



**SUMMARY OF COMMENTS & RESPONSES  
PUBLIC COMMENT PERIOD  
DRAFT LOW-CARBON CEMENT VERSION 1.0**

**CLIMATE  
ACTION  
RESERVE**

Seventeen sets of comments were received during the second public comment period for the Climate Action Reserve (Reserve) draft Low-Carbon Cement Version 1.0. Staff from the Reserve provided responses to all comments received, which are summarized below. The public comment period for the draft protocol was August 9, 2023 to September 8, 2023.

We received various editorial comments that have been reviewed and incorporated into the final draft where appropriate.

The comment letters can be viewed on Reserve's website at <https://www.climateactionreserve.org/how/protocols/industrial/low-carbon-cement/dev/>

**COMMENTS RECEIVED BY:**

1. Gaurav N. Sant (**UCLA Institute for Carbon Management**)
2. Ryan Cialdella (**Ozinga**)
3. Greg Williams (**Sublime**)
4. Cindy McLaughlin (**CarbonBuilt**)
5. Ryan Bourns (**Carbon Upcycling**)
6. Lai Kuku (**Carbon Resolve**)
7. Julie Kelleher (**3Degrees**)
8. Yuri Mytko (**CarbiCrete**)
9. Rebekkah Swisher (**Partanna Global, Inc.**)
10. Ingy El Kafrawy (**CarbonCure**)
11. Dale Hauke (**Urban Mining Industries**)
12. Confidential Stakeholder
13. Andreas MarCotty (**Forterra**)
14. Kayla Carey (**ClimeCo**)
15. Pradeep Ghosh (**Solidia Technologies**)
16. Matthew Lemay (**NRMCA**)
17. Juan Gonzalez (**Vulcan Materials Company**)

## General Comments

1. Since the emissions reduction activity of this Protocol relies on the production of SCMs or ACMs to replace portland cement (PC), we are requesting additional clarification on the documentation required to verify that these activities are taking place. We have identified a potential risk that SCMs/ACMs may be replacing other SCMs/ACMs instead of replacing PC or may be entering into new contracts where the assumption would have been the replacement of PC but is unassured. Other than the Attestation of SCM/ACM Use form, sales receipt, and bill of lading, please clarify any additional requirements or if this would be specific to each verifier's review. **(3Degrees)**

**RESPONSE:** As mentioned, the emission reduction of this protocol does require that the produced SCMs or ACMs displace PC. However, if the project developer is the SCM or ACM producer, they have a limited ability to demonstrate that their customer purchased and used the SCM/ACM instead of PC. To overcome this risk, the Reserve has assessed the market for the likelihood of that risk in various scenarios and included additional safeguards within the above-mentioned documents (i.e., Attestation of SCM/ACM Use form, sales receipts, etc.). With a known limited and decreasing supply of traditional SCMs in the U.S. market (approximately 14% and 4% of concrete products comprised of fly ash and traditional slag cement respectively), it can be assumed that without access to these SCMs and without this Protocol to incentivize the addition of new SCMs to the market that the producer would switch back to PC.

To provide additional assurances, we have asked project developers to provide verifiable evidence at a project level that can support the claim that the SCM/ACM is displacing PC. This is achieved with the project developer through the Attestation of SCM/ACM Use but will also be achieved by adding a requirement that project developers must communicate this to their customers through their sales receipts or bill of lading. We assume market availability of SCMs/ACMs in the U.S. will change over time and commit to accounting for this transition by updating the baseline quantification in future versions of the protocol.

2. We support the Reserve's commitment to avoiding double-counting. However, to reflect the legal and actual limitations of the Project Developer's (i.e., the SCM/ACM manufacturer) influence on supply chain reduction claims, we recommend that the Reserve revise paragraph five of the Attestation of SCM/ACM Use. The SCM/ACM manufacturer must attain the legal title and ownership of the emission reductions; however, any emission reduction claims made by end-users of the product are outside of the SCM/ACM manufacturer's knowledge and control. We suggest that the Reserve remove the following statement from paragraph five of the Attestation: "and the end-user shall not claim any rights to the Project Reductions or make any quantifiable claims towards their own greenhouse gas emissions reductions targets or inventory." **(ClimeCo)**

**RESPONSE:** Although we can appreciate that claims made by the end-user are outside the control of the SCM/ACM manufacturer, the Reserve is committed to avoiding double-counting of emissions reductions. As an alternative approach to the quoted section of the Attestation of SCM/ACM Use form above, the Reserve has updated the requirement that SCM/ACM manufacturers can instead include language within their sales receipts, bill of lading, or other approved, verifiable documents that states the end user is forgoing their right to emission reductions associated with the product.

