




## Validation report form for post-registration changes for component project activities

(Version 02.0)

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

### BASIC INFORMATION

<b>Title and UNFCCC reference number of the component project activity (CPA)</b>	Title: CPA2_Nam Tha 4 Hydropower Project Reference Number: 6810-P1-0003-CP1
<b>Version number of the validation report</b>	1.0
<b>Completion date of the validation report</b>	12/02/2020
<b>Version number of PoA-DD and CPA-DD applicable to this validation report</b>	PoA-DD: v.09 CPA-DD: v.09
<b>Title and UNFCCC ref. no. of the registered PoA into which the CPA is included</b>	Title: Vietnam Renewable Energy Development Program (REDP) Reference Number: 6810
<b>Type(s) of CPA PRCs</b>	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of monitoring plan <input type="checkbox"/> Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents <input checked="" type="checkbox"/> Changes to the project design <input type="checkbox"/> Changes specific to afforestation and reforestation activities
<b>Coordinating/managing entity (CME)</b>	Ministry of Industry and Trade of Viet Nam (MOIT)
<b>Host Parties</b>	Viet Nam
<b>Applied methodologies and standardized baselines</b>	ACM0002 ver. 13.0.0: Consolidated baseline methodology for grid-connected electricity generation from renewable sources
<b>Mandatory sectoral scopes</b>	1
<b>Conditional sectoral scopes, if applicable</b>	-
<b>Name and UNFCCC reference number of the DOE</b>	Name: TÜV NORD CERT GmbH (TÜV NORD) Ref. No.: E-0022
<b>Name, position and signature of the approver of the validation report</b>	 Stefan Winter Final Approval

**SECTION A. Executive summary**

The Ministry of Industry and Trade of Viet Nam (MOIT) has commissioned the TÜV NORD JI/CDM Certification Program (CP) to assess post registration changes of the CPA (UNFCCC Reference: 6810-P1-0003-CP1)

**“CPA2\_Nam Tha 4 Hydropower Project”**

The appropriateness of the proposed post registration changes at CPA level is assessed in this report.

Essential data of the project is presented in the following Table 1.

**Table 1:** Project Characteristics

No. CPA # 2	Project Location	
UNFCCC number	6810-P1-0003-CP1	
Title	Nam Tha 4 Hydropower Project	
Host Country	Viet Nam	
Region:	Lao Cai Province	
Project location address:	Nam Tha commune, Van Ban district	
Latitude:	PH: 21.885 <sup>0</sup> N	Reservoir: 21.887 <sup>0</sup> N
Longitude:	PH: 104.341 <sup>0</sup> E	Reservoir: 104.331 <sup>0</sup> E

CPA2 is Nam Tha 4 HPP consists of 2 units of 8.5 MW for each generator with a total installed capacity of 17 MW. The expected annual electricity for export to the Vietnam national grid is 58,017MWh.

The key parameters of CPA2 are given in Table A-2.2 below:

**Table A-2.2:** Technical data of the component project activity

Parameter	Unit	Value
<b>Turbine</b>		
Manufacturer	-	Guglar Water Turbines GmbH Austria
Type	-	Francis turbine
Model	-	FSP735
Rated capacity	MW	8.734 each
No of Units		02
<b>Generator</b>		
Manufacturer	-	Gamesa Electric
Model	-	PO 1000-I1C6
Rated Capacity	MW	8.5 each (10,000kVA)
Rated Voltage	kV	6.3
Rated Power Factor	cosφ	0.85
No. of units	-	02

For a detailed project description please refer to the registered CPA-DD

**SECTION B. Validation team, technical reviewer and approver**

On the basis of a competence analysis and individual availabilities an assessment team, consistent of one team leader and team leader is also the team member, were appointed. Furthermore, also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the following table below.

**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			
						Document review	On-site inspection	Interviews	Validation findings
1.	Team Leader/Technical Expert	EI	Cheong	Chun Yuen (Robert)	TUV NORD Malaysia	x	x	x	x

**B.2. Technical reviewer and approver of the validation report on CPA 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	EI	Lubanga	David	-
2	Approver	IR	Winter	Stefan	TN CERT GmbH

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

The assessment of post registration changes consisted of the following steps:

- Appointment of team members and technical reviewers
- A desk review of the registered and revised PoA-DD, which includes the generic CPA-DD, CPA4 CPA-DD submitted by the client and additional supporting documents
- Background investigation and follow-up interviews with personnel of the project developer
- Resolution of corrective actions (CARs / CLs) (if any)
- Final reporting
- Technical review
- Final approval.

The registered as well as the revised PoA-DD and CPA-DD and supporting background documents related to the project design and the post registration changes were reviewed.

As far as required the assessment 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.

