A GLOBAL SECTORAL APPROACH

First Steps for The Cement Sector

…early results from the Global GNR Project

Michael L. Rynne
Group Manager – Energy and Climate Change
Holcim (New Zealand) Ltd

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What is Holcim?

Holcim world-wide

- > 70 countries
- ~140 Mton cement
- ~95 Mton CO_2
- ~17 % EU
- ~23 % other Annex-1
- ~60 % non-Annex-1

Holcim EU ETS

- 10 countries
- 27 installations
- ~16 Mton EUA

Holcim other A-1

- use learning from EU ETS in policy debate

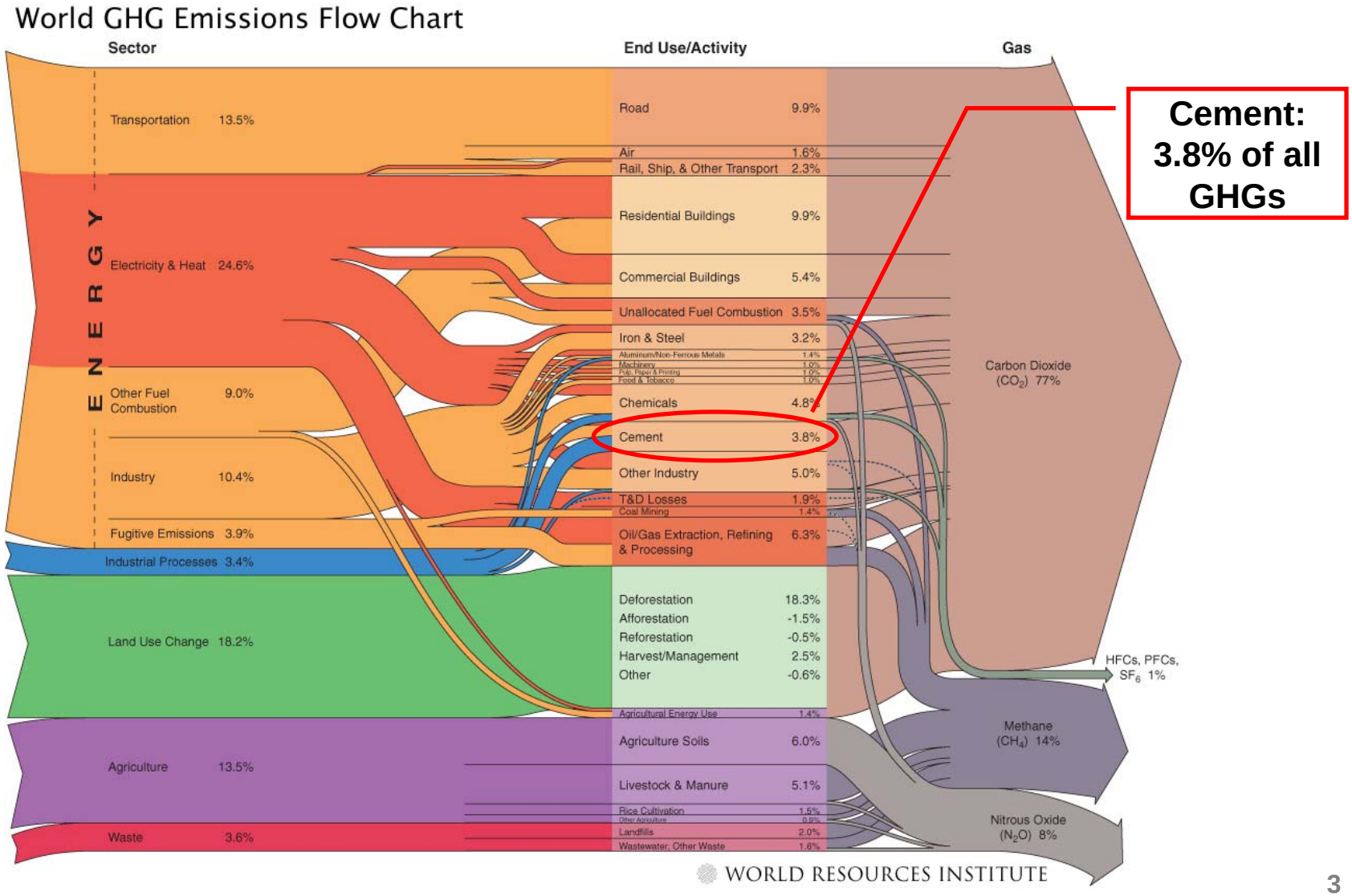
Holcim CDM

- > 8 countries
- >11 projects
- > 1 Mton ER
- 3 stopped
- 3 registered
- 2 in validation
- 3 in preparation

FTSE4Good

Holcim

The Drivers for Sector Action….



Cement: 3.8% of all GHGs

The Drivers for Sector Action….

What else?

- Investment horizons are *very* long - >50 years

  …..climate change also has a very long horizon!!

  - Can't afford to ignore the risk.
  - Community acceptance is now vital for long-term presence
- Kyoto Protocol is an 'asymmetric' market force
  - Non-Annex 1 countries have a market advantage – and the technology to take that advantage (trade exposure).

….and Threat and Opportunity!

The purpose of global climate policies is to reduce global energy consumption and CO_2 emissions while fostering social and economic development.

The challenge for the cement industry:

How to reconcile the development of infrastructure for a growing population with a reduction of global CO_2 emissions and energy consumption?

Climate Change – Cement Sector Responses so far

- Voluntary agreements (eg. NZ VGA 1996)
  - modification of behaviour
- Emissions Trading (EU ETS….)
  - modification of business
- CDM - new business investment