3. It would be helpful to include onsite renewables or vPPA (Virtual Power Purchase Agreements) to reduce incremental energy emissions from new equipment. (**CarbonBuilt**)

**RESPONSE:** Other mechanisms related to renewable energy are outside the scope of the protocol. The emission intensity of the energy used to manufacture PC or SCMs/ACMs is accounted for in the methodology by utilizing subregional EPA eGRID factors.

## 2.2 Project Definition

4. We received multiple comments that the protocol should include a mechanism for generating credits for the mineralization of carbon dioxide (CO<sub>2</sub>) during the production of SCMs/ACMs or during the concrete curing process. Stakeholders referenced Verra's VM0043 and provided potential quantification edits that could help expand the protocol to include CO<sub>2</sub> removals through mineralization of CO<sub>2</sub> within SCMs/ACMs or concrete. Although all comments agreed this project activity should be available for crediting at the Reserve, some organizations commented that this should be included in a subsequent version of the Protocol. (**Ozinga, CarbonBuilt, Carbon Resolve, 3Degrees, Carbon Upcycling, Forterra, ClimeCo, UCLA, CarbiCrete, Partanna**)

**RESPONSE:** We appreciate the comments we received as it relates to carbon capture, utilization, and storage (CCUS). As curing of carbon dioxide within concrete is only one utilization pathways for captured carbon, and would require additional quantification developments, the Reserve will review the potential to develop a separate methodology for CCUS which could include CO<sub>2</sub> mineralization in concrete as an eligible utilization pathway. Further, as the CO<sub>2</sub> for the mineralization process is coming from outside the cement or concrete supply chain, there is a need to review CO<sub>2</sub> sourcing for eligibility and additionality. However, it is our understanding that some technologies capture and directly use CO<sub>2</sub> during the SCM/ACM production process which does not alter the chemistry of the final SCM product but lowers overall project emissions. If this process does not impact the natural CO<sub>2</sub> curing process of the final end product and meets ASTM C1910/C1910M – 23 Standard Test Methods for Cements that Require Carbonation Curing, these directly captured emissions could potentially be included in the quantification but will be subject to project specific review by the Reserve and its Verification Bodies to ensure that the emissions are not being double counted.

5. The opening narrative should be more direct that the eligible SCMs in this methodology must result in additional cement reduction, to avoid confusion about the impact that current SCM replacement might have. (**Carbon Upcycling**)

**RESPONSE:** The Reserve has included additional language into the beginning sections of the protocol to provide clarity.

6. We recommend the explicit inclusion of all steel slag types, including BOF, EAF, stainless steel slag and ladle slag as eligible ACMs. Whereas iron slag (GBFS) has been used as an SCM for decades due to its hydraulic properties, steel slag has limited hydraulic properties, it reacts with CO<sub>2</sub> in the presence of water and can be used as an ACM to replace OPC in a process where concrete is cured through carbonation and in which CO<sub>2</sub> is mineralized.

**(CarbiCrete)** Why would slag cement not be eligible? Slag cements are nearly identical to an alkali-activated cement. **(Confidential)**

**RESPONSE:** The Reserve has specifically excluded traditional iron slag as it was found to be common practice; however, if a project developer can demonstrate that another product (like BOF or EAF) is not common practice (less than 5% of the market in the U.S.) then it could be an eligible product for use under this protocol (assuming the product meets other eligibility criteria like ASTM standards). We also added 'traditional' before slag references in the protocol to further clarify. Novel alkali-activated or geopolymer cements could be eligible if they pass the Performance Standard Test within the protocol.

7. For clarity, included/excluded materials should be identified by their ASTM spec where possible. Suggested amended list:
- Portland Limestone Cement (PLC) (ASTM C595)
  - Traditional coal ash (fly or bottom ash) (ASTM C618)
  - Traditional slag cement (ASTM C989)
  - Silica fume (ASTM C1240)

Rather than "fly ash" the excluded material should read "coal ash". The most recent version of C618 changes the name of the standard to "coal ash" because both fly ash and bottom ash are accepted under the standard. Bottom ash can be used without beneficiation as well as fly ash.

