



Global Cement and Concrete
Association

CONCRETE
FUTURE

The Cement CO₂ Protocol Webinar – Transition to V4.2

September 10, 2026

Meet the team – GCCA



Abhishek Shukla
Sustainability
Manager
GCCA



Diana Casey,
Cement and ESG Director,
GCCA



Mirian Fernandez
Climate Action
Manager - Cemex



Remo Diethelm
Head of
Sustainability
Reporting - HOLCIM



Teresa Landaverde
Senior Manager –
Carbon – Heidelberg
Materials

2. Competition law reminder

1. Purpose

To remind all participants of their obligations under competition law.

2. Reminder

All participants are committed to fair competition and compliance with competition law and will only discuss matters that are legitimate to deliberate among competitors. Meeting participants will, in particular, refrain from disclosing, sharing or exchanging competitively sensitive information.

The GCCA and each of its members is responsible for observing the requirements of competition law and members should make themselves familiar with their legal obligations, including as expressed in the GCCA Competition Compliance Policy. If any attendee has any concerns at any time during this meeting that discussions or conduct may be contrary to competition law, they should speak up immediately and ensure that their protest is included in the minutes, before leaving the meeting.

3. GCCA Code of Conduct

Confidentiality

All documents and all other information concerning GCCA's internal operations, whose disclosure could be harmful to the GCCA, its Members or Affiliates, must be treated confidentially.

This information shall not be passed on or made accessible to third parties, other than as required by law, and shall be protected against any unauthorized use, in particular against outside access.

Confidential information includes all non-public strategic, financial, technical or business information such as, but not limited to, administrative processes and procedures, organizational issues, technical know-how, business and financial plans, costs, product development, employees, and to the extent applicable, to Members' and Affiliates' customers, suppliers, marketing, sales and prices. This applies also to documents and information entrusted to the GCCA by Members, Affiliates or third parties.

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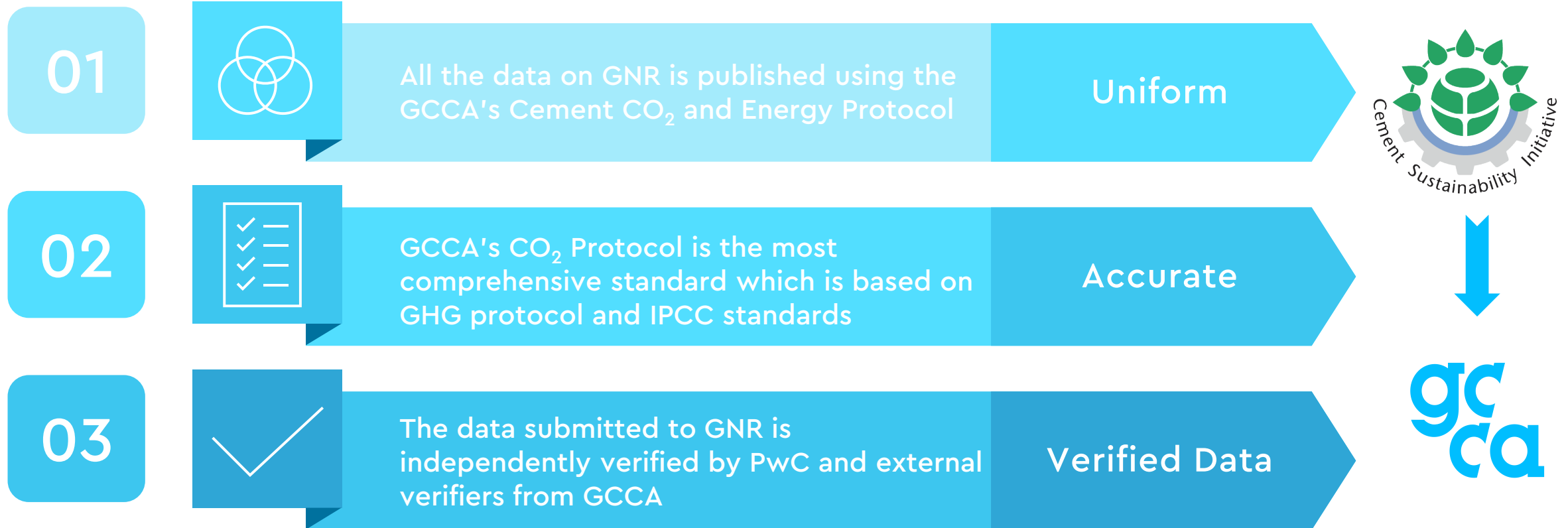
04. GCCA CO₂ Protocol - Technical Updates

05. Q and A

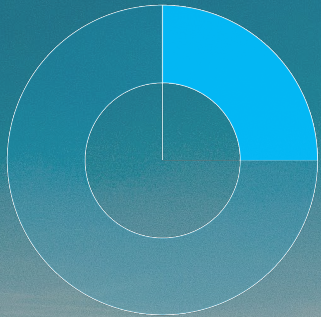
Setting the Scene

GCCA GNR 2.0 – Our Global Reporting and Measurement Tool

GCCA in Numbers (GNR) is one of the most reliable sources of truth for the cement and concrete sector. A "well-oiled" data engine to monitor the sector's performance towards Net Zero



Sector Progress for NetZero Reality (2023 → 2024)



CO₂ emissions

25.07% → **25.31%**

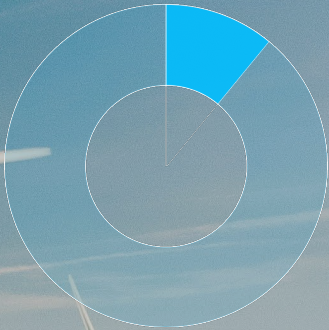
Reduction in Net CO₂ emissions
per tonne cementitious
(1990 baseline)



Fossil Fuel

22% → **23% pp**

Reduction in fossil fuel
consumption
(1990 baseline)



Clinker Factor

10.7% → **10.9% pp**

Clinker Factor Reduction
(1990 baseline)

GCCA GNR 2024

GCCA Cement CO₂ and Energy Protocol (Scope 1 and 2 Emission)

DEDICATED TO MAKING A DIFFERENCE

PDF Document

Cement Sustainability Initiative (CSI)



CO₂ and Energy Accounting and Reporting Standard for the Cement Industry

May 2011

 wbcscd

Version 3.0

GCCA (Global Cement and Concrete Association)
Cement CO₂ and Energy Protocol, Version 3.1, CO₂ Emissions and Energy Inventory.
Developed by the WBCSD Cement Sustainability Initiative (CSI) and European Cement Research Academy (ECRA).

Date of latest update: 12/9/13

Excel Sheet - Tool

General Plant Information		Version 3.1	GCCA
1	Plant		GCCA
2	Company		GCCA
3	Country		ETHIOPIA
4	Continent		AFRICA
5	"Kyoto" Region (Annex 1 or non-Annex 1)		non-Annex 1
6	Kiln types		DRY WITH PREHEATER AND PRECALCINER
6a	Nominal clinker capacity	[t/d]	X > 8000
6b	Plant type		GREY CEMENT
7	Shares owned by Company	[%]	100.0%
7aa	Third party verification		REASONABLE ASSURANCE
7ab	Used Cement CO ₂ and Energy Protocol version		V3.1
7ac	Short notes or user comment (max. 250 characters)		GNR Demo

Inventory Boundaries: Coverage of Main Process Steps		Yes, no or n.a.	Version 3.1
7a	Raw material supply (quarrying, mining, crushing)	no	
7b	Preparation of raw materials, fuels and additives	no	
7c	Kiln operation (pyro-processing)	no	
7d	Cement grinding, blending	no	
7e	On-site (internal) transport	no	
7f	Off-site transport with company-owned fleets	no	
7g	On-site power generation	no	
7h	Room heating and cooling	no	
7i	Use of other processes as appropriate	no	
7j	Use of internal cement transfer for blending	no	
7k	Select year to copy and apply inventory boundaries (7a - 7j)		
7l	1) Select calculation CO ₂ method (A1, A2, B1, B2, B1+Standard (no separate calculation sheet needed). 2) For A1, A2, B1 check if appropriate calculation sheet (CalcA1, CalcA2 or CalcB2) is already available next to plant sheet. 3) If not, press the "create" button one time in order to create one new calculation sheet.	Take last boundaries	

