunnel, Diversion Tunnel and Power House Site and the project is scheduled to complete in year 2019"*; • As per Ceylon Electricity Board (CEB) Annual Report 2018 page 71 – "*The construction work is in Progress in parallel at Main Dam Site, Main Tunnel, Diversion Tunnel and Power House Site and the project is scheduled to complete in year 2019. The Physical Progress to date is 60%";* • As per the project progress review meeting. 74.79% of the work has been completed August 2020; • Project participant is expecting to start the project activity by December 2020[4].
Validation team justification	Based on the milestones given under section B.5 of the revised PDD /02/, Validation team confirm that substantive progess was made by project proponent to start the project activity. According to the registered PDD /05/, crediting period start date is "*2015/06/01 (expected) or once the project is operational, whichever is later*". Crediting period start date has been postpone to 25/12/2020 (as stated in the revised PDD /02/) i.e. expected commissioning as per the long term generation expansion plan published by CEB /20/. Project is still under construction as observed during remote audit and verified from monthly progress report /22/ and CEB Annual reports 2017&2018 /24/. As mentioned under appendix 7 of the revised PDD /02/, CEB annual reports for 2017 and 2018 were checked which demonstrate that project work is under process. Also as per the Monthly progress report meeting no. 59, dated 23/10/2020 /22/, 74.79% of the work has been completed. Hence as per the remote interview of the PP and other supportive documents /20/, /22/, /24/, Validation team confirm substantive progess was made by project proponent to start the project activity. As per the project progress information provided by the PP, it is likely that project will start operation by 25 December 2020.

Findings	CL-01 has been raised and successfully closed. Refer Appendix 4 of this report for more details.

[4] Long Term Generation Expansion Plan 2018-2037, Table 2.1

Conclusion	The validation team confirms the below: • PP has submitted the revised PDD in the latest format. • The changes are correctly applied in the revised PDD /02/. 4KES confirm that; 1. Project activity is still additional. 2. Baseline has been updated and found correct. 3. Substantive progress has been made by the project participants to start the project activity. So, the project fulfils the requirement of para 236 of CDM project standard for PA, version 2.0 /10/. Hence, change in start date of the crediting period from 01/06/2015 to 25/12/2020 is accepted.

D.5. Inclusion of a monitoring plan

Means of validation	Not Applicable
Findings	Not Applicable
Conclusion	Not Applicable

D.6. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

Means of validation	Under section B.7.1 and B.7.3 of the registered PDD /05/, it was mentioned that energy meter will be calibrated as per the **national** standards which has been revised to **CEB** standards which are national standards. Ceylon Electricity Board (CEB) is a government owned entity which controls electricity generation, transmission and distribution in Sri Lanka. Ceylon Electricity board is a national institution and has responsibility to develop a sound, adequate and uniform electricity policy, and, for that purpose, to control and utilize national power resources as confirmed from CEB Annual Report 2010. https://www.parliament.lk/papers_presented/24102012/annual_report_ceylon_electricity_board_2010.pdf /24/ and Ceylon Electricity Board Act (No. 17 of 1969) - Sect 11 /33/. CEB has national standards for the energy meters as confirmed from the weblink https://ceb.lk/standard-spec/en /32/. The CEB standard (National standard) is more appropriate as the meters will be under the control of CEB. This change has no impact on the applicability of the applied methodology and GHG emission reductions. Also the change will not impact the accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan /05/. The change is as per paragraphs 81 (c) and 238 of project standard for project activities Version 02 /10/. For this change, PP has submitted the revised PDD /02/ in clean and track change mode in the latest available form and found OK. The changes are correctly reported in the revised PDD /02/.
Findings	No CAR/CL raised in this regard.
Conclusion	The validation team confirms the below: • PP has submitted the revised PDD in the latest format. • The changes are correctly applied in the revised PDD /02/. • The change in the monitoring plan does not impact the applicability of the methodology. Hence, validation team accepts the permanent change reported in the revised PDD /02/.

D.7. Changes to the project design

Means of validation	Two changes have been mentioned in the revised PDD /02/ as mentioned below.

a) Description regarding 33 kV transmission line has been added. The purpose of 33 kV line is to import grid electricity to the plant, if required.
Electricity import has been identified as the monitoring parameter on page number 25 of the registered PDD. This monitoring parameter is unchanged. The proposed change adds further technical details.

