

Soubré Hydropower Project



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Summary:

CI-ENERGIES has commissioned the TÜV NORD JI/CDM Certification Program to carry out the validation of the project, “**Soubré Hydropower Project**” with regard to the relevant requirements of VCS standard version 3.5.

The proposed Soubré Hydropower Project (Soubré HPP) is a greenfield power plant with a capacity of 275.5 MW comprising a run-of-river hydropower plant with a capacity of 270 MW and a micro-hydro power plant of capacity 5.5 MW. It is located on the river Sassandra near the Soubré village in the NAWA Region, San Pedro Province in the Republic of Côte d’Ivoire. The geographical coordinates of the power plant are 5°48’33” W, 6°39’28” S (Northernmost point of the dam) and 5°46’56” W, 6°36’55” S (Easternmost point). The Soubré HPP has an average electricity generation of approximately 1,170

GWh per year, connected via a 225 kV transmission line to the national grid operated by CI-ENERGIES. The estimated annual average emission reduction is **607,720 tCO₂e**.

The approved Large Scale CDM methodology ACM0002 (“Grid-connected electricity generation from renewable sources”, version 16.0) is applied to quantify the GHG removals achieved in the project. The calculation of the project emission removals is carried out in a transparent and conservative manner, so that the calculated emission removals of **6,077,196 tCO₂e** are most likely to be achieved within the crediting period of 10 years.

The validation objective is an independent assessment by a third party of a proposed project activity against all defined criteria set for the registration under the VCS. Validation is part of the VCS project cycle and will finally result in a conclusion by the executing VVB whether a project activity is valid to be submitted for registration to VCS registry. The ultimate decision on the registration of a proposed project activity rests with the VCSA.

In the course of the validation 9 Corrective Action Requests (CAR) and 0 Clarification Request (CL) were raised and successfully closed. 1 FAR has been raised to be checked during first periodic verification.

The review of the project description and additional documents related to baseline and monitoring methodology and subsequent background investigation have provided the TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

- The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable of VCS standard version 3.5.

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1 INTRODUCTION

The CI-ENERGIES has commissioned the TÜV NORD JI/CDM Certification Program to carry out the Validation of the project:

“Soubré Hydropower Project”

with regard to the relevant requirements of the Verified Carbon Standard 3.5 /VCS/. The project applied monitoring methodology is ACM0002 version 16 “Consolidated baseline methodology for grid-Connected electricity generation from renewable sources”.

1.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of the VCS Version 3.5;
- the requirements of the approved methodology;
- relevant rules, including the host country legislation
- are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Verified Carbon Units (VCUs) / Emission reduction.

1.2 Scope and Criteria

The validation scope for projects validated under CDM is given as a thorough independent and objective assessment of the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, and 1.13 of the VCS PD and other relevant supporting documents. The validation shall ensure that the proposed VCS project activity meets all relevant and applicable VCS Version 3.5 criteria.

The information included in the PD and the supporting documents were reviewed and assessed against the requirements as set out by the VCS Version 3.5.

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP cannot be held liable by any entities for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

The validation is not meant to provide any consulting to the project participants. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project reductions.

1.3 Level of Assurance

The verification has been planned and organized to achieve a

- Reasonable level of assurance
- Limited level of assurance

1.4 Summary Description of the Project

The Soubré Hydropower Project is a Greenfield project consisting of hydropower plant with capacity of 275.5 MW. The project is to produce renewable electricity which is to be exported to the national grid. The electricity generated by the project is delivered to the grid via 225 kV transmission line^{/CDM-PDD//CDM-VAL//CDM/}.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria Côte d'Ivoire and all relevant requirements for CDM Project Activities.
- The project additionality is sufficiently justified and referenced in the PD.
- The monitoring plan is transparent and adequate.
- The sustainable development is sufficiently justified and referenced.
- The calculation of the project emission removals is carried out in a transparent and conservative manner, so that the calculated emission removals of **6,077,196 tCO₂e** are most likely to be achieved within the fixed crediting period.
- The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.
- The expected operational lifetime of the project is estimated to be 30 years.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation of the project consisted of the following steps:

- Contract review;
- Appointment of team members and technical reviewers;
- Desk review of the Project Document/PD/ submitted by the client and additional supporting documents.
- Validation planning;
- On-Site assessment;
- Background investigation and follow-up interviews with personnel of the project developer and its contractors;
- Draft validation reporting;
- Resolution of corrective actions; (if any)
- Final validation/verification reporting;
- Technical review;
- Final approval of the validation

Table 2.1.1: Validation sequence

Topic	Time
Assignment of validation	2015-07-02
On-site visit	2016-02-15 to 2016-02-17
Draft reporting finalised	2016-04-01
Final reporting finalised	2016-10-31
Technical review on final reporting finalised	2016-10-31
Final corrections	2016-10-31

2.2 Appointment of team members and technical reviewer

On the basis of a competence analysis and individual availabilities a validation team was 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 table 2.1-2 below.

Table 2.1-2: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence ³⁾	Technical competence ⁴⁾	Verification competence ⁵⁾	Host country Competence	On-site visit
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Grzegorz Kochaniewicz	-	TL	SA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	David Lubanga	-	TM ^{A)}	LA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Christina Stöhr	TÜV NORD CERT GmbH	TR ^{B)}	A	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Winter Stefan	TÜV NORD CERT GmbH	FA ^{B)}	SA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-

¹⁾ TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

²⁾ GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

³⁾ GHG auditor status (at least Assessor)

⁴⁾ As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)

⁵⁾ In case of verification projects

^{A)} Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

B) No team member

2.3 Document Review

The supplementary VCS PD^{/PD/} and supporting background documents related to the project design and baseline were reviewed^{/CDM-PDD/CDM-VAL/ER/}.

Furthermore, the validation team reviewed additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

2.4 Interviews

Before and during the on-site visit, the validator of TÜV NORD performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

The project proponent(s), other project entity(ies), the consultants, were interviewed to confirm selected information and to resolve issues identified in the documents review. The main topics of the interviews are summarized in Table 2-1-4.