A list all documents reviewed or referenced during this validation is presented in Appendix 3

**C.2. On-site inspection**

Duration of on-site inspection: 23/12/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	Visit CPA developer and site Inspection of hydropower plant, Opening meeting Review of project documentation, generators, turbines, electrical design, Discussions of onsite findings	CPA developer project site office	23/12/2019	Cheong, Chun Yuen (Robert)

**C.3. Interviews**

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Thanh	Tung Le	CME Consultant	23/12/2019	Visit CPA developer and site Inspection of hydropower plant Review of project documentation, generators, turbines, electrical design, Discussions of onsite findings	Cheong, Chun Yuen (Robert)
2	Luong	Thai Son	CME Consultant			
3	Nguyen	Thi Thu	Phuc Khanh Investment Construction and Energy Development JSC / Admin	23/12/2019	Site Inspection of hydropower plant Review of project documentation, generators, turbines, electrical design	
4	Le	Phu Dung	Phuc Khanh Investment Construction and Energy Development JSC / Group Plant Director			
5	Nguyen	Hong Hai	Phuc Khanh Investment Construction and Energy Development JSC / Nam Tha 4 Manager			

**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 CPA-DD form	0	0	0
Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines	0	0	0
Corrections	0	0	0
Changes to the start date of the crediting period	0	0	0
Inclusion of monitoring plan	0	0	0
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied	0	0	0

methodologies, standardized baselines, or other applied standards or tools			
Changes to the project design	1	0	0
Changes specific to afforestation and reforestation project activities	0	0	0
Others (please specify)	0	0	0
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>

## SECTION D. Validation findings

### D.1. Compliance with CPA-DD form

<b>Means of validation</b>	<p>The project participants used a latest version of the CPA-DD form for the revised CPA-DD than the version of the CPA-DD form of the registered CPA-DD. By means of checking updated CPA-DD with the latest applicable and available CPA-DD PDD template form the validation team can confirm that the information transferred to the later version of the CPA-DD form is materially the same as that in the registered CPA-DD besides those changes in track change and assessed under this report.</p> <p>Further it has been checked whether the latest instructions for filling out the CPA-DD template have been followed. Every section has been checked against the respective guidance.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /CPADDT/</li> <li>• /CPA-DD/</li> <li>• /unfccc/</li> </ul>
<b>Findings</b>	-
<b>Conclusion</b>	The updated CPA-DD both in tracked-change and clean version is in line with the latest applicable CPA-DD form. The validation team can conclude that the information transferred to the later valid version of the form is materially the same as that in the included CPA-DD.

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

<b>Means of validation</b>	N/A
<b>Findings</b>	
<b>Conclusion</b>	

### D.3. Corrections

Means of validation	Description of post registration change				
	Start Date: Please provide the start date of the change	15/01/2020	End Date: Please provide the end date of the change, if applicable	-	
	Description: Please give a detailed description of the change(s)	Appendix 1 has the contact information of the CPA implementer, CME and Other Parties.  The correction is made to remove the contact information of CME and other parties since the Appendix only requests information of CPA implementer.			
	Assessment of post registration change – Corrections				
	Accuracy: Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.	The correction made is to reflect the Appendix 1 CPA implementer contact information.  The correction does not have any impact to the accuracy of ER calculations.			
	Conservative-ness:	The correction on the contact information of the CPA implementer has no impact to ERs			

	Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	
	<b>Appendix 2 PS:</b> Check if the changes fall under one of the scenarios of Appendix 2 of the PS for PoA.	According to 2 of PS para 1, (a): Any corrections to project information of a registered clean development mechanism (CDM) programme of activities (PoA) that do not affect the design of the PoA as per footnote 1 such corrections may include typographical errors, location, names and numbers of components, etc  The correction to the contact information of the implementer does not require prior approval.
<b>Findings</b>		
<b>Conclusion</b>	Based on the above stated the corrections to the registered PDD are in accordance with applicable validation requirements related to the corrections in the VVS for PoA.	
	<b>Revised PoA DD and/or CPA DD</b>	
	<b>Rev. of PoA DD and/or CPA DD:</b> Check whether the changes have been fully addressed in a revised PoA DD and/or CPA DD.	<input checked="" type="checkbox"/> The changes have correctly been reflected in the revised CPA DD.  <input type="checkbox"/> A revision of the PoA DD and/or CPA DD is not required (in case of temp. changes).  <input checked="" type="checkbox"/> The revised for CPA DD has been forwarded in (i) track-change and (ii) clean version.
	<b>Prior Approval</b>	
	<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input type="checkbox"/> The post registration change requires prior approval  <input checked="" type="checkbox"/> The post registration change does not require prior approval

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

<b>Means of validation</b>	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the registered start date of the CP.	DD/MM/YYYY	<b>Revised Start Date:</b> Please provide the proposed revised start date of the CP	DD/MM/YYYY
	<b>Description:</b> Please give a detailed description /reasoning of the requested revision of CP starting date:	N/A		
	<b>LDC:</b> Please check if the host country is an LDC. In case of LDCs the timeframes of the below defined categories are to be doubled.	<input type="checkbox"/>	The host country is a LDC	
		<input type="checkbox"/>	The host country is <b>not</b> a LDC	
	<b>Categories:</b> Please check under which category - as defined below - the requested changes fall. In case of LDCs the timeframes are to be doubled.	<input type="checkbox"/>	Category A: $\geq \pm 2$ a	
		<input type="checkbox"/>	Category B: $< \pm 1$ a; not before registration date	
		<input type="checkbox"/>	Category C: $(SD_{old} \pm 1 \text{ a}) \leq SD_{new} \leq (SD_{old} \pm 2 \text{ a})$	
<b>Assessment of post registration change</b>				