Under section A.3 of the revised PDD /02/, information about 33 kV transmission line has been added. The purpose of 33 kV line is to import grid electricity to the plant, if required. The description is relavant for the monitoring parameter "$EG_{imt,y}$" which is already part of the monitoring plan and reported under section B.7.1 of the registered PDD /05/. There is no change in the monitoring parameter. The addition of information only provide clarify. Validation team has checked the same from the line diagram /27/ provided by PP. Hence the addition of the information is accepted to the validation team.

b) In Table A.1 discharge and in Table A.2 - rated discharge (per unit) of turbine and runway speed of generator have been corrected. In the registered PDD the values were typed incorrectly. Now they have been corrected.

Turbine rated discharge (each unit) and runway speed of generator (each unit) have been revised in the revised PDD /02/ however the capacity of equipment and estimated electricity output by the project activity are not changed. Since these are minor changes, therefore does not impact to ER estimation and also additionality of the project activity. The changes are presented in detailed in the table below:

Main parameters	Unit	Value in the registered PDD /05/	Actual value in revised PDD /02/
1. Turbine			
Rated Discharge (per unit)	m^3/sec	35	34.731
2. Generator			
Runway Speed	rpm	586	591.2

The actual details of "Turbine rated discharge and generator runaway speed" are provided in section A.1 and A.3 of the revised PDD /02/. Validation team has checked the Nameplate photo of turbine and generator /15/ and found consistent with the information given under section A.1 and A.3 of the revised PDD /02/.

The above changes are as per paragraph 241 (e) of project standard for project activities Version 02 i.e. "Changes to the technologies/measures that result in the same technologies/measures as in the originally registered technologies/measures" /10/. The actual changes do not adversely impact any of these:

(a) The applicability and application of the applied methodology i.e. "ACM0002, version 13.0.0 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources";
(b) The project boundary and any associated leakages due to the changes;
(c) The compliance of the monitoring plan with the applied methodologies;
(d) The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan;
(e) The additionality of the project activity;
(f) The scale of the project activity.

The justification for each of above criteria is given below:

The impact of actual change	Validation team justification

	(a) The applicability and application of the applied methodologies with which the project activity has been registered;	Project activity is still applicable under applied methodology ACM0002, version 13.0.0. The justification on applicability condition of ACM0002, version 13.0.0 remains the same as per section B.2 of the registered PDD /05/. Changes have no impact on the applicability and application of the applied methodology.
	(b) The project boundary and any associated leakages due to the changes	Changes has no impact on the project boundary and any associated leakages.
	(c) The compliance of the monitoring plan with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents	The monitoring plan is still in compliance with the applied methodology /07/. Changes have no impact on the compliance of the monitoring plan with the applied methodologies and the other applied methodological regulatory documents.
	(d) The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan;	The change in Turbine rated discharge and generator runway speed has no impact on level of accuracy and completeness in the monitoring of the project activity. PP has used the actual parameters and there is no impact on the level of accuracy and completeness. Also the addition of information about 33 kV transmission line further add clarify in the monitoring and there is no impact on the level of accuracy and completeness.
	(e) The additionality of the project activity;	The change in Turbine rated discharge and generator runway speed has no impact on the additionality of the project activity as the capacity of equipment and estimated electricity output by the project activity are not changed. Also the addition of information about 33 kV transmission line further add clarify in the monitoring and has no impact on the additionality of the project activity.
	(f) The scale of the project activity	There is no impact on the scale of the project activity because of the changes.
	For these changes, PP has submitted the revised PDD /02/ in clean and track change mode in the latest available form and found OK. The changes are correctly reported in the revised PDD /02/.	
Findings	CAR-02 is raised and closed successfully. Refer Appendix 4 of this report for more details	
Conclusion	The validation team confirms the below: • PP has submitted the revised PDD in the latest format. • The changes are correctly applied in the revised PDD /02/. • All above changes incorporated by PP are in compliance with the para 241 (e) of CDM PS for project activities, version 02 /10/. • The change in the project design does not adversely impact the following: o The applicability and application of the applied methodology. o The project boundary and any associated leakages due to the changes. o The compliance of the monitoring plan with the applied methodology. o The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan. o The additionality of the project activity.	

	○ The scale of the project activity. So, the project fulfils the requirement of paragraph 303 of VVS for PA version 2.0. Hence, validation team accepts the design change reported in the revised PDD /02/.

D.8. Changes specific to afforestation and reforestation project activities

Means of validation	Not Applicable
Findings	Not Applicable
Conclusion	Not Applicable

SECTION E. Internal quality control

>>
The validation report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by 4KES are duly followed and the validation report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the validation team. The independent technical reviewer(s) may approve or reject the draft validation report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before submit final report to UNFCCC. The final approval decision is taken by the Head of the DOE/Director.