Table 2.1-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
<ol style="list-style-type: none"> 1. Project Owner & Operations Personnel 2. Consultant 	<ul style="list-style-type: none"> • General aspects of the project • Technical equipment and operation • Additionality • Monitoring and measurement equipment • Calibration procedures • Quality management system • Involved personnel and responsibilities • Training and practice of the operational personnel • Implementation of the monitoring plan • Monitoring data management • Data uncertainty and residual risks • Maintenance • Environmental aspects • Stakeholder consultation process • Compensation • Sustainable Development

2.5 Site Inspections

The validation team has carried out onsite inspections and interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for validation.

A comprehensive list of all interviewed persons is part of Annex 1: References.

2.6 Resolution of Findings

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

A Corrective Action Request (CAR) is established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered or that emission reductions would not be able to be verified and certified.

A Clarification Request (CL) will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A detailed list of the CARs, CLs and FAR raised and discussed in the course of this validation is included in the next section 3 of this report.

2.7 Forward Action Requests

A Forward Action Request (FAR) will be issued when certain issues related to project implementation should be reviewed during the first verification.

A detailed list of the CARs, CLs and FAR raised and discussed in the course of this validation is included in the next section 3 of this report.

3 VALIDATION FINDINGS

3.1 Project Details/ Gap Validation

A Gap validation has been carried out to cover the sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS Project Description^{/Pb/}. The project conforms to the requirements under VCS Version 3.5 w.r.t to the gap validation.

Project type, technologies and measures implemented, and eligibility of the project

The Soubré HPP is composed of a run-of-river hydropower plant with a capacity of 270 MW and a micro-hydro power plant of 5.5 MW which results in a total estimated average gross electricity generation of 1,170 GWh per year, fed by a 17.3 km² reservoir. The Project will be connected Côte d'Ivoire grid via three 225 kV transmission lines; the transmission line Soubré-Buyo, Soubré-San Pedro and Soubré-Taabo-Rabattement-Yopougon 2-Abobo

The GHG project assessed can be classified as a VCS project in the sector 1, Energy (renewable/non-renewable), according to the List of Sectoral Scopes of VCS and is eligible.

Project proponent and other entities involved in the project

The project proponent is CI-ENERGIES (Société des Énergies de Côte d'Ivoire), responsible for management of investment and electricity supply in Côte d'Ivoire.

Project Start date:

The project has not been implemented yet. The starting date defined in line with VCS criteria is in the future.

The start of commercial operation of the Soubré HPP/CDM-PDD/ is planned to be 01-01-2017, which represents the start date for the VCS project. The project activity is also undergoing parallel CDM validation, thus the eligibility under VCS is compiled as the validation activity has been completed within 2 years from the start date. The project is therefore eligible to participate under VCS standard version 3.5 in the pre-registration period.

Project crediting period

The start of commercial operation of the Soubré HPP/CDM-PDD/ is 01-01-2017, which represents the start date of the fixed crediting period for the VCS project (10 years).

Project scale and estimated GHG emission reductions or removals

The CDM methodology, which is applied to the assessment of project activity, Soubre HPP is classified as large scale project, i.e. project's installed capacity (275.5 MW) is higher than the 15 MW benchmark as defined in the Glossary of CDM terms.

In compliance with the VCS Standard v3.5 and substantiated by the emission reduction calculation, which are validated and proved accurate by the VVB in the subsequent sections, the proposed project activity is expected to reach annual average GHG emission reductions of 607,720 tCO₂e until end of 2026.

Project location

The project is located about near the Soubré village on the river Sassandra, San Pedro Province, NAWA region, Côte d'Ivoire. The geographical coordinates of the project are 5°48'33" W, 6°39'28" S (Northernmost point of the dam) and 5°46'56" W, 6°36'55" S (Easternmost point)

Conditions prior to project initiation

As the audit team could verify by means of the onsite visit and confirmed by the project proponent in the PD, there is up to now no hydropower plants operating in the location described.

Project compliance with applicable laws, statutes and other regulatory frameworks

As confirmed by the project proponent, there are no specific regulations or incentives for renewable energy, nor any form of legislative framework regarding such projects in the host country.

However, the project has complied with the Environmental Framework Law (Law n ° 96-766 of 3 October 1996 on the Environmental Code) and it's articles in analysis and conducting an EIA, and conducted a stakeholder consultation process in line with the laws of Côte d'Ivoire.

Ownership and other programs:

The project proponent CI-ENERGIES is the owner of the project plant; the same has been confirmed with the host country letter of approval/LoA/ as well as signed EPC Contract/EPC/ with SinoHydro.

Right of use

The project proponent has provided two documents to demonstrate right of use

The 'Public Interest Decree' promulgated by the President of Cote d'Ivoire/DEC/

The Power Purchase Agreement between the Project Proponent and the utility company/PPA/

The Right of use shall be also proven by legal title to the flooded land in the first periodic verification (FAR 01)

Participation in other GHG programs:

The project is undergoing CDM validation and will seek registration under the UNFCCC Framework.

Other Environmental Credits:

The project proponent has provided a written undertaking which states that “The project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program/CEC/.

Emissions trading programs and other binding limits

This is a new greenfield project activity and the project's GHG emission reductions are not included in an emissions trading program or any other mechanism that includes GHG allowance trading/CEC/.

Rejection by other GHG programs

The project is also undergoing CDM validation and will seek registration under the UNFCCC Framework. The project has not been rejected by any other GHG programs.

Commercially sensitive information:

The project activity does not have any commercially sensitive information; the CDM PDD is publicly available and has been cross-checked to confirm the same.

The validation team has conducted an analysis of all project documents, interviews and onsite visit and can confirm that the description in the project description is accurate, complete, and provides an understanding of the nature of the project.