Consider also excluding blended cements under C595. Like PLC, these cements are already a part of accepted industry standard practices, and also consist mainly of portland cement (by mass), or a combination of portland cement and other ineligible materials. The following is a non-exhaustive list:

- Type 1P (portland-pozzolan cement), which contains up to 40% pozzolan by mass.
- Type 1S (slag cement), which contains up to 70% slag by mass; both are ineligible materials.
- Type 1T (ternary blended cement), which contains multiple pozzolans which are up to 40% by mass. Type 1T is still mostly portland cement by mass. **(NRMCA)**

**RESPONSE:** We have made the proposed edits to the ineligible product list with specific citation to the respective ASTM standards. Blended cements are eligible but only for the portion of the product that is on the eligible product list. For example, Type 1P would be eligible for the 40% natural pozzolan but not the portland cement component.

8. Where do novel cements fall under this protocol (such as c-crete, Brimestone and the Sublime of the world.)? **(Vulcan Materials Company)**

**RESPONSE:** The eligible product list is not intended to be an exhaustive list, with hopes that new products will continue to come to market. Any novel product is eligible if it passes the Performance Standard Test (new to market or shown to be less than 5% of the market) and meets ASTM or other quality standards. Project developers will need to seek approval from the Reserve in these cases.

## 2.3 The Project Developer

9. Section 2.3 (Ownership) includes some conflicting language around ownership. We recommend clarifying that the SCM manufacturer is the default owner to avoid any risk of double counting. For clarity, we suggest removing the second sentence which states, “Project developers may be SCM/ACM suppliers and manufacturers, low-carbon cement technology suppliers, and/or entities that specialize in project development.” As previously discussed, we recommend that the entity processing and marketing the SCMs or alternative cement be the default credit owner to address the widespread supply gap and direct much-needed financing to one of the most burdened points in the supply chain (**ClimeCo**).

**RESPONSE:** Although the SCM/ACM producer is the default or expected project developer, which we have confirmed and clarified in the protocol, other parties such as those listed above can be project developers as long as GHG emission reduction rights have been clearly transferred to the other entity. For those reasons, we have modified the language in the protocol to clarify that SCM/ACM producers are the project owner by default, but will still include language suggesting alternative ownership is a possibility with transfer of rights.

10. This protocol, as written, does not accomplish what a low-carbon cement or concrete protocol should accomplish. The production of an upgraded or novel SCM does not necessarily guarantee a climate or environmental benefit unless it actively stores and sequesters CO<sub>2</sub> in its production (e.g., biogenic limestone, olivine weathering). For the other SCMs, the climate or environmental benefit ultimately depends on the actions and decisions of a ready-mix concrete producer as to the replacement percentage in an actual batch of concrete. To that end, the SCM producer should not be automatically denoted as the project owner unless it meets a net-CO<sub>2</sub> sequestration criterion. In summary, the project crediting site should not be the SCM/ACM manufacturing site or sites unless the process actively sequesters CO<sub>2</sub>. (**Confidential**)

**RESPONSE:** The Reserve agrees that the environmental benefit of the activity is not realized unless and until the SCM/ACM is used instead of PC. To ensure that the SCM/ACM product is purchased and used instead of PC, we will be requiring project developers to display specific verifiable evidence (i.e., the Attestation of SCM/ACM Use form, sales receipts or bill of lading) that provides verification bodies with reasonable assurance that the SCM/ACM product was purchased, and used instead of PC. The Global Cement and Concrete Association determined that the cement sector cannot scale low-carbon cement manufacturing without additional financing, and it is our understanding that SCM/ACM manufacturers face the most substantial upfront financial barriers and risk to scaling their technology (i.e., high capital costs from installing harvesting and processing equipment).

11. If an upgraded or novel SCM producer issues offset credits, they will likely face negative market consequences. Namely, the sale of offsets related to the upgraded or novel SCM would not allow cement companies or ready-mix concrete companies to produce (and profit from the sale of) low-carbon cement or low-carbon concrete downstream. Cement companies and ready-mix concrete producers would not necessarily choose to purchase those SCMs if they are not able (a) to benefit from the sale of carbon offsets themselves or (b) pass the low-carbon benefit on to the developer/building owner, many of which are more and more interested in carbon insetting programs that allow them to claim the lower-carbon concrete as part of their Scope 3 emissions reductions. The SCM producer is too far upstream to interface with building and project owners. Thus, it is most rational for any

carbon offset protocol to incentivize the ready-mix concrete producer, who has the discretion to batch concrete with any type and amount of constituent materials.

