



GRAYMONT

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New Zealand Productivity Commission
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Submission on the New Zealand Productivity Commission (2017) Low-emissions economy: Issues paper

Graymont would like to thank the Productivity Commission for the opportunity to present its views on the recently released Low-emissions economy: Issues paper.

Graymont recognises the challenge climate change presents and supports New Zealand taking action to mitigate its impacts.

As an emerging global leader in the supply of lime and limestone products, Graymont serves major markets throughout the United States and Canada and has extended its reach into the Asia-Pacific region. Graymont also has a significant investment in Grupo Calidra, the largest lime producer in Mexico. Graymont is professionally managed and family owned, the company has roots stretching back more than 65 years.

On the 1st of July 2015, Graymont purchased the assets of New Zealand's McDonald's Lime and Taylor's Lime. These operations are located at Otorohanga and Te Kuiti in the North Island and Dunback, Otago in the South Island. Through this acquisition, Graymont became a participant in the New Zealand Emissions Trading Scheme (NZ ETS) for the production of burnt lime.

Lime is one of the most trade exposed industries globally and this is recognised locally through the NZ ETS where the production of burnt lime is an eligible activity for industrial allocation.

In respect of greenhouse gases, Graymont does its utmost to meet the requirements in the respective jurisdictions where we operate and work proactively to reduce our GHG emissions intensity.

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Our main product, lime, is a versatile industrial chemical that is indispensable for many industrial processes and applications. Uses range from the manufacturing of steel, glass and paper to construction and agriculture.

More importantly, lime products are also a big part of the solution for a multitude of crucial environmental applications — everything from water and sewage treatment to acid rain reduction, environmental remediation and power generation. Simply put, lime has increasingly become a product of choice for addressing complex environmental issues and challenges, both naturally occurring and man-made. In some applications lime is known to re-absorb carbon dioxide.

The Issues Paper (p1) uses the term:

“the shift from the old economy to a new, low emissions economy”.

Graymont suggests this is unhelpful as it infers a predetermined outcome that existing industry (old) will not be part of the new low emissions economy. In the case of lime it is envisaged that demand for lime will endure for many more decades and, as highlighted above, the range of applications is broadening.

We therefore ask that the Commission is cognisant of the longer term role of lime manufacturing. The “new low emissions economy” needs to include policies to support such industries and in the interim period, until carbon pricing is internationally widespread, address carbon leakage.

Graymont’s detailed submission is attached:

- Our response draws on the experience of our local management team as well as Graymont’s global view.
- Graymont has elected to only answer the specific questions where Graymont believes it can most add value.

If there are any questions on this submission my contact details are provided below.

Yours sincerely,



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(2017) Low-emissions economy: Issues paper

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Submission Points

Q1 How can the Commission add the most value in this inquiry?

Graymont supports the Commission's listing of areas where it can best add value:

The Commission considers that it can add the most value in this inquiry in the following ways:

- providing an independent and robust analysis of whole-of-economy trade-offs based on sound economic analysis;
- developing ways to assess the benefits and costs of different pathways for New Zealand to transition to a low-emissions economy (rather than, for example, providing more or different scenarios of what the future might look like);
- taking a longer-term perspective in identifying policies and institutions that will be required to achieve a low emissions economy that enhances productivity and wellbeing;
- describing what a low emissions economy will mean for the many different businesses and households in New Zealand;
- developing conceptually sound but doable recommendations for change; and
- bringing its expertise and understanding of innovation, and the development, adoption and diffusion of new technologies, in the New Zealand economy to this task.

Source: Issues paper, p4

Further to this list, Graymont suggests that the Commission should aspire to produce the definitive reference resource that educates and informs policy makers and stakeholders of the challenges and opportunities ahead, that is New Zealand specific, and that is widely accepted as being a sound foundation for policy decision making.

We recommend that the Commission takes full account of the following points:

- In the stationary energy and industrial processes sector, New Zealand's emissions profile is skewed with a relatively small number of large emitters, a good example being our lime facilities. This has implications for any options assessment:
 - Modelling techniques and international studies of the assessment of the impacts of climate policy tend to assume a % reduction in output in response to an increase in carbon price, as might be expected with a multitude of production facilities;
 - In New Zealand's case, with few/single facilities facing international competition, the impact may be more abrupt – stay open or close. It is therefore recommended that a more focused New Zealand activity specific evaluation approach is required for such assets.
- It is understood that the focus of the Commission's inquiry is on domestic emission reduction however where this is likely to result in emissions leakage and potential increased global emissions, this should be clearly highlighted and evaluated.