Overview of Validation Findings
Table 2.2-1: Overview of CARs, CLs and FARs issued

No.	Topic / Chapter	CAR	CL	FAR
i.	VCS PD Template Section - 1.2	0	0	0
ii.	VCS PD Template Section - 1.3	0	0	0
iii.	VCS PD Template Section - 1.5	1	0	0
iv.	VCS PD Template Section - 1.6	0	0	0
v.	VCS PD Template Section - 1.7	0	0	0
vi.	VCS PD Template Section - 1.9	0	0	0
vii.	VCS PD Template Section - 1.10	1	0	0
viii.	VCS PD Template Section - 1.12.1	1	0	1
ix.	VCS PD Template Section - 1.12.2	1	0	0
x.	VCS PD Template Section - 1.12.3	1	0	0
xi.	VCS PD Template Section - 1.12.4	1	0	0
xii.	VCS PD Template Section – 3.1	1	0	0
xiii.	VCS PD Template Section – 3.4	1	0	0
xiv.	VCS PD Template Section – 6.0	1	0	0
	SUM	9	0	1

CAR ID	01	Chapter No.	1.5	Date: 07/03/2016
Description of CAR				
PD version 1.0, Chapter 1.5 The project starting date of 2013-09-24 has not been defined in line with VCS criteria.				
Project participant response (1st round)				Date: 15/09/2016
The start date of the project has been revised to 01/01/2017, as the expected start of operations and renewable energy production to the grid. (as per section 3.7.1 of the VCS standard v3.5)				
Documentation provided by project participant				
<input checked="" type="checkbox"/>	Changes in the PD	Chapter (s): 1.5	New version No.: 2.0	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
DOE assessment (1st round)				Date: 17/09/2016
The start date of the project has been revised to 01/01/2017, as the expected start of commercial operations, in line with the definition in the VCS standard version 3.5				
Conclusion		<input type="checkbox"/> Additional action should be taken (finding remains open)		
Tick the appropriate checkbox		<input checked="" type="checkbox"/> The finding is closed		

CAR ID	02	Chapter No.	1.10	Date:	07/03/2016	
Description of CAR						
PD version 1.0, Chapter 1.10 Section incomplete considering all the requirements of the VCS PD template version 3.2						
Project participant response (1st round)					Date:	15/09/2016
Added: „To date, electricity in Côte d’Ivoire is mainly generated from fossil fuels (natural gas and fuel oil) which lead to considerable greenhouse gas emissions. Before implementation, the project site is a largely deforested area (since cocoa exploitation in the 70’s, outside of any protected area. The 22,2 km ² surface to be potentially flooded includes the current water body of Sassandra river and falls, Mounts Kourabahi forest area and two inhabited rural areas.“						
Documentation provided by project participant						
<input checked="" type="checkbox"/>	Changes in the PD	Chapter (s): 1.10			New version No.:	2.0
<input type="checkbox"/>	Changes in XLS	Worksheet(s):			New version No.:	
<input type="checkbox"/>	Other:					
DOE assessment (1st round)					Date:	17/09/2016
Section 1.10 of the PD version 2.0 has been revised and completed to indicate the conditions existing prior to project initiation. The project is a greenfield hydro power plant						
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed				

CAR ID	03	Chapter No.	1.12.1	Date:	07/03/2016	
Description of CAR						
PD version 1.0, Chapter 1.12.1 1. Concession not provided to DOE 2. The Right of use shall be additionally proven by legal title to the flooded land						
Project participant response (1st round)					Date:	15/09/2016
1. The reference to a concession was incorrect and has been replaced by ‘The ‘Public Interest Decree’ promulgated by the President of Cote d’Ivoire, Cf. Décret d’utilité publique projet Soubré.pdf 2. Use of right (PAP convention) final agreement won’t be definitively signed before long since the relocation committees conclusions are lengthy; therefore such evidence might rather be provided later under a FAR						
Documentation provided by project participant						
<input checked="" type="checkbox"/>	Changes in the PD	Chapter (s): 1.12.1			New version No.:	2.0
<input type="checkbox"/>	Changes in XLS	Worksheet(s):			New version No.:	
<input checked="" type="checkbox"/>	Other:	Décret d’utilité publique projet Soubré.pdf				
DOE assessment (1st round)					Date:	17/09/2016
1. Right of use by way of presidential decree (Cf. Décret d’utilité publique projet Soubré.pdf) has been furnished to the validation team and deemed sufficient. 2. Moved to FAR 01						
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed				

CAR ID	04	Chapter No.	1.12.2	Date:	07/03/2016	
Description of CAR						
PD version 1.0, Chapter 1.12.2 1. The section is not completed as per PD template guidelines. 2. A confirmation/declaration of non-rejection and non-claim of other environmental credits was not provided.						
Project participant response (1st round)					Date:	15/09/2016
1. Section 1.12.2 was revised as „Not applicable as the project’s GHG emission reductions activity is not included in an emissions trading program or any other mechanism that includes GHG allowance trading“ 2. A confirmation/declaration of non-rejection and non-claim of other environmental credits has been						