Clinker and Cement Production		Version 3.1
8	Clinker production	[t/yr]
9	Clinker bought from other companies and from cross-border transfer	[t/yr]
10	Clinker sold to other companies and from cross-border transfer	[t/yr]
10a	Change in clinker stocks (+ = increase, - = reduction)	[t/yr]
10b	Internal clinker transfer (+ = clinker received, - = clinker sent)	[t/yr]
10c	Clinker from internal transfer of processed cement (+ = cement received, - = cement sent)	[t/yr]
11	Total clinker consumed	[t/yr]

Mineral components (MIC) used to produce Portland and blended cements:		[t/yr, dry weight]
12	Gypsum	
13	Limestone	
14	Slag	
15	Fly ash (for blending)	
16	Puzzolana	
17	Others (e.g., CKD added to cement mill)	
17a	MIC from internal transfer of processed cement (+ = cement received, - = cement sent)	
18	Total MIC consumed for Portland and blended cements (dry weight)	

Processed mineral components (MIC) sold externally or transferred internally (dry weight):		[t/yr, dry weight]
19a	Processed slag sold externally	
19b	Processed fly ash and other puzzolana sold externally	
19c	Total internal processed MIC transfer (+ = received, - = sent)	
19d	Total processed MIC's used as clinker or cement substitute sold externally	

Production totals:		[t/yr]
20	Total Portland and Blended cements	
21	Total cements + substitutes: Portland, Blended, Slag, etc.	
21a	Low cementitious products	
21b	Total cement equivalent	n. appl.

GCCA (Global Cement and Concrete Association)

Online Manual

This document will help you to understand the Cement CO₂ and Energy Protocol and the practical aspects of reporting. It is particularly aimed at engineers and managers of cement producers.

Please check for the latest News and Updates

NEW to the Cement CO₂ and Energy Protocol?

Quickstart
Click here to learn how to use the Internet Manual.

Read Me
Essential instructions for users of the Protocol Spreadsheet are provided in a special Read Me Sheet.

Plant diagram
Find your way to the Internet Manual through the plant diagram or a list of Tasks to be performed by the User.

User Guide
Did you already read the Protocol Guidance Document?

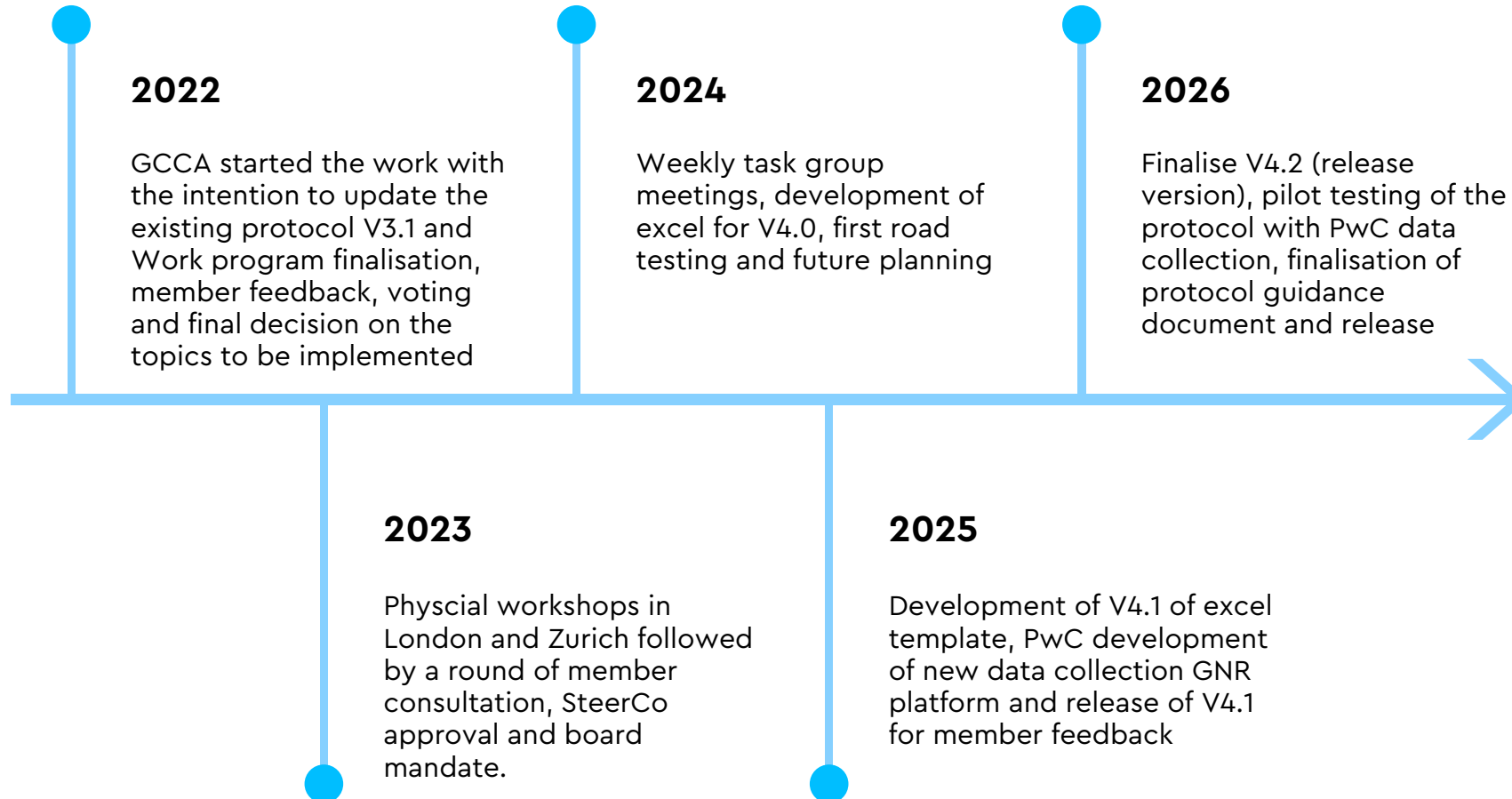
Protocol Spreadsheet
Did you already download the Excel file with the Protocol Spreadsheet? The spreadsheet is designed as a practical tool to help cement companies to prepare their inventories of CO₂ emissions and energy use.

Frequently Asked Questions (FAQs)
If you have questions, please carefully read the answers to the Frequently Asked Questions (FAQs). Additional questions on the Cement CO₂ and Energy Protocol Spreadsheet can be addressed to gmrc@gccaassociation.org. Alternatively you can use the contact form at the website of the Cement Sustainability Initiative (CSI).

© 2020 by Global Cement and Concrete Association (GCCA) / ECRA GmbH
Cement CO₂ and Energy Protocol, Internet Manual, created 27/02/2020