- The assessment work should be sector / subsector based and should identify the responsiveness to emissions pricing:
 - Price elasticity of each sector – where inelastic alternate policies may be required; and
 - Asset life and value – for long lived assets such as industry, the speed of response is slower and need for policy certainty to enable investment is increased. The risks of premature asset closure should be evaluated.

For Graymont, energy efficiency and emissions intensity reduction are already key management drivers.

Q2 *Chapter 3 of this issues paper mostly looks at ways to reduce emissions directly at their source. What other approaches would help identify opportunities to effectively reduce emissions?*

The assessment of “*opportunities to effectively reduce emissions*” should not just focus on domestic emissions but instead recognise carbon leakage risks and the potential for increased global emissions.

Q10 *In addition to encouraging the use of electric vehicles, what are the main opportunities and barriers to reducing emissions in transport?*

Graymont uses diesel in its quarrying activities and also in product distribution. Wide spread availability of bio-diesel (that is compatible with large machinery and trucks) may provide emission reduction opportunities.

Q11 *What are the main opportunities and barriers to reducing emissions from the use of fossil fuels to generate energy in manufacturing?*

Graymont’s manufacturing sites already have in place the energy efficiency technologies that are quoted in the Issues paper and the assessment of options for the calcination of lime is valid (refer extract below).

Opportunities and challenges for reducing emissions

Better energy efficiency (at the same time raising productivity) and a shift away from fossil fuels are the main options for reducing emissions from energy used in industry.

Manufacturers could improve energy efficiency through employing technologies such as:

- integrated control systems, using sensors to adapt process conditions;
- sub-metering (monitoring energy used by specific equipment or parts of a plant); or
- better flue-gas monitoring for boilers and dryers.

Yet the benefits of lower emissions will not materialise without substantial further innovation and commercialisation effort (ICF International, 2015).

Broad scope exists to switch from fossil fuels to renewable energy to generate process heat...

Yet providing adequately high process heat from renewable energy is a major challenge for some manufacturing. The calcination of lime to make cement, for example, requires very high heat (in excess of 850°C), making the use of electricity impractical. Biomass, waste and other renewable sources can produce high process heat of up to 1,300°C. Yet, to be cost competitive with fossil fuels, such technology requires “major technology and supply chain improvements”

Source: Issues Paper p26

Looking at the options in more detail:

- Energy Efficiency
 - There is always potential for incremental improvements, particularly with the advancement of control systems. However, in many cases, step change improvements in efficiencies have already taken place.
 - Smaller manufacturers may still have scope but there is a risk of overestimation of emission reduction potentials in manufacturing unless proper data is collated.
- Renewables
 - Woody biomass has a low energy density and so efficiency and transportation (e.g. increased truck movements) can be a barrier to implementation. Pre-processing of biomass into a high(er) energy density fuel is one option to be considered but availability and cost are currently prohibitive.
- Traditional Fuels
 - For lime making lime coal / gas is required to achieve the high temperatures required to achieve calcination. It can be partially supplemented / displaced by waste fuels but their availability is restricted in quantity and availability.
 - Graymont encourages the Commission to recognise natural gas as a significantly lower emissions alternative to coal, however its availability in New Zealand is currently geographically constrained in the North Island (through a limited distribution network) and is unavailable in the South Island.

To enable significant long term investments in fuel switching and/or energy efficiency to be made, greater policy certainty is required in respect of the NZ ETS, the Resource Management Act (RMA) and the future role of gas - including supportive policy for exploration / production and distribution infrastructure investment.

Q15 What are the main opportunities and barriers to reducing emissions in industrial processes (such as the production of steel, aluminium and cement)

and in product use (such as the use of hydrofluorocarbons in refrigeration and air conditioning equipment)?

As indicated in our cover letter, as the most readily available and inexpensive alkali, lime plays an essential part in a wide range of applications.

The production of (quick) lime, calcium oxide, releases carbon dioxide through the application of intense heat to limestone (calcium carbonate):



The industrial process emission of carbon dioxide is a function of the chemistry while the control of thermal efficiency and fuel sources are managed closely to ensure fuel and emissions are minimised while still providing the 900 - 1200°C kiln temperatures required to ensure complete conversion.

The industrial process emission component is common to all lime plants regardless of location and fuel type and hence represents an unarguable carbon leakage risk if domestic production is displaced offshore.