	<b>Cat. A: <math>&gt; \pm 2</math> a</b> Changes of start date of more than 2 years (4 years for LDCs) are not allowed as per the PS.	<input type="checkbox"/>	The change is a cat. A case. The change of the CP start date as requested by the PP is not allowed as per the PS. Thus a corresponding CAR has been raised.
	<b>Cat. B: <math>&lt; \pm 1</math> a</b> Prior notification is not required if changes of less than 1 year are requested. The CP start date shall not be earlier than the date of the project registration.	<input type="checkbox"/>	The change is a cat. B case. The proposed new CP start date differs less than $\pm 1$ year (2 years in case of LDCs) from the registered CP start date. Furthermore it is confirmed that the proposed new CP start date is not before the registration date of the PA. Thus a prior approval is not required.
	<b>Cat. B: <math>\pm 1</math> a <math>&lt; SD &lt; \pm 2</math> a</b> Check whether the project falls under this category. If yes prior approval is required. The assessment team shall assess on the basis of a demonstration by the PPs whether the conservativeness of the baseline is not affected by changes that have occurred in-between. Further it has to be assessed, whether substantive progress has been made by the PPs to start the project activity.	<input type="checkbox"/>	The change is a cat. C case.
		<input type="checkbox"/>	The PPs have provided the assessment team with a sufficient demonstration regarding (i) potential effects on the baseline and (ii) progress made to start the project.
		<input type="checkbox"/>	On the basis of a detailed analysis of the PP's demonstration as well as background investigation (incl. on-site inspection) the assessment team confirms that no changes have occurred to the PA which would result in a less conservative baseline. This assessment is based on the following considerations:
		<input type="checkbox"/>	On the basis of a detailed analysis of the PP's demonstration as well as background investigation (incl. on-site inspection) the assessment team confirms that substantive progress has been made by the PPs to start the PA. This assessment is based on the following considerations:
<b>Findings</b>	N/A		
<b>Conclusion</b>	Based on the assessment above the changes to the start date of the crediting period are in accordance with applicable validation requirements related to the changes to the start date of the crediting period in the VVS for PoA.		
	<b>Revised PoA DD and/or CPA DD</b>		
	<b>Rev. of PoA DD and/or CPA DD:</b> Check whether the changes have been fully addressed in a revised PoA DD and/or CPA DD.	<input type="checkbox"/>	The changes have correctly been reflected in the revised PoA DD and/or CPA DD.
		<input type="checkbox"/>	A revision of the PoA DD and/or CPA DD is not required (in case of temp. changes).
		<input type="checkbox"/>	The revised PoA DD and/or CPA DD has been forwarded in (i) track-change and (ii) clean version.
	<b>Prior Approval</b>		
	<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval
		<input type="checkbox"/>	The post registration change does not require prior approval

## D.5. Inclusion of monitoring plan

<b>Means of validation</b>	<b>Description of post registration change</b>			
	<b>Start Date:</b> Please provide the start date of the change	DD/MM/YYYY	<b>End Date:</b> Please provide the end date of the change, if applicable	DD/MM/YYYY
	<b>Description:</b> Please give a detailed description of the change(s)	N/A		
	<b>Assessment of post registration change – Inclusion of a MP</b>			
	<b>MM compliance:</b>			

	Please check in case of changes to the registered MP, whether they are in compliance with the MM.		
	<b>Later version of MM:</b> Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.		
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.		
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.		
	<b>Appendix 2 PS:</b> Check if the changes fall under one of the scenarios of Appendix 2 of the PS for PoA.		
<b>Findings</b>			
<b>Conclusion</b>	Based on the above stated the inclusion of a monitoring plan to the registered project activity is in accordance with applicable validation requirements related to the inclusion of a monitoring plan to a registered project activity in the VVS for PoA.		
	<b>Revised PoA DD and/or CPA DD</b>		
	<b>Rev. of PoA DD and/or CPA DD:</b> Check whether the changes have been fully addressed in a revised PoA DD and/or CPA DD.	<input type="checkbox"/>	The changes have correctly been reflected in the revised PoA DD and/or CPA DD.
		<input type="checkbox"/>	A revision of the PoA DD and/or CPA DD is not required (in case of temp. changes).
		<input type="checkbox"/>	The revised PoA DD and/or CPA DD has been forwarded in (i) track-change and (ii) clean version.
	<b>Prior Approval</b>		
<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval	
	<input type="checkbox"/>	The post registration change does not require prior approval	

**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**

<b>Means of validation</b>	Type of change(s):	<input type="checkbox"/>	<i>Permanent Change from Monitoring Plan</i>
		<input type="checkbox"/>	<i>Permanent Change from the applied methodologies</i>
		<input type="checkbox"/>	<i>Permanent Change from standardized baselines</i>
		<input type="checkbox"/>	<i>Permanent Change from other applied standards or tools</i>
	<b>Description of post registration change</b>		

	<b>Start Date:</b> Please provide the start date of the change		<b>End Date:</b> Please provide the end date of the change, if applicable	-
	<b>Description:</b> Please give a detailed description of the change(s)			
	<b>Assessment of post registration change – Permanent changes from MP or MM</b>			
	<b>MM compliance:</b> Please check in case of changes to the registered MP, whether they are in compliance with the MM.			
	<b>Later version of MM:</b> Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.			
	<b>Accuracy:</b> Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.			
	<b>Conservative-ness:</b> Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.			
	<b>Appendix 2 PS:</b> Check if the changes fall under one of the scenarios of Appendix 2 of the PS for PoA.			
<b>Findings</b>				
<b>Conclusion</b> Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS for PoA.				
<b>Revised CPA-DD</b>				
<b>Rev. of CPA-DD:</b> Check whether the changes have been fully addressed in a revised CPA-DD.		<input type="checkbox"/>	The changes have correctly been reflected in the revised CPA-DD.	
		<input type="checkbox"/>	A revision of the CPA-DD is not required (in case of temp. changes).	
		<input type="checkbox"/>	The revised CPA-DD has been forwarded in (i) track-change and (ii) clean version.	
<b>Prior Approval</b>				
<b>Prior approval:</b> Assess whether the change requires prior approval of the board		<input type="checkbox"/>	The post registration change requires prior approval	
		<input type="checkbox"/>	The post registration change does not require prior approval	