- APP (‘AP6’) - the technology solution

…..and, now

- **Sectoral Approach - *global* emissions trading**

WBCSD Cement Sustainability Initiative (CSI)

- Ash Grove Cement (USA)
- Cemex (Mexico)
- Cementos Molins (Spain)
- Cimpor (Portugal)
- Cimentos Liz (Brazil)
- CRH (Ireland)
- Grasim (India)
- Gujarat Ambuja (India)
- HeidelbergCement (Germany)
- Holcim (Switzerland)
- Italcementi (Italy)
- Lafarge (France)
- Portland Valderrivas (Spain)
- Secil (Portugal)
- Shree Cement (India)
- Siam Cement (Thailand)
- Taiheiyo (Japan)
- Titan (Greece)
- Votorantim (Brazil)

Founded 2000

World Business Council for Sustainable Development

- Global cement CO_2 monitoring & reporting protocol (the "*GHG Protocol*")
- Corporate disclosure of emissions and targets
- CO_2 inventory verification as from 2006
- Benchmarking methodology for CDM
- Global cement industry network
- Sectoral Approach
- "Getting the Numbers Right" (GNR)

First step to a Sectoral Approach

Get the numbers!

You can't manage what you haven't measured.

What *exactly* are the emissions from the sector?

- globally?
- regionally?
- nationally?
- at the plant?

CSI: “Getting the Numbers Right” – The GNR Project

- World-wide Cement Industry CO_2 and Energy data and information system.
- 23 Performance indicators at installation and company level on production, CO_2 emission, thermal & electric energy, fuel mix, clinker/cement ratio, technology, …
- Global and regionally differentiated benchmarking.
- To be used in Flexible Market Mechanisms such as ETS, CDM, JI.
- From CSI member companies, expanding to non-member cement organizations.
- Covering ~ 50 % global cement production outside China.

(….and, founded and chaired by Holcim!)