**(Confidential)**

**RESPONSE:** Ownership of the emission reduction rights in the context of this Protocol and the Scope 3 emission reduction claims were discussed during workgroup meetings. Although we anticipate that the product developer and owner of the emission reductions rights will be the SCM/ACM producer, as they are the entity with access to the project emission data, the protocol does not exclude other entities throughout the supply chain to participate as a project developer and own the emission reduction rights as long as they have the required documentation noting that they are the sole owner of any claimed credits.

To further address this concern, the Reserve will add a requirement for project developers (namely SCM/ACM producers) to add language to their sales receipts, bill of lading, or other approved verifiable document that states the purchaser of the product has waived its claims to any emission reductions rights. The Reserve is currently undertaking the development of a Scope 3 option on our registry to allow for credit sales to be categorized on our system accordingly.

## 3.1 Location

12. We received multiple comments regarding expanding the applicability of the Protocol to Canada, as well as the United States. There is significant movement in the low carbon cement and concrete space in both countries, and expanding the geography will allow greater uptake in an emerging market. Most comments recommended the expansion of the protocol in its entirety, but some comments specifically mentioned sourcing raw materials from Canada for SCM/ACM production. (**Sublime, Carbon Upcycling, 3Degrees, CarbiCrete**)

**RESPONSE:** During protocol development, the workgroup and observers voiced the need to expand the Low-Carbon Protocol to Canada. In alignment with our jurisdictional approach to protocol expansion, the Reserve will explore the necessary modifications to expand the protocol to Canada, and potentially Mexico. It is important that we have the time and ability to assess aspects of the protocol that vary regionally including additionality, regulatory compliance, and baseline data. Specifically, we know that PC facilities are regulated in Canada and will require detailed attention when reviewing the Legal Requirement Test for applicability of the protocol in this jurisdiction. However, based on the similarities between the U.S. and Canada as it relates to the cement industry, the Reserve will review our process to finding efficiencies that could support applicability of protocol in Canada.

## 2.2 Project Start Date

13. Page 13 of the draft protocol states, “The project developer must provide verifiable evidence to support that during this period of time prior to the start date of the project was not in business or functioning at scale.” We are clearly not functioning “at scale”, therefore we have not yet reached the project “start date”. What is not clear is the definition of “at scale”. Does this mean at or near plant design capacity? 85% of design capacity? The

definition of “at scale” needs to be clarified and should reflect more stabilized operations for innovative products coming to market. (**Urban Mining Industries**)

**RESPONSE:** We appreciate this feedback and acknowledge that additional clarity is required to define the scale of production that would result in a project not meeting the start date requirements under the Protocol. We updated the language in the protocol to say, “The project developer must provide verifiable evidence to support that this period of time prior to the start date of the project was not in business or functioning at scale (either as a % of total batch scale or reduced batch tonnage).” During verification, the project developer would need to provide evidence that demonstrates that operation is not producing at scale either by showing that the number of batches or tonnage per batch is less than full operating conditions.

### 3.3 Project Crediting Period

14. We recommend that CAR consider allowing projects to generate credits for the remainder of the crediting period they are reporting in the instance where the regulations change or market penetration is reached during the crediting period. (**3Degrees**)

**RESPONSE:** The Reserve’s programmatic policy as it relates to regulations and additionality is that credits would cease to be issued as of the date that a related regulation comes into effect. However, the Reserve is aware that some activities, especially large industrial investments, are made with the assumption that crediting will reduce investment risk for the length of the crediting period. The Reserve commits to reviewing our broader policy as it relates to regulatory enforcement dates and credit issuance.

### 3.4 Additionality

15. While market penetration allows for ease of registration for early adoption of nascent technologies, 5% market share remains a low level of adoption and discourages growth before the protocol has had a chance to make a significant impact on the market. In addition, other voluntary carbon registries have seen the risk of 5% market penetration halting additionality; the activity is unlikely to become self-sustaining at this level and the restriction on the methodology poses an unacceptable risk to projects expecting to see 10+ years of financial return on investment. Verra Standard 4.5 (released in August 2023) reevaluated their activity method requirement, in which a methodology is inactivated once the methodology’s project activity surpasses the 5% market threshold, at which point the methodology is to undergo a revision where it adopts a new method of demonstrating additionality. (**3Degrees**)

**RESPONSE:** The Performance Standard Test was developed with respect to the current U.S. market penetration rates of available SCMs/ACMs, including fresh coal ash (approx. 14%) and traditional slag cement (approx. 4%). The Reserve expects a shift in the market where these products become unavailable and novel SCMs are sourced more readily. To ensure additionality is aligned with current market penetration rates, the Reserve will re-visit the 5% threshold when out of date or during a subsequent protocol updates.