provided (cf. 080516 NU VCS registration on Soubré Hydropower Project CI.pdf)		
Documentation provided by project participant		
<input checked="" type="checkbox"/> Changes in the PD	Chapter (s): 1.12.2	New version No.: 2.0
<input type="checkbox"/> Changes in XLS	Worksheet(s):	New version No.:
<input checked="" type="checkbox"/> Other:	080516 NU VCS registration on Soubré Hydropower Project CI	
DOE assessment (1st round)		Date: 17/09/2016
A declaration dated 04-08-2016 titled 080516 NU VCS registration on Soubré Hydropower Project CI (ref: DG/DED/DN/KB/kf/N ^o 173/2016), has been received directly from the project entity. It has been checked and confirms that: -		
<ol style="list-style-type: none"> The project's GHG emission reductions activity is not included in an emissions trading program or any other mechanism that includes GHG allowance trading The project has not sought or received any other form of GHG-related environmental credit 		
Conclusion Tick the appropriate checkbox	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CAR ID	05	Chapter No.	1.12.3	Date: 07/03/2016
Description of CAR				
PD version 1.0, Chapter 1.12.3				
<ol style="list-style-type: none"> The chapter 1.12.3 was not completed as per guideline A confirmation/declaration project has not sought or received any other form of GHG-related environmental credit shall be furnished to the DOE 				
Project participant response (1st round)				Date: 15/09/2016
<ol style="list-style-type: none"> Section 1.12.3 has been revised as „The project has not sought or received any other form of GHG-related environmental credit, as confirmed by written declaration of the Project Proponent“ A confirmation/declaration of non-rejection and non-claim of other environmental credits has been provided 				
Documentation provided by project participant				
<input checked="" type="checkbox"/> Changes in the PD	Chapter (s): 1.12.3		New version No.: 2.0	
<input type="checkbox"/> Changes in XLS	Worksheet(s):		New version No.:	
<input checked="" type="checkbox"/> Other:	080516 NU VCS registration on Soubré Hydropower Project CI			
DOE assessment (1st round)				Date: 17/09/2016
<ol style="list-style-type: none"> Chapter 1.12.3 has been completed in line with requirements of the template. The PD has been checked against the guideline. A declaration dated 04-08-2016 titled 080516 NU VCS registration on Soubré Hydropower Project CI (ref: DG/DED/DN/KB/kf/N^o 173/2016), has been received directly from the project entity. It has been checked and it confirms that: - <ul style="list-style-type: none"> The project's GHG emission reductions activity is not included in an emissions trading program or any other mechanism that includes GHG allowance trading The project has not sought or received any other form of GHG-related environmental credit 				
Conclusion Tick the appropriate checkbox	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed			

CAR ID	06	Chapter No.	1.12.4	Date: 07/03/2016
Description of CAR				
PD version 1.0, Chapter 1.12.4				
<ol style="list-style-type: none"> The description in PD version 3 is not complete. The information if the project is or will be registered under any other GHG programs is missing. A confirmation/declaration of non-rejection and non-claim of other environmental credits was not provided. 				
Project participant response (1st round)				Date: 15/09/2016
<ol style="list-style-type: none"> Section 1.12.4 has been revised with „The project has not been registered under any other GHG program, although it is simultaneously developed as a CDM Project activity to be registered under the UNFCCC.“ A confirmation/declaration of non-rejection and non-claim of other environmental credits has been provided 				

Documentation provided by project participant			
<input checked="" type="checkbox"/>	Changes in the PD	Chapter (s): 1.12.4	New version No.: 2.0
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input checked="" type="checkbox"/>	Other:	080516 NU VCS registration on Soubré Hydropower Project CI	
DOE assessment (1 st round)			Date: 17/09/2016
<p>1. Chapter 1.12.4 of the PD version 02.0 has been completed as per the latest VCS template requirement. The PD has been checked against the guideline.</p> <p>2. A declaration dated 04-08-2016 titled 080516 NU VCS registration on Soubré Hydropower Project CI (ref: DG/DED/DN/KB/kf/N⁰ 173/2016), has been received directly from the project entity. It has been checked and it confirms that -</p> <p>- The project has not sought or received any other form of GHG-related environmental credit</p>			
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CAR ID	07	Chapter No.	3.1	Date: 07/03/2016
Description of CAR				
PD version 1.0, Chapter 3.1 1. The table 5 is not consistent with CDM-PDD in terms of data vintage and end result 2. Other values highlighted in this section shall be updated to be consistent with the CDM-PDD				
Project participant response (1 st round)				Date: 15/09/2016
<p>1. Table 5 has been made consistent with CDM-PDD including revised GEF vintage</p> <p>2. Rest of section has been updated as well</p>				
Documentation provided by project participant				
<input checked="" type="checkbox"/>	Changes in the PD	Chapter (s): 3.1	New version No.: 2.0	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input checked="" type="checkbox"/>	Other:			
DOE assessment (1 st round)				Date: 17/09/2016
<p>1. Table 3 has been revised accordingly. The PD has been checked against the guideline.</p> <p>2. All values are now consistent with the CDM PDD. The PD has been checked against the CDM PDD.</p>				
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

CAR ID	08	Chapter No.	3.4	Date: 07/03/2016
Description of CAR				
PD version 2.0, Chapter 3.4 Emission reductions shall be consistent with CDM PDD. The same applies to sections 1.1 & 1.7 of the PD				
Project participant response (1 st round)				Date: 15/09/2016
Emission reductions have been made consistent with CDM PDD, reflecting the progressive ramp-up in first year.				
Documentation provided by project participant				
<input checked="" type="checkbox"/>	Changes in the PD	Chapter (s): 3.4	New version No.: 2.0	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input checked="" type="checkbox"/>	Other:			
DOE assessment (1 st round)				Date: 17/09/2016
Emission reductions have been made consistent with CDM PDD. The PD has been checked against the CDM PDD and CDM ER calculation.				
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

CAR ID	09	Chapter No.	6	Date: 07/03/2016
Description of CAR				
PD version 2.0, Chapter 6 Mechanisms for ongoing communication appear to be omitted in this section				
Project participant response (1 st round)				Date: 15/09/2016
Mechanisms for ongoing communication have been added at the end of the section.				

Documentation provided by project participant		
<input checked="" type="checkbox"/> Changes in the PD	Chapter (s): 6	New version No.: 2.0
<input type="checkbox"/> Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/> Other:		
DOE assessment (1 st round)		Date: 17/09/2016
Chapter 6 of the revised PD version 2.0 now includes mechanisms for ongoing communication. The PD is filled correctly in line with the guidance.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

FAR ID	01	Chapter No.	1.12.1	Date: 17/09/2016
Description of FAR				
The Right of use is not proven by legal title to the flooded land.				
Project participant response (1 st round)				Date:
Noted				
Documentation provided by project participant				
<input type="checkbox"/> Changes in the MR	Chapter (s):		New version No.:	
<input type="checkbox"/> Changes in XLS	Worksheet(s):		New version No.:	
<input checked="" type="checkbox"/> Other:				
DOE assessment				Date: DD/MM/YYYY
Conclusion <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the next periodic verification			

3.2 Application of Methodology

3.2.1 Title and Reference

VCS standard allows the implementation of all approved UN CDM methodology for development of VCS project activity.

