



Low-Carbon Cement Protocol Workgroup Meeting Notes and Takeaways

Workgroup Meeting Date: 12/19/2022

Link to review recording: <https://us06web.zoom.us/rec/share/vk4FcXuWY9S2-oAh1HvRvacroNMPikBBdUtnR71DhfGe9ZiYuvV9o5gWIWRlZqGm.mYVInL4KGt1zK29Y>

Workgroup Members in attendance:

Name	Organization	Present (P)/Absent (A)
Adam Swercheck	Lehigh Hanson (Secondary)	P
Christina Theodoridi	NRDC	P
Danny Gray	ECO Materials	P
David Bangma	Ash Grove	P
David Perkins	Lehigh Hanson	P
Eric Giannini	Portland Cement Association (Secondary)	P
Gurav Sant	Institute for Carbon management UCLA	A
James Carusone	Salt River Minerals	P
James Salazar (Concrete)	Athena Institute (Secondary)	P
Jamie Farny	Portland Cement Association	P
Jamie Meil (Cement)	Athena Institute	P
Jimmy Knowles	SEFA Group	P
Kayla Carey	ClimeCo (Secondary)	P
Lauren Kubiak	NRDC (Secondary)	P
Lauren Mechak	ClimeCo	P
Katie Poss	National Ready Mix Concrete Association	A
Miguel Angel Freyermuth	Ruby Canyon Environmental	P
Ram Verma	California Department of Water Resources	P
Seth Baruch	Carbonomics	P
Thomas Van Dam	Nichols Consulting Engineers (NCE)	P

Agenda:

- **Eligibility and Project Definition**
 - o We have proposed SCM product types that would and wouldn't be eligible for carbon credits within the protocol. Are these correct? Do you agree or disagree with the eligibility or ineligibility of any product type?

- Are there any SCM products that should be included that currently aren't on the list? Are there any SCM products that shouldn't be included that currently are on the list?
- Slide 25 specifically looks at the definition of fresh, harvested and upgraded ash. Your thoughts and comments regarding the definition of upgraded fly/coal ash and its inclusion or exclusion in the protocol is appreciated.

- **Project Ownership**
 - There are multiple audiences involved in the project process under the proposed protocol. We are proposing that the SCM producer would be the owner of the credits by default. Do you agree? Why or why not?
 - Will there be a demand for project aggregation? Should this be allowed and under what conditions?

- **Location**
 - We are currently proposing that projects located in the United States would be eligible under the protocol. Do you agree? Is there a need to expand jurisdictional scope? Why and when?

- **Regulatory compliance**
 - How do any current coal ash disposal regulations interact with the proposed protocol?

- **Quantification**
 - Does the proposed project boundary include all relevant sources, sinks and reservoirs (SSRs)? Are there any SSRs missing? Any that should be excluded? Why?
 - For baseline emission calculations, do you agree with the hierarchical approach for OPC data? Are there questions or concerns with site-specific data? Data from the Environmental Product Declarations? Regional Data?

- **Leakage**
 - Leakage may occur if the project increases GHG emissions outside of the project's assessment boundary as a result of the project activity.
 - Since SCMs will be increased and not diverted from location to location under this protocol, we believe leakage risks are centralized on displacement of OPC with SCM cement. Do you agree? Are there other risks? How do we determine leakage has been avoided under the protocol?
 - Mining and transportation leakage concerns are imbedded in baseline and project emission calculations.

Main Points of Discussion and Decisions Made:

- **Eligibility and Project Definition**

- Current definition: project is defined as the manufacturing of SCMs that partially or fully replace OPC that results in avoidance of GHG emissions from OPC production.
 - Focused on feedstock and production emissions, not on end use so long as the SCM gets used and displaces OPC at some level.
 - Use of the term Ordinary Portland Cement (OPC) is standard in EU, not Canada and US for concrete. Make sure we're using domestic nomenclature (Portland cement instead of OPC).
 - We seem to be referring to SCMs and alternative SCMs (ACM), although in protocol we're talking about just using SCMs. SCM by definition means you're supplementing something else, so if you're supplementing something with a 100% replacement rate it actually becomes an ACM (alternative cementitious material).
 - Focus is on low-carbon cement options, so let's continue to have a discussion on expanding the project definition to include ACMs.
- Coal ash types—what should or shouldn't be eligible? What needs incentives to be more available? Should processed or upgraded ash that needs to be processed for use be included? Clear that we need to fix some of the nomenclature based on today's discussion, but reviewed the types of coal ash being considered:
 - Fresh Fly Ash (referred to as “traditional fly ash” in the draft protocol)—A by-product of coal-fired power generation that is used directly from an operational power plant without further processing—Ineligible for crediting (common practice already).
 - Harvested Fly Ash—Disposed of coal ash from operational or decommissioned coal-fired power plant that has been harvested from a landfill or ash impoundment and processed to meet concrete-grade specifications —Eligible for crediting.
 - Upgraded/Processed/Beneficiated Fly Ash/Coal Ash—Coal ash (bottom ash or fly ash) from an operational coal-fired power plant that does not meet concrete-grade specifications and is diverted from the landfill for further processing to meet usable specifications (beneficiation).
 - In the industry, we call this upgrading process beneficiated fly ash, of which there are a lot of methods that take a lot of energy to upgrade (ash that would be landfilled and thrown away and that is unusable in the concrete industry unless it is beneficiated because it's way too coarse etc. to meet specifications for use otherwise)—so this “harvested ash” is the definition of beneficiated ash.
 - Beneficiation requires big capital and processing expense, and a lot of energy to go through this whole process to bring the coal ash to market. Pound for pound (almost) replacing Portland cement in the market while substantially lowering the carbon footprint of cement, so it should be considered eligible under the protocol.

- Use of beneficiated fly ash does not appear to be common practice in the cement industry—will be important in determining whether beneficiated/harvested fly ash will be considered additional and eligible under this protocol.
- Need clear definitions/parameters on beneficiation for eligible fly ash.
 - General consensus from group that harvested coal ash should be eligible, processed/upgraded coal ash should be eligible, but consensus is that fresh fly ash is commonly used today in the market so it would not be eligible .
- How should we differentiate new activities from practices already common in the industry to demonstrate additionality? We want as fine of a line as we can create to avoid incentivizing practices that were going to be adopted anyway (e.g. without this protocol incentive)
 - With fly ash, we're dealing with a historical legacy of a lot of disposed fly ash, so question is whether that older disposed of ash is eligible for reclamation at some point?
- Consider broadening protocol eligibility/definition to decarbonated materials to reduce clinker content GHGs.
 - Goal of protocol is to incentivize practices that don't happen today to start happening. There are raw materials like slags that are not widely used today as kiln feed but with a bit of help incentivize decarbonated materials that can be used to lower the carbon content of concrete.
 - Regarding definitions, we need to be promoting practices that move away from reliance on coal/coal-fire power plants, so maybe need to focus more on more non-coal generated SCMs
 - SCMs are fairly regionally dependent in general.
 - Need to be agnostic in saying that we're trying to create incentives for new practices in the market, need to make sure we're not excluding novel practices because some regions may have more access to natural pozzolans or other new technologies and not harvested fly ash

Pending Questions for the Workgroup:

- Coal ash types—what should or shouldn't be eligible? What needs incentives to be more available? Should processed or upgraded ash that needs to be processed for use be included?
- What other SCMs should be considered for eligibility?
 - Kiln feedstocks will need more consideration, especially decarbonated materials if they are able to decrease cement manufacturing emissions.
- How should we differentiate new activities from practices already common in the industry to demonstrate additionality? We want as fine of a line as we can create to avoid incentivizing practices that were going to be adopted anyway.
- Work group members must submit comments by January 6, 2023, feedback will be incorporated into the protocol revisions throughout our workgroup process.



Action Items for the Reserve:

- Define “SCM” and “novel SCM”—work on general protocol definitions.
- Replace term “Ordinary Portland Cement” with Portland Cement.
- Reserve staff will need to review relevant ASTM regulations, especially for coal ash.