

TEMPLATE

DEVIATION REQUEST FORM

PUBLICATION DATE 11.04.2021

Version 5.0

A. To be completed by Gold Standard

1 Decision

1.1 | Date - 19/07/2023

1.2 | Decision

The deviation request is **not approved.**

Gold Standard has already developed the methodology <u>Emission Reductions From</u> <u>Safe Drinking Water Supply</u> that provides the approach that the Project Developer is proposing.

In case the project developer plan to use the CDM methodology then project developer shall apply the guidance and method specified in the CDM methodology.

1.3 | Is this decision applicable to other project activities under similar circumstances?

No

B. To be completed by the Project Developer/Coordinating and Managing Entity and/or VVB requesting deviation (Submit deviation

request form in Microsoft Word format)

2 Background information

The objectives of the proposed programme are: (i) Schools in Rwanda receive access to safe water and (ii) CO2e emissions associated with water treatment are avoided. This project will address critical access to safe water, whilst contributing to pollution reduction through the benefits of carbon financing. The water purification systems will reduce both the use of and demand for firewood and other fuels used to boil water for drinking, cooking, and hand washing, leading to a reduction of carbon dioxide emissions.

The project activities managed by Virridy will distribute, install and service low GHG emitting water purification systems at point-of-use (POU) to provide safe drinking water (SDW) for institutional application at schools in approximately one thousand (1000) schools countrywide.

The project technology will be installed at the POU within facilities of the schools (mostly, primary and secondary schools, other educational institutions can be included).

The PoA aims to reduce the energy demand and respective emissions from the population served by the project activity for whom the common practice of water treatment is or would have been water boiling, considering the emission factor of the baseline energy source mix, including the displacement of Non-Renewable Biomass (NRB). The project accounts for purified water consumed for drinking, cooking and hand washing.

We propose using the CO_2 and $Non-CO_2$ default emission factors given by the IPCC Guidelines for National Greenhouse Gas Inventories for wood, solid biomass, and charcoal instead of applying the emission factors of projected fossil fuels.

Deviation Reference Number	DEV_464	
Date of decision	19/07/2023	
Precedent (YES/NO)	No	
Precedent details	NA	
Date of submission	20/06/2023	
Project/PoA/VPA	Project	NA
	🗆 PoA	ID – GS12240
	□ VPA	ID – GS12239
Project/PoA/VPA title	AMAZI MEZA RWANDA WATER SUPPLY PROJECT FOR SCHOOLS	

TEMPLATE - DEVIATION REQUEST FORM V4.0

Date of listing	Not listed yet
GS Standard version applicable	GS4GG
Date of transition to GS4GG (if applicable)	NA
Date of transition to Gold Standard from another standard (e.g. CDM) (if applicable)	NA
Date of design certification/inclusion (if applicable)	NA
Location of project/PoA/VPA	Rwanda
Scale of the project/PoA/VPA	 □ Microscale ⊠ Small scale □ Large scale
Gold Standard Impact Registry link of the project/PoA/VPA	Link not available. The new project entries for PoA and VPA were made recently.
Status of the project/PoA/VPA	 New Listed Certified design Certified project
Title/subject of deviation	Fuels Emission Factors for AMS.III.AV
Specify applicable rule/requirements/methodology, with exact paragraph reference and version number	AMS.III.AV, v8.0, Section 5.3 Baseline emissions, paragraph 15, equation 1. Application of fuel types CO2 and non-CO2 emission factors instead of projected fossil fuel.
Specify the monitoring period for which the request is valid (if applicable)	Start date End date NA
Submitted by	Contact person name: Evan Thomas Email ID: , <u>evan.thomas@virridy.com</u> Organisation: Virridy Carbon LLC Project participant: Yes ⊠ No □
Validation and Verification body (VVB opinion shall be included, where required by the applicable rules/requirements or request is submitted by the VVB).	Yes □ No ⊠ If yes; VVB name: VVB Staff name(s): Yes □ No ⊠
approved for the same project	

3 Deviation detail

3.1 | Description of the deviation:

