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Dear Steven

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

Evonik Peroxide Limited welcomes the opportunity to make a submission on the Productivity Commission's Low-emissions economy: Issues paper.

Our submission is enclosed & supersedes that sent on 2<sup>nd</sup> October.

**FOR EVONIK PEROXIDE LTD**



**Arnold Yeoman**  
**Site Manager**

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

## **Introduction**

### ***Company Overview***

Evonik Peroxide is a wholly owned subsidiary of Evonik Industries ([www.evonik.com](http://www.evonik.com)):

- Evonik Industries is an industrial group from Germany which is a global leader in specialty chemicals.
- Evonik Industries is active in more than 100 countries around the world and has around 33,000 employees.
- Evonik Industries is convinced that assuming corporate responsibility is one of the prerequisites for success in the long run. This flows through to company sustainability strategies and emissions reduction targets.

In New Zealand Evonik Peroxide owns and operates New Zealand's only hydrogen peroxide manufacturing facility located in Morrinsville:

- The manufacture of hydrogen peroxide is energy intensive and therefore emissions intensive. Evonik Peroxide has as a matter of good business practice, reduced its energy consumption and therefore CO<sub>2</sub> emissions, over an extended period. The gains of future energy reductions are diminishing, even when factoring in a higher carbon price.
- The hydrogen peroxide product is used domestically, particularly as a bleaching agent in the pulp and paper industry, and is also exported to Australia.
- Evonik Peroxide faces competition from producers located in Australia, China, Indonesia and Thailand. The manufacture of hydrogen peroxide is therefore "trade exposed".

### ***Evonik Peroxide Limited's Exposure to the NZ ETS***

Evonik Peroxide's operations are directly impacted by the NZ ETS:

- The manufacture of Hydrogen Peroxide is an Emissions Intense Trade Exposed (EITE) activity, the primary inputs being natural gas and electricity.
- All of Evonik Peroxide's operations are exposed to NZ ETS costs passed through by energy suppliers and second round impacts including freight costs and inflationary pressure.
- Evonik Peroxide's operations are also dependent on the competitive viability of its customers, the pulp and paper industry of New Zealand.

Any change in policy parameters that leads to an increase in ETS related costs is therefore of significant concern to Evonik Peroxide.

## Submission Overview

In its submissions to the NZ ETS Review 2015/16, Evonik Peroxide highlighted the inadequacies of the NZ ETS and recommended that when considering New Zealand’s future international greenhouse gas emissions reduction target, taking into account its unique greenhouse gas emissions profile, the government should place greater emphasis on non-NZ ETS policies and actions.

This is particularly the case for:

- agriculture (currently excluded from the NZ ETS);
- stationary energy and transport, where the government has reported that demand from the energy and transport sectors has to date been inelastic to fuel and carbon prices, partly due to the current lack of viable substitutions<sup>1</sup>; and
- Waste management initiatives.

We believe non-NZ ETS policies may yield more long term greenhouse gas reductions, for example:

- governmental carbon sinks initiatives, such as permanent forest sinks and afforestation grant schemes; and
- Assistance from the Energy Efficiency and Conservation Authority in reducing energy consumption which Evonik Peroxide has effectively utilised.

These other initiatives will potentially have a much greater long-term effect on meeting New Zealand’s greenhouse gas reduction obligations than making any further changes to the NZ ETS in the short to medium term.

Evonik Peroxide is concerned that the NZ ETS, even at significantly higher carbon prices, will not be efficient in achieving gross emission reductions or in signalling investment in clean technologies or renewable energy sources.

**The broad nature of the Terms of Reference for the Productivity Commission’s inquiry and the wide ranging content of the Issues Paper is therefore very welcome.**

Evonik Peroxide is however concerned with the language used on page 1 of the Issues Paper:

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

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 hydrogen peroxide the wide range of applications (as summarised in Table 1) below means that demand will be ongoing for many decades:

**Table 1 – Common applications of hydrogen peroxide**

| Industry | Application |
|----------|-------------|
|----------|-------------|

<sup>1</sup> [New Zealand’s second biennial report under the United Nations Framework Convention on Climate Change](#)

|   |   |
|---|---|
| <b>Pulp and paper</b>                     | Bleaching wood pulp   |
| <b>Mining</b>                             | Detoxification of cyanide tailings  |
| <b>Textile bleaching</b>                  | Bleaching of cotton fabrics   |
| <b>Wool scouring</b>                      | Bleaching of wool   |
| <b>Drinking and waste water treatment</b> | Measuring dissolved oxygen. Destroying soluble cyanides, sulfides and phenols |
| <b>Packaging</b>                          | Aseptic packaging of milk and fruit juice                                     |

- New infrastructure such as Invercargill’s Branxholme drinking water treatment plant commissioned this year is an example of a new hydrogen peroxide user.<sup>2</sup>
- An expanded wood processing sector would also increase hydrogen peroxide usage.

The Commission’s inquiry therefore needs to properly account for the continued role of existing industries such as hydrogen peroxide manufacture.

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.

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<sup>2</sup> <https://www.stuff.co.nz/southland-times/news/96962108/branxholme-water-treatment-plant-12-million-upgrade-officially-opened>

## Response to Specific Issues Paper Questions

We have provided answers to those specific questions in the Issues Paper where they are directly relevant to our business or where we wish to comment on the wider context of the inquiry and the Commission's approach to it.

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

Evonik Peroxide believes the Commission can add the most value through providing a holistic view of policy options, including the role of the NZ ETS. A consolidation of previous work which may have been of a more segmented nature, more piece meal and not necessarily New Zealand specific is required.

Traditional economic modelling does not take into account New Zealand industries' unique profile. When assessing a carbon cost in New Zealand, with one or two plants for each industrial activity – the decision is Boolean; operate or close. For example Evonik Peroxide's plant in Morrinsville is the sole producer of hydrogen peroxide in New Zealand.

We recommