

Benchmark CDM methodology for the cement sector



World Business Council for
Sustainable Development

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The CDM Pipeline* for the cement industry – November 2008

Source: Point carbon (project carbon manager) 05.11.2008

Project Phase	Number of Projects	Volume of (C)ERs (kCER)	Percent in total (C)ERs
Registered	34	3,166/y	1.4%
Under Registration	15	1,991/y (from which 56% come from WHR)	-
Under Validation	65 (which include 15 Blended cement and 34 WHR)	7,966 (from which 36% WHR, 33% blended cement, 20% raw meal substitution, 11% AF)	-
Rejected	8	-	-
Issued	13	1,538 (total over 4 years)	0.74%

< 0.01% of cement industry annual emissions in non-Annex 1
(conservative as it is based on members of the CSI only)

Facts prove that - with the current methodologies & procedures - the CDM is not an effective mechanism to achieve CO₂ emission reductions in the cement industry



* Projects type: blended cement, alternative fuels (AF), raw material substitution and Waste Heat Recovery (WHR)

Proposal for a Sectoral Benchmark CDM Methodology

Objectives

1. Combine environmental integrity with sound business incentives
2. Bring objectivity, transparency and integrity in the demonstration of additionality, the setting of the baseline and the validation of projects
3. Applicability to programmatic CDMs and compatibility with broader sectoral approaches

Concept

Use of regional, sectoral, “carbon intensity” based benchmarks to:

1. demonstrate additionality
2. calculate baseline scenario emissions

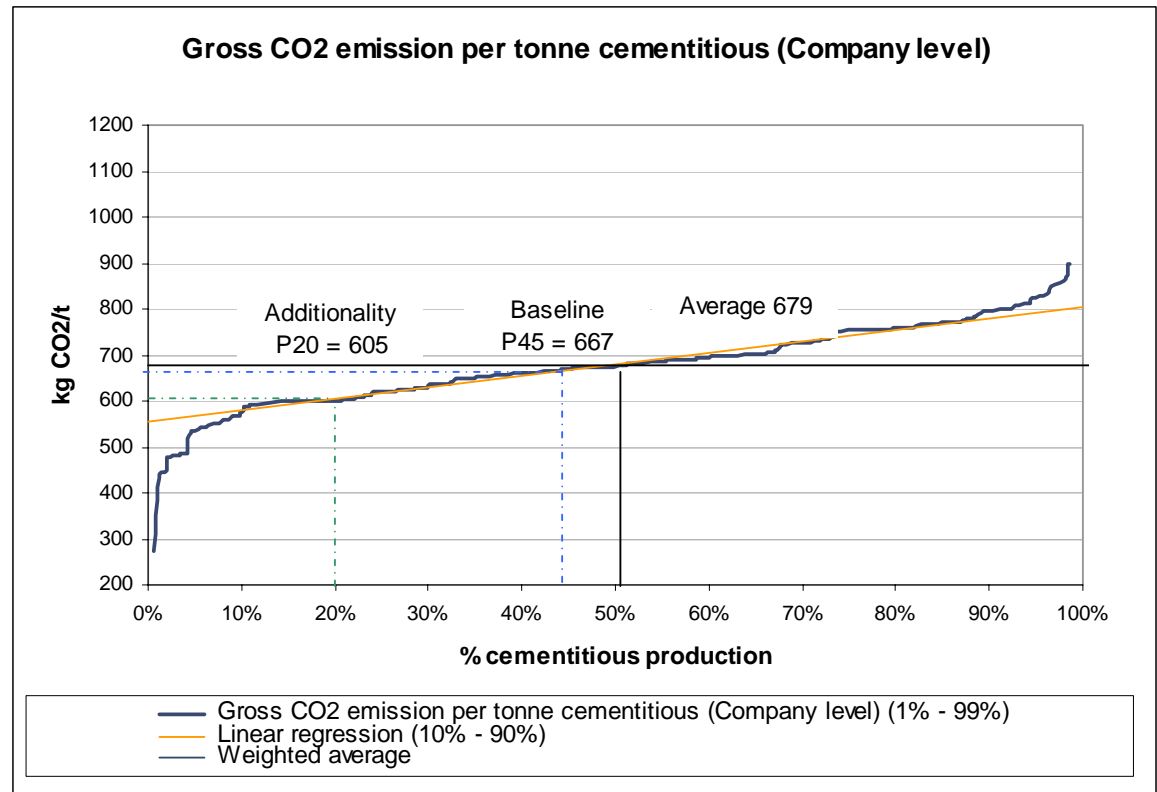


Benchmarks are carbon intensity based

Benchmarks are defined as a fixed percentile of the **cumulative frequency distribution of CO₂ emissions intensity** in the region:

- 20th percentile for additionality
- 45th percentile for baseline

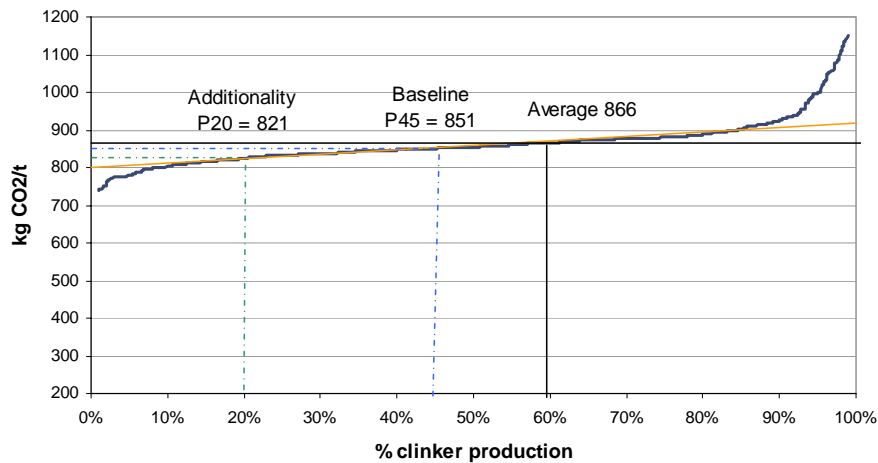
For new plants, also carbon intensity of recently built new plants is accounted for



Benchmarks are carbon intensity based

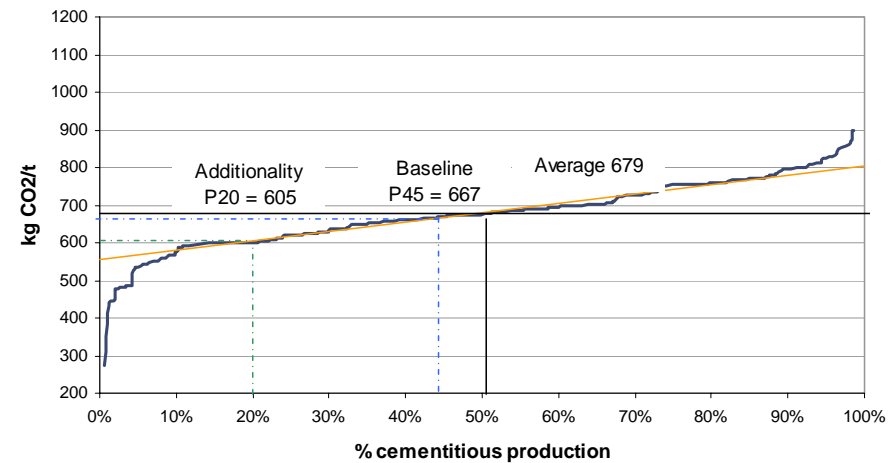
choice of benchmarking unit: per ton clinker or per ton cement⁽¹⁾

Gross CO2 emission per tonne clinker



— Gross CO2 emission per tonne clinker (1% - 99%)
— Linear regression (10% - 90%)
— Weighted average

Gross CO2 emission per tonne cementitious (Company level)