The GNR Project

With GNR, the cement industry can now progress from “guestimates”, over data, information to knowledge and policy

Objective of GNR: (CSI CEO’s decision October 2006)

“Develop representative statistical information on the energy and CO_2 performance of clinker and cement production, worldwide and regionally, to serve the need of internal and external stakeholders”

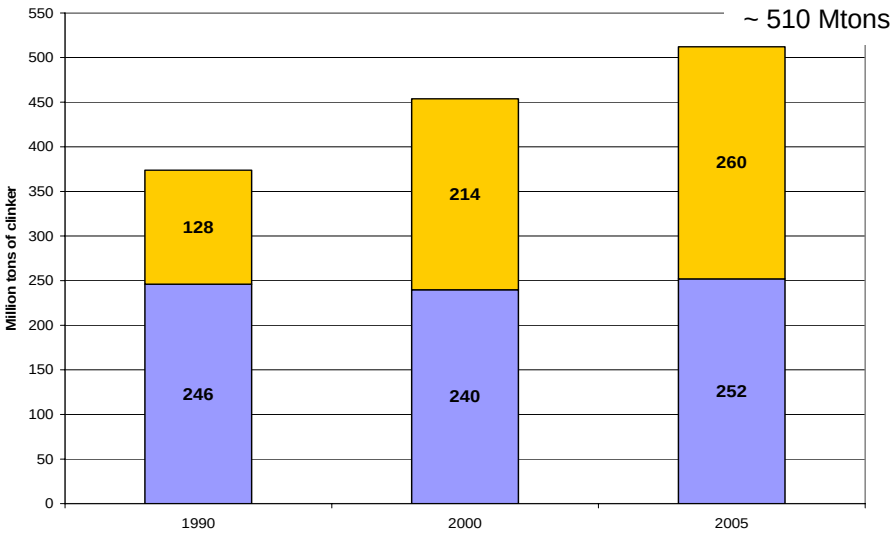
GNR: Status Report - October 2007

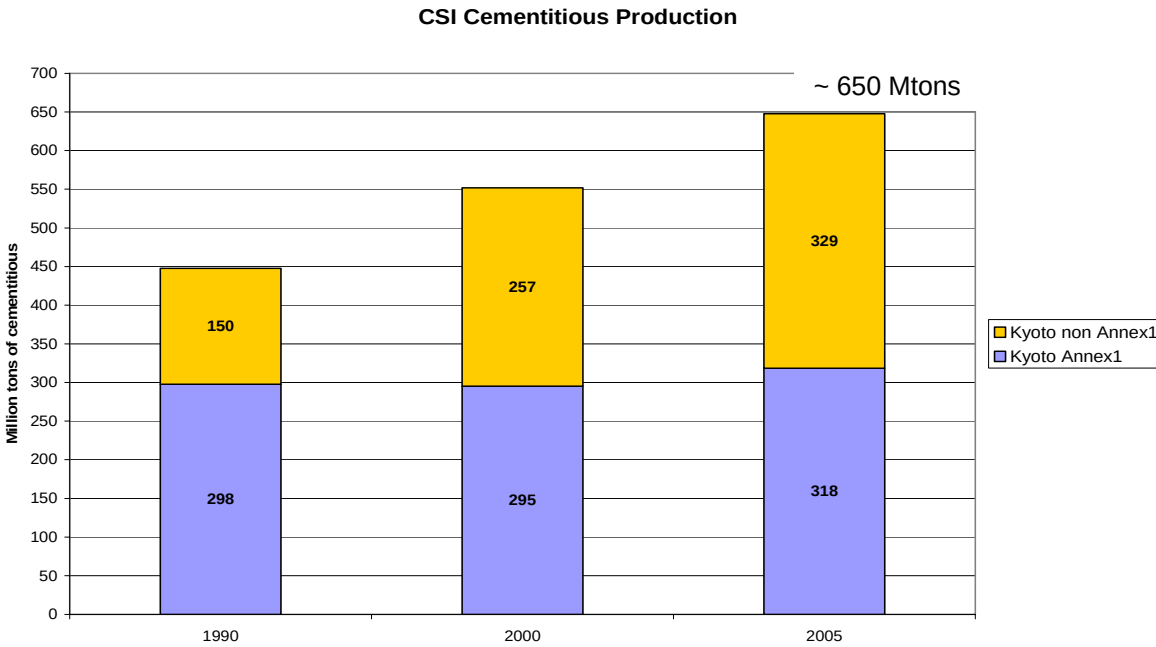
- *All* CSI companies now participating, with information on *all* their installations world-wide
- Contracts have been signed, the inventory system has been developed, the data have been transferred and passed quality controls
- > 700 installations

  > 600 million ton cement

  ~50 – 60 % of cement production outside China
- First results have been discussed. Some corrections & completions in progress. Report is in preparation. Policy analysis embryonic.
- Expansion to non-CSI organizations has started.