Guidance Use the space below to describe the deviation and substantiate the reason for requesting deviation from applicable rules/requirements. Please include all relevant information in support of the request. You are requested to follow the principles for requesting deviations, given in the <u>Deviation Approval Procedure/</u><u>Design Change Requirements.</u>

3.1.1 | Deviation detail (to be completed by Project developer):

As per the methodology, if the fuel displaced is NRB, the baseline emissions are calculated applying an emission factor of projected fossil fuels (*EFprojected_fossil fuel,i*) to substitute non-renewable woody biomass by similar consumers to boil the water. We proposed to apply the emission factors relevant to the actual baseline scenario, including biomass. The application of the proposed factors is aligned with the GS approach already approved for other cookstoves and water filters projects. The detailed explanation, including the values proposed for the emission factors to be applied can be found below in section 3.2.1

3.1.2 | VVB opinion (to be completed by VVB, if applicable):

Guidance *If required by SustainCERT or Gold Standard for this particular deviation, please add here the VVB's opinion.*

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3.2 | Assessment of the deviation:

Guidance Use the space below to describe how the deviation complies with the requirements, and, where applicable, the accuracy, completeness and conservativeness is ensured. Please include all relevant information in support of the request.

3.2.1 | Deviation assessment (to be completed by Project developer):

The equation below shows the deviation proposed¹ to calculate the Baseline emissions:

AMS.III.AV, v8.0, Section 5.3 Baseline emissions, paragraph 15, equation 1.

15. The baseline emissions shall be calculated as follows:

$$BE_{y} = QPW_{y} \times m \times X_{boil} \times SEC \times \sum_{i} (BL_{fuel,i} \times ((f_{i} \times EF_{projected_fossil} fuel, iCO2) + EFfuel, iNonCO2) \times 10^{-9}) \quad \text{Equation (1)}$$

Where:		
BE_y	=	Baseline emissions during the year y in (t CO ₂ e)
QPW _y	=	Total quantity of water purified by the project in year y (L)
m	=	Fraction of functional appliances that are providing the SDW (%). Only project appliances that (i) use technologies that meet the technology standards as per paragraph Error! Reference source not found. and (ii) are operating or replaced by an equivalent in service appliance and (iii) deliver microbiologically safe drinking water, are counted for emission reductions
X _{boil}	=	Fraction of the population served by the project activity for which the common practice of water treatment is or would have been water boiling. It is determined ex ante through surveys
SEC	=	Specific energy consumption required to boil one litre of water (kJ/L), to be calculated according to paragraphs below
BL _{fuel,i}	=	Proportions of baseline fuel type <i>i</i> (NRB and/or fossil fuels) used in the absence of the project activity (fraction)
f _i	=	Fraction of non-renewable fuel type <i>i</i> used in the absence of the project activity in year <i>y</i> . For biomass, it is the fraction of woody biomass that can be established as non-renewable biomass (f_{NRB}). If the baseline fuel is fossil fuel, the value to be applied is 1
EF _{projected_fossil fuel,i}	-	Emission factor of the fuel type <i>i</i> substituted (t CO ₂ /TJ)
EFfuel,iCO ₂	=	CO ₂ Emission factor of the fuel type i associated with the baseline water purification technologies (t CO2/TJ)
EFfuel,inon-CO2	=	Non-CO ₂ Emission factor of the fuel type i associated with the baseline water purification technologies (t CO ₂ e/TJ)

 $^{^{1}}$ The strikethrough text-indicates the original text from the methodology removed as part of the deviation request. The text marked in yellow indicates the proposed text to be added as part of the deviation request.

AMS.III.AV, v8.0, Section 5.8 Baseline emissions, paragraph 27.

Data / Parameter table 6.