## D.7. Changes to the project design

<b>Means of validation</b>	Type of change(s):	<input type="checkbox"/>	Changes to the programme design
		<input checked="" type="checkbox"/>	Changes to the project design
	<b>Description of post registration change</b>		
	<b>Start Date:</b> Please provide the start date of the change	15/01/2020	<b>End Date:</b> Please provide the end date of the change, if applicable
			-
	<b>Description:</b> Please give a detailed description of the change(s)	<p>According to Section A.3 of the registered CPA-DD version 05 dated 09/05/2016 describes Nam Tha 4 Hydropower is a run-off-river hydropower plant with an installed capacity of 11.5MW and connected to Vietnam national electricity grid.</p> <p>On 19/07/2018, during the 6<sup>th</sup> monitoring period of the PoA, the power plant was struck by violent floods which badly destroyed the plant causing the turbine-generator units, transformer, auxiliary equipment, diversion system and dam reservoir area. The plant became non-operational.</p> <p>An onsite visit was carried out during 6<sup>th</sup> monitoring period to verify the damage of the power plant and reservoir area.</p> <p>A 2<sup>nd</sup> site visit was carried out on 23/12/2019 to verify the reconstructed power plant with the installed new turbines, generators, auxiliary equipment, transformer, diversion system and dam reservoir area.</p> <p>With the damage of the generation equipment, the CPA implementer has upgraded the capacity of the turbines from 11.916 MW to 17.468 MW and the generators from 11.5MW to 17 MW. The number of turbines and generators remains the same.</p> <p>With the increase in capacity, the total annual net electricity generated for export to the national grid will be increased from 45,852 MWh to 58,017 MWh.</p> <p>Further details refer to the revised CPA-DD section A.3.</p> <p>Therefore, the CME has applied for a design change for the change in capacity and increase in electricity generated.</p> <p>It can be confirmed that the changes of the total generation capacity of 17 MW reflects the revised actual project information.</p>	
<b>Applicability and application of the Approved Baseline Methodology</b>			
<b>Description:</b> Please give a detailed description on how the changes affect the applicability and application of the approved Baseline Methodology. Check if the actual changes would adversely affect the conclusions during validation.	<ol style="list-style-type: none"> <li>1. The changes do not affect the applicability and application of the approved baseline methodology.</li> <li>2. The actual changes have not affected the conclusions during the initial validation.</li> </ol>		
<b>Additionality assessment</b>			
<b>Description:</b> Please give a detailed description re-assessment of additionality, Check whether the actual changes would adversely	<p>During initial validation, additionality was demonstrated using the methodological tool "Tool for the demonstration and assessment of additionality", version 06.1.0" and "Guidelines on the Assessment of Investment Analysis" Version 05, EB62, Annex 5.</p>		