16 CSI companies - 1990 to 2005: clinker & cementitious production stable in Annex-1 region, doubled in non-Annex-1

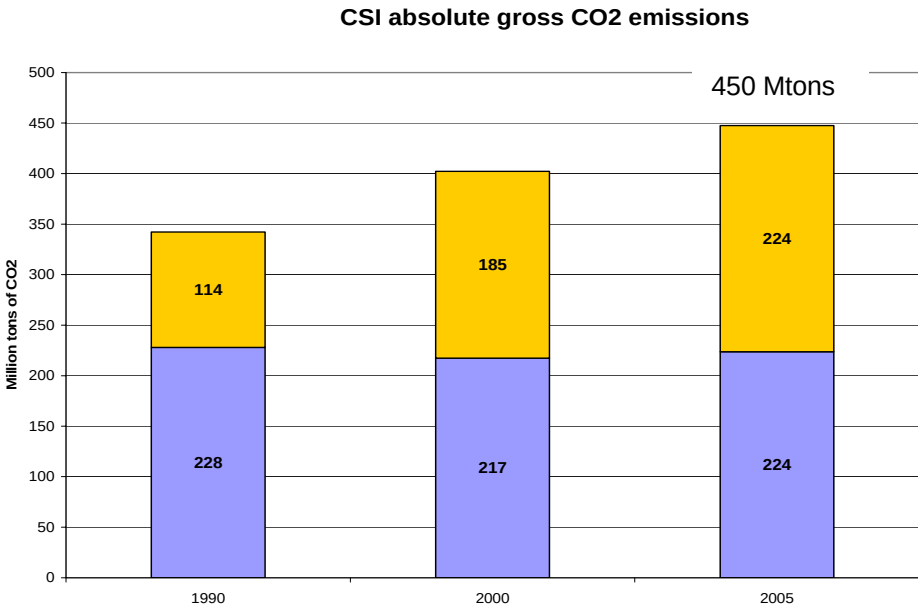


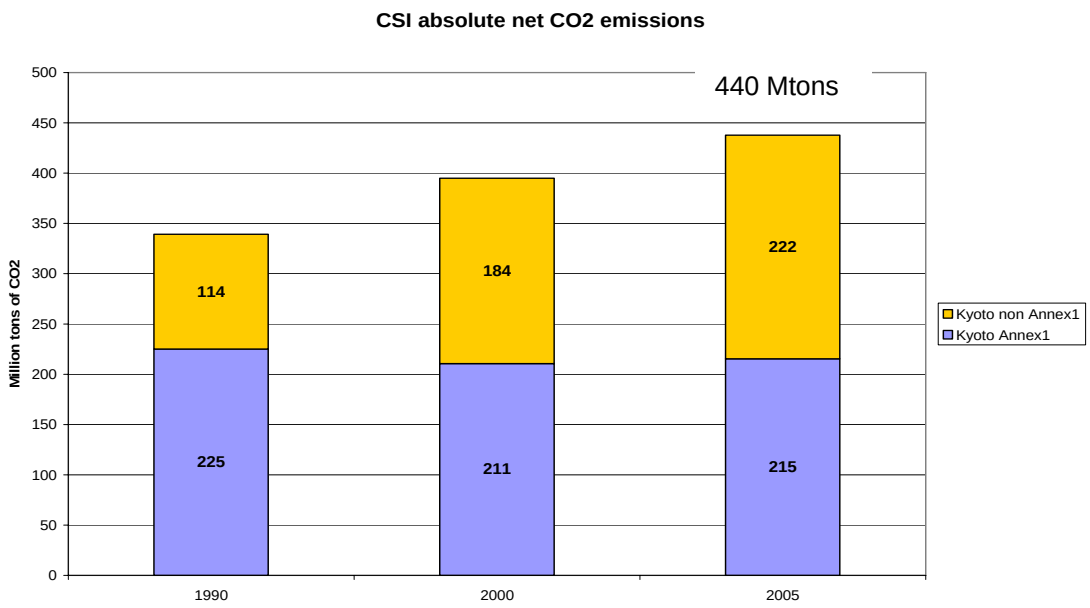


The three years are at equal consolidation, like for like and evolution thus reflects organic growth

	1990 – 2005 production growth	