Data / Parameter:	EF _{projected_fossil} fuel,i <mark>CO2</mark>		
Data unit:	t CO ₂ /TJ		
Description:	CO ₂ Emission factor of the fuel type i associated with the baseline water purification technologies (t CO ₂ /TJ)		
Source of data:	Project activity site		
Value to be applied:	 If the fuel displaced is NRB, this parameter can be sourced from approved methodology AMS-I.E. (i.e. Table 2 in version 10.0 of AMS-I.E., if there are updates use the information from the latest version of AMS-I.E.); 		
	fossil fuel	placed is	s fossil fuel, apply the emission factor of the
	Fuel V	<mark>alue</mark> /	Source
			IPCC default, 2006 IPCC Guidelines for National
	Firewood= 1	<mark>.12</mark>	Greenhouse Gas Inventories 2.1,Volume 2:
			Energy
			IPCC default, 2006 IPCC Guidelines for National
	Charcoal = 10	<mark>.65</mark>	Greenhouse Gas Inventories 2.1,Volume 2:
	LPG = 63.1		Energy. Including charcoal production emissions
			IPCC default, 2006 IPCC Guidelines for National
		<mark>3.1</mark>	Greenhouse Gas Inventories 2.1,Volume 2:
			Energy
	Crop	00	Default per IPCC Guidelines for National
	IOO residue = Biogas = 55 On grid	00	Greenhouse Gas Inventories
		-	IPCC EFDB:https://www.ipcc-
			nggip.iges.or.jp/EFDB/find_ef.php
		<u>67 70</u>	Considering a Grid Emission factor of 0.604
	electricity=	<mark>67.78</mark>	tCO2/MWh, converted to tCO2/TJ
	Peat = 29.0	<mark></mark>	IPCC EFDB:https://www.ipcc-
		<mark>29.0</mark>	nggip.iges.or.jp/EFDB/find_ef.php
			IPCC default, 2006 IPCC Guidelines for National
	Kerosene = 71.9	<mark>1.9</mark>	Greenhouse Gas Inventories 2.1, Volume 2:
			Energy
Any comment:	CO ₂ Emission factors as per project fuels used at the baseline scenario		

Data / Parameter table 7.

Data / Parameter:	EF _{fuel,i} Non-CO ₂			
Data unit:	<mark>t CO₂/TJ</mark>			
Description:	CO ₂ Emission	CO ₂ Emission factor of the fuel type i associated with the baseline water purification technologies (t CO2/TJ)		
Source of data:	Project acti	<mark>vity site</mark>		
Value to be applied:	Fuel Value Source		Source	
		<mark>9.46</mark>	Emission Factor value provided in Table 2.5 of	
			Chapter 2: Commercial/Institutional (2006 IPCC	
	Firewood		Guidelines for National Greenhouse Gas	
			Inventories).	
			IPCC defaults for wood and charcoal, the	
			following defaults derived from the IPCC shall be	
			applied: AR5 GWP	
	Charcoal	<mark>45</mark>	- Charcoal: 44.83 tCO2e/TJ (includes production	
			emissions of CH4 and N2O)	
			Emission Factor value provided in Table 2.5 of	
		-	Chapter 2: Commercial/Institutional (2006 IPCC	
	LPG	<mark>0</mark>	Guidelines for National Greenhouse Gas	
			Inventories).	
			Emission Factor value provided in Table 2.5 of	
	Crop	<mark>9.46</mark>	Chapter 2: Commercial/Institutional (2006 IPCC	
	<mark>residue</mark>		Guidelines for National Greenhouse Gas	
			Inventories).	
			Emission Factor value provided in Table 2.5 of	
		0	Chapter 2: Commercial/Institutional (2006 IPCC	
	Biogas	<mark>U</mark>	Guidelines for National Greenhouse Gas	
			Inventories).	
	<mark>On grid</mark> electricity	<mark>0</mark>	NA	
			Emission Factor value provided in Table 2.5 of	
			Chapter 2: Commercial/Institutional (2006 IPCC	
	Peat	<mark>0</mark>	Guidelines for National Greenhouse Gas	
			Inventories).	
	Kerosene		Emission Factor value provided in Table 2.5 of	
			Chapter 2: Commercial/Institutional (2006 IPCC	
		<mark>U</mark>	Guidelines for National Greenhouse Gas	
			Inventories).	
Any comment:	Non- CO ₂ Emission factors as per project fuels used at the baseline scenario. In some cases, non-CO2 emissions were omitted as conservative approach.			