The approved CDM baseline and monitoring methodology ACM0002: “Grid-connected electricity generation from renewable sources” Version 16.0, is applied and still valid version during validation.

Additionally methodology related tools and relevant guidelines are applied, namely

- “Tool to calculate the emission factor for an electricity system” (version 05.0, EB 87, Annex 9),
- “Tool for the demonstration and assessment of additionality” (version 07.0.0, EB 70, Annex 8),
- “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” (version 02, EB 41, Annex 11).

In addition, the following methodological tools are also employed:

- “Investment analysis” (version 06.0, EB 85, Annex 12)
- “Common practice” (version 03.1, EB 84, Annex 7)
- “Guidelines for the reporting and validation of plant load factors” (version 01, EB 48, Annex 11).

3.2.2 Applicability

The selected approved methodology ACM0002 version 16.0.0 covers large scale projects activities which occur as grid-connected electricity generation from renewable sources. The applicability of the methodology to the proposed project activity is discussed in detail in chapter 2.2 of the VCS PD, following the applicability criteria listed by the methodology.

Applicability criteria of the methodology ACM0002 v16.0.0	Fulfilled	Means of Validation
<p>The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit ;</p>	<input checked="" type="checkbox"/>	<p>The proposed project is the installation of a new hydro power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). The validation team verified this statement by means of:</p> <ul style="list-style-type: none"> • Onsite visit • Document review such as the PD, PPA, the EPC contract, the FSR and the Business plan used to obtain financing
<p>In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior the start date of minimum historical reference period of five years, used for calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity ;</p>	<input checked="" type="checkbox"/>	<p>The project is the installation of a new run-off-river hydro power plant; it is a Greenfield project with reservoir. The plant also includes a mini-hydropower plant of 5.5 MW, which was added later to take advantage of the potential energy from the reserved flow at the spillway. The validation team verified this condition by means of:</p> <ul style="list-style-type: none"> • Onsite visit • Document review such as the PD, PPA, the EPC amendment contract, the FSR and the Business plan used to obtain financing
<p>In case of hydro power plants, one of the following conditions shall apply:</p> <ul style="list-style-type: none"> • The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of reservoirs; or • The project activity is implemented in an existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m²; or • The project activity results in new single or multiple reservoirs and the power density calculated using equation (3) is greater than 4 W/m²; or • The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the 	<input checked="" type="checkbox"/>	<p>The project is the installation of a new run-off-river hydro power plant; it is a Greenfield project with new reservoir and results in a calculated power density of more than 4 W/m². The validation team verified this condition by means of:</p> <ul style="list-style-type: none"> • Onsite visit • Document review such as the PD, PPA, the EPC amendment contract, and the FSR

Applicability criteria of the methodology ACM0002 v16.0.0	Fulfilled	Means of Validation
<p>reservoirs, calculated using equation (3), is lower than or equal to 4 W/m^2, all of the following conditions shall apply:</p> <ul style="list-style-type: none"> - The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m^2; - Water flow between reservoirs is not used by any other hydropower unit which is not part of the project activity; - Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m^2 shall be: <ol style="list-style-type: none"> a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project. 		
<p>In the case of integrated hydro power projects, project proponent shall:</p> <ul style="list-style-type: none"> - Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or <p>Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.</p>	<input checked="" type="checkbox"/>	<p>The proposed project is the installation of a new hydro power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). The validation team verified this statement by means of:</p> <ul style="list-style-type: none"> • Onsite visit • Document review such as the PD, PPA, the EPC contract, the FSR and the Business plan used to obtain financing
<p>The methodology is not applicable to:</p> <ul style="list-style-type: none"> - Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; - Biomass fired power plants/units 	<input checked="" type="checkbox"/>	<p>The proposed project is the installation of a new hydro power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). The validation team verified this statement by means of:</p> <ul style="list-style-type: none"> • Onsite visit • Document review such as the PD, PPA, the EPC contract, the FSR and the Business plan used to obtain financing <p>There is no switching from fossil fuels</p>

Applicability criteria of the methodology ACM0002 v16.0.0	Fulfilled	Means of Validation
		or a biomass fired power plant.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”	☒	The proposed project is the installation of a new hydro power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). The validation team verified this statement by means of: <ul style="list-style-type: none"> • Onsite visit • Document review such as the PD, PPA, the EPC contract, the FSR and the Business plan used to obtain financing There is no retrofit.

The applicability conditions of the project activity regarding the tool to calculate the emission factor for an electricity system, the tool for the demonstration and assessment of additionality as well as methodological tool: Investment Analysis are all discussed in the PD and correctly justified.

The applicability of the methodology, and the applied tools selected by the project proponent are correct and justified.

3.2.3 Project Boundary

According to ACM0002, version 16.0, ‘The spatial extent of the project boundary includes the project power plant/unit and all power plants/units connected physically to the electricity system that the CDM project power plant is connected to’

Therefore, the electricity displaced by the project is the electricity generated within the interconnected national grid of Côte d’Ivoire. The project boundary includes the project site including the substation and all power plants connected physically to the Côte d’Ivoire grid

The sources and sinks of greenhouse gas identified in the VCS PD are deemed to be appropriate.

Type	GHG	Means of Validation
Baseline Emissions	CO ₂	Emissions from the generation of electrical power by fossil power plants in Ivorian national power Grid
Project Emissions	CH ₄	The project activity results in a reservoir but with a power density of more than 4 W/m ² . Therefore, project emissions are neglected.
Leakage Emissions	-	Considered to be neglected as per ACM0002

The project boundary and selected sources, sinks and reservoirs are justified for the project.

3.2.4 Baseline Scenario

The baseline scenario for a new grid-connected renewable power plant is prescribed in §23 of the applied methodology ACM0002 v16.0.0 as

‘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 (CM) calculations described in the “Tool to calculate the emission factor for an electricity system’

Therefore, for the proposed project activity, the identified baseline scenario is justified.