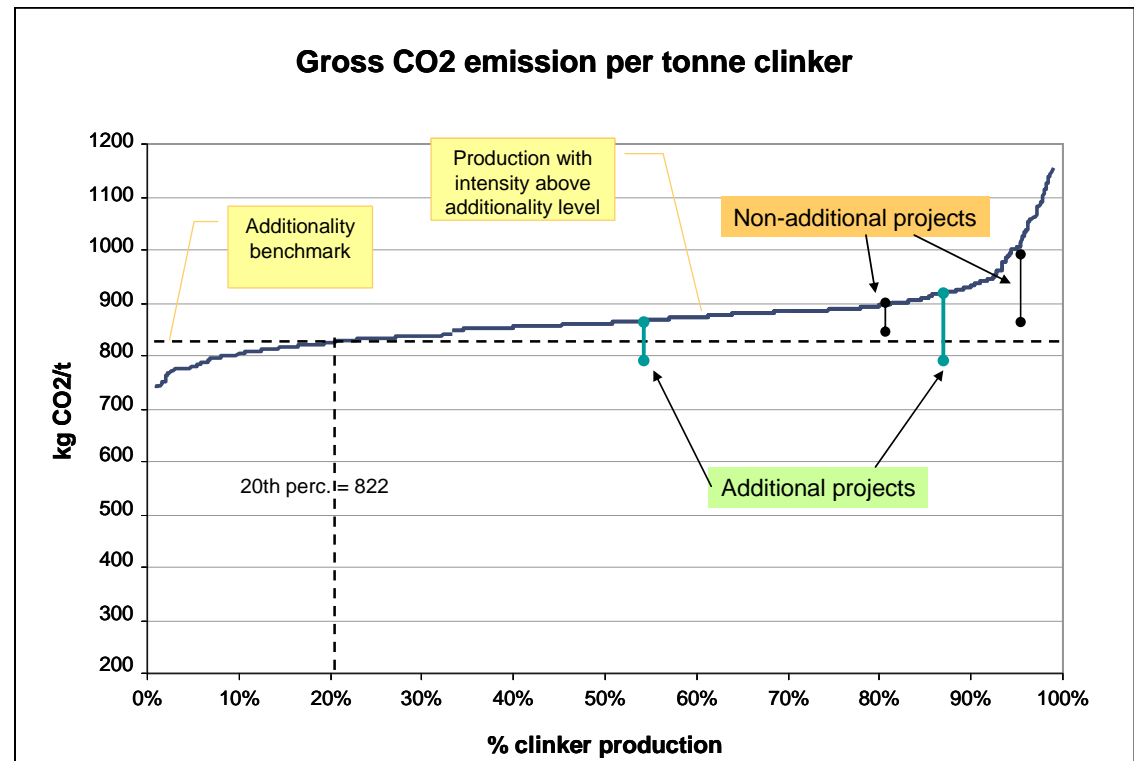
— Gross CO2 emission per tonne cementitious (Company level) (1% - 99%)
— Linear regression (10% - 90%)
— Weighted average



⁽¹⁾ Cement = cementitious product according the WBCSD CSI CO2 Protocol

The Additionality Benchmark represents top performing production, to be beaten by the project

- Level to be beaten for the project to be additional, within the first 5 implementation years
- Set at the starting date of the project
- Assessed with PDD, demonstrated by verified performance



Baseline Benchmark

- Reference for calculation of emissions reductions
- The baseline scenario is the one yielding the lowest emissions between:
 - the project current practice, thus historical emissions intensity, adjusted for autonomous improvement and
 - the common practice emission intensity of the facilities in the region
- It is dynamic, that means adjusted for business as usual improvements