	<p>affect the conclusions during validation. If required please make use of the assessment tables in the annex.</p>	<p>The benchmark analysis was applied selecting the Equity IRR as the most suitable economic indicator or FIRR. The comparison of the FIRR of the CPA, with the benchmark FIRR of 12.75%.<sup>/FA/</sup></p> <p>With the change in the generation capacity, the financial analysis is conducted again using the financial indicator (Equity IRR) for the additional investment costs for the reconstruction, equipment, increase in power generated with no changes to the tariff rates and no increase in O&amp;M costs. Related input parameter to the financial analysis have been adjusted accordingly. The result indicates that the CPA is still additional.</p> <p>The financial analysis has been reviewed for the revised input values applied to determine the additionality of the CPA.</p> <p>The investment costs are revised with the change of the capacity. The revised investment costs are derived from the 2018 revised FSR and crosschecked with the actual contracts for the construction and equipment costs and found the costs from the FSR are lower<sup>/FSR/,/EC/,/CC/</sup>. Therefore, the re-investment costs are conservative.</p> <p>A residual value from the initial investment is included in the financial analysis. The residual value of equipment and construct are determined by 2 different approaches:</p> <ol style="list-style-type: none"> <li>1. The residual value of equipment determined as scrap at 5% of the initial equipment costs.</li> <li>2. The residual value of construction works is the remaining value of construction works that is original value minus depreciation for 5 years.</li> </ol> <p>The 5% applied is based on the international accounting practices and considered to be appropriate. The value applied to calculate the residual value has been crosschecked with the value applied during the initial investment and found to be correct.</p> <p>The local VAT of 10% is not included in the financial analysis.</p> <p>Reviewing the sensitivity analysis, applying the 10% reduction of the investment costs, the FIRR is 11.42% which is lower than the benchmark of 12.75%. In order to meet the benchmark, the investment cost required to reduce by 14.87%. However, it is not likely since the CPA implementer has applied the value from FSR and related contracts are already signed.<sup>/FSR/,/EC/,/CC/</sup></p> <p>The electricity tariff remains unchanged and in accordance with the rate applied at the time of validation. In order to meet the benchmark of 12.75% the tariff rate need to increase by 17.18% which is unlikely as it is fixed based on the power supply agreement signed with the grid operator. Therefore, not likely to increase.</p> <p>The sensitivity analysis demonstrates that increased electricity generation by at least 17.62% is required in order for the financial indicator FIRR to reach the benchmark threshold of 12.75%. In order to reach the threshold, the total electricity to be generated will be 68,242 MWh. It is not likely since the maximum electricity that could be generated is 58,900 MWh per annum based on the revised FSR.</p> <p>O&amp;M costs are 1.5% of investment cost with the percentage applied remains the same as the initial registered CPA-DD.</p>
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	<p>Even with zero O&amp;M costs, the FIRR will not meet the benchmark of 12.75%. Therefore, it is unlikely that further significant reduction will occur.</p> <p>From the sensitivity analysis, applying the <math>\pm 10\%</math> variance for electricity generated, tariff rates and O&amp;M costs, based on Guidelines on the Assessment of Investment Analysis" Version 05, EB62, Annex 5, the FIRR does not reach the benchmark of 12.75%.</p> <p>From the analysis even with the increase in capacity, the CPA is still additional.</p> <p>The increase of electricity generated from 45,852 MWh to 58,017MWh exceeds the allowed 20% capacity increase according to § 241(a)(i)(a) of CDM Project Standard for PoA version 02.0.</p> <p>The CPA Implementer and CME caps the increase of electricity generated to 55,022 MWh that is approx. 20% of the capacity increase. This capped electricity generated will be applied as baseline for ERY calculations.</p> <p>A comment is added to Parameter <math>EG_{\text{facility},y}</math>, in Section D.5.1 of the revised CPA-DD, reflecting the capping of electricity for CERs claim.</p> <p>ER spreadsheet and financial analysis are updated accordingly to reflect the capping of electricity applied as baseline for ER calculations.</p> <p>In conclusion, the proposed change would not adversely affect the conclusions of additionality during validation.</p>	
	<b>Scale of the Project activity</b>	
	<b>Description:</b> Please give a detailed regarding the effect of the changes on the scale of the PoA (i.e. LSC or SSC).	The design changes do not affect the scale of the PoA. The PoA remains large scale and applies the same approved large scale methodology
	<b>Revised Specific CPA-DDs</b>	
<b>Rev. of Specific CPA DDs:</b> Check whether the changes have been fully addressed in a revised PoA DD. In this context pl. refer to <ul style="list-style-type: none"> <li>- Changes to the project boundary and GHG Sources</li> <li>- Changes to the baseline scenario.</li> <li>- Changes to the estimation of emission reductions of a generic CPA</li> <li>- Effects with regards to compliance with the MP and level of accuracy and</li> </ul>	<input checked="" type="checkbox"/> <p>The change has been addressed in relevant sections of the revised CPA-DD.</p> <p>The proposed change has no impact to the baseline scenario and remains the same during validation.</p> <p>The proposed change has no impact to the monitoring plan, level of accuracy and completeness of monitoring for emission reduction calculations.</p> <p>Therefore para 1 (d) of Appendix 2 of PoA PS 02.0 does not apply, prior approval is required.</p>	

	completeness of monitoring.											
<b>Findings</b>	CL 01											
<b>Conclusion</b>	<table border="1"> <tr> <td> <b>Traceability:</b>  Check if the PPs have provided a revised PoA DD and/or CPA DD in both clean and track-change version. </td> <td><input checked="" type="checkbox"/></td> <td>The revised CPA DD has been forwarded in (i) track-change and (ii) clean version.</td> </tr> <tr> <td> <b>Prior approval:</b>  Assess whether the change requires prior approval of the board </td> <td><input checked="" type="checkbox"/></td> <td>The post registration change requires prior approval.</td> </tr> <tr> <td></td> <td><input type="checkbox"/></td> <td>The post registration change does not require prior approval</td> </tr> </table>			<b>Traceability:</b> Check if the PPs have provided a revised PoA DD and/or CPA DD in both clean and track-change version.	<input checked="" type="checkbox"/>	The revised CPA DD has been forwarded in (i) track-change and (ii) clean version.	<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval.		<input type="checkbox"/>	The post registration change does not require prior approval
<b>Traceability:</b> Check if the PPs have provided a revised PoA DD and/or CPA DD in both clean and track-change version.	<input checked="" type="checkbox"/>	The revised CPA DD has been forwarded in (i) track-change and (ii) clean version.										
<b>Prior approval:</b> Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval.										
	<input type="checkbox"/>	The post registration change does not require prior approval										

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

<b>Means of validation</b>	N/A
<b>Findings</b>	
<b>Conclusion</b>	

**SECTION E. Internal quality control**

Before submission of the final assessment report a technical review is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the assessment opinion as prepared by the validation team leader may be confirmed or revised. Furthermore, reporting improvements might be achieved

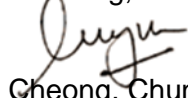
**SECTION F. Validation opinion**

The below listed changes have occurred after the registration of the project / PoA

Type of Change occurred	Total No. of changes	No. of changes which require prior approval
<input type="checkbox"/> Temporary deviations from the MP	-	-
<input type="checkbox"/> Temporary deviations from the MM	-	-
<input checked="" type="checkbox"/> Corrections that do not affect the project	1	0
<input type="checkbox"/> Change to the start date of the crediting p.	-	-
<input type="checkbox"/> Permanent changes from the MP	-	-
<input type="checkbox"/> Permanent changes from the MM	-	-
<input checked="" type="checkbox"/> Design changes to the programmed or project	1	1
<input type="checkbox"/> Change of coordinating/managing entity	-	-
<input type="checkbox"/> Inclusion of monitoring plan	-	-
<input type="checkbox"/> Changes specific to afforestation and reforestation activities	-	-

The above listed post registration change(s) do(es) require prior approval by the Board.