Q20 Acknowledging the current review, what changes to the New Zealand Emissions Trading Scheme are needed if it is to play an important part of New Zealand's transition to a low-emissions future?

Graymont believes the predictability of NZ ETS policy settings is vital:

- The Stage II Outcomes of ETS Review (released in July 2017) are a good step forward in clear signalling of future policy decisions to be taken. The move to a full surrender obligation is already in progress.
- Lime is among the world's most trade exposed industries. Therefore, criteria for ongoing eligibility for allocation to trade exposed industry is critical to allow future investment in Graymont's assets and to avoid premature loss of economic contribution:
 - Policy uncertainty undermines the ability to make long term capital investments A more detailed approach to evaluating the ongoing requirement for allocation is recommended (refer response to Q35).

Graymont also recommends that the Commission takes a stepped back assessment of the NZ ETS and reports on its likely effectiveness as an emissions abatement policy tool, taking into account its wider economic impacts. This should include a review of:

- The risks of continually pushing the carbon price up through an internationally isolated domestic NZ ETS, which may yield emission reductions through premature closure of plant and increased cost to the overall economy, when a sector focused policy may be more effective.

Q21 What type of market-based instruments would best help New Zealand transition to a low-emissions economy?

Graymont has carbon policy experience and exposure in North America as well as in New Zealand. These policies include:

- The Western Climate Initiative (WCI) since 2008;
- The Quebec Cap and Trade System – formally linked with that of California since 2014;
- The Ontario Cap and Trade Programme – commenced 2017 and planned to link with California and Quebec in 2018;
- The Alberta “Industrial Emissions Management” regulation – a hybrid carbon tax and offset system; and
- The British Columbia Carbon Tax – commenced 2008.

Based on this experience, Graymont is neutral on the relative merits of carbon tax vs emissions trading based policy measures.

In the New Zealand context, Graymont supports the retention of the NZ ETS as the primary market based instrument. The scheme is in place and maturing.

Q22 What type of support for innovation and technology would best help New Zealand transition to a low-emissions economy?

In some instances, activities undertaken in an effort to reduce emissions carry some level of associated technical risk or uncertainty. Some countries incentivize these activities with research and development tax credits.

Graymont supports the reintroduction of research and development tax credits into the New Zealand tax regime as a means to encourage such activities.

Such tax credits could be “refundable” or “non-refundable”. The use of refundable tax credits could be an effective means of encouraging these activities for both businesses with taxable income and those without taxable income.

Q30 How can adaptability best be incorporated into the system supporting New Zealand’s low-emissions transition?

It is clear that policy settings (including those of the NZ ETS) will need to adapt over time.

Key inputs to be considered could include:

- The science - extent of observed and predicted climate change (physical changes);
- The extent of international action taken by New Zealand’s trading partners and competitors;
- The availability of new technologies; and
- NZ domestic economy developments and emissions profile changes.

An assessment of these inputs could usefully be updated and released periodically so that all stakeholders have a common basis for decision making.

Graymont recommends that any policy measure changes or new policy introduction needs to be signalled well in advance.

Q31 What types of analysis and underlying data would add the greatest value to this inquiry?

The Commission is to be commended on being so open about the current data and analysis gaps:

Gaps include data and analysis on:

- the marginal abatement costs of different ways of reducing emissions in New Zealand (at a national and sectoral level);
- demand and supply “elasticities” that estimate the extent to which households and firms make emission choices in response to carbon prices;
- emissions at the level of individual firms, farms and households;
- co-benefits arising from different abatement activities and the size of those benefits; and
- the values and norms that are relevant to understanding whether specific emissions-related policies are likely to achieve acceptance.

Source Issues Paper p56

Graymont believes all of the listed gaps are substantive and need to be addressed (at least partially) for the Commission’s report to have credibility:

- Many are common to points raised in this submission
- New Zealand specific parameters (e.g. unique geography and energy / emissions profile) need to be taken into account when evaluating emission reduction potentials from international studies.
- With relatively few trade exposed activities in New Zealand, the need for more studies should be identified and data collated to allow objective assessment of the criteria for industrial allocation.

Graymont, as a significant emitter, would be happy to meet with the Productivity Commission to discuss its own circumstances.

Q32 What should be the mix, and relative importance of, different policy approaches (such as emissions pricing, R&D support, or direct regulation) in order to transition to a low-emissions economy?

Graymont suggests that a sector by sector policy approach is appropriate with a portfolio of policies including R&D support in parallel with price based measures.