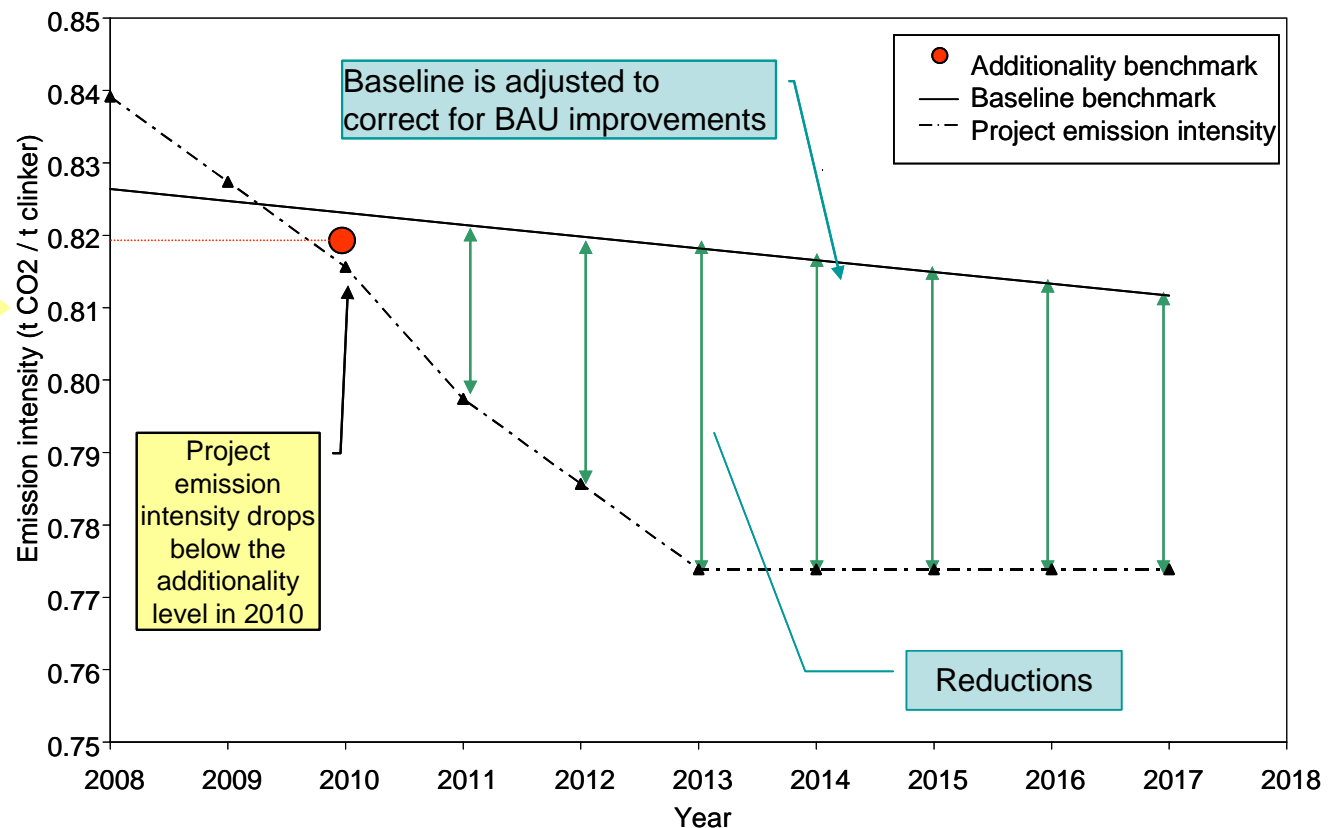


Article 48a: Existing actual or historical emissions, as applicable

Emissions reductions are the difference between baseline and project emission intensity, multiplied by production volume

An example – existing clinker production plant:

Additionality is reached in year 3 from project starting



Leakage:

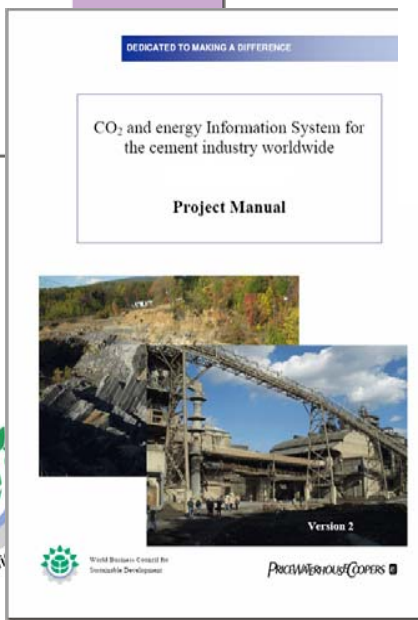
5% of emission reductions



The “Getting the Numbers Right” system is the reference source for benchmarking data



- WBCSD – Cement Sustainability Initiative (CSI)
- WRI Cement GHG Protocol + Verification
- World-wide cement production related CO₂ and Energy Performance Information: 23 indicators at installation and company level on production, CO₂ emission, thermal & electric energy, fuel mix, etc., ...
- Coverage: 35% worldwide production (60% outside China), 66% Brazil, 47% India, etc.
- Years now available: 1990, 2000, 2005, 2006



**Benchmarks published
on the CSI website**

Strengths of the benchmarking methodology

Objectivity, Simplicity Predictability

- Apply a Benchmarking concept, both for Baseline and Additionality

High quality of reference data for BM calculation

- BM based on local/ global performance indicators, sourced from the Cement Industry Database
- The methodology applies to plants providing information to the Cement Industry Database

Overarching methodology

- Applicability to new and existing plants
- Clinker and Cement
- Combining all reduction actions

Environmental integrity

- Additionality: Ex ante assessment, Ex-post demonstration
- Dynamic baseline



Actions so far & next steps

Actions so far

- Drafted by Ecofys Netherlands
- Tested against registered projects
 - fair balance between the level of “free riders” and “lost opportunities”
- Received feedback from stakeholders
 - International cement dialogues (e.g. India, China)
 - World Bank
- Submission to authorities through informal process (*informals of EB 44 meeting*)

Next steps

- Official submission of the methodology to Meth Panel with PDDs