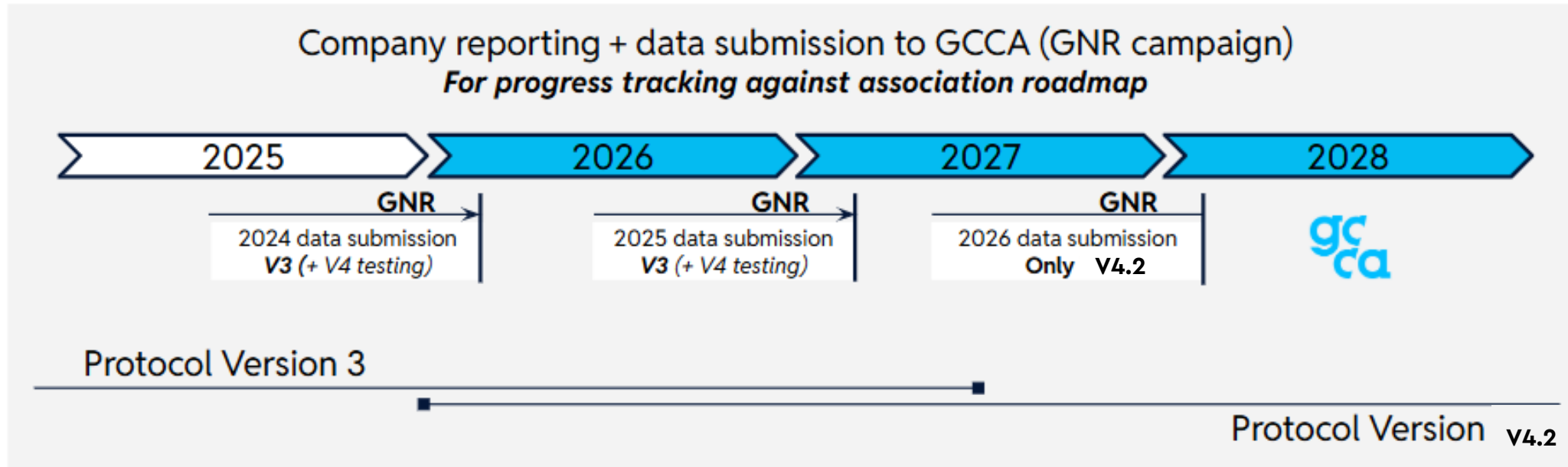
Timeline and Work program

CO₂ Protocol Update to V4.2 – Years of Efforts



WKG6 and CO₂ Protocol experts Zurich Meeting – June 2023

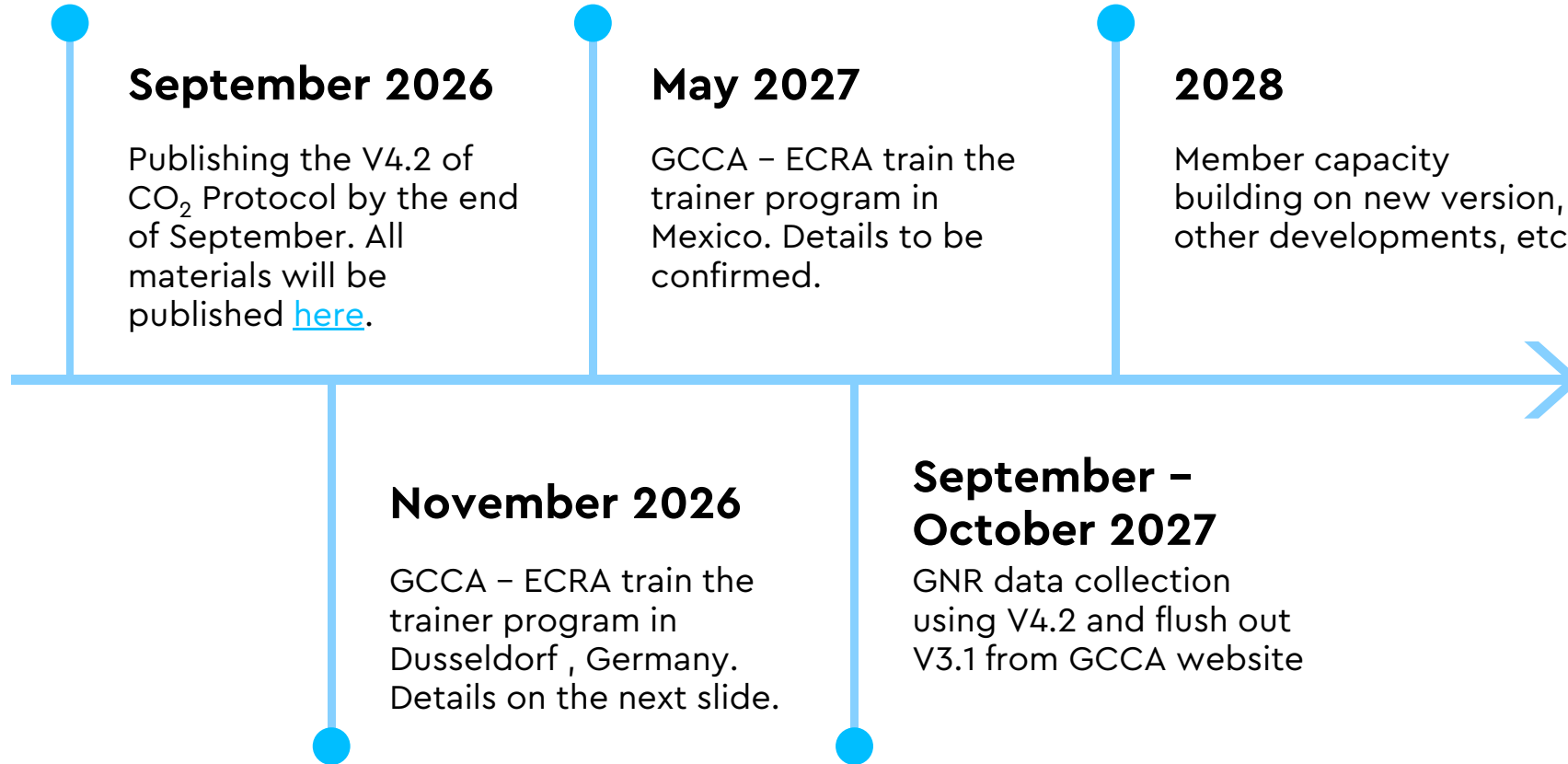
Implementation timeline CO2 Protocol V4.2



Transition from Protocol Version 3 to Version V4.2

- Testing of Protocol V4 in the GNR 2025 and 2026 (2024 and 2025 data)
- GCCA member companies to follow Protocol V4 starting their Annual report 2026 (2026 data)
- GNR 2027 (2026 data) following Protocol V4.2

What's next (2026 and 2027 timeline)



Updating the GCCA CO₂ Protocol (3.1 → 4.2) – More than a decade of an update

GCCA CO₂ and Energy Protocol Review – Transition to V4.2

A Paramount Milestone for Industry

- GCCA's CO₂ Protocol remains paramount within our industry, driving our efforts to monitor progress in a credible manner
- In response to new guidance from SBTi, Scope 3 emissions accounting, the GHG Protocol review as well as technological advancements on the path to net zero like CCUS and calcined clays, we have undertaken a thorough review and upgrade of the current GCCA CO₂ protocol, transitioning from V3.1 to V4.2