The role of infrastructure as an enabler to reduce emissions should be evaluated, an example being the potential for fuel switching away from coal should the gas transmission

network be expanded and should the medium to long term availability of natural gas become more certain.

Q34 Who are the most important players in driving forward New Zealand's transition to a low-emissions economy?

Government, business and the wider society all have important roles in driving the transition forward:

- Government provides the regulatory framework which enables or bars investment.
- Business makes investment decisions in response to customer demand and government regulation.
- To avoid loss of sound investment opportunities, education of the public and policy makers is required. The Commission's report could be a foundation for this.

Graymont cautions against city / regional actions taking a legislative approach to greenhouse gas emissions as these should be set at a national level in response to international agreements.

Q35 What measures should exist (and at what scale and duration) to support businesses and households who have limited ability to avoid serious losses as a result of New Zealand's transition to a low-emissions economy?

For Emissions Intensive Trade Exposed (EITE) industry, until such time as a (more) level playing field is achieved through other nations placing a price on carbon, industrial allocation remains the most appropriate policy measure to prevent carbon leakage and mitigate against premature closure of manufacturing.

Lime is internationally recognised as one of the most trade exposed industries:

- In Europe, it is deemed to be exposed to a significant risk of carbon leakage¹ with free allocation to be continued until 2030².
- In Alberta, an assessment of trade exposure by Canada's Ecofiscal Commission and Navilus Research found lime to be the most trade exposed industry.³
- Graymont's New Zealand operations face international competition in both its export and domestic markets.

Graymont is therefore keen to see New Zealand adopt clearly defined objective criteria as to if and when withdrawal / phase out of industrial allocation should commence and at what rate. This would provide the necessary conditions for preventing early plant closures during the transition period until carbon pricing is more internationally widespread.

¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014D0746&from=EN> (refer Annex)

² https://ec.europa.eu/clima/policies/ets/allowances/leakage_en

³ <https://ecofiscal.ca/reports/provincial-carbon-pricing-competitiveness-pressures/alberta/>

Elements of the criteria should include:

- Assessment on an activity by activity basis. It is quite likely that for some activities a level playing field will be established ahead of others.
- For each activity the assessment of trade competitor jurisdictions should take into account:
 - The level of carbon-pricing, through trading or a carbon tax;
 - The level of allocation/subsidy; and
 - Other support mechanisms including non-tariff barriers
- Phase out of allocation should only commence when a material proportion, e.g. 70%, of competitor trade incorporates an auditable and internationally acceptable carbon price in-line with that of New Zealand.
- The rate of phase out of allocation should align with trade competitors.

With relatively few trade exposed activities in New Zealand, the need for more studies should be identified and data collated.

Q36 What are the essential components of an effective emissions-mitigation strategy for New Zealand that will also be economically and politically sustainable?

Graymont proposes that an effective emissions-mitigation strategy should retain options and be flexible as the world and technology are rapidly changing.

The strategy should therefore ensure that New Zealand:

- Does not head down single paths that may be regretted leading to unnecessary loss of economic activity and jobs or dead-end technology selection;
- Does not take (too) early action which leads to a loss of critical capacity ahead of other nations or leads to high cost uptake of new technology prior to it becoming truly cost competitive;
- Does use sound economics in determining outcomes and is prepared to remove barriers to uptake and /or initiate critical enabling infrastructure; and
- Does give long term signals on policy direction.

Q38 How should the issue of emissions leakage influence New Zealand's strategy in transitioning to a low-emissions economy?

Graymont strongly believes that it would be inappropriate for New Zealand to simply export its emissions by shutting down efficient domestic production.

It would also be economically irrational if in the absence of assistance factors, domestic production becomes uncompetitive when facing international firms with no or low effective carbon prices, leading to premature closure.

Please refer to our response to Q35 for details of the trade exposed nature of the lime business and our views on industrial allocation.

Q39 What do you see as the main benefits and opportunities to New Zealand from a transition to a low-emissions economy?

Graymont suggests the main opportunities are through:

- increased economic resilience against higher imported fossil fuel prices;
- maintaining New Zealand's international reputation;
- avoiding stranded asset investments through clear policy signals; and
- if global action eventuates, New Zealand will be well positioned to avoid some of the adaptation costs.

We note that the Issues Paper (p63) highlights that economic growth decoupling from carbon emissions has occurred in other major economies.

We caution against this comparison with New Zealand as in some of the example cases quoted this has been enabled through export of manufacturing (carbon leakage).

ENDS