



The Impact of Global Warming on the Concrete Industry

Stuart Frazer – Frazer Lindstrom Limited

Climate
Change

Energy
Sector

Strategic
Advice

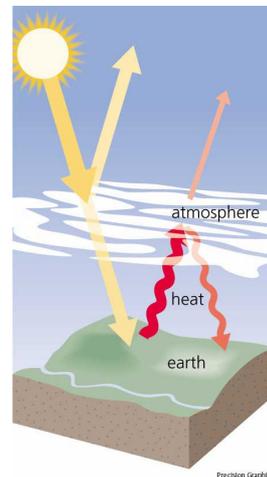
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The Impact of Global Warming

- What is it?
- How are the cement and concrete industries affected?
 - Part of the problem => solution
 - Need for adaptation
- The policy debate
- What to watch for in the future...

What is Global Warming?

- Life on earth depends on the greenhouse effect
- The question is are we changing its magnitude?

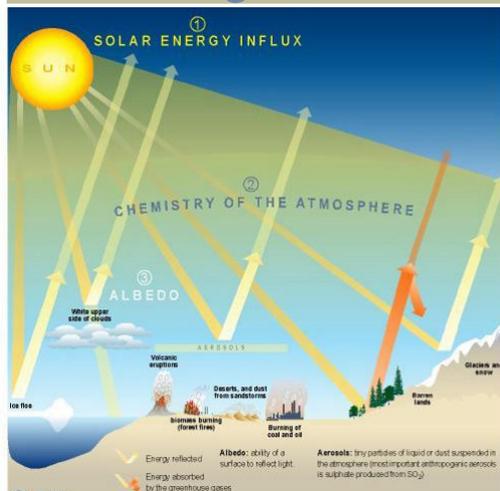


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Three key drivers of the greenhouse effect:



1. Solar Influx

2. Chemistry

- The role of Greenhouse Gases (GHG); **CO₂**, CH₄, N₂O, SF₆, PFCs, HFCs

3. Albedo Effect

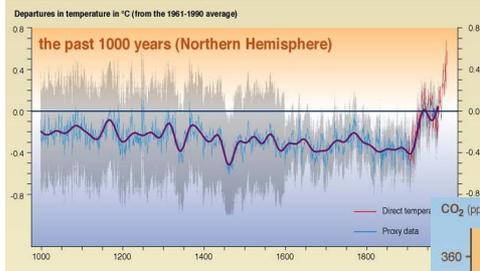
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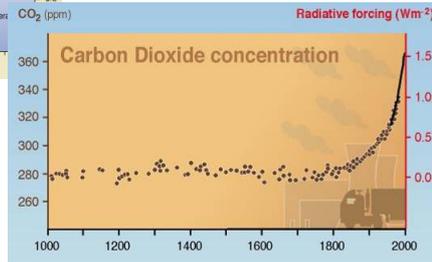
The Climate Scientist's View

Temperature



“There is strong evidence of a correlation between temperature And CO₂ emissions”

CO₂



Source IPCC

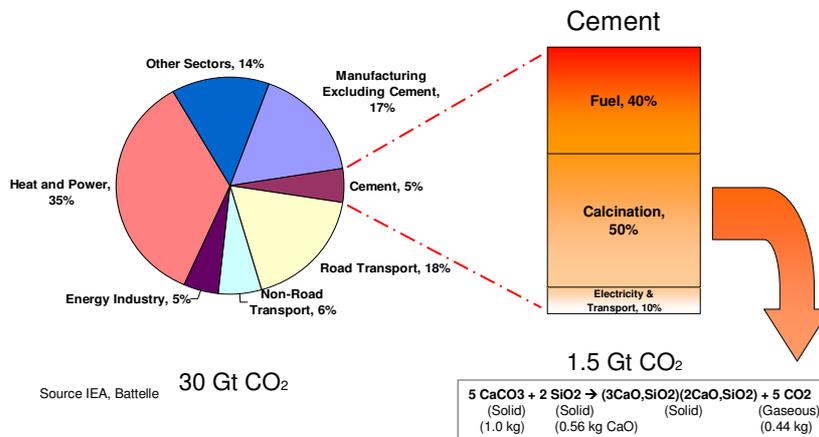
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Cement's Role? 5% of global man-made CO₂

Global CO₂ Production



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The Dilemma

Concrete is a fundamental construction material
BUT
Making cement (a component) makes a nearly
equal quantity of CO₂ a greenhouse gas...

