CDM Sectoral Benchmark methodology concept paper

1 Introduction

Facts prove that, with the current CDM methodologies and procedures, the CDM leaves untapped a huge potential for CO2 emission reductions in the cement industry. Credits issued by registered CDM represent less than 0,01% of the non-Annex 1 CO2 yearly emissions from the cement industry. Furthermore the recent rejections and requests for review of CDM projects demonstrate that project developers face problems with the demonstration of additionality using the current methodologies.

Already in 2005, the COP/ MOP in Montreal has asked the CDM EB to make a call for public input on new proposals for streamlining the CDM methodologies and demonstrate additionality, including options to combine the selection of the baseline and the demonstration of additionality.

This proposal from the WBCSD – Cement Sustainability Initiative (CSI) intends to overcome current difficulties, and is a response to the UNFCCC COP/MOP Montreal decision on "Further guidance relating to the CDM" article 25(a).

The proposed methodology is based on article 48a of the Marrakech Accords, i.e. based on historic and actual emission information. It foresees a rigorous project-by-project demonstration of additionality and definition of the baseline, following an objective standardized sectoral benchmarking approach. This sectoral benchmarking approach is applicable to programmatic CDMs and is, in principle, compatible with broader sectoral approaches.

The use of benchmarking avoids the counter-factual and hypothetical assessment of the motivation of a private entity to demonstrate additionality and makes a project-by-project demonstration of additionality based on a barrier and/or investment analysis no longer necessary.

The development process of the methodology, which is developed by Ecofys Netherlands for CSI, has started from analysis of existing-cement methodologies and benchmarking elements in existing methodologies, followed by conceptual paper drafting. The methodology has been tested against registered projects to prove that it strikes a correct balance between missed opportunities and free riders.

2 Sectoral Benchmark Concept deployment

The methodology is applicable for GHG reductions in the production processes of clinker and cement (obtained from the grinding of clinker with appropriate additives), at existing but also new plants. The main characteristics are:

- the prominent role of benchmarking in the methodology. **Benchmarking is used for the demonstration of additionality and for the calculation of the baseline emissions;**
- **demonstration of additionality during project implementation**, thus additionality is assessed with PDD and demonstrated during the execution of the project, to guarantee the effective environmental integrity of the mechanism;
- use of a **dynamic baseline benchmark**, correcting the baseline for business as usual improvements, to ensure a conservative approach as well as environmental integrity**.**

2.1 Benchmarking

Carbon intensity related benchmarks are used for the demonstration of additionality and for the calculation of the baseline emissions. The benchmarks are defined as a fixed percentile of the cumulative frequency distribution of the CO_2 emissions intensity of the industry in the region. They are set at different levels for new and existing production facilities: they are lower for new plants, to

acknowledge that the GHG emission performance can be directly taken into account in the design of new facilities. For new plants, benchmarks also account for the energy intensity of recently built new plants.

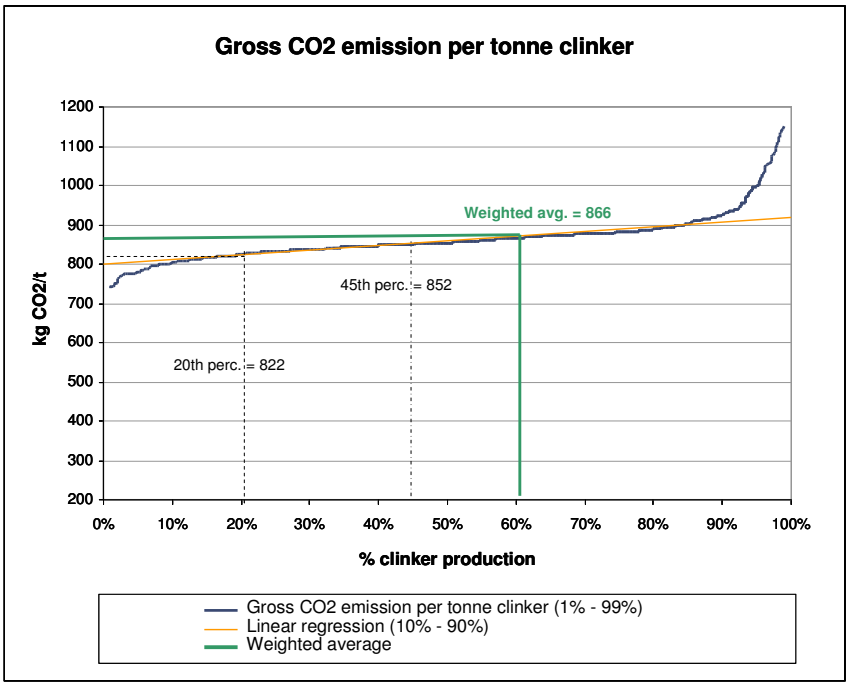
Benchmark options are shown in the table below:

Fig. Summary of BM options

Benchmark	Existing installation	New installation
Additionality level	20th percentile (regional)	- 50th percentile for the global parameters (specific heat and specific electricity consumption) - 20th percentile for the regional parameters (fuel and calcination emission factors and clinker to cement ratio) (or the benchmark for existing plants if it is more conservative)
Baseline level	45th percentile (regional) (or the plant intensity level if it is more conservative)	- 50th percentile for the global parameters (specific heat and specific electricity consumption) - 45th percentile for the regional parameters (fuel and calcination emission factors and clinker to cement ratio) (or the benchmark for existing plants if it is more conservative)

Depending on the type of emissions reductions foreseen, project participants should measure carbon intensity either in tons CO_2 per ton of clinker or ton of CO_2 per ton of cement, and state their choice in the PDD.

Fig. Example of cumulative frequency distribution for clinker production for existing plants. The 20th and 45th percentiles are highlighted in the graph

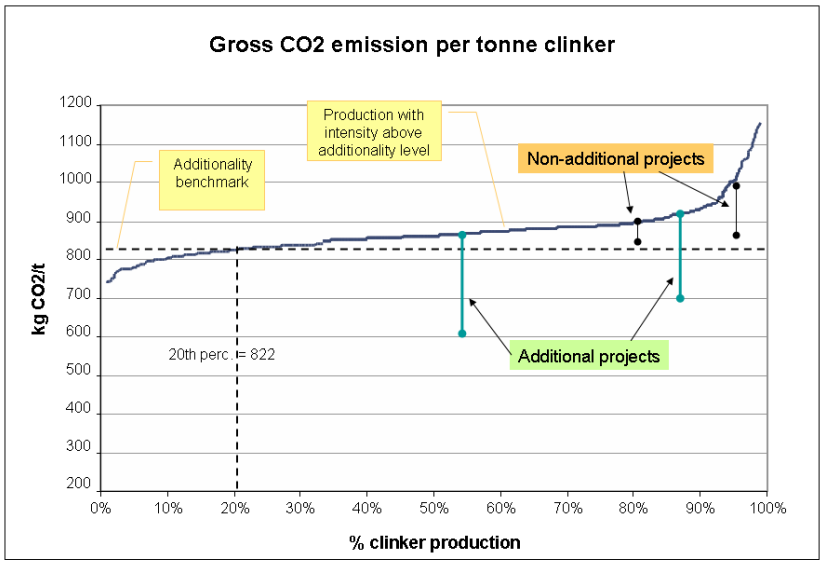


2.2 Additionality

The additionality benchmark represents top performing production in the region and it is set at the starting date of the project activity, or at any renewal date of the crediting period.

Additionality is assessed by checking that the project activity emission intensity forecast, estimated using recognized standards and engineering best practices as described in the PDD, is below the additionality benchmark level. Additionality is demonstrated during project implementation: if the project is able to reduce the emission intensity below the benchmark, within five years from its starting date, it is considered additional. CERs will be issued only once the additionality is demonstrated, based on the actual realised emission intensity, and from the starting date of project (see figure for example). The figure makes clear that only those projects that bring down the emission intensity well below the common practice of the region are regarded as additional.

Fig. Procedure for additionality testing based on cumulative frequency distribution (clinker based)