3.2.5 *Additionality*

According to the VCS standard v3.5 “Additionality shall be demonstrated and assessed in accordance with the requirements set out in the methodology applied to the project.” Consequently the selected methodology together with the methodological tool “Tool for the Demonstration and Assessment of Additionality” version 7.0. and the Methodological Tool: Investment analysis” version 6.0 are used for the demonstration of additionality of Soubré HPP.

Project timeline:

Project Idea Note (PIN) was submitted to DNA of Côte d'Ivoire on 16/07/2012. The project started on 24/09/2013 when the contract with Exim Bank/PSD/ was signed and first payment effected, which is prior to the publication of the draft PDD for global stakeholder consultation (28/01/2016). The prior consideration was submitted to UNFCC on 18/10/2013. DNA of Côte d'Ivoire issued Letter of No Objection to the project on 05/05/2014. Project consultant requested on behalf of PP validation service from DOE on 20/11/2014.

As per the applied methodology, ACM0002 Version 16.0, additionality of the project activity is demonstrated and assessed using the latest version of the “Tool for the demonstration and assessment of additionality”. Step wise approach from the Tool was followed.

Step 0: the project is not first of its kind.

Step 1: the baseline is prescribed by the methodology and the identification of alternatives is not required.

Step 2: Investment analysis to demonstrate that the project is not financially attractive and/or feasible was conducted.

Benchmark analysis with Equity Internal Rate of Return (E-IRR) as the appropriate financial indicator was identified. The investment analysis for the period of 30 years, which represent the technical lifetime of the equipment, was chosen.

The default benchmark of 14.55% from the Table 1 for Group 1 of the Methodological Tool “Investment analysis” was applied which is in real terms. Further in line with the tool Investment analysis and as the equity IRR is calculated in nominal terms the benchmark value has been adjusted from real to nominal terms by adding the inflation rate. The final benchmark is therefore $14.55\% + 2.1\% = 16.65\%$ The Equity IRR was calculated after-tax starting from the time of investment decision in 2013. The post-tax equity IRR (Eq-IRR) of 11.0% is lower than the applied benchmark of 16.65%.

- When expected revenue is increased by 10% the Eq-IRR does not cross the benchmark in the sensitivity analysis (12.78%).
- When O&M costs is reduced by 10% the Eq-IRR also does not cross the benchmark (11.25%)
- When total investment (CAPEX) is reduced by 10% the Eq-IRR does not cross the benchmark (12.32%).

Therefore, the post-tax Eq-IRR remains below the benchmark under all realistic scenarios.

Step 3: Demonstrates that the project is not common practice in Côte d'Ivoire.

Step 4: Concludes that the project is additional.

Common Practice Analysis

In addition to investment analysis, the project proponent has demonstrated that the project activity is not common practice in the country or region using the step-wise approach in the methodological tool: Common Practice, version 03.1.

According to the grid data sourced from the UNFCCC regional collaboration Centre (RCC) and provided by PP/GEF/ as well as Wikipedia, only three hydro-power plants had started operations before GSCP and the project starting date in Côte d'Ivoire were identified ($N_{all}=3$).

All the identified power plants apply the same technology to generate power and have been confirmed not to be CDM or undergoing any form of validation^{/unfccc/}. Therefore, N_{diff} has been demonstrated to be 0.

From the foregoing, it is concluded $F = 1$ which is greater than 0.2, and $N_{all} - N_{diff}$ is not greater than 3. The project is not common practice in the country.

The validation team concludes that prior consideration and additionality of the proposed project activity is sufficiently justified.

3.2.6 Quantification of GHG Emission Reductions and Removals

The steps taken, the equations and parameters applied in the VCS PD version 3.2 to calculate baseline emissions, project emissions, leakage and emission reductions comply with the requirements of the selected methodology including applicable tool(s) as below

$$ER_y = BE_y - PE_y$$

The project is implemented on reservoir with a power density over $4W/m^2$; therefore $PE_y = 0$.

$$BE_{,y} = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:

BE_y	Baseline emission in year y; (tCO ₂ /year).
$EG_{PJ,y}$:	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EF_{grid,CM,y}$	Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO ₂ /MWh)

According to the methodology,

$$EG_{PJ,y} = EG_{facility,y}$$

Ex-ante grid emission factor for electricity system of Côte d'Ivoire's was calculated based on data available from state utility CI-ENERGIES. Simple Operating Margin based on total fuel consumption and electricity generation of 0.6244 tCO₂/MWh was calculated. The Build Margin Emission Factor was calculated from the sample of power plants that generates over 20 % of power in the grid. A BM emission factor of 0.5840 tCO₂/MWh was correctly determined. The weighted Combined Margin emission factor of 0.6042 tCO₂/MWh was calculated.

Therefore:

$$\begin{aligned} ER_y &= BE_y - PE_y \\ &= BE_y \text{ (tCO}_{2e}\text{)} \\ &= 1,053,000 \text{ MWh} \times 0.6042 \text{ tCO}_{2e}\text{/MWh} \\ &= \mathbf{636,222 \text{ tCO}_{2e}}. \end{aligned}$$

The following parameters are fixed throughout the crediting period:

The following parameters are fixed throughout the 1st crediting period:

- Combined margin CO₂ emission factor for grid connected power generation in year y ($EF_{grid,CM,y}$);
- Installed capacity of the hydro power plant before the implementation of the project activity. (Cap_{BL});
- Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m²). (A_{BL})

All data and parameters not monitored throughout the monitoring period of the project activity were correctly sourced in line with the applied methodology and tools. Correct assumptions were applied.

The following parameters are to be monitored throughout the crediting period:

- Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{facility,y}$);
- Installed capacity of the hydro power plant after the implementation of the project activity. (Cap_{PJ});
- Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m²). (A_{PJ})

3.2.7 Methodology Deviations

Not applicable

3.2.8 Monitoring Plan

The DOE hereby confirms that the monitoring plan complies with the requirements of the methodology and the applicable tool. In accordance with the monitoring plan, the main parameter that will be monitored is the quantity of net electricity generation supplied by the project activity to the grid in year y ($EG_{facility,y}$), measured continuously by the power plant's meters installed at the project site. The measurements will be continuously done and recorded monthly.