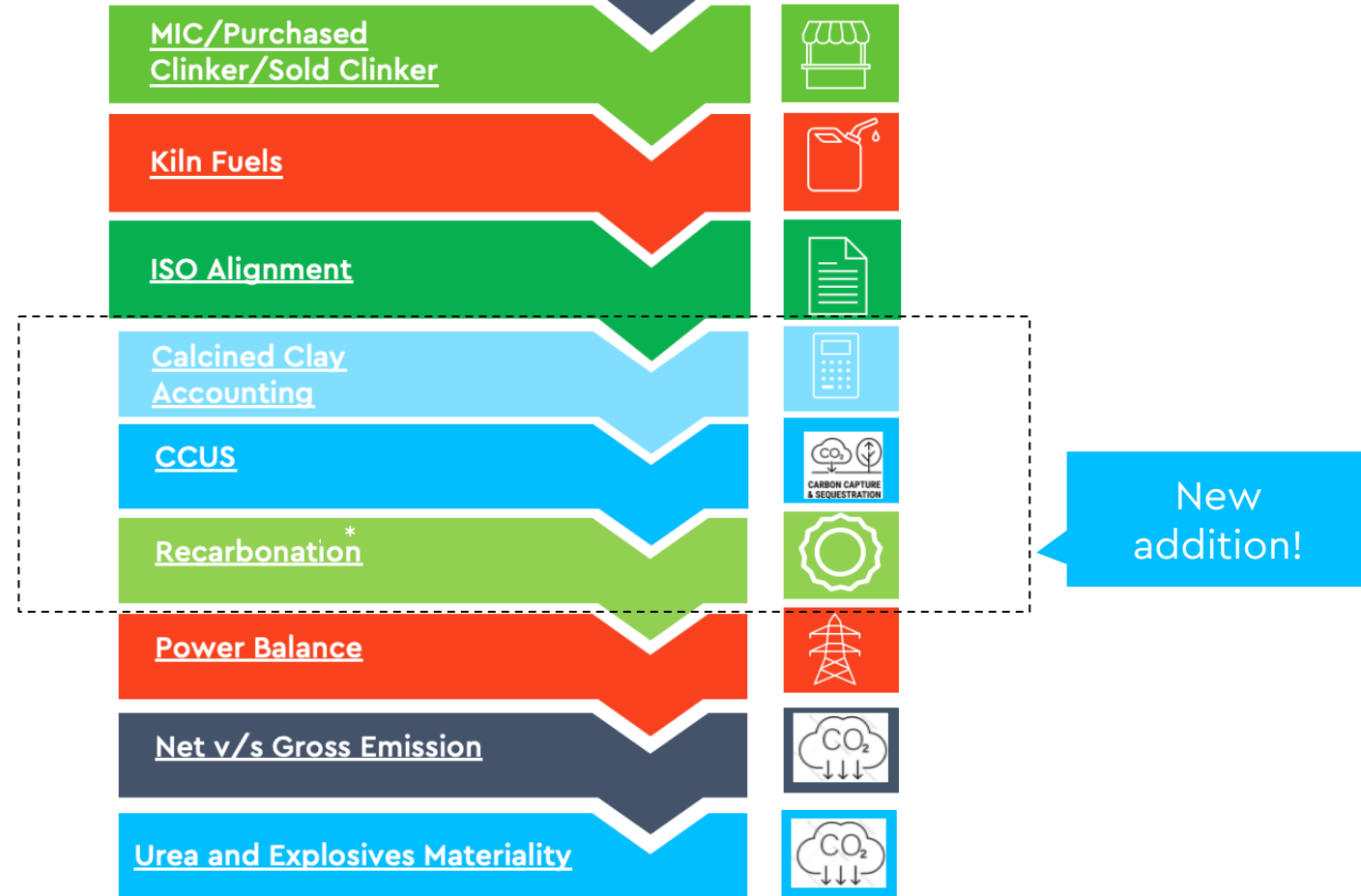


Nature of update in the CO₂ Protocol

GCCA CO₂ Protocol V4.2

Structural Update – Changes with respect to the structure of the protocol (Accounting sheets, Company Consolidation)

Conceptual Update – Updates and the addition of the existing concepts and new technical concepts in the protocol sheet



*Note: Recarbonation is added as a memo item in the protocol. It has no effect on your Scope 1 and 2 emissions calculation.

Structural Updates

Visual Difference V3.1 → V4.2

-  GCCA_Internet_Manual_V3_1_EN
-  **GCCA_Protocol_V3_1_EN**
-  GCCA_WBCSD_CO2_Protocol_Guidance_Document_V3_EN

This is V3.1 pack (with Excel Macros)– One sheet and everything inside such as plant sheet, company sheet and calcination sheet

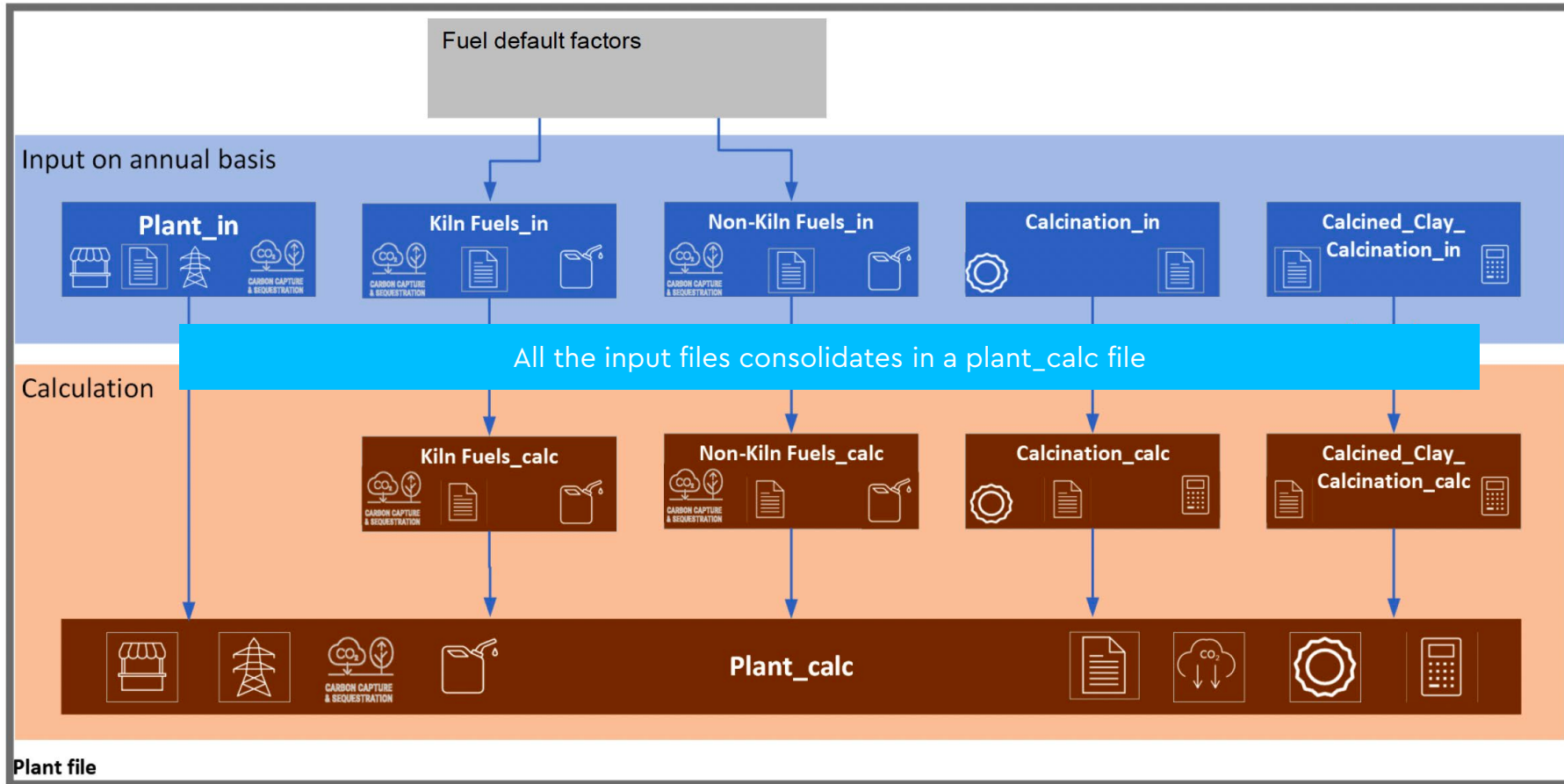
PlantXXX_Months_Data		29/04/2026 17:28	File folder	
_ReadMe		31/10/2025 14:37	Text Document	4 KB
Comments_on_GCCA_Protocol_V4_1_C...		10/02/2026 14:23	Microsoft Excel W...	37 KB
Company		13/03/2026 10:18	Microsoft Excel W...	9,943 KB
Company_ExcelLinks		27/03/2026 15:40	Microsoft Excel W...	14,026 KB
Plant001		08/05/2026 18:08	Microsoft Excel W...	7,338 KB
Plant002		31/10/2025 12:21	Microsoft Excel W...	7,415 KB
Plant003		31/10/2025 12:21	Microsoft Excel W...	7,415 KB
Plant004		31/10/2025 12:21	Microsoft Excel W...	7,415 KB
Plant005		31/10/2025 12:21	Microsoft Excel W...	7,415 KB
Plant006		31/10/2025 12:21	Microsoft Excel W...	7,415 KB
Plant007		31/10/2025 12:21	Microsoft Excel W...	7,415 KB
Plant008		31/10/2025 12:21	Microsoft Excel W...	7,415 KB
Plant009		31/10/2025 12:21	Microsoft Excel W...	7,415 KB
Plant010				
Plant011				
Plant012				
Plant013				