	Clinker	**Cementitious**
Annex-1	**+ 2,4 %**	**+ 7 %**
Non-Annex-1	**+ 104 %**	**+ 120 %**

Absolute CO_2 emissions stable in Annex-1 and 5% annual growth in non-Annex-1. Only small impact from waste as a fuel





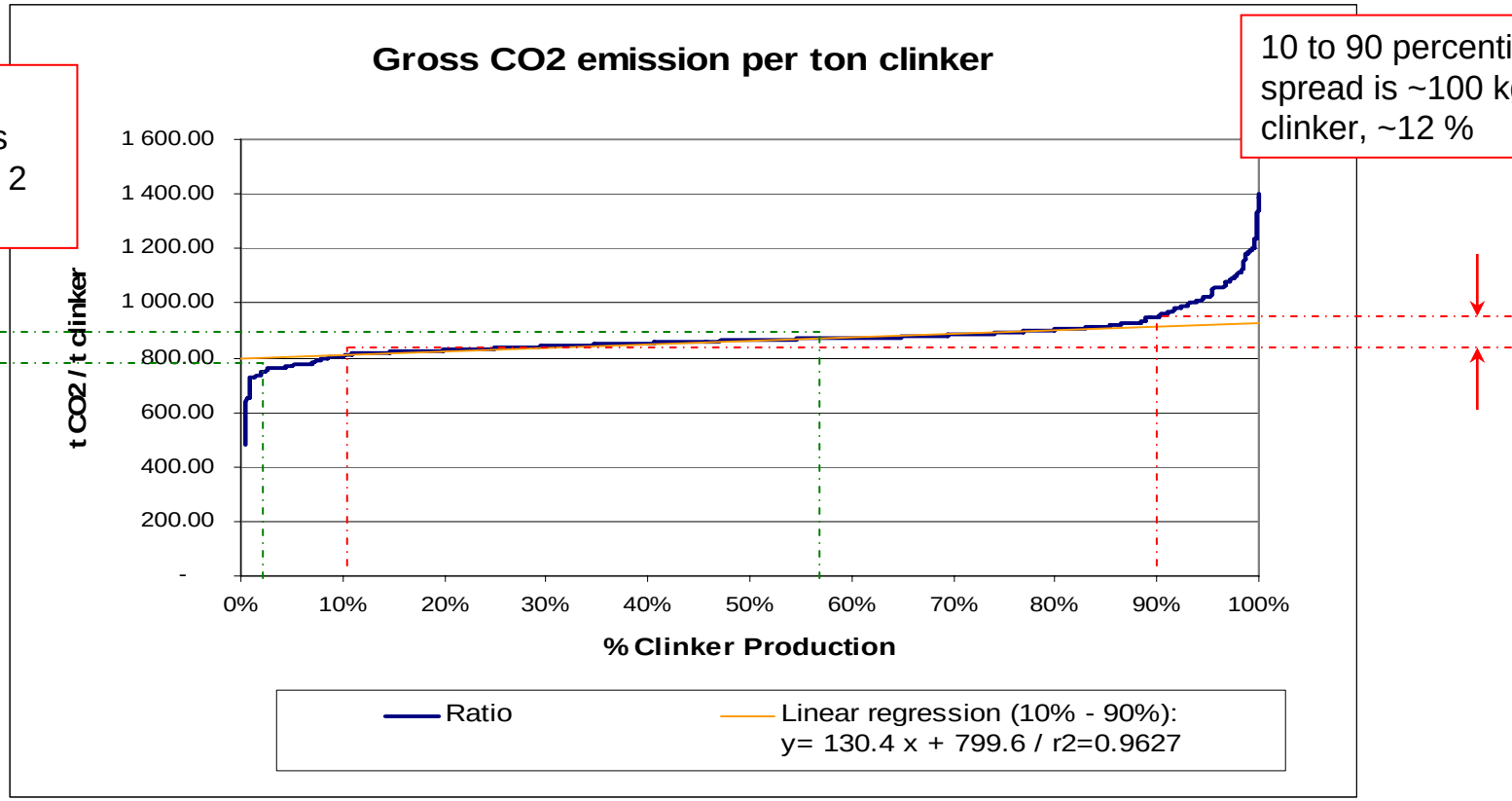
	1990 – 2005 CO_2 emissions growth per year	
	Gross	Net
Annex-1	~ 0%	- 0,3%
Non-Annex-1	+ 4,6	+ 4,5