QA/QC procedures include Cross check measurement results with records for sold electricity
In case the main meter malfunctions, back-up meter reading will be applied and reconciled anyway with grid operators' records.

Other parameters to be measured at the beginning of each crediting period will be the parameters CAP_{PJ} and A_{PJ} for the purposes of determining potential project emissions

The monitoring plan adheres to the requirements of the applied methodology and any referenced tools.

3.3 Non-Permanence Risk Analysis

Since this project activity is not a AFOLU project and its emission reductions, that will be generated, does not have risk of reversibility, it is not necessary to performed a non-permanence analysis.

3.4 Environmental Impact

The host country requires that any project which may have significant impact on the environment should undertake a preliminary impact study

Accordingly environmental impact analysis was carried out under the Environmental Framework Law (Law n ° 96-766 of 3 October 1996 on the Environmental Code). The detailed environmental report was prepared in accordance with procedures as required by Ivorian legislation and was submitted to the Direction of Environment in February 2015 and approved by ANDE decree n°0078 of August 21st, 2015^{/EIA/}.

3.5 Comments by Stakeholders

The validation team assessed the adequacy of the local stakeholder consultation as follows:

Identification of local stakeholders

The stakeholder consultation process was conducted by consultant *Tractebel Engineering France* and a representative of the National Office for Technical Study and Development. The local stakeholders involved in the proposed project activity have been appropriately identified. The representatives of the DNA and local residents of the region affected directly or indirectly.

Timing of stakeholder consultation process

The local stakeholder consultations was performed on diverse dates since August 2010 to 2014, and involved different stakeholders in Abidjan, *Soubré* and other regions, including those affected by the development of this project activity.

Summary of comments provided

By means of reviewing local stakeholder consultation meeting record and interview with local stakeholders^{/LSC/}, the validation team confirms that summary of comments provided has been included and issues raised especially with compensation for possible loss of agricultural land have been taken into account by the project developer. Detailed summary of attendees, comments and how they have been addressed has been included in the VCS PD appropriately and transparently. The PP has also established accessibility and open channels for expression of *continuous inputs & grievances*.

4 VALIDATION CONCLUSION

CI-ENERGIES has commissioned the TÜV NORD JI / CDM Certification Program to carry out the validation of the “Soubré Hydropower Project” with regard to the requirements of VCS Version 3.5 Standard.

The project activity involves construction of large-scale hydropower plant to produce renewable electricity and feed into national grid. The project is located in *Côte d’Ivoire*.

The methodology ACM0002 “Grid-connected electricity generation from renewable sources”(version 16.0)” is applied to quantify the GHG removals achieved in this project. The calculation of the project emission removals is carried out in a transparent and conservative manner.

In the course of the draft validation 9 Corrective Action Requests (CARs), 0 Clarification Requests (CLs) were successfully closed. 1 FAR has also been raised.

In detail the conclusions can be summarised as follows:

- A reasonable level of assurance has been applied.
- All data and information used for ex-ante calculation of emission reductions is of projected and/or hypothetical nature.
- The project is in line with all relevant host country legislation incl. its GHG assertions, where applicable.
- The project additionality is sufficiently justified in the VCS-PD.
- The monitoring plan is transparent and adequate.
- No deviations from the applied CDM methodology.
- The project is most likely to achieve emission removals of 6,077,196 tCO₂e within the first crediting period of 10 years.

The conclusions of this report show, that the project, as it was described in the project documentation/GHG Report, is in line with all criteria applicable for the validation against the VCS Version 3.5 standard without any qualifications or limitations.

Kigali, 2016-10-31



Dr. Grzegorz Kochaniewicz
TÜV NORD JI/CDM Certification Program
Verification Team Leader

Essen, 2016-10-31



Stefan Winter
TÜV NORD JI/CDM Certification Program
Final Approval

APPENDIX 1: ABBREVIATIONS

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CO₂	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
CL	Clarification Request
DNA	Designated National Authority
EB	CDM Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
QC/QA	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCS - PD	VCS - Project Description
VCU	Verified Carbon Unit
VT	Verification team

APPENDIX 2: REFERENCES
Table Annex 1.1: Documents provided by the project participant

Reference	Document	Author
/FIN/	Evaluation économique et financière SOUBRE (2011)	SinoHydro Corporation Limited
/EPC/	EPC Contract Amendment (2012-03-20 Soubre contrat EPC avenant) (2012)	SinoHydro and the State
/AL/	Soubre 017_Caractéristiques de la mini-centrale_V02 (Project capacity amendment letter)	Tractebel Engineering S.A
/ER/	ER Calculation	PP
/GEF/	<ul style="list-style-type: none"> Côte d'Ivoire GEF calculation sheet, 2016-07-06_Grid EF 2013 – 2015 Grid EF data - Ivory coast - 2009-2013.xlsx https://en.wikipedia.org/wiki/List_of_power_stations_in_Ivory_Coast 	PP
/LoA/	Host Country Letter of Approval	Côte d'Ivoire DNA
/IRR/	2016-07-06_BUSINESS PLAN SOUBRE (equity IRR analysis) - ENG	PP
/EIA/	ANDE-Arrête-Approbation étude EIES Projet Soubre	Ministere de L'Environnement de La Salubrite Urbaine et du Developpement Durable (Republique de Côte d'Ivoire)
/LSC/	<ul style="list-style-type: none"> LSC Consultation Plan List of Attendees 	PP
/PPA/	PPA_Protocol de cession et de livraison_26[1].07.13	CI-ENERGIES
/FSR/	Feasibility Study Report (2008 faisance 215RP01_Vol1_Rapport principal)	Coyne Et Bellier
/PD/	<p>Project Design Document for VCS project: Soubre Hydropower Project, version 1.0, dated 01-02-2016</p> <p>Project Design Document for VCS project: Soubre Hydropower Project, version 2.0, dated 15-09-2016</p> <p>Project Design Document for VCS project: Soubre Hydropower Project, version 2.1, dated 13-10-2016</p>	PP

