Agenda item 4.1
Paragraph 27 of the annotated agenda

PNM0379: Emission reduction from partial switching of raw materials and increasing the share of additives in the production of blended cement

CDM EB 107
Virtual meeting
21 to 23 September, 30 September to 2 October and 5 October 2020

UNFCCC Secretariat
Mitigation Division

Procedural background

PNM0379 was submitted 05 Aug 19 by H Cement Co. Ltd. from the Republic of Korea.

At MP80, the case was discussed and the identified issues were shared with the submitter.

At MP81, the Panel considered the revised draft and noted open minor issues to be discussed with the submitter.

At MP82, the panel considered the final draft agreed to recommend its approval by the Board.

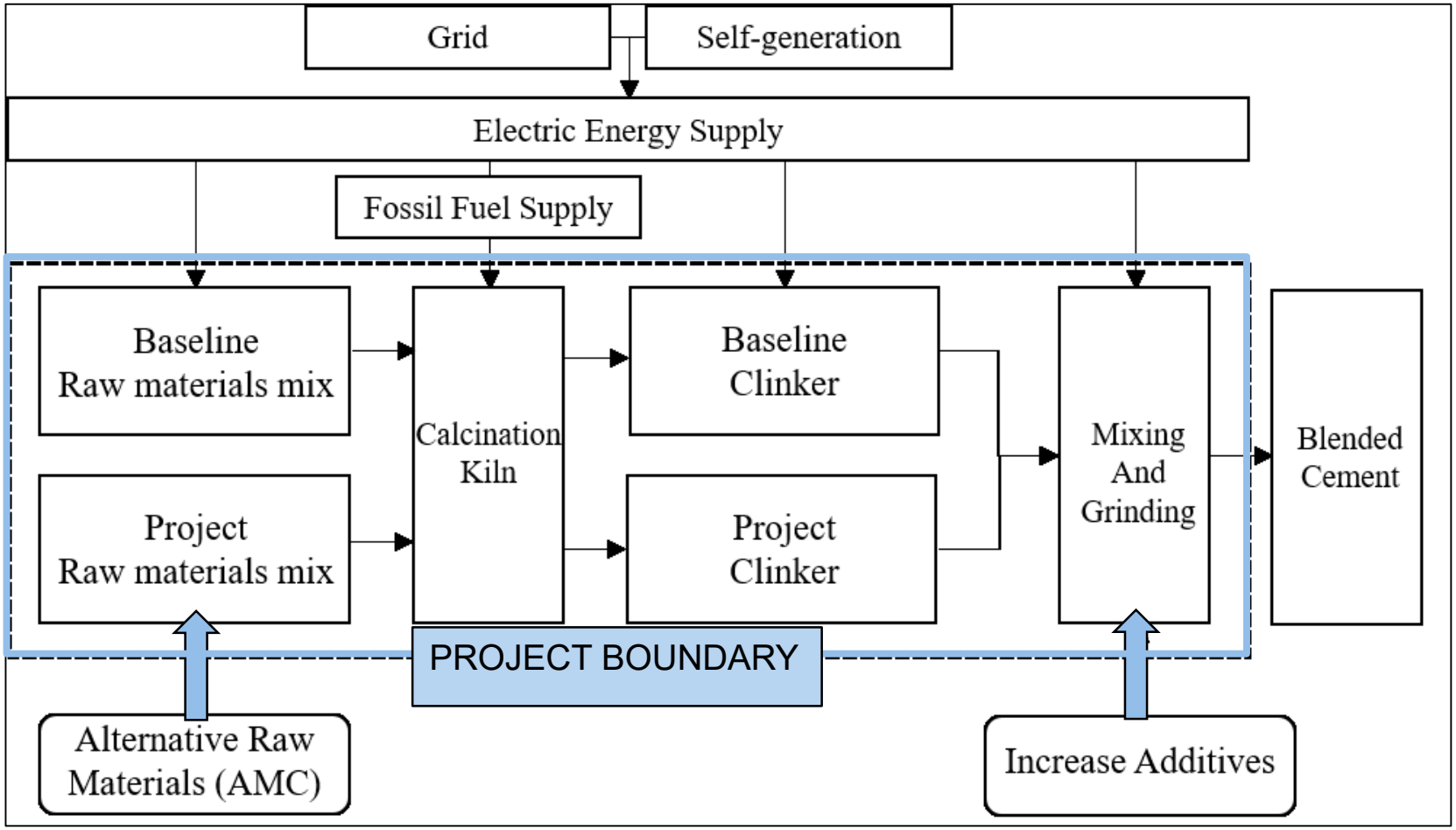
Purpose

The methodology would be applicable to project activities avoiding CO_2 emissions by:

a) Switching to carbonate-free feedstock in the production of clinker; and

b) Blending cement beyond current practices in the host country.