Some (Early) Analysis Outputs

Preliminary figures!

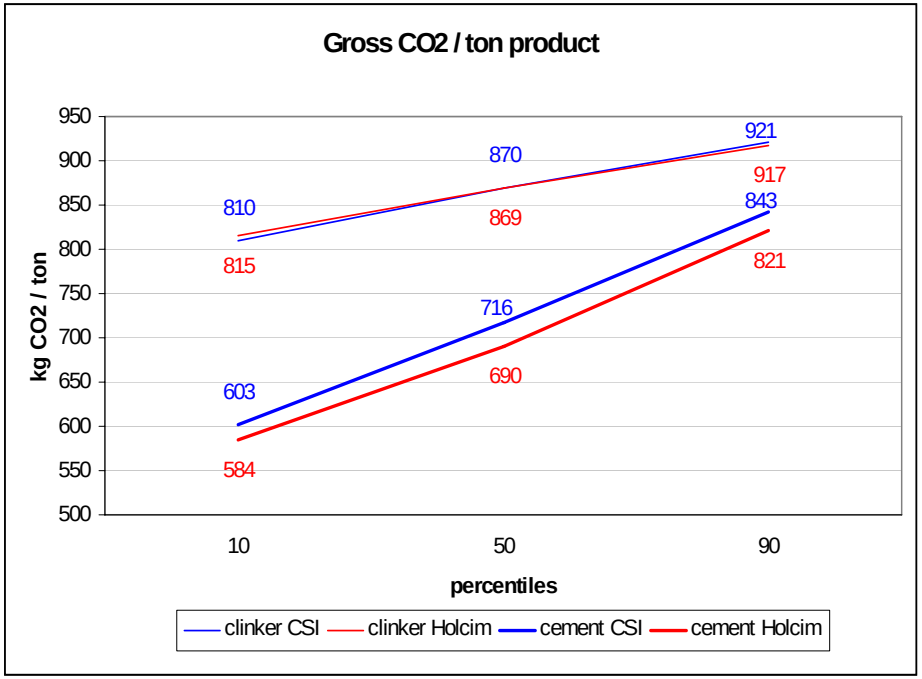
A 10 % reduction requirement would require global average gross CO_2 / ton clinker to equal the current global 2 % best!

