

Adapted S3S Methodology

S3S-VM0043

CO₂ UTILIZATION IN CONCRETE PRODUCTION

Version 1.0

15 September 2026

Sectoral Scopes 4 and 6: Manufacturing Industries and Construction

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1 SUMMARY DESCRIPTION

Project Category	Manufacturing industries Construction
Project Activity Type	Capture and utilization in products or processes for storage Building material substitution
Baseline Type	Project method
Mitigation Outcome	Reductions, removals, and carbon stock outcomes
Additionality (Optional)	Activity method

This methodology adaptation (S3S-VM0043) is designed to enable the application of Verified Carbon Standard (VCS) methodology VM0043 *CO₂ Utilization in Concrete Production* in Verra's Scope 3 Standard (S3S) Program.

The procedures and requirements of VM0043, v1.1 must be applied unless this document indicates otherwise.

The rationale for each modification made in this document is provided in Appendix 1: Rationale for Modifications.

Refer to VM0043, v1.1 for a summary description of the methodology. Demonstration of additionality is optional in the S3S Program. Where the project proponent elects to demonstrate additionality, the additionality procedures in VM0043, v1.1 apply as an optional pathway, in accordance with Section 4.5 of the *Scope 3 Standard, v1.0*. Regulatory surplus must be demonstrated, as specified in Section 7 of this document.

2 SOURCES

This methodology adaptation applies to VM0043 *CO₂ Utilization in Concrete Production, v1.1*. The project proponent must use this document in conjunction with VM0043, v1.1.

The most recent applicable version of the tools and modules identified in VM0043, v1.1 must also be used.

This methodology adaptation uses the most recent applicable version of S3T001 *S3S Program Attribution and Distribution Tool*.

3 DEFINITIONS

The definitions in the *S3S Program Definitions* apply to this methodology adaptation and take precedence over analogous terms in *VM0043, v1.1*. Definitions specific to *VM0043, v1.1* apply where the *S3S Program Definitions* do not define a term. Where a term is defined in neither document, the most recent applicable version of the *VCS Program Definitions* applies.

The table below identifies analogous terms between the ~~VCS~~ and ~~S3S~~ programs.

VCS Program	S3S Program
Crediting period	Issuing period
Project boundary	Sources, sinks, and removals boundary (SSR boundary)
Non-permanence risk	Reversal risk
AFOLU Non-Permanence Risk Tool	S3S AFOLU Reversal Risk Tool
VCS pooled buffer account	Reversal reserve account

4 APPLICABILITY CONDITIONS

All applicability conditions of *VM0043, v1.1* must be met.

5 SSR BOUNDARY

The ~~SSR boundary~~ must be determined following the procedure for determining the project boundary provided in *VM0043, v1.1*.

6 BASELINE SCENARIO

The ~~baseline scenario~~ must be determined following the procedure provided in *VM0043, v1.1*.

7 REGULATORY SURPLUS AND ADDITIONALITY

7.1 Regulatory Surplus

A full demonstration of additionality, as outlined by the procedure provided in VM0043, v1.1, is not required.

Instead, the project proponent must demonstrate regulatory surplus in accordance with Section 4.4 of the Scope 3 Standard, v1.0.

7.2 Additionality (Optional)

Demonstration of additionality is optional in the S3S Program. Where the project proponent elects to demonstrate additionality, they must apply the additionality procedures in Section 7 of VM0043, v1.1, in accordance with Section 4.5 of the Scope 3 Standard, v1.0 and with the following modification:

Step 1: Regulatory surplus

The project proponent must demonstrate regulatory surplus in accordance with Section 4.4 of the Scope 3 Standard, v1.0.

[...]

8 QUANTIFICATION OF GHG OUTCOMES

8.1 Baseline Emissions

Baseline emissions must be determined following the procedures provided in VM0043, v1.1, with the following modification to Section 8.1.1.

Equation (1) is modified to remove the discount factor for upstream displacement as follows:

$$BE_{ACU,y} = \sum_i (Q_{cement,i,b,y} \times EF_{cement}) \times (1-DF) \quad (1)$$

Where:

$BE_{ACU,y}$ = Emissions from the production of Portland cement that would have been used in the absence of the project (tCO₂e) in year y

$Q_{cement,i,b,y}$	=	Quantity of Portland cement that would have been used in the baseline for concrete produced using a <u>project</u> mix design i in year y (tonnes)
EF_{cement}	=	Emissions factor of Portland cement production (tCO ₂ e/tonne of cement)
DF	=	Discount factor for upstream displacement (30%)

8.2 Project Emissions

Project emissions must be determined following the procedures provided in VM0043, v1.1, with the following modification to Section 8.2.1.