16. Fortera encourages CAR to consider a project capital expenditure threshold in the Protocol Performance Standard Test. (**Fortera**)

**RESPONSE:** The Reserve understands the potential for including a financial threshold test to assess additionality but has concerns with the accuracy and broad applicability of this type of test with multiple, varying product types. For these reasons, the Reserve will not include a financial threshold test and will remain focused on a technology-specific threshold.

17. How can the SCM/ACM producer guarantee that the use of low-carbon SCMs in the end project is not legally mandated? The SCM producer relinquishes control of the use of its product to the cement companies and ready-mix concrete companies to which it sells product. **(Confidential)**

**RESPONSE:** Through the development of the Legal Requirement Test, the Reserve assessed the U.S. landscape for laws or regulations that mandate SCM/ACM production or use, as well as any mandates for reduced emissions from PC facilities. Although no federal mandates were found, there were three state level considerations that require the production or use of SCM/ACM products.

The first is the North Carolina Coal Ash Management Act created a legal requirement for the “installation and operation” of three “ash beneficiation projects, each capable of annually processing 300,000 tons of ash to specifications appropriate for cementitious products”. These three ash beneficiation projects are located at Duke Energy’s Buck Combined Cycle Facility in Rowan County, H.F. Lee Steam Electric Plant in Wayne County, and the Former Caper Fear Facility in Chatham County.

In California, the use of SCMs/ACMs at PC facilities in the state would be ineligible as PC facilities are regulated to lower their emissions under the Cap-and-Trade. Additionally, the California Department of Transportation (CalTrans) Standard Specifications include a threshold for the minimum SCM content of concrete used in state projects. Section 90 of the Standard Specifications requires that the concrete must have at least 15% SCM replacement for when the aggregates are “innocuous” and SCMs must replace 25% of the PC when the aggregates are “non-innocuous”. Most California ready mix producers have access to innocuous aggregates; thus, the Caltrans SCM replacement rate is typically 15%.

Project proponents that sell qualified SCMs into California are eligible under the protocol; however, SCMs sold to Caltrans and used below the minimum threshold are ineligible for crediting, while SCMs sold to Caltrans and used above the minimum threshold are eligible for crediting. Due to the complex chain of custody, many SCM manufacturers may be unable to track the destination of their products (i.e., it may be difficult for SCM manufacturers to accurately prove how many SCMs are used in Caltrans projects). Project proponents that cannot track final SCM use may estimate the volume of material used by Caltrans by applying a conservative 6% discount factor to the total quantity of SCMs sold into California (Equation 5.13) which is based on total concrete sales by tonnage to Caltrans in California.

The Reserve commits to tracking and updating its guidance as new, related regulations are enforced at either a state or federal level and will adjust the protocol to exclude specific production or use pathways as needed.



### 3.6.1 Eligibility of Beneficiated Ash

18. As above, references to fly ash throughout should likely be replaced by "coal ash" to match the current C618 spec. Differentiating between fresh coal ash and beneficiated ash creates no ambiguity. As written, fresh bottom ash is not clearly addressed as ineligible. **(NRMCA)**

**RESPONSE:** Agreed. This naming convention has been corrected throughout.

## 4.0 The GHG Assessment Boundary

19. Figure 4.1 GHG assessment boundary - should be clearer about whether SSR11 (emissions from concrete production) is also included in calculations. SSR11 states that it includes the avoidance calculations from Table 4.1, but this is not clear in Figure 4.1. **(UCLA Institute for Carbon Management)**

**RESPONSE:** Reviewing Table 4.1 and Figure 4.1, we can confirm that SSR11 (Emissions from mixing cementitious material to form blended cement and/or concrete) is excluded. We have updated the document to ensure that exclusion of SSR 11 is clear.