Perspective Check:

Cement is only one
component of concrete
~11% by mass.

But not an excuse for
the cement industry to
not act on greenhouse
gas emissions.



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International Cement Industry Initiatives

- **Cement Sustainability Initiative**
 - >50% of cement manufacturing outside China
 - **Measure to Manage:**
 - GHG Protocol developed (WBCSD/WRI)
 - Common accounting reporting standard
 - Firms make public their baseline emissions
 - Firms develop CO₂ mitigation strategy and publish targets and reports
- In EU cement industry is in Emissions Trading Scheme (ETS)
- Kyoto CDM projects to reduce emissions

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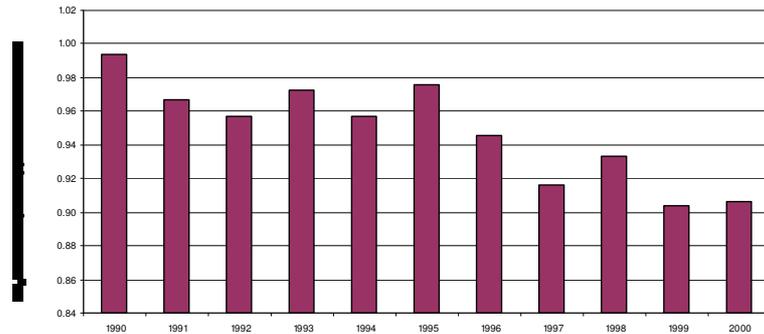
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New Zealand Industry Actions

- Industry (GBC & Holcim) Voluntary Agreement with NZ Government to reduce GHG emissions

Trends in CO₂ Emissions per Tonne of Cement for the New Zealand Cement Industry



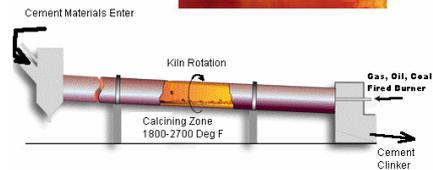
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New Zealand Industry Actions

- Energy Efficiency Improvements
- Reduced carbon content “alternative” fuels
 - Waste oil
 - Wood waste
- Reduced clinker content
 - Limestone
 - Slag
 - Fly ash



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Where to next?

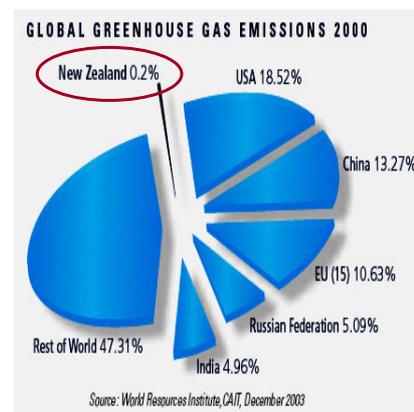
Domestic & International Policy

Uncertain Times for the Cement Industry in New Zealand

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New Zealand's Kyoto Obligations

- New Zealand Ratified 19th Dec 2002
- Obligation to:
 - reduce its 2008 – 2012 GHG emissions to 1990 level or
 - take responsibility for excess emissions



Progress to Date (2002-2005)

New Zealand's Old Domestic Policies



Agriculture

- Pastoral GHG Research Consortium



Plantation Forests

- NZ Government retains sinks (post 1990 planting)
- Takes on deforestation liability up to 21MtCO₂e cap



Indigenous Forests

- Permanent Forest Sink Initiative (PFSI)



Energy, Industry and Transport

- Carbon Tax from 2007 at NZ\$15/tCO₂e
- Negotiated Greenhouse Agreements (NGAs) to protect industry facing international competition

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The NZ Policy Context – All Change?