This is V4.2 pack (Without Excel Macros)
– All the sheets are now separate

Most important changes in GCCA Protocol Version 4.2

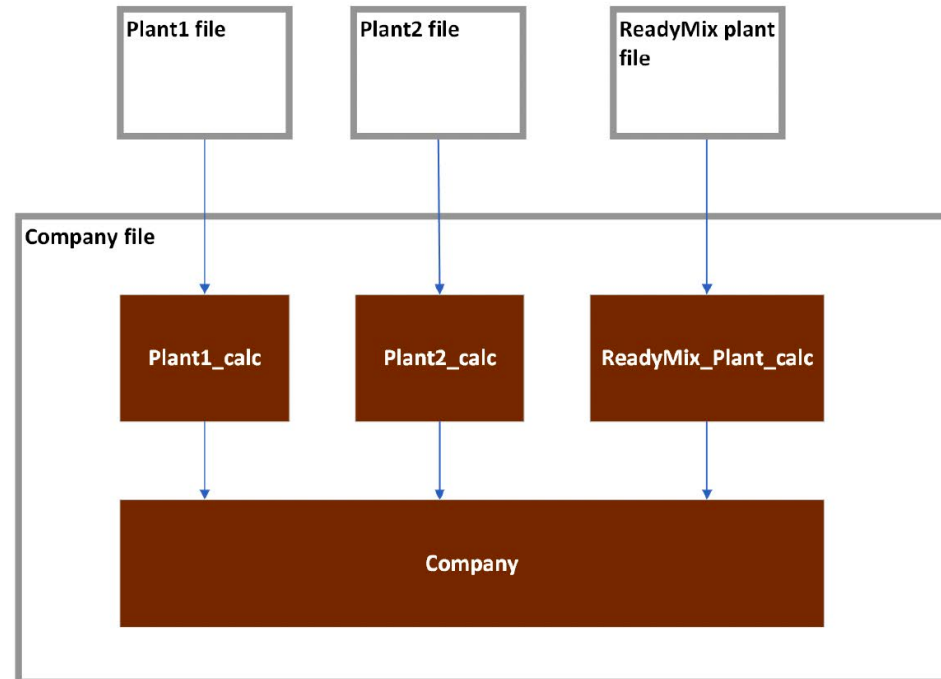
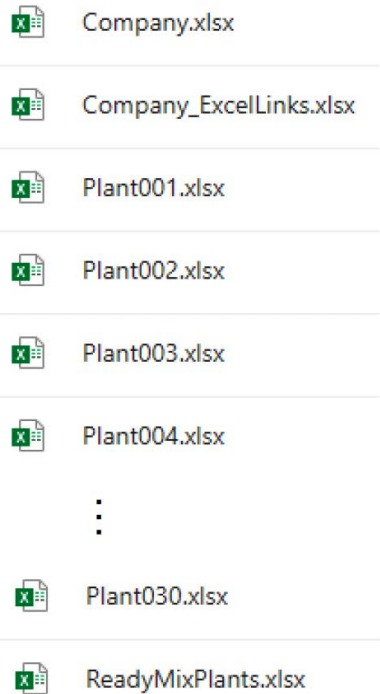
	Version 3.1	Version 4.2
Excel version	Excel 2010	Excel Online, very high level of compatibility with Excel365, Excel 2021 and Google Sheets
Plant / company level	Both levels in one file	Separate files for plant and company
(Visible) sheets	Max. 7 per plant	1 plant file per plant with 13 sheets Input in separate sheets without any sheet protection Calculation is separated and protected in calculation sheets, removable protection allows complete analysis of calculation details + 1 ReadyMix file per company for integrated ready mix business + 1 Company file with 1 company sheet + 1 sheet per plant
Macros	Used for sheet management and validation tool	No macros used, replaced by links between sheets and files Validation range not yet available, could be amended in an additional sheet
Database links	Transfer of data and inserting DB links was possible in the special Plant sheet transfer But manual transfer required, especially calculation of company sums required user programming	Input sheets for pasting data and inserting DB links Links between sheets and files provided as far as possible Paste & Copying data from plant to company file as robust backup solution (viable solution if links between files should be lost in diverse IT systems)
Verification	Calculation cells were password protected	Copy & Paste all inputs to a fresh download of GCCA Protocol version 4 and compare calculation results

The Plant file



The Company file

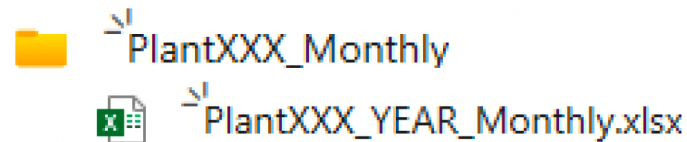
- aggregation level: National company
- integrating data from Ready Mix Plants in the National company from one special plant level file



New Plant Monthly File

Aggregation of monthly input values

- The Plant monthly file is an optional additional level for plant and process specific data input on monthly basis.
- The PlantXXX_YEAR_Monthly.xlsx file is placed in a sub-folder and contains only dedicated input sheets with the name ending "...in".
- Calculations of annual sums and annual weighted average values is performed in the first columns of the same input sheets.
- These columns are meant for **Copying and Pasting Values (!)** to the corresponding input sheets in the Plant file with annual data.