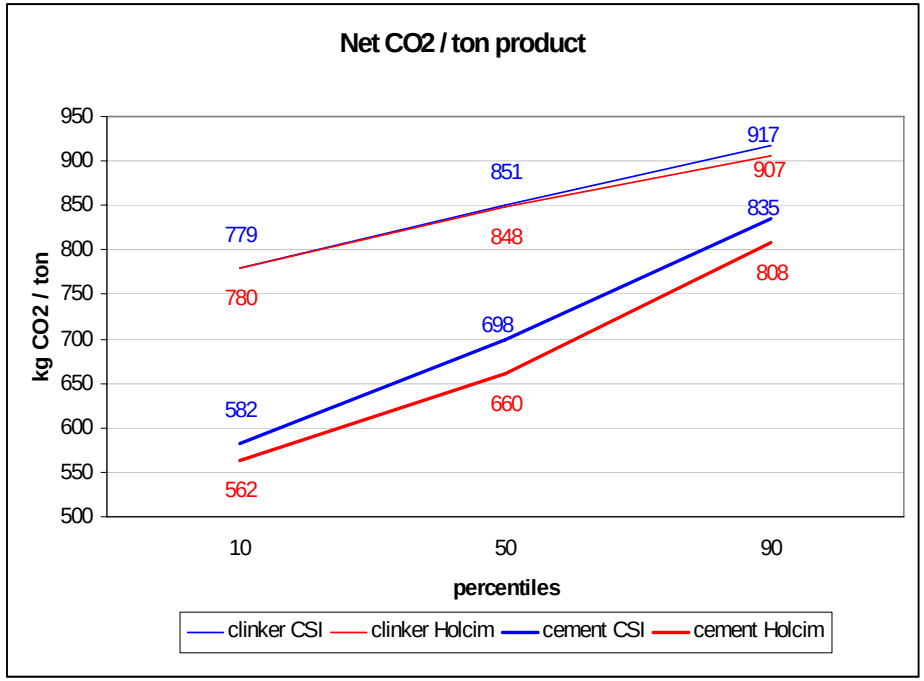
A 10 % reduction requirement brings the average to the 2 % best in class



10 to 90 percentile spread is ~100 kg/ton clinker, ~12 %

CSI – Holcim(1) CO_2 / ton clinker and per ton cement product





(1) All Holcim plants 100% consolidated (*not* pro rata to share holding!)

- 100 %: Per ton clinker Holcim equal to CSI
  Proportional: Holcim clinker is ~3 % worse than CSI
- 100 %: Per ton cement Holcim ~ 3 to 5 % better than CSI
  Proportional: Holcim ~7 to 7,5 % better than CSI

- Energy effect: ~+- 6 % range
- AFR effect: ~ 0.5 – 4 % range
- MIC effect: ~9 - 25 % range

Preliminary conclusions

- Technical potential to improve efficiency per ton clinker is very small:

  ~0,5 – 1 % with existing installations

  ~6 to 10 % with closures and new kilns

  Only ~4 % of kilns in the world comply with EU Best Available Technology, but effect on CO_2 emission is limited

- Technical potential to improve efficiency per ton cement is around 15 to 20 % provided sufficient substituting materials are available

- With this limited technical potential and expected growth of demand for cement, a reduction of absolute emissions is VERY difficult, and highly challenging in Europe

…and after the GNR….?

Current ideas….