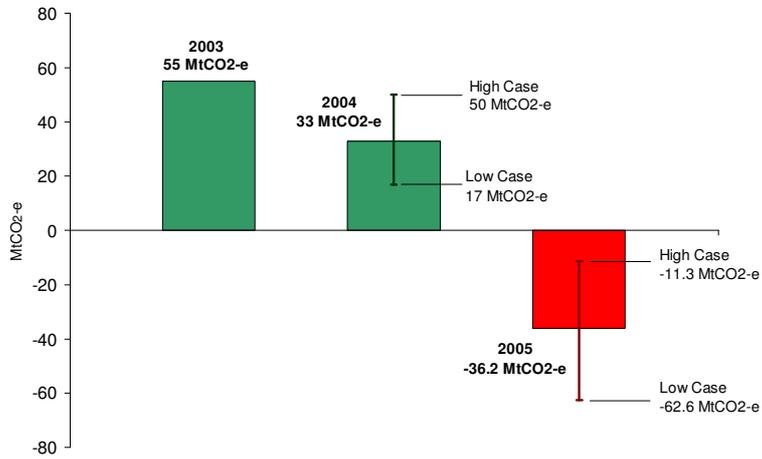
- Both Golden Bay Cement & Holcim were seeking Negotiated Greenhouse Agreements (NGAs)
 - Binding commitments to reduce emissions intensity
 - In return get exemption from carbon tax

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Domestic Uncertainties Projected Balance by year of forecast



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The 2005 Election

Climate Change

- Kyoto? - Yes
- Carbon Tax? - Yes
- Emissions Trading? - Likely

- Kyoto? - Maybe
- Carbon Tax? - No
- Emissions Trading? - Likely



Authorised by Steven Joyce, 14th Floor, 57 Willis Street, Wellington

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Climate Change Policy Review June – November 2005

- Key Outcomes:
 - Revisit the “downward path by 2012 goal” now unrealistic
 - Cost effective domestic emissions reductions will be small
 - More cost effective to purchase emission units offshore
- Report Recommendations flowed into cabinet decisions...

Cabinet Decisions

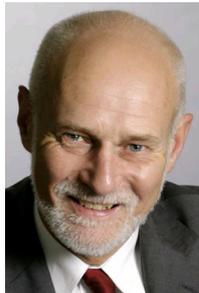
Cabinet Decisions announced 21 Dec 2005:

- Still committed to meeting Kyoto obligation
- Carbon Tax scrapped
- Programmes to be developed include:
 - Alternatives for industry include
 - voluntary agreements
 - narrow based tax with NGA type arrangements
 - emissions trading
 - Forestry policy options to give right signals
 - International unit purchasing strategies
 - Incentivising renewables / disincentivising fossil fuel electricity generation.
 - Need for future shape of a PRE programme

Since Then?

- 4th July 2006 announcements
 - New Zealand Energy Strategy
 - National Energy Efficiency & Conservation Strategy; and
 - Climate Change Work Programmes;
- But no details/substance/timeline

Win Hearts & Minds Mode



Hon Pete Hodgson

- Need a mandate from the voters for action.
- Election did not deliver this...

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Win Hearts & Minds Mode



Hon David Parker



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International Policy

What happens after 2012?
– the end of the first Kyoto Commitment Period?

AP 6

- USA, Aus,
China, India,
S Korea,
Japan



Kyoto 37

- EU, NZ,
Japan...
(Canada)

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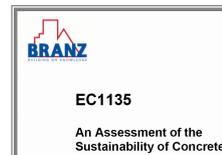
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The Way Ahead

- Plan for Climate Change – Adaptation
 - Rising sea levels ; storm drain outlets heights?
 - Wind loadings?
 - Drainage requirements?
- Plan for a price on (marginal) GHG emissions
- Be open to reduced clinker content cement?

The Way Ahead (contd.)

- Support the BRANZ work on the sustainability of concrete (report of May 2006)
 - essential for defence of concrete versus substitutes.
- OPPORTUNITIES also!
 - Quarry land potential for planting “Kyoto forests”
 - R&D on *new* concretes – insulating, high strengths etc. (attack substitutes in their strong areas)
 - Fleet fuel reductions
 -



Stay Positive

- Climate Change is a potential threat to the industry but the industry can adapt:
 - NZ is not alone in the policy conundrum
 - Competing building materials face similar threats (steel, aluminium, laminated timber)
 - NZ's cement manufacturers are proactive and are staying engaged on Government policy
 - Advocacy of concrete's benefits as a building material, e.g. insulation properties, need to be loud and clear.

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Our unique combination of operational and strategic business management matched with an engineering background allows us to understand our clients' needs.

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Latest News
New Zealand Energy policy announcements 4 July 2006 »
Climate Change policy development announcement 4 July 2006 »

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