Methodological background



Key issues and proposed solutions

The methodology would be applicable to project activities implementing a combination of measures that are currently covered separately under:

✓ "ACM0005: Increasing the blend in cement production" and

✓ "ACM0015: Emission reductions from raw material switch in clinker production."

- The baseline emissions depend on:
  a) The benchmark share of clinker in the blended cement produced in the region; and
  b) The emissions per tonne of clinker:
     - Quantity and carbon intensity of the fuels used;
     - Quantity and carbon intensity of electricity; and
     - CO_2 emissions from calcination.

Key issues and proposed solutions (Baseline emissions)

$$BE_y = BC_y \times \left(BE_{Clinker,BSL} \times B_{Blend,y} + BE_{ele,ADD,BC}\right)$$

BC_y	=	Blended cement produced and sold in the domestic market in year y (t BC)
$BE_{Clinker,BSL}$	=	Baseline emissions per tonne of clinker in base year (t CO_2/t clinker)
$B_{Blend,y}$	=	Baseline benchmark share of clinker per tonne of BC updated for year y (t clinker/t BC)
$BE_{ele,ADD,BC}$	=	Baseline electricity emissions for BC grinding and preparation of additives (t CO_2/t of BC)

$$BE_{Clinker,BSL} = BE_{calcin} + BE_{FC} + BE_{ele,grid,CLNK} + BE_{ele,sg,CLNK} + BE_{Dust} + BE_{FC\_Dry}$$

BE_{calcin}	=	Baseline emissions per tonne of clinker due to calcination of calcium carbonate and magnesium carbonate (t CO_2/t clinker)
BE_{FC}	=	Baseline emissions per tonne of clinker due to combustion of fossil fuels for clinker production (t CO_2/t clinker)
$BE_{ele,grid,CLNK}$	=	Baseline grid electricity emissions for clinker production per tonne of clinker (t CO_2/t clinker)
$BE_{ele,sg,CLNK}$	=	Baseline emissions from self-generated electricity for clinker production per tonne of clinker (t CO_2/t clinker)
BE_{Dust}	=	Baseline emissions due to dust discarded through bypass and dedusting units (CKD) (t CO_2/t clinker)
BE_{FC_Dry}	=	Baseline emissions due to fuel consumption for preparation of raw materials or fuels (t CO_2/t clinker)

Paragraph 27 of the annotated agenda.

Key issues and proposed solutions (Project emissions)

$$PE_y = BC_y \times \left(PE_{Clinker,y} \times P_{Blend,y} + PE_{ele,ADD,BC,y}\right)$$

BC_y	=	Blended cement produced and sold in the domestic market in year y (t BC)
$PE_{Clinker,BSL}$	=	Project emissions per tonne of clinker in year y (t CO_2/t clinker)
$P_{Blend,y}$	=	Share of clinker per tonne of BC in year y (t clinker/t BC)
$PE_{ele,ADD,BC}$	=	Electricity emissions for BC grinding and preparation of raw materials and additives (t CO_2/t of BC)

$$PE_{Clinker,y} = \sum_i \left\{\left(PE_{calcin,i,y} + PE_{FC,i,y} + PE_{ele,grid,CLNK,i,y} + PE_{ele,sg,CLNK,i,y} + PE_{Dust,i,y} + PE_{FC\_Dry,i,y}\right)\right\} \times P_{CLNK,i,y}$$

$PE_{calcin,i,y}$	=	Project emissions per tonne of clinker due to calcination of calcium carbonate and magnesium carbonate (t CO_2/t clinker)
$PE_{FCi,y}$	=	Project emissions per tonne of clinker due to combustion of fossil fuels for clinker production (t CO_2/t clinker)
$PE_{ele,grid,CLNKi,}$	=	Project grid electricity emissions for clinker production per tonne of clinker (t CO_2/t clinker)
$PE_{ele,sg,CLNKi,y}$	=	Project emissions from self-generated electricity for clinker production per tonne of clinker (t CO_2/t clinker)
$PE_{Dusti,y}$	=	Project emissions due to dust discarded through bypass and dedusting units (CKD) (t CO_2/t clinker)
$PE_{FC\_Dryi,y}$	=	Project emissions due to fuel consumption for preparation of raw materials or fuels (t CO_2/t clinker)
$P_{CLNK,i,y}$	=	Ratio of clinker *i* for total production of clinker in year *y*

Paragraph 27 of the annotated agenda.

Key issues and proposed solutions (Leakage emissions)

$$LE_y = LE_{TR,y} + LE_{ADD,y}$$

$LE_{TR,y}$	=	Leakage emissions due to transport of alternative raw material and additional additives in year *y* (t CO_2)
$LE_{ADD,y}$	=	Leakage emissions due to the diversion of alternative raw material and additives from existing uses in year *y* (t CO_2)

Impacts

The methodology would enable project participants to claim emission reductions through the combination of measures that are currently treated separately, therefore facilitating the process and contributing to the streamlining of the CDM.

Recommendations to the Board

The MP recommends that the Board approve the new methodology.