General Principle of Emission Reductions and Social & Economic Development

Efficiency * Incentive = Result

- Industry
- Transport
- Buildings
- Appliances
- Agriculture

Efficiency in production, products, consumption

X

Policy measures to stimulate market and behaviour

=

Absolute emission reduction, economic & social development

Efficiency targets and policy measures should be tailored for each sector

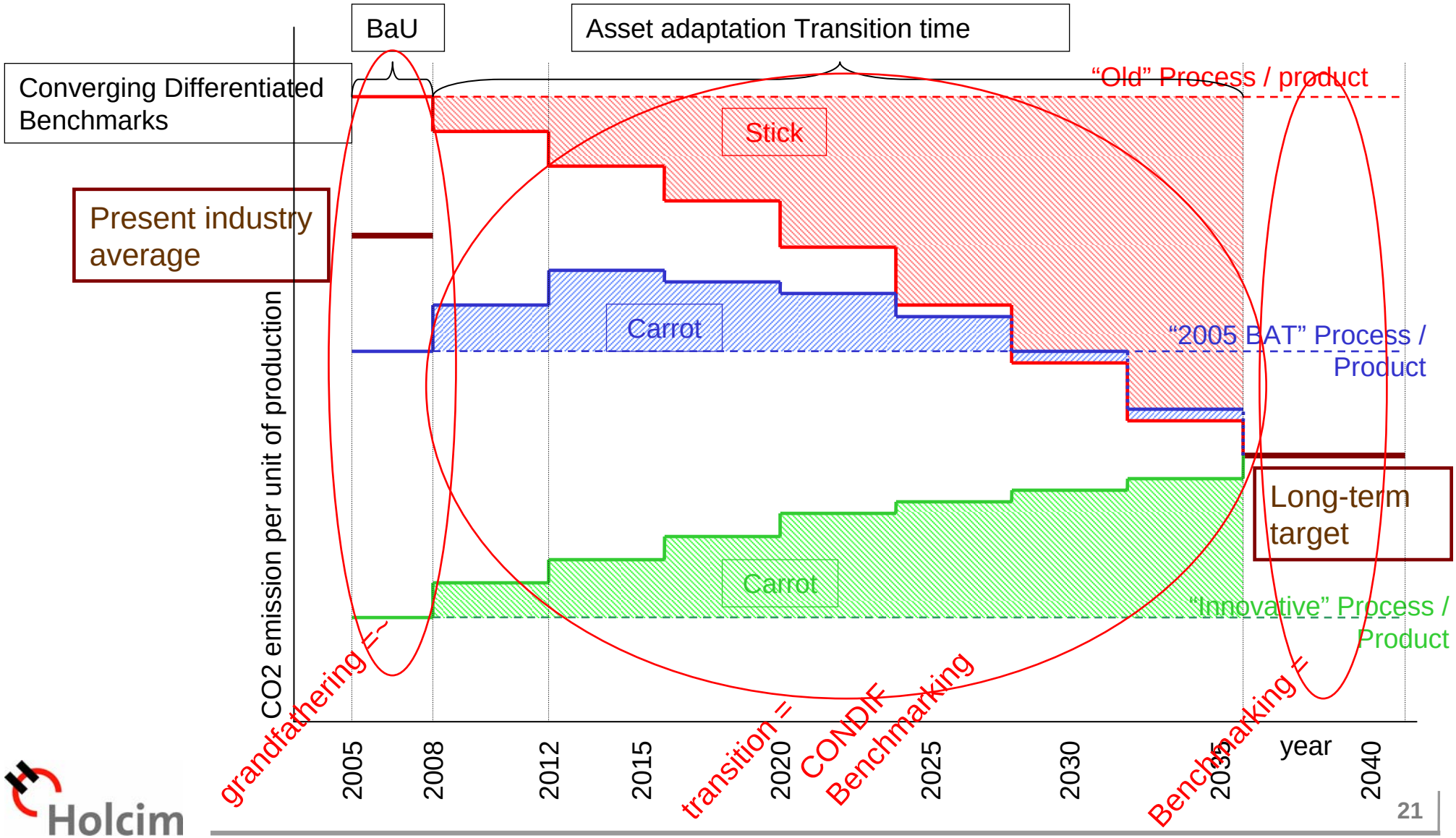
General Principle of Sectoral Approach

Efficiency		Incentive		Result
Define – per sector - long term Efficiency Standards and differentiated, converging paths towards these targets	X	Define – per sector - Implementation Mechanisms, Differentiated per region (industrialized, developing, least developed economies)	=	UN sets very long-term (~50 years) ambition for GHG reduction needed to prevent dangerous climate change

Sectoral Approach (Cement)

Efficiency		Incentive		Result
Define – per sector - long term Efficiency Standards and differentiated, converging paths towards this target	X	Dual Track Emissions Trading Annex 1: Full Allowance Trading Production and Import Non-Annex 1: Allowance Selling Production	=	

Long-term Converging Differentiated Benchmarking



Making it Work…

So, what will a successful sectoral approach need to look like for the cement industry….?

- Intensity (performance)-based
- Transparent (no free-riders!!)
- Substantial (global) coverage
- Emissions-trading (dual-listing?)
- Substantial emissions reduction
- Recognition (government buy-in)
- Punishment for free-riders (border adjustments?)
- …..