The final decision is authorized by the Director, 4KES, once the report is finalized by the Head of the DOE/DOE Manager.

SECTION F. Validation opinion

>>
4K Earth Science Pvt. Ltd. has been contracted by 'Ecoeye Co. Ltd.' to perform a validation of post-registration changes of the CDM registered project 'Broadlands Hydropower Project' (UNFCCC Ref. No. 9252) in Sri Lanka.

The validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism, latest version of Validation and Verification Standard for Project Activities and related Standards/Guidance and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The report is based on the assessment of the revised PDD /02/ undertaken through application of standard auditing techniques including but not limited to desk review, follow up actions (e.g., electronic (Skype/Zoom) interviews) and also the review of the applicable approved methodological and relevant tools, guidance's and CDM decisions.

The permanent changes are unlikely to lead to a reduction in the accuracy of the calculation of emission reductions. The version of the template of the PDD is updated to the latest version of template. This change was assessed to confirm that the revised PDD complies with the completing instructions of the CDM PDD-FORM. The change in the revised PDD /02/ complies with the VVS for project activities version 02 /11/, PCP for project activities version 02 /12/ and PS for project activities version 02 /10/ and amendments. The description in the revised PDD /02/ meets all relevant UNFCCC requirements for the CDM. The DOE therefore accepts the Permanent changes as given below.

1. Corrections,
2. Changes to the start date of the crediting period,
3. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents.
4. Changes to project design

4K Earth Science Pvt. Ltd. concludes the validation with a positive opinion that the Project Activity "Broadlands Hydropower Project", meets all applicable requirements of UNFCCC for post-registration changes and therefore recommends for the approval of Permanent changes made to the PDD.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDM PCP	Clean Development Mechanism Project Cycle Procedure for Project Activities
CDM PS	Clean Development Mechanism Project Standard for Project Activities
CDM VVS	CDM Validation and Verification Standard for Project Activities
CEB	Ceylon Electricity Board
CECB	Central Engineering Consultancy Bureau
CER	Certified Emission Reduction(s)
CL	Clarification request
CNEEC	China National Electric Engineering Co. Ltd.
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalent
CP	Commitment Period
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission factor
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas(es)
LKR	Sri Lankan rupee
IRR	Internal Rate of Return
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
SLSEA	Sri Lanka Sustainable Energy Authority
UNFCCC	United Nations Framework Convention on Climate Change
4KES	4K Earth Science Private Limited

Appendix 2. Competence of team members and technical reviewers

Certificate of Competence							
Name	☒ Mr. ☐ Ms.	**Chetan Swaroop Sharma**					
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*					
Appointed to work as:							
		CDM Validator/Verifier	**Team Leader**	**Team Member**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**
Appointed		Yes	Yes	Yes	Yes	Yes	No
Appointed Date		13-06-2020					

Authorized to work as Technical Expert for:			
Authorized Technical Area	**Sectoral Scope**	**TA Code**	**Technical Area within the scope**
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables
	Energy distribution	2.1	Energy distribution
	Energy demand	3.1	Energy demand
	Waste handling and disposal	13.1	Solid waste and wastewater
Authorized to work as Local Expert for:			
Country/Countries	India		
Compliance check by: Anand S. R.			

Certificate of Competence						
Name	☒ Mr. ☐ Ms.	**Ma Paa Puratchikkanal**				
Qualification Procedure	*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*					
Appointed to work as:						
	CDM Validator/Verifier	**Team Leader**	**Team Member**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**
Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	29-07-2019					
Authorized to work as Technical Expert for:						
Authorized Technical Area	**Sectoral Scope**		**TA Code**	**Technical Area within the scope**		
	Energy industries (renewable - / non-renewable sources)		1.1	Thermal energy generation		
	Energy industries (renewable - / non-renewable sources)		1.2	Renewables		
	Energy demand		3.1	Energy demand		
	Construction		6.1	Construction		
	Waste handling and disposal		13.1	Solid waste and wastewater		
	Agriculture		15.1	Agriculture		
Authorized to work as Local Expert for:						
Country/Countries	India					
Compliance check by: Anand S. R.						