Equation (7) is modified to remove the discount factor for upstream displacement as follows:

$$PE_{cement,y} = \sum_i Q_{cement,i,p,y} \times EF_{cement} \times (1 - DF) \quad (7)$$

Where:

$PE_{cement,y}$	=	Emissions from the amount of cement used at the <u>project</u> facility in year y (tCO ₂ e)
$Q_{cement,i,p,y}$	=	Quantity of Portland cement used in the <u>project</u> for concrete produced using a <u>project</u> mix design i in year y (tonnes)
EF_{cement}	=	Emissions factor for the Portland cement used in the <u>project</u> (tCO ₂ e/tonne of cement). One of the three options described above must be used.
DF	=	Discount factor for upstream displacement (30%)

8.3 Leakage Emissions

VM0043, v1.1 does not identify sources of leakage; therefore, no modifications are made in this section.

8.4 Uncertainty

VM0043, v1.1 does not include procedures for quantifying uncertainty; therefore, no modifications are made in this section.

8.5 GHG Outcomes

Calculation of GHG outcomes must be determined following the procedures provided in VM0043, v1.1, with the following modifications to Equations (14) and (15):

Equations (14) and (15) use parameters with VCS-specific naming conventions, which must be understood as follows in this methodology adaptation:

- ER_y is replaced with $GHG_{ER,y}$ which is the number of GHG outcomes that are assigned to reductions in year y

- CR_y is replaced with $GHG_{CR,y}$ which is the number of GHG outcomes that are assigned to removals in year y

Note – Calculation of S3Us that may be issued is determined using the GHG outcomes with or without reserve deductions, following the procedures outlined in the most recent version of *S3T001 S3S Program Attribution and Distribution Tool*.

9 MONITORING

9.1 Data and Parameters Available at Validation

The project proponent must include the data and parameters available at validation as specified in VM0043, v1.1.

9.2 Data and Parameters Monitored

The project proponent must include all monitored data and parameters as required in VM0043, v1.1.

9.3 Description of the Monitoring Plan

The project proponent must follow the monitoring plan and procedures provided in VM0043, v1.1.

10 REFERENCES

References remain unchanged from VM0043, v1.1.

APPENDIX 1: RATIONALE FOR MODIFICATIONS

This appendix consolidates the rationale for the modifications made in this methodology adaptation, cross-referenced to the section of this document in which each modification appears. Each rationale identifies the S3S Program rules necessitating the revision.

Section 1 (Summary Description) and Section 7 (Regulatory Surplus and Additionality): VM0043, v1.1 requires a demonstration of additionality via an activity method (regulatory surplus plus a positive list). In the S3S Program, regulatory surplus must be demonstrated at validation (*Scope 3 Standard*, v1.0 Section 4.4), while demonstration of additionality is optional (*Scope 3 Standard*, v1.0 Section 4.5). The additionality procedures of VM0043, v1.1 are retained as an optional pathway, preserving methodological integrity for projects electing to demonstrate additionality.

Section 8.1 (Equation 1) and Section 8.2 (Equation 7): The 30% discount factor for upstream displacement (DF) is removed. The S3S Program excludes upstream displacement factors from the quantification of GHG outcomes because, within scope 3 emissions accounting, upstream cement production emissions are accounted for in the reporting company's corporate inventory. Retaining the deduction would double-discount these emissions during inventory integration.

Section 8.5 (Equations 14 and 15): The parameters ER_y and CR_y use VCS-specific naming conventions. They are linked to the terms used in the S3S Program for reduction and removal GHG outcomes (*S3S Program Definitions*, v1.0 Appendix 1, Figure 1; Section 4.6.3 of the *Scope 3 Standard*, v1.0) to support the issuance of S3Us categorized as reductions or removals.

DOCUMENT HISTORY

Version	Date	Comment
v1.0	15 th September 2026	Initial version released under S3S Program Version 1.0