2.3 Baseline

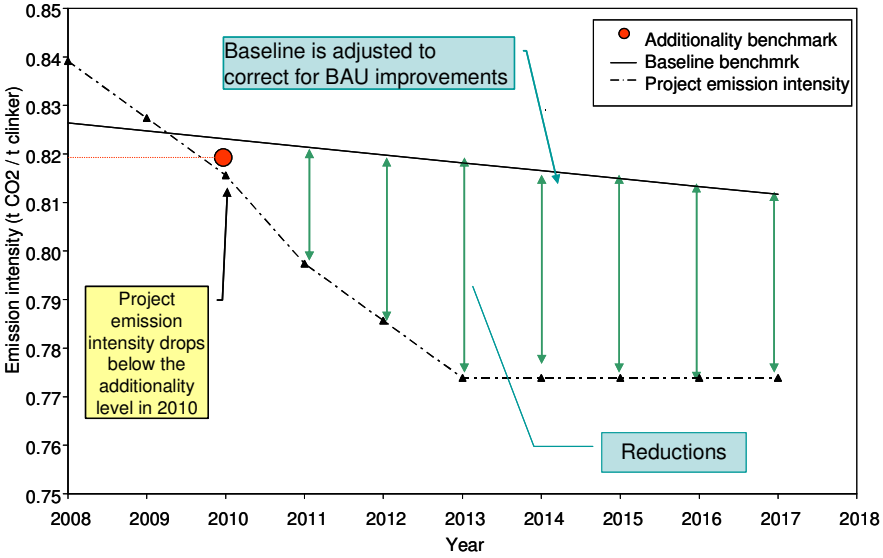
This methodology considers as baseline the lowest between the continuation of the current practice (for existing plants only) – adjusted for "business-as-usual" progress -and the common practice emission intensity in the region (benchmark).

The baseline benchmark used is dynamic and updated each year; it is based on the statistical information of actual emissions (i.e. the most recent year for which reliable information is available) adjusted to account for "business-as-usual" progress, as estimated from the trends in historical emissions. Improvements in the emission intensity of the other production facilities in the region will therefore result in a decreasing baseline level over time, ensuring a conservative approach and environmental integrity.

2.4 Emissions reductions

Emissions reductions are calculated as the difference between the baseline and the project emissions intensity, multiplied by the production volume (product/year) – equal to production capacity before project implementation. A conservative default factor of 5% of total emission reductions is accounted for as leakage.

Fig. Example of emissions reduction from a reduction project by an existing plant



The methodology is applicable to a combination of emissions reduction actions, as introduced in the PDD, such as the substitution of fossil fuels with alternative fuels, the use of alternative raw materials, increasing the blend in cement production, energy efficiency improvements and electricity generation from waste heat and renewable energy.

To avoid double counting of emissions reductions, the DOE performing validation of the project activity shall confirm in the validation report that no emissions reductions, part of the CDM project activity and, involving the same production facility, fall in the scope of another CDM project activity, already registered or submitted for registration or uploaded for public comments.

3 Monitoring and reporting system for benchmarking data

Data for calculating benchmarks, with the only exception of the grid electricity emissions factor, are sourced from the WBCSD CSI "Getting the Numbers Right" database, that provides reliable information on GHG emissions, energy and production from the cement industry globally and regionally. This is a sectoral initiative of the global cement industry, initiated by the CSI, through which companies report the information from all their installations. The initiative is open to any cement industry federation and company. Participants should adhere to a strict "code of conduct" and contract and are requested to obtain, and prove, third party assurance of their systems and data. These terms of engagement notably aim at safeguarding the reliability, accuracy, precision, objectivity and quality assurance of the information provided and used in the database. Accordingly, if project proponents are not yet participants in the database, to use the methodology, they should join the database and contribute with verified data for the latest year, following the prescribed quality assurance protocol.

Main characteristics of the database are:

- Data uploaded in the database are collected at installation level and reported following the "Cement CO_2 monitoring and reporting protocol";
- First developed in 2007, the current update provides data for the years 1990, 2000, 2005 and 2006. It covers around 60 % of world-wide cement production outside China, and 35 % including China;
- The current (2006) representativeness of main non -Annex I countries is Brazil 66%, India 47%, China 5% of cement production. This representativeness will progressively increase thanks to CSI active efforts, including involvement in capacity building in main non -Annex I

countries. Nevertheless GNR data is considered as "conservative" since "leading companies" participating will probably have better efficiency than less efficient companies, small companies that stay out of GNR and companies that do not propose CDM projects;

- It is managed by an independent third party[1] collecting data, calculating the benchmarks, and performing additional quality and consistency controls. A Project Management Committee has a supervisory role and is in charge of benchmarks regular publication.

- It provides cumulative frequency distributions, i.e. the percentiles curves, of several key performance indicators for the cement industry.

- All parameters from the GNR database required to apply the methodology are published annually in the CSI "Getting the Numbers Right" booklet, available on the CSI website.

[1] (PricewaterhouseCoopers, PwC),