Puchong, 12/02/2020



Cheong, Chun Yuen (Robert)  
TÜV NORD JI/CDM CP  
Assessment Team Leader

## Appendix 1. Abbreviations

Abbreviations	Full texts
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
CP	Certification Program
CPA	Component Project Activities
DNA	Designated National Authority
EB	CDM Executive Board
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
MP	Monitoring Plan
MR	Monitoring Report
PA	Project activity
PCP	Project Cycle Procedure
PDD	Project Design Document
PoA	Programme of Activities
PP	Project Participant
PRC	Post Registration Changes
PS	Project Standard
QC/QA	Quality control/Quality assurance
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VT	Validation Team/Verification Team
VVS	Validation and Verification Standard
XLS	Emission Reduction Calculation Spread Sheet

## Appendix 2. Competence of team members and technical reviewers



**Statement of Competence**  
Appointment and authorization according to the procedures of the TÜV NORD JRCOM Certification Program

**Mr. Robert Cheong**

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	2021-04-01
VCS	Senior Assessor	2021-04-01

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand
13.1	Solid waste and wastewater
13.2	Manure

128 - Rev. 9, Date: 2018-03-19

128\_S01-VAN20-F20\_2018-03-19\_rev9.doc

S01-VAN20-F20 rev3 / 2012-10-25



**Statement of Competence**  
Appointment and authorization according to the procedures of the TÜV NORD JRCOM Certification Program

**Mr. David Lubanga**

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification) Technical Reviewer	2018-10-20
VCS / ISO 14064-2	Lead Assessor Technical Reviewer	2018-10-20

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand

251 - Rev. 5, Date: 2017-12-01

251\_S01-VAN20-F20\_2017-12-01\_rev5.doc

S01-VAN20-F20 rev3 / 2012-10-25

## Appendix 3. Documents reviewed or referenced

No.	Author	Reference	Title	References to the document	Provider
1	UNFCCC	<b>/ACM2/</b>	Applied large scale methodology ACM0002 ver. 13.0.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"	<a href="https://cdm.unfccc.int/UserManagement/FileStorage/DYPFI935XBG274NWH6O8CM1KEZR0VU">https://cdm.unfccc.int/UserManagement/FileStorage/DYPFI935XBG274NWH6O8CM1KEZR0VU</a>	Other
2	DOE	<b>/CPM/</b>	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)		Other
3	UNFCCC	<b>/GT/</b>	Glossary "CDM terms" (version 10.0)	<a href="https://cdm.unfccc.int/filestorage/e/x/t/extfile-20150226124447549-glos_CDM.pdf/glos_CDM.pdf?t=UmZ8bnFjODI3fD">https://cdm.unfccc.int/filestorage/e/x/t/extfile-20150226124447549-glos_CDM.pdf/glos_CDM.pdf?t=UmZ8bnFjODI3fD</a>	Other

No.	Author	Reference	Title	References to the document	Provider
				CW9A3vJwR03k QQh4sbLiYu	
4	IPCC	<b>/IPCC/</b>	<ul style="list-style-type: none"> <li>1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book</li> <li>2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book</li> </ul>	<a href="http://www.ipcc-nggip.iges.or.jp">www.ipcc-nggip.iges.or.jp</a>	Other
5	UNFCCC	<b>/KPI/</b>	Kyoto Protocol (1997)	<a href="http://unfccc.int/kyoto_protocol/items/2830.php">http://unfccc.int/kyoto_protocol/items/2830.php</a>	Other
6	UNFCCC	<b>/MA/</b>	Decision 3/CMP. 1 (Marrakesh – Accords)	<a href="http://cdm.unfccc.int/Reference/CO2PMOP/index.html">http://cdm.unfccc.int/Reference/CO2PMOP/index.html</a>	Other
7	UNFCCC	<b>/CPADDT/</b>	Component project activity design document form (Version 09.0)	<a href="http://cdm.unfccc.int/Reference/PDs_Forms/index.html#reg">http://cdm.unfccc.int/Reference/PDs_Forms/index.html#reg</a>	Other
8	UNFCCC	<b>/PS/</b>	CDM project standard for programmes of activities (Version 02.0)	<a href="http://cdm.unfccc.int/Reference/Standards/index.html">http://cdm.unfccc.int/Reference/Standards/index.html</a>	Other
9		<b>/TL/</b>	<ul style="list-style-type: none"> <li>Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion Version 2</li> <li>Tool to calculate the emission factor for an electricity system Version 4.0</li> </ul>	<a href="http://cdm.unfccc.int/Reference/tools/index.html">http://cdm.unfccc.int/Reference/tools/index.html</a>	Other
10	UNFCCC	<b>/VVS/</b>	CDM Validation and Verification Standard for programme of activities (Version 02.0)	<a href="http://cdm.unfccc.int/Reference/Standards/index.html">http://cdm.unfccc.int/Reference/Standards/index.html</a>	Other
11	UNFCCC	<b>/PoA-DD/</b>	<ul style="list-style-type: none"> <li>Registered Programme design document form for CDM programmes of activities: “Vietnam Renewable Energy Development Program (REDP)” version 07, dated 08/05/2013</li> <li>Revised Programme design document form for CDM programmes of activities: “Vietnam Renewable Energy Development Program (REDP)” version 09, dated 02/07/2015</li> </ul>	<a href="https://cdm.unfccc.int/ProgrammeOfActivities/poadb/06901LAWYS37INVEB5RZHM CU4KJFPD/view">https://cdm.unfccc.int/ProgrammeOfActivities/poadb/06901LAWYS37INVEB5RZHM CU4KJFPD/view</a>	Other
12	UNFCCC	<b>/CPA-DD/</b>	<ul style="list-style-type: none"> <li>Registered CPA-DD for CPA2_Nam Tha 4 Hydropower Project version 03, dated 18/09/2014</li> <li>Revised CPA-DD for CPA2_Nam Tha 4 Hydropower Project version 04 dated 22/07/2015</li> </ul>	<a href="https://cdm.unfccc.int/ProgrammeOfActivities/poadb/06901LAWYS37INVEB5RZHM CU4KJFPD/view">https://cdm.unfccc.int/ProgrammeOfActivities/poadb/06901LAWYS37INVEB5RZHM CU4KJFPD/view</a>	Other