Table Annex 1.2: Background investigation and assessment documents

Reference	Document	Author
/ACM2/	ACM0002: <i>Grid-connected electricity generation from renewable sources</i> , version 16.0	UNFCCC
/CDM-PDD/	Project Design Document for CDM project: "Soubré Hydropower Project", version 3.2, dated 19-09-2016	PP
/CDM-VAL/	Soubré Validation Report "Soubré Hydropower Project", dated 20-09-2016	TÜV NORD CERT GmbH
/CEC/	080516 NU VCS registration on Soubré Hydropower Project CI	PP
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)	UNFCCC
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)	UNFCCC
/DEC/	Décret d'utilité publique projet Soubré	Presidential Decree
/IPPC/	<ol style="list-style-type: none"> 1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book 	IPCC
/ISO 14064/	<p>Greenhouse gases -- Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals</p> <p>Greenhouse gases -- Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements</p> <p>Greenhouse gases -- Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions</p>	ISO
/ISO14065/	Greenhouse gases -- Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition	ISO
/PG/	VCS Program Guide: Version 3.5	VCS
/PS/	VCS Standard: Version 3.5	VCS
/TL/	<p>Tool to calculate the emission factor for an electricity system Version 05.0</p> <p>Methodological Tool 'Investment Analysis' version 06.0</p>	UNFCCC
/VCS/	Verified Carbon Standard: Version 3.5	VCS

Reference	Document	Author
/VCS-PD-T/	VCS PD Template version 3.2	VCS
/VVM/	VCS Validation and verification manual version 3.1	

Table Annex 1.3: Websites used

Reference	Link	Organisation
/KP/	http://unfccc.int/kyoto_protocol/items/2830.php	Kyoto Protocol (1997)
/MA/	http://cdm.unfccc.int/Reference/COPMOP/index.html	Decision 3/CMP. 1 (Marrakesh – Accords)
/PDD-T/	https://cdm.unfccc.int/Reference/PDDs_Forms/index.html	Project Design Document Form (CDM-PDD-FORM) - Version 6.0
/PS/	http://cdm.unfccc.int/Reference/Standards/index.html	CDM Project Standard (Version 9.0)
/VVS/	http://cdm.unfccc.int/Reference/Standards/index.html	CDM Validation and Verification Standard (Version 09.0)
/vcs/	http://www.v-c-s.org/	Glossary “CDM terms” (version 08.0)
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications
/goog/	https://earth.google.com/	Google Earth
/cd4cdm/	www.cd4cdm.org	UNEP Riso Centre
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ag/	http://aera-group.fr/	AERA Group
/tre/	www.tractebel-engie.com	Tractebel Engineering S.A.
/dna-HP/	http://www.mdpcotedivoire.org/	Côte d'Ivoire DNA

Table Annex 1.4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr.	Traore Amidou	CI ENERGIES

Reference	Moi ¹		Name	Organisation / Function
		<input type="checkbox"/> Ms		
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Dosso Brahima	CI ENERGIES
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kassi Bagaman	CI ENERGIES
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Balet Maxime	CI ENERGIES
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kassi Justine	CI ENERGIES
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Koffi Yannick	CI ENERGIES
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Touré Hamidou	CI ENERGIES
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Titre Michael	CI ENERGIES
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kouame Koffi Victor	CI ENERGIES
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Elloh Joseph Désiré	CI ENERGIES
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kassi Koutoua Euloge	CI ENERGIES
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Coulibaly Murielle	CI ENERGIES
/IM02/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Alexandre Dunod	Ecosur afrique
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Tesson Alexis	Tractelel
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Tchuinkamsu Brice	Tractebel
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Dogoua Michel	BNETD
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kako Mathieu	Trésor Soubre

Reference	Mol ¹		Name	Organisation / Function
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Tchea Sahin Ferndinand	Aff. Soc
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kakon Bie	DTH
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kouamé Koffi Jerome	Soubre Director Regional
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Gnare Kanga Celestin	Minader – Director Regional
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kouassi Kouassi Bruno	Minader – Chef de Service
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kouadio A. Solauge	D.D. Industrie Meres
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Do Gosuet Aido	Baufzit
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Bobo Koutoua	Rapr. DDIE
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kouassi Jeannette	Bnetd
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Gnamien Augustin	Rep. DRCU
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Alliali Kouadio	MEMIS – Préfet de la region de la Nawa
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Bonaventure Tiéghé	MEMIS
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Soumahoro Sohaloho	MEMIS
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Mané Adarug	Conseil Regional
/IM03/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Diarnanouba Adarua	Mairie Soubré
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Yuboue Kruamé Pierre	Memis
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Yami M-Angustin	Memis

Reference	Moi ¹		Name	Organisation / Fonction
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Ruoss Ronan Paul	DD du pétrole et de l'énergie
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kouadio Bosson	Compagnie Gendarmerie
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Alphonse Kambuu	Commissariat de Police de Soubre
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Cdr Nohi Konan	Escadron
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Cme Kone Sotia	2 nd Compagnie Bssso HRCI
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Lou Kou	Adjoint CB Soubré
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Lt Couliraly Abbu Rojell	Adjoint C.C. Eaux et Forêts
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Lt Owlai Djemaho H.	DD des Eaux et Forêts
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	N'Guessan Yao Octave	CSE Représentant le DD SANTE
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Mme Coulibaly Komontio	Assistante Sociale CE-PAR
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	N'guessan Kougme	Kouamékro
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Yao Koffi Joachim	Kouamékro
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	N'guessan Konan Joachim	Kouamékro
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/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Poku Konan	Kouamékro
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Loukou N'guessan	Kouamékro
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	N'guessan Konan	Kouamékro

Reference	Mol ¹		Name	Organisation / Function
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kouassi Loukou	Kouamékro
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Dokpo Ange Kossognon	Chef du Village Koperagui
/IM03/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Rachel Boti Douayoua	ANDE-DNA
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Christian Andoble Yao	ANDE-DNA

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)