As can be seen in the revised equation above, the only difference is the application of the default emission factors for wood, solid biomass, and charcoal instead of applying the emission factors of projected fossil fuels. In case of fossil fuels are consumed at the baseline scenario, the respective emission factors will be applied as currently indicated by the methodology.

3.2.2 | VVB opinion (to be completed by VVB, if applicable):

Guidance *If required by SustainCERT or Gold Standard for this particular deviation, please add here the VVB's opinion.*

NA

3.3 | Impact of the deviation:

Guidance Use the space below to describe the impact of the deviation on project design, safeguarding principles assessment, SDG assessment, emissions reductions, monitoring frequency, data quality, potential risk or any other relevant aspect of the project. Please substantiate the impact assessment with relevant and verifiable data/information.

3.3.1 | Impact assessment (to be completed by Project developer):

The target population to be served by the programme includes low-income settings where the predominant fuel type is biomass and, in many cases, people consume untreated water. The application of biomass emission factors reflects better and more accurately the baseline scenario conditions. The project design is not impacted, the same low emissions technology² will be implemented.

The proposed deviation does not have impact on the SDG assessment. Below, there is a summary of the anticipated impact of the project relating SDGs:

> ² The technology to be deployed is the LifeStraw® Community: <u>https://cdn.shopify.com/s/files/1/2631/0778/files/Lif eStraw_Community_-</u> <u>Filtration_Performance_Sheet.pdf?v=4053409773670366614</u>

SDG 1 - End poverty in all its forms everywhere. Ensure that all men and women, particularly the poor and vulnerable, have access to basic services that meet human basic needs including drinking water, sanitation and hygiene.

SDG 3 - Ensure healthy lives and promote well-being for all at all ages. Ensure the reduction of PM2.5 and carbon monoxide concentration reductions. Reduce risk of waterborne disease. Reduce deaths and illnesses from water contamination. SDG 4 - Ensure inclusive and equitable guality education and promote lifelong

learning opportunities for all. Providing training to employees and project beneficiaries during the project activity.

SDG 6 - Ensure availability and sustainable management of water and sanitation for all. Through the reduction of costs and emissions associated with drinking water it is anticipated that more people, more often and more affordably, will have access to clean water.

SDG 8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. Total jobs created by the project activity (permanent and temporary).

SDG 13 - Take urgent action to combat climate change and its impacts. Through the amount of GHGs emissions avoided or sequestered.

The deviation proposed does not represent a harm, neither brings an impact that will affect negatively the safeguarding principles. The application of the emission factors proposed does not bring adverse effects to the served population. No negative impact identified outside the project boundary.

The deviation proposed increases the accuracy of the GHG quantification method and enhance the emission reduction calculations.

The deviation proposed does not introduce changes on the monitoring frequency not in the data quality. The emission factor proposed are part of the data and parameters not monitored. The sources of the factors proposed e.g. Defaults from IPCC are widely accepted.

There is no negative impact or potential risk identified to other aspects of the programme.

3.3.2 | VVB opinion (to be completed by VVB, if applicable):

Guidance *If required by SustainCERT or Gold Standard for this particular deviation, please add here the VVB's opinion.*

NA

3.4 | Documents:

Guidance List of documents provided (note that once a decision has been made by Gold Standard, this deviation form along with supporting documents will be made public on the Gold Standard website. If any of the supporting documents are confidential, please indicate here to ensure they are omitted.)

Word version of CDM methodology that reflects the deviation proposed. See file 'EB106_repan10_AMS-III.AV_(v08.0) Revised Virridy.docx'

Version number	Release date	Description
5	11.04.2022	 Additional information added: date of listing, design certification, transition standard version specific reference to a requirement deviated from any previous deviations/design changes approved Guidance on VVB opinion
4	14.01.2021	
3	16.07.2020	
2	03.05.2018	
1	01.07.2017	Initial adoption