No.	Author	Reference	Title	References to the document	Provider
			<ul style="list-style-type: none"> <li>Revised CPA-DD for CPA2_Nam Tha 4 Hydropower Project version 05 dated 09/05/2016</li> <li>Revised CPA-DD for CPA2_Nam Tha 4 Hydropower Project version 06 dated 06/12/2019</li> <li>Revised CPA-DD for CPA2_Nam Tha 4 Hydropower Project version 07 dated 07/01/2020</li> <li>Revised CPA-DD for CPA2_Nam Tha 4 Hydropower Project version 08 dated 03/02/2020</li> </ul>		
13	UNFCCC	<b>/PRC/</b>	<ul style="list-style-type: none"> <li>Post registration changes for CDM PoA project: "Vietnam Renewable Energy Development Program (REDP)" version 1.0 dated 20/09/2014</li> </ul>	<a href="https://cdm.unfccc.int/PoAIssuance/iss_db/poais761634785/view">https://cdm.unfccc.int/PoAIssuance/iss_db/poais761634785/view</a>	Other
14	PP	<b>/VAL/</b>	<ul style="list-style-type: none"> <li>Validation Report for CDM PoA project "Vietnam Renewable Energy Development Program (REDP)" version 04, dated 08/05/2013</li> <li>Validation Report for CPA2_Nam Tha 4 Hydropower Project version 02 dated 24/10/2014</li> </ul>	<a href="https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/069O1LAWYS37INVEB5RZHM CU4KJFPD/view">https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/069O1LAWYS37INVEB5RZHM CU4KJFPD/view</a>	Other
15	PP	<b>/FA/</b>	VN REDP Nam Tha 4 Financial Analysis, version 04 dated 06/12/2019 version 05 dated 07/01/2020 version 06 dated 03/02/2020		PP
16	PP	<b>/FSR/</b>	2018 Revised FSR dated 10/2018 Approval of FSR 5 <sup>th</sup> revision dated 17/01/2019		PP
17	PP	<b>/EC/</b>	Equipment Contract dated 18/10/2018		PP
18	PP	<b>/CC/</b>	Construction Contracts dated 01/08/2018, 20/12/2018, 15/01/2019 and 20/02/2019		PP
19	PP	<b>/ER/</b>	Revised Emission reduction calculation spreadsheet version 04 dated 06/12/2019 Revised Emission reduction calculation spreadsheet version 05 dated 03/02/2020		PP
20	MOI	<b>/D2014/</b>	Decision No. 2014 QD-BCN dated 13/06/2007 by Ministry of Industry		Other