20. We support the inclusion of emissions from the production and transportation of additives whose impact is above 5% materiality to project emission calculations. Additives can be incorporated into SCM either in production or post-production at concrete mixing. Both scenarios are not represented in the protocol at its current state; if additives (above 5%) are incorporated after production and during concrete mixing, this would be outside of the project boundary and therefore not included in project emissions. We recommend that CAR consider the impact of additives either at all stages in which they could be added by expanding the project boundary for additives or to remove additives from the protocol until CAR is able to adequately account for project emissions from additives in all scenarios. **(3Degrees)**

**RESPONSE:** We can confirm that the Reserve decided to exclude emissions from additives when incorporated during concrete blending or manufacturing as these emissions are outside the current GHG Assessment Boundary. As noted above, when additives are incorporated during SCM/ACM manufacturing, those emissions are accounted for when the additive weight is equal to or greater than 5% of the overall SCM/ACM product by weight. However, we recognized that additives can be incorporated at multiple stages throughout cement and concrete manufacturing processes and should be accounted for regardless of when they are introduced. The Reserve added language to verifiable documents (i.e., Attestation of SCM/ACM Use, sales receipts, bill of lading, ASTM standards, etc.) to safeguard against unintentional increases in emissions resulting from increase additives during concrete manufacturing in an attempt to meet performance standards.

## 5.0 Quantifying GHG Emission Reductions

21. Emissions reductions from concrete production (i.e., steam curing reduction) and new energy use from new equipment should be included. **(CarbonBuilt)**

**RESPONSE:** From discussions with industry experts, it is our understanding that the emissions for concrete production or use of new equipment during concrete production

would not be impacted by the protocol activity. The protocol defines the project activity as the production of SCMs/ACMs to displace PC. Since the type of cement (PC, PLC, natural pozzolan, etc.) does not have a direct influence on the concrete production process or equipment used, these emissions would not be influenced by the project. It is our understanding that concrete curing activities vary due to weather, timelines or construction demands and that the cement product itself would not result in a need to change standard curing processes.

22. Equivalence between baseline and project scenarios: how this is determined is not clear in the protocol. Without clear guidelines around the strength/performance of the concrete there is a risk that project proponents can over design mixes by reducing total cement content. To keep the integrity of credits issued via this methodology we wanted to ensure that this was accordingly addressed. **(CarbonCure)**

**RESPONSE:** The GHG Assessment Boundary excludes concrete as the project activity is the production and use of SCMs/ACMs to displace PC. However, we recognize there is a risk that the SCM/ACM manufactured could not displace PC or not meet quality standards to result in a comparable concrete product. To address this, we require that the project developer demonstrate that the SCM/ACM product meets ASTM standard specifications or clearly show that the performance and strength of the product meets the quality standard of the end-user by adding language to sales receipts, bill of lading, or other verifiable documents. Additionally, there is a weight adjustment factor in the quantification to achieve equivalence between baseline and project scenarios.

23. Section 5.1.1.2 states, “Regions for the purposes of the baseline calculations are based on SCM/ACM sales.” We request clarification on whether project developers would be required to create a unique baseline for each sale of SCM or if that baseline could also be based on where the SCM is produced. If baseline inputs are set by the sale of SCM, we recommend clarifying that the input region would be established by the bill of lading (BOL) for first point of sale which is already required under the protocol. **(ClimeCo)**

**RESPONSE:** Project developers will be required to create unique baselines by state or region by product tonnage. We agree that a first point of sale via the bill of lading would be appropriate for determining the baseline location. Given the number of states or regions, we do not expect that project developers will need to create more than a few baseline scenarios. We will add language to the protocol to clarify our expectations.

24. Multiple comments regarding the need to normalize the project and baseline emissions by using a weight adjustment factor to equate emissions stating it would not be an accurate comparison without this factor. **(NRMCA, Vulcan Materials Company, Confidential)**

**RESPONSE:** The protocol quantification identifies this difference with replacement rates and includes a parameter to account for these differences. In Equation 5.2, parameter  $R_b$ : PC to SCM/ACM weight adjustment in percentage during the reporting period accounts for the replacement rate of the SCM/ACM product for that project. For example, if two tonnes of PC could be replaced with one tonne of a SCM/ACM, the weight adjustment factor would be 2:1 (PC: SCM/ACM). The protocol does not account for variances at the ready-mix concrete facility as that would not be caused by the product type or change the amount of PC displaced.

## 8.0 Verification

25. It is currently unclear whether project diagrams will be required for registry submission. As previously discussed, these project types contain proprietary designs thus we recommend excluding project diagrams from the protocol requirements. Additionally, we recommend ensuring that the protocol contains consistent language around joint verification. (**ClimeCo**)

**RESPONSE:** The Project Diagram is a requirement of the protocol but we have made a note that it will not be made public, similar to other protocols, for confidentiality reasons. We have also reviewed the protocol to ensure consistency as it relates to joint verification.