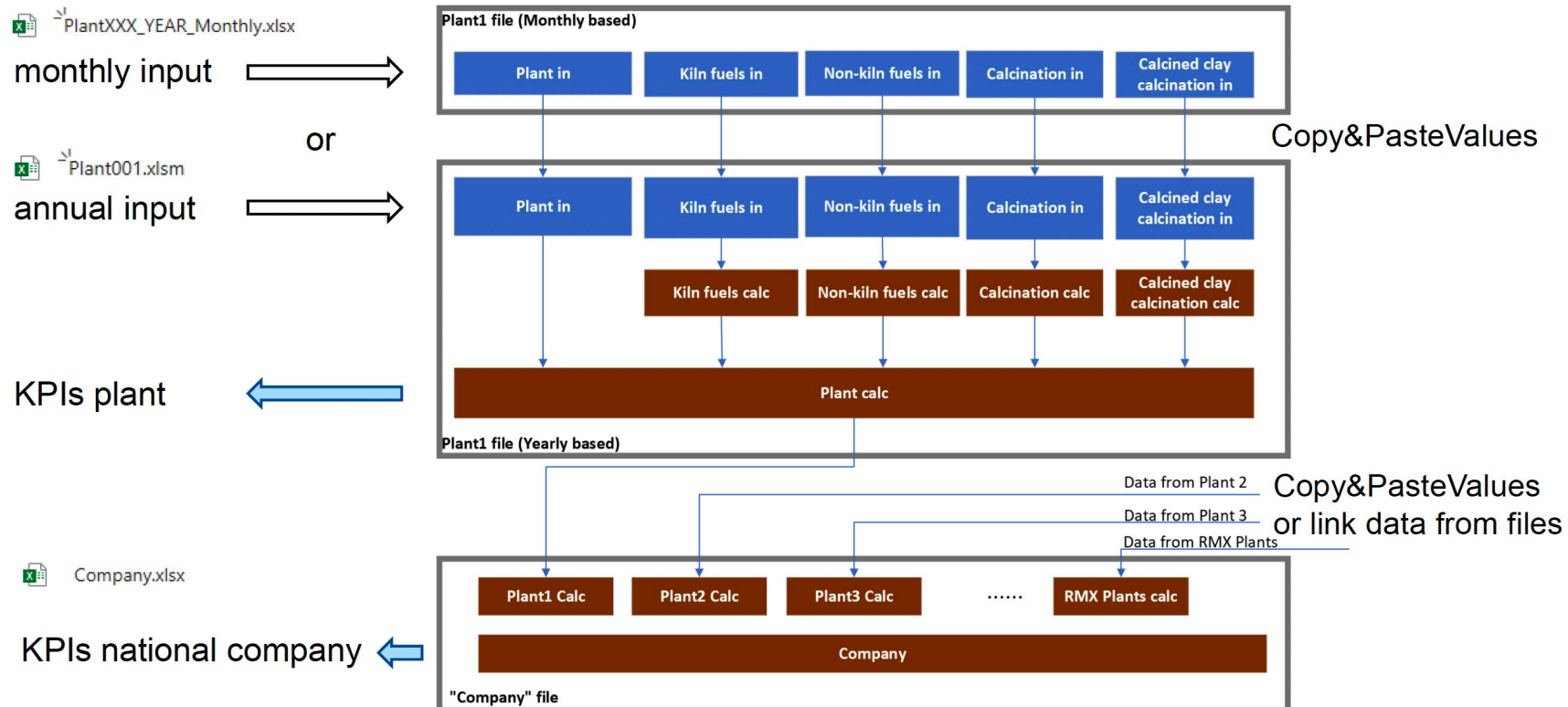


GCCA Cement CO ₂ and Energy Protocol Version 4											
GCCA (Global Cement and Concrete Association) Cement CO ₂ and Energy Protocol, Version 4.00, Cement CO ₂ and Energy Inventories Developed by GCCA CO ₂ Protocol task group and European Cement Research Academy (ECRA). Date of latest update: 24 April 2024											
How to enter monthly data and copy and paste values to the year columns in the Plant file:											
1. Choose and enter year, for analysis of monthly data in white cells (column G12)											
2. Specify General Plant Information and Input Data in the columns below											
3. Enter monthly data starting in line 58											
4. Enter monthly data as far as possible in all sheets											
5. Where no or fewer data is available, you can enter the same value in all or corresponding multi											
6. Copy values from all sheets (containing calculated annual sums and annual weights											
INFORMATION											
Enter Year											
January February March April											
Clinker, cement and calcined clay production											
Clinker:											
8	Clinker production	2020	0								
9	Clinker bought from other companies	2020	0								
10	Clinker sold to other companies	2020	0								
10a	Change in clinker stocks (+ = increase, - = reduction)	2020	0								
10b	Internal clinker transfer, within country, non-cross-border (+ = clinker received, - = clinker sent)	2020	0								
new 10c	Internal clinker transfer, cross-border (+ = clinker received, - = clinker sent)	2020	0								
10d	Clinker portion from internal transfer of processed cement (+ = cement received, - = cement sent)	2020	0								
11	Total clinker consumed	2020	Calculated at Plant calc	Calculated at Plant calc	Calculated at Plant calc	Calculated at Plant calc	Calculated at Plant calc	Calculated at Plant calc	Calculated at Plant calc	Calculated at Plant calc	Calculated at Plant calc

GCCA Cement CO ₂ and Energy Protocol Version 4											
GCCA (Global Cement and Concrete Association) Cement CO ₂ and Energy Protocol, Version 4.00, Cement CO ₂ and Energy Inventories Developed by GCCA CO ₂ Protocol task group and European Cement Research Academy (ECRA). Date of latest update: 24 April 2024											
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10d	Clinker portion from internal transfer of processed cement (+ = cement received, - = cement sent)	2020									
11	Total clinker consumed	2020									

Reporting on Monthly, Yearly and Company Level

Reporting on monthly, yearly and company level



Key technical updates

Calcined Clay Accounting

Background

- With the emergence of calcined clays, it was necessary to include accounting of related emissions into the Protocol.
- We developed a dedicated calcined clay unit calculation section with own performance indicators (suitable for both stand-alone and integrated Calcined Clay production).

Basis for the set up:

- The Calcined Clay section will follow a similar structure as a cement plant, but in a simplified form. (Calcination process happens at ~800°C "only").
- Fuels will be treated as a new fuel category (more in kiln fuels update).
- Clays are usually not "100% pure". They may contain some calcium carbonate which gets partially calcined.
- The relevance of non GHG emissions will be explored via a dedicated data collection process at a later point in time.

Updates to MIC Accounting – Big Update!!

- The update in MIC is focused on ensuring all material is attributed only once at its source without distorting KPIs and avoiding double accounting at different levels. Several updates in the clinker/MIC areas to correct previous inconsistencies in v3.1, provide more options for accounting.
- Some of the key updates can be found in the areas of:
 - MIC internal transfer between plants allowing the producing plant to keep the benefit of MIC processing.
 - Duplication of KPIs during internal company MIC transfer has been resolved.
 - A new separate RMX sheet has been provided to allow added SCM accounting at RMX level.
 - Accounting for other SCMs not considered in version 3, as for example, limestone is now included which lead to the change in the definition of SCM
 - Separation of internal cross-border clinker transfers from clinker bought.
 - Inclusion of Calcined clays as a single line in cement constituents.
- There are other updates as well which will be explored in detail during the train the trainer program.

Updates to Fuels Accounting

- Fuels types used have evolved over the last decade, hence there was a need to review fuels categories and emissions factors to align with current industry practices. Use of fuels in other processes (e.g.: CCUS, Calcined clays, ...) than clinker manufacturing has to be accounted for to provide accurate results.
- Some of the key updates include:
 - Name changed from Kiln fuels and non- kiln fuels to Kiln and Other fuels which represents an accurate way of naming.
 - Fuel consumption for Calcined Clay, Power and CCUS Steam generation is also included.
 - More fuel types in each category. Including Green / Blue/Gray Hydrogen usage.
 - Updated emission factors along with default LHV values and the updated references to support member audits.
 - New structure of fuel accounting for ease of calculation and added convenience.

V3.1 vs V4.2 – Updates in types of Fuel Category

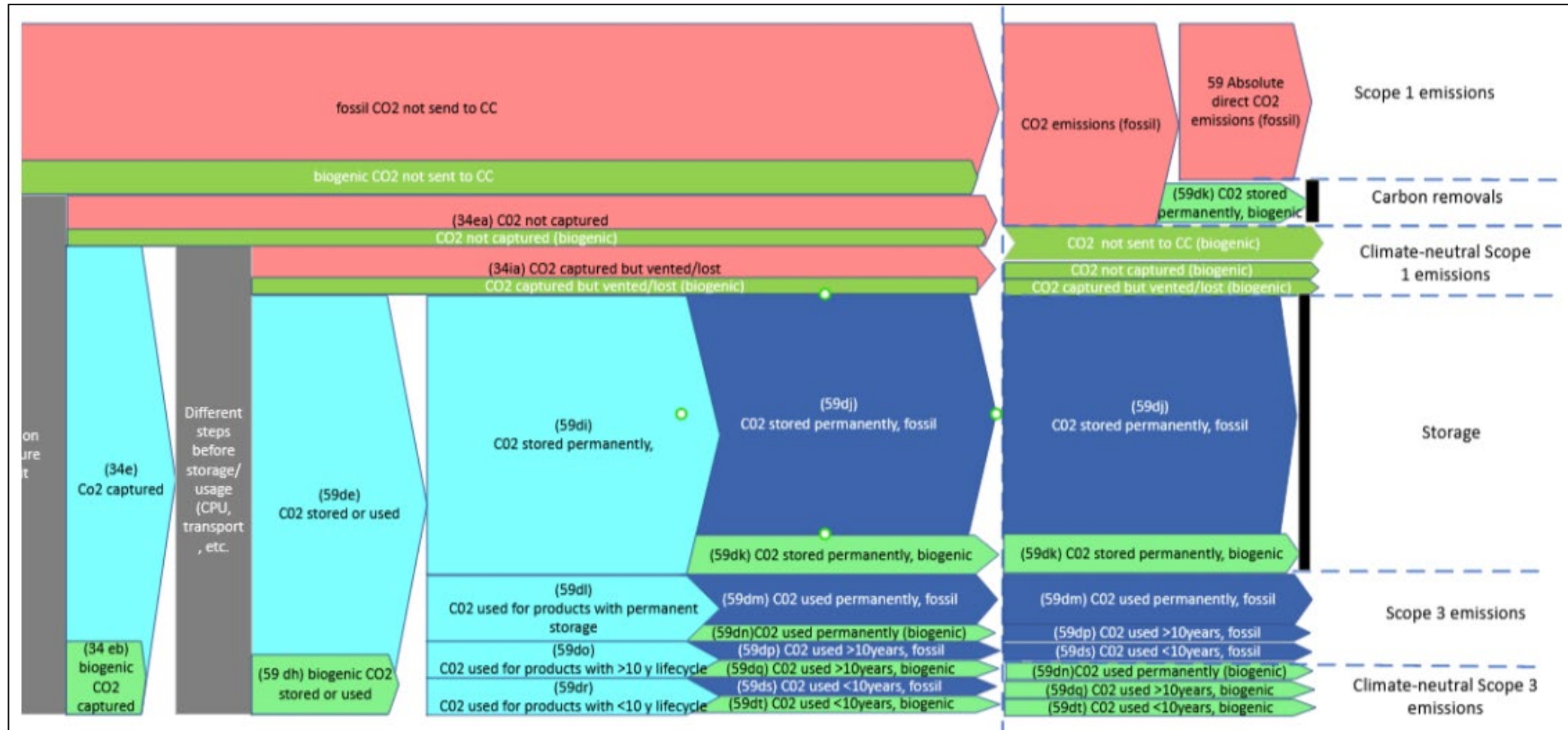
Kiln Fuel Consumption in tonnes per year		
101	Conventional fossil fuels (excl. drying of raw materials and fuels)	V3.1
102	coal + anthracite	
103	petrol coke	
104	(ultra) heavy fuel	
105	diesel oil	
106	natural gas	
107	shale	
107a	lignite	
108	Alternative fossil and mixed fuels (excl. drying of raw materials and fuels)	
109	waste oil	
110	tyres	
111	RDF including plastics	
112	solvents	
113	impregnated saw dust	
113a	mixed industrial waste	
114	other fossil based wastes and mixed fuels	
115	Biomass fuels (excl. drying of raw materials and fuels)	
116	dried sewage sludge	
117	wood, non impregnated saw dust	
118	paper, carton	
119	animal meal	
120	animal bone meal	
121	animal fat	
122	agricultural, organic, diaper waste, charcoal	
123	other biomass	