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

**Table 1. CLs from this validation**

CL ID	01	Section no.	Financial Analysis	Date	23/12/2019
<b>Description of CL</b>					
Financial Input sheet					
<ol style="list-style-type: none"> <li>1. Cell K17 for project expected lifespan is 30 years. FSR is 25 years. However, Tool for additionality allows up to 20 years. CME is request to clarify why 30 years was applied.</li> <li>2. Cell K28: The value to be adjusted according to tool for additionality for fair value according to local depreciation rate for the balance of the assets turbine, generator, transformer and electrical equipment only. See cell D17 is 10 years. Since the plant has operate for 5 years and balance of 5 years.</li> <li>3. Clarification for contingency, appraisal, verification and audit fees cells K26 and K27</li> </ol>					
Financial Analysis Sheet:					
<ol style="list-style-type: none"> <li>1. Cell H5 to be revised based on above</li> <li>2. Which cell is the nett residue value of 8.20 in cell A6 is applied for deduction as income.</li> <li>3. Cells F76 and C58 how the % is determine.</li> </ol>					
<b>CME response (1st round)</b>				<b>Date</b>	07/01/2020
Financial Input Sheet					
<ol style="list-style-type: none"> <li>1. The Guidelines on the assessment of investment analysis, version 05, allows from 10-20 years. However, it is common practice for hydropower plants in Vietnam to operate for up to 40 years and FSR developers normally conduct investment analysis for 30 years. The 2018 revised FSR mentions 25 years because remaining project items, especially the dam, are already in use for 5 years now. Normally they operate until 20<sup>th</sup> year and then do overhaul of equipment for continuation of operation. Refer to Decision No. 2014/QD- BCN (page 8) for common operational periods of hydropower plants in Vietnam. Investment analysis period has been revised to 25 years refer cell D4 as per 2018 FSR.</li> <li>2. The residual value of the project assets has been re-calculated by taking into account only equipment and construction costs. The equipment was damaged by floods and was replaced with new one therefore, scrap value of equipment is determined at 5% of original cost in accordance with international allowable practice.<sup>1</sup> Meanwhile, the residual value of construction works, with the powerhouse completely damaged and reconstructed but the dam and some section of diversion canal remain in use, was determined by subtracting original cost of construction works to depreciation for 5 years. The depreciation is calculated by straight-line depreciation method according to Vietnamese local regulation. Construction works are depreciated for 20 years and the project has been operation for approximately 5 years. The total residual value from initial investment was derived at 85,867 million VND. This is added up with the additional investment cost for use in investment analysis to demonstrate the project additionality. The residual value of 85,867 million VND is included as residual value for re-investment is a conservative approach since the CPA implementer had initially spent 221,238 million VND to construct the project.</li> <li>3. Contingency and appraisal, verification, audit costs are common cost items estimated by the FSR developers in Vietnam. These are common practices and valid costs since the FSR has been approved by local government and shall be subject to applicable financial audit afterwards. Please refer to the investment license or so-call FSR approval, 5<sup>th</sup> revision dated 17/01/2019. For other investment cost items, please refer to related equipment and construction contracts submitted to the DOE for details about actual costs.</li> </ol>					

<sup>1</sup> [https://help.sap.com/doc/saphelp\\_afs64/6.4/ru-RU/4f/71dded448011d189f00000e81ddfacc/content.htm?no\\_cache=true](https://help.sap.com/doc/saphelp_afs64/6.4/ru-RU/4f/71dded448011d189f00000e81ddfacc/content.htm?no_cache=true)

The residual value has been calculated in financial A worksheet is included in FA spreadsheet to demonstrate comparison of FSR and actual investment costs for equipment and construction works. All Initial investment costs and Additional investment costs are exclusive of local VAT at 10%.

#### Financial Analysis Sheet

1. The financial input worksheet been re-arranged to provide clarity and related value has been updated.
2. The nett input worksheet. For additional investment costs, scrap value of equipment and construction works was determined and included as cash inflow in the 25<sup>th</sup> year according to investment tool.
3. It is determined by an embedded function based on benchmark of 12.75%. Values of Cell D71, E76, E81 and D86 (of revised FA excel) can be changed to see how the values change according to +-10%.

#### Documentation provided by CME

<input checked="" type="checkbox"/> Changes in CPA-DD	Section(s): Section F	New version No.: 07
<input checked="" type="checkbox"/> Changes in XLS	Worksheet(s): All worksheets	New version No.: 05

Other:

- ☒ 1. Decision No. 2014/QD- BCN (page 8) for common operational periods of hydropower plants in Vietnam  
 2. 2018 revised FSR  
 3. FSR Approval 5<sup>th</sup> revision dated 17/01/2019

#### DOE assessment (1<sup>st</sup> round)

**Date** 10/01/2020

The CME has clarify and explain as above for following:

Financial Input sheet version 05:

1. Cell K17 is change to cell D4 with the project expected lifespan revised to 25 years to be in line with the revised FSR. Document Decision No. 2014/QD- BCN (page 8) describe hydropower plant expected project lifecycle is between 20 to 40 years. The CME has applied 25 years for the revised investment analysis is therefore consider conservative.
2. CME has revised the balance value of the project assets by calculating the residual value of equipment and construct are determined by 2 different approaches:  
 The residual value of equipment determined as scrap at 5% of the initial equipment costs.  
 The residual value of construction works is the remaining value of construction works that is original value minus depreciation for 5 years.  
 The residual value of the equipment and construction value is in accordance to international allowable practices as nett asset value of the project activity. The residual value of 85,867 million VND is apply in the re-investment value is thus consider conservative. The total re-investment value of 266,527 million VND as compare to the initial applied value of 351,688 million VND. Therefore, the revised value is conservative.
3. CME has explained the justification for inclusion of contingency, appraisal, verification and audit fees are common practices in Vietnam for evaluation and approval of investment. The value is derived from the revised 2018 approved FSR.

Financial Analysis Sheet:

1. Value in Cell H5 revised and reflect the revised investment amount.
2. CME has recalculated nett residue value and the value of 8.20 in cell Z6 is to demonstrate the expected depreciated value after 10 years.
3. The % of the cells is determined by an embedded function linked to the benchmark of 12.75%. Values in cells D71, E76, E81 and D86 could be change to reflect the sensitive analysis.

#### Conclusion

*Tick the appropriate checkbox*

- ☐ Additional action should be taken (finding remains open)  
☒ The finding is closed

Table 2. CARs from this validation

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

Table 3. FARs from this validation

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

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>Ensure consistency with version 02.0 of the "CDM validation and verification standard for programmes of activities" (CDM-EB93-A08-STAN);</li> <li>Make editorial improvements.</li> </ul>
01.0	29 December 2017	Initial publication.

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