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	Project Participant	First Project Design Document	Version 03, dated 31/10/2020	Project Participant
2.	Project Participant	Final Project Design Document	Version 06, dated 28/01/2021	Project Participant
3.	Project Participant	First ER/Emission factor Calculation Sheet	Corresponding to PDD version 03	Project Participant

4.	Project Participant	Final ER/Emission factor Calculation Sheet	Corresponding to PDD version 06	Project Participant
5.	Project Participant	Registered PDD	Version 03, dated 29/11/2012	Publicly available
6.	KOREA ENERGY MANAGEMENT CORPORATION	Validation Report, REPORT NO. GHGCC(A)12-001	REVISION NO. 03.0, dated 24/12/2012	Publicly available
7.	UNFCCC	ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"	Version 13.0.0	Publicly available
8.	UNFCCC	Kyoto Protocol (1997)	Web Link	Publicly available
9.	UNFCCC	Project design document form	Version 11	Publicly available
10.	UNFCCC	CDM Project Standard for project activities	Version 02	Publicly available
11.	UNFCCC	CDM Validation and Verification Standard for project activities	Version 02	Publicly available
12.	UNFCCC	CDM project cycle procedure for project activities	Version 02	Publicly available
13.	UNFCCC	Glossary "CDM terms"	Version 10	Publicly available
14.	UNFCCC	Tool to calculate the emission factor for an electricity system	Version 07.0	Publicly available
15.	Project Participant	Photos of name plate capacity of Turbine, Generator and Transformer	-	Project Participant
16.	Project Participant	Updated IRR sheet based on actual parameters	-	Project Participant
17.	JICA	Feasibility Study Report of Broadlands Hydropower Project by JICA (JAPAN INTERNATIONAL COOPERATION AGENCY) on 16/02/2004	16/02/2004	Project Participant
18.	PP and China National Electric Engineering Co. Ltd. (Contractor).	Extracts of the Signed design, construction and commissioning contract agreement with the China National Electric Equipment Corporation Limited on 24/02/2010	24/02/2010	Project Participant
19.	PP and China National Electric Engineering Co. Ltd. (Contractor).	Revised project cost: Minutes of negotiation meeting with between PP and China National Electric Engineering Co. Ltd. (Contractor).	19/06/2020	Project Participant
20.	Ceylon Electricity Board	The Long Term Generation Expansion Plan (2018-2037) published by Ceylon Electricity Board in June 2018	June 2018	Project Participant
21.	Project Participant	Letter for the reason of delay from CEB	28/08/2020	Project Participant
22.	CEB, CECB and CNEEC	Monthly progress report meeting no. 59	23/10/2020	Project Participant
23.	Sri Lanka Sustainable Energy Authority	Sri Lanka Energy Balance 2017 http://www.energy.gov.lk/images/energy-balance/energy-balance-2017.pdf	-	Publically available
24.	CEB	CEB annual reports https://ceb.lk/publication-media/annual-reports/82/en	-	Publically available
25.	CEB	Ceylon Electricity Board, Statistical Digest	-	Publically

		annual reports https://ceb.lk/publication-media/statistical-reports/74/en		available
26.	CEB	SALES AND GENERATION DATA annual BOOKs https://ceb.lk/publication_media/other-publications/75/en	-	Publically available
27.	Project Participant	Project Line diagram	-	Project Participant
28.	CEB	Ceylon Electricity Board, Statistical Digest report 2019 https://ceb.lk/front_img/img_reports/1601877736Statistical_Digest_2019_Web_Version.pdf	-	Publically available
29.	Project Participant	https://www.currency-converter.org.uk/currency-rates/historical/table/USD-LKR.html	-	Publically available
30.	Project Participant	http://www.climatechange.lk/DNA/Grid_Emission_Factors.html	-	Publically available
31.	MINISTRY OF POWER & ENERGY	In accordance with the National Energy Policy & Strategies of Sri Lankka, Gaette No. 1553/10 of 10/06/2008 http://powermin.gov.lk/english/wp-content/uploads/documents/national_energy_policy.pdf	-	Publically available
32.	Ceylon Electricity Board	https://ceb.lk/standard-spec/en	-	Publicly available
33.	Ceylon Electricity Board Act	http://www.commonlii.org/lk/legis/num_act/ceba17o1969288/s11.html	-	Publicly available

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

Table 1. CLs from this validation

CL ID	01	**Section no.**	D.4	**Date:** 11/11/2020
Description of CL				
As per para 236 of the project standard for project activities version 02.0: 1. Justify the additionality of the project and provide credible evidence for the same. 2. Demonstrate with credible evidence that substantial progress has been made by the project participant to start the project activity.				
Project participant response				**Date:** 09/12/2020
1. Further justification has been added; 2. Evidence to support the project progress has been added				
Documentation provided by project participant				
Revised PDD and evidence to support the project progress				
DOE assessment				**Date:** 10/12/2020