Fuel type	
Conventional Fossil Fuels	V4.2
Coal + anthracite	
Petrol coke	
(ultra) Heavy fuel	
Diesel oil	
Gasoline	
Natural gas	
Shale	
Lignite	
Liquefied Petroleum Gas (LPG)	
Other fossil fuels	
Alternative Fossil and Mixed Fuels	
Waste oil	
Bio and mixed diesel	
Waste tyres	
RDF	
Non-recyclable 100% plastics	
Solvent based fuel	
Impregnated saw dust	
Mixed industrial waste	
Dried sewage sludge with fossil content	
Other fossil based wastes and mixed fuels	
Biomass based Fuels	
Dried sewage sludge 100% biogenic	
Wood, non impregnated saw dust	
Paper, carton	
Animal waste (animal meal, animal bone meal and animal fat)	
Agricultural, organic, diaper waste, charcoal	
Biogas	
Other biomass based fuel	
Hydrogen	
Hydrogen (green)	
Hydrogen (blue/gray)	

CCUS Accounting

- With the ongoing deployment of CCUS and the expected essential role of it in reaching our net zero target, there is a need to define how to account for captured emissions as well as for (additional) emissions from auxiliary equipment related CO₂ capture.
- There is also a need to define rules for negative emissions accounting specifically in the situation of partial capture, use and storage.
- We have captured following topics for the CCUS accounting in this version:
 - Accounting of negative emissions also in case of usage and partial capture.
 - Accounting scenarios and emissions accounting for CCUS unit : technologies, electricity generations, utilities, CO₂, steam,

CCUS Accounting Diagram



Other key technical updates

Other Key Technical Updates

- There are several other technical updates which have been included to make the protocol update comprehensive and accurate.
- Updates include:
 - Alignment with ISO/ DIS 19694-3: Cement on topics such as CO₂ emissions categories, other GHG emissions, BPD – CKD and Filter dust concept, determination of CO₂ from raw material calcination, fuel with ash and biomass
 - Recarbonation update which now includes the recarbonation potential of the clinker produced. It is present only as a memo item.
 - Power Balance to include CCUS and Calcined Clay along with accounting of renewable energy usage
 - CO₂ emissions from Urea and explosive – materiality test

Updated Performance Indicators (1/3)

PERFORMANCE INDICATORS

	Absolute CO₂ Generation at the Plant		
new	59dd	Absolute fossil CO ₂ generation including CO ₂ from on-site power generation	[t CO ₂ /yr]
	CO₂ Storage and Use		
new	59de	CO ₂ stored or used (fossil and biogenic)	[t CO ₂ /yr]
new	59dg	fossil part stored and used (reducing direct fossil CO ₂ emissions, scope 1)	[t CO ₂ /yr]
new	59dh	biogenic part captured stored and used	[t CO ₂ /yr]
new	59di	CO ₂ stored permanently	[t CO ₂ /yr]
new	59dj	fossil part stored	[t CO ₂ /yr]
new	59dk	biogenic part stored (carbon removals - reducing gross CO ₂ emissions, scope 1)	[t CO ₂ /yr]
new	59dl	CO ₂ used for products with permanent storage	[t CO ₂ /yr]
new	59dm	fossil part used with permanent storage	[t CO ₂ /yr]
new	59dn	biogenic part used with permanent storage	[t CO ₂ /yr]
new	59do	CO ₂ used for products with > 10 years lifecycle (fossil and biogenic, related to assessment of other indirect CO ₂ emissions)	[t CO ₂ /yr]
new	59dp	fossil part used > 10 year lifecycle	[t CO ₂ /yr]
new	59dq	biogenic part used > 10 year lifecycle	[t CO ₂ /yr]
new	59dr	CO ₂ used for products with ≤ 10 years lifecycle (fossil and biogenic, related to assessment of other indirect CO ₂ emissions)	[t CO ₂ /yr]
new	59ds	fossil part used ≤ 10 year lifecycle	[t CO ₂ /yr]
new	59dt	biogenic part used ≤ 10 year lifecycle	[t CO ₂ /yr]
	Absolute direct CO₂ Emissions		
new	59du	Direct fossil CO ₂ Emissions, including CO ₂ from separate on-site power generation, excluding CO ₂ stored or used	[t CO ₂ /yr]
	59	Absolute gross CO ₂ Emissions, including CO ₂ from separate on-site power generation (scope 1), excluding CO ₂ stored or used	[t CO ₂ /yr]
	Gross CO₂ Emissions (excluding CO₂ from separate on-site power generation)		
	59c	Absolute gross CO ₂	[t CO ₂ /yr]
	59a	calcination component	[t CO ₂ /yr]
	59b	fuel component	[t CO ₂ /yr]
new	59f	stored or used, incl. biogenic part stored	[t CO ₂ /yr]
new	59cc	share of gross CO ₂ stored or used, incl. biogenic part stored	[%]
	Net CO₂ Emissions (= gross CO₂ minus alternative fossil fuels CO₂; excluding CO₂ from separate on-site power generation)		
	71	Absolute net CO ₂	[t CO ₂ /yr]
	Biomass CO₂ Emissions (Memo Item, incl. separate on-site power generation)		
	83a	Absolute CO ₂ from biogenic sources (incl. biomass content of mixed fuels, related to assessment of other indirect CO ₂ emissions)	[t CO ₂ /yr]
	Calcined Clay CO₂ emissions		
new	63cc	Absolute gross CO ₂ of calcined clay	[t CO ₂ /yr]

Updated Performance Indicators (2/3)