1. Correction has been done under appendix 7 of the revised PDD /02/ and found OK. Project cost and electricity tariff have changed compare to the values taken in the registered PDD /05/. Updated IRR sheet /16/ has been submitted with the revised parameters i.e. project cost and tariff. Project is still additional with the revised parameters. Detailed justification has been provided under section D.4 of this report. Hence this part of CL is closed. 2. Appendix 7 of the revised PDD /02/ has been revised and it is demonstrated that substantial progress has been made by the project participant to start the project activity. Detailed justification has been provided under section D.4 of this report. Hence this part of CL is closed.

Table 2. CARs from this validation

CAR ID	01	**Section no.**	D.2	**Date:** 09/12/2020
Description of CAR				
As per para 229 of the project standard for project activities version 02, "*If there is any actual or proposed change to the implementation, operation or monitoring of the registered CDM project activity, the project participants shall prepare a revised PDD (**in both track-change and clean versions**) that reflects the actual or proposed changes, using the valid version of the applicable PDD form. The project participants shall provide a summary of the changes, including the reasons for the changes and any additional information relating to the changes to the PDD.*" 1. However in the revised PDD, some of the changes (compare to the registered PDD) are not mentioned in track change e.g. page1, A.3, B.5, B.6.3, B.7.1, B.7.3 etc. 2. Also under Appendix 7 of the revised PDD, PP need to provide a summary of all the changes including the reasons for the changes and any additional information relating to the changes to the PDD.				
Project participant response				**Date:** 09/12/2020
1. Changes have been highlighted using the track change mode; 2. Summary of all changes has been provided in the relevant section of the PDD				
Documentation provided by project participant				
Revised PDD				
DOE assessment				**Date:** 10/12/2020
1. Corrections have been done in the revised PDD /02/ and found OK. PP has submitted the revised PDD in clean and track version with changes which is found OK. Validation team has compared the revised PDD /02/ with the registered PDD /05/ and found OK. Hence this part of CAR is closed. 2. Corrections have been done under appendix 7 of the revised PDD /02/ and found OK. Hence this part of CAR is closed.				

CAR ID	02	**Section no.**	D.7	**Date:** 11/11/2020
Description of CAR				
Under section A.3 (Table A.2) of the revised PDD, PP has changed the project information however the same is not reported under appendix 7 of the PDD. Also submit the supportive document.				
Project participant response				**Date:** 09/12/2020
Changes have been been described in the Appendix 7				
Documentation provided by project participant				
Supportive Documents				

DOE assessment	**Date:** 17/12/2020

Turbine rated discharge (each unit) and runway speed of generator (each unit) have been revised in the revised PDD /02/ however the capacity of equipment and estimated electricity output by the project activity are not changed. Since these are minor changes, therefore does not impact to ER estimation and also additionality of the project activity. The changes are presented in detailed in the table below:

Main parameters	Unit	Value in the registered PDD /05/	Actual value in revised PDD /02/
1. Turbine			
Rated Discharge (per unit)	m^3/sec	35	34.731
2. Generator			
Runway Speed	rpm	586	591.2

The actual details of "Turbine rated discharge and generator runaway speed" are provided in section A.1 and A.3 of the revised PDD /02/. Validation team has checked the nameplate photo of turbine and generator /15/ and found consistent with the information given under section A.1 and A.3 of the revised PDD /02/.

Corrections have been reported as design change under Appendix 7 of the revised PDD /02/ and found OK. Hence this CAR is closed.

CAR ID	03	**Section no.**	D.2	**Date:** 11/11/2020
Description of CAR				
Under section B.1 of the revised PDD, PP need to refer to the UNFCCC CDM website for the exact reference of approved methodologies, methodological tools and standardized baselines (as per "Attachment. Instructions for completing this form" available under Project design document form version 11.0).				
Project participant response				**Date:** 09/12/2020
The links have been provided in the concerned footnote				
Documentation provided by project participant				
Revised PDD				
DOE assessment				**Date:** 10/12/2020
Corrections have been done in the revised PDD /02/ and found OK. Hence this CAR is closed.				

Table 3. FARs from this validation

No FAR is raised during 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

Version	*Date*	*Description*
03.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM validation and verification standard for project activities" (CDM-EB93-A05-STAN); • Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements in the "CDM validation and verification standard for project activities" (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
Document Type: Form
Business Function: Registration
Keywords: post-registration change, project activities, validation report