new		Specific Gross CO₂ Emissions per Calcined Clay produced		
	63cd	Specific gross CO ₂ of calcined clay produced		[kg CO ₂ /t calcined clay]
		Specific Gross and Net CO₂ Emissions per Cement (equivalent)		
	63	Specific gross CO ₂	per tonne of cement (eq.)	[kg CO ₂ /t cem eq.]
	63a		calcination component	[kg CO ₂ /t cem eq.]
	63b		fuel component	[kg CO ₂ /t cem eq.]
	75	Specific net CO ₂	per tonne of cement (eq.)	[kg CO ₂ /t cem eq.]
new new new new		Specific Gross and Net CO₂ Emissions per Cement (equivalent) (including Integrated Ready-Mix /Precast Businesses)		
	63c	Specific gross CO ₂	per tonne of cement (eq.)	[kg CO ₂ /t cem eq.]
	63ca		calcination component	[kg CO ₂ /t cem eq.]
	63cb		fuel component	[kg CO ₂ /t cem eq.]
	75a	Specific net CO ₂	per tonne of cement (eq.)	[kg CO ₂ /t cem eq.]
		Specific Gross and Net CO₂ Emissions per Cementitious Product		
	62	Specific gross CO ₂	per tonne of cementitious product	[kg CO ₂ /t cem prod]
	62a		calcination component	[kg CO ₂ /t cem prod]
	62b		fuel component	[kg CO ₂ /t cem prod]
	74	Specific net CO ₂	per tonne of cementitious product	[kg CO ₂ /t cem prod]
	77	Improvement rate - net CO ₂ per tonne of cementitious product		[% relative to base yr]
new new new new new		Specific Gross and Net CO₂ Emissions per Cementitious Product (including Integrated Ready-Mix /Precast Businesses)		
	62c	Specific gross CO ₂	per tonne of cementitious product	[kg CO ₂ /t cem prod]
	62ca		calcination component	[kg CO ₂ /t cem prod]
	62cb		fuel component	[kg CO ₂ /t cem prod]
	74a	Specific net CO ₂	per tonne of cementitious product	[kg CO ₂ /t cem prod]
	77a	Improvement rate - net CO ₂ per tonne of cementitious product		[% relative to base yr]
		Specific Indirect CO₂ Emission		
	82c	Specific indirect CO ₂ from external power generation per tonne of cement (eq.)		[kg CO ₂ /t cem eq.]
	82a	Specific indirect CO ₂ from external power generation per tonne of cementitious product		[kg CO ₂ /t cem prod]
	82b	Specific indirect CO ₂ from net clinker imports (+) / exports (-) per tonne of cementitious product		[kg CO ₂ /t cem prod]
	82d	Specific indirect CO ₂ from external generation of steam used for CCUS		[kg CO ₂ /t CO ₂ stored or used]
		Specific indirect CO₂ Emissions (including integrated ready-mix/precast businesses)		
	82ca	Specific indirect CO ₂ from external power generation per tonne of cement (eq.)		[kg CO ₂ /t cem eq.]
	82aa	Specific indirect CO ₂ from external power generation per tonne of cementitious product		[kg CO ₂ /t cem prod]
	82ba	Specific indirect CO ₂ from net clinker imports (+) / exports (-) per tonne of cementitious product		[kg CO ₂ /t cem prod]

Updated Performance Indicators (3/3)

General Performance Indicators			
	91	Net outbound clinker per net clinker consumption	[%]
	92a	Clinker/cement (eq.) factor	[%]
new	92b	Clinker/cement factor in cement products*	[%]
	92	Clinker/cementitious factor	[%]
new	92c	Calcined clay/cementitious factor*	[%]
new	92da	Clinker/cement (eq.) factor* (including Integrated Ready-Mix /Precast Businesses)	[%]
new	92d	Clinker/cementitious factor* (including Integrated Ready-Mix /Precast Businesses)	[%]
new	92dc	Calcined clay/cementitious factor* (including Integrated Ready-Mix /Precast Businesses)	[%]
	93	Specific heat consumption of clinker production	[MJ/t cli]
new	93cc	Specific heat consumption of calcined clay production	[MJ/t calcined clay]
	94	Conventional fossil fuel rate (kiln fuels)	[%]
	95	Alternative fossil fuel rate (kiln fuels)	[%]
	96	Biomass fuel rate (kiln fuels)	[%]
new	96f	Hydrogen fuel rate (kiln fuels)	[%]
	96a	CO ₂ emission factor for kiln fuel mix	[kg CO ₂ /GJ]
	96b	Total conventional fossil fuel rate at plant level	[%]
	96c	Total alternative fossil fuel rate at plant level	[%]
	96d	Total biomass fuel rate at plant level	[%]
new	96e	Total hydrogen (as a fuel) rate at plant level	[%]
	97	Specific total power consumption*	[kWh/t cem prod]
new	97a	Specific total power consumption* (including Integrated Ready-Mix /Precast Businesses)	[kWh/t cem prod]
	98	Specific power consumption of clinker production	[kWh/t cli]
new	98d	Specific power consumption of CO ₂ capture process	[kWh/t cli]
new	98cc	Specific power consumption of calcined clay production	[kWh/t calcined clay]
	98c	Specific power consumption of cement production*	[kWh/t cem prod]
new	98ca	Specific power consumption of cement production* (including Integrated Ready-Mix /Precast Businesses)	[kWh/t cem prod]
	98a	National energy conversion factor	[MJ/kWh]
	98b	Total energy consumption of clinker production (fuel and power)	[MJ/t cli]
new	98cx	Percentage of renewables in power consumption (market based)	[%]
new	98cy	Percentage of renewables in power consumption (location based)	[%]
new	99cz	Percentage of waste heat in the power generation mix	[%]
CO ₂ Capture			
new	99b	Direct gross CO ₂ from operations of the CO ₂ capture unit	[t CO ₂ /yr]
new	99g	CO ₂ capture rate (CO ₂ captured/CO ₂ sent to capture unit)	[%]
	Specific Energy Use of Carbon Capture Unit		
new	99m	Power consumption per CO ₂ captured	[MWh/t CO ₂ captured]
new	99n	Specific steam consumption per CO ₂ captured	[MWh/t CO ₂ captured]
new	99o	Specific heat consumption per CO ₂ captured	[MJ/t CO ₂ captured]

GCCA Train the Trainer Program Details



Dear Colleagues,

The CO₂ Protocol underpins all GCCA GNR reporting. Over the last two years an expert group has revised and updated the Protocol to make some fundamental changes to current reporting and to include new developments in reporting of CCUS, calcined clay and recarbonation.

In addition to the training course taking place in **Düsseldorf, Germany (24–26 November 2026)**, GCCA are also exploring the possibility of holding a second training course in **Mexico** in early 2027.

Expression of Interest - Mexico 2027

If you are interested in participating in the **Mexico 2027** training course, please confirm your Expression of Interest by completing the [form here](#) by **24th July 2026**.
Note: At present we have not yet received enough expressions of interest for this LATAM training to proceed.

Germany Training Course – Registration

If you wish to attend the **Germany training course**, please register by **24th July 2026** to secure your place. Places are limited to **30 participants** and will be allocated on a first-come, first-served basis.

The registration fee is **€3,500 per person**.

The cut-off day to pay and register for this course is 31st July 2026. Please book your place [here](#). Terms and conditions apply.

Dates: 24th – 26th November 2026

Location: ECRA, Toulouser Allee 71, Düsseldorf, Germany

Cost: €3,500 per person*

**Note that - for GCCA Members only - this cost will be reduced to €1825 per person if an application for GCCA funding support is successful. This will not be known until later in the year after registration closes.*

What is included?

- **3 days of intensive training** for up to 30 international participants in Düsseldorf.
- **Expert instruction and tutorials** with practical exercises.
- **Hands-on examination** to solidify your learnings.
- **Training materials** and access to seminar facilities in Düsseldorf.
- **Lunches** catered throughout the program.
- **Visa Invitation Letter**

NB. Please note all travel and accommodation costs are **not included** in the course fee and all arrangements must be made by the delegate. GCCA or ECRA do not co-ordinate travel and hotel accommodation for the participants.

To assist participants with all travel and accommodation planning, please see the draft agenda below:

Date	Action	Description
Monday, 23 rd November 2026	Travel	Participants arriving in Düsseldorf
Tuesday, 24 th November 2026	Day 1 of training course	Introduction, presentations with Q&A, practical work with tutorials
Wednesday, 25 th November 2026	Day 2 of training course	Presentations with Q&A, practical work with tutorials
Thursday, 26 th November 2026	Day 3 of training course	Examination, Presentations with Q&A
Friday, 27 th November 2027	Travel	Participants travelling home



[Register here](#)

Next Webinar







CONCRETE
FUTURE

Members only webinar

Introducing GCCA Scope 3 Guidance

16 September 2026 | 08:00 – 09:00 (London) & 16:00 – 17:00 (London)

Hi Abhishek Shukla,

This is a reminder that your webinar will begin in 1 week:

You can [cancel](#) your registration at any time.

Thank you!

Introducing GCCA Scope 3 Guidance	
Date & Time	Sep 16, 2026 08:00 AM London
Webinar ID	868 8322 2780
Passcode	202743
Description	This webinar will introduce the GCCA Scope 3 Guidance launched earlier this year. The GCCA Scope 3 Guidance is a sector-specific framework that helps cement companies consistently measure and report Scope 3 emissions across their entire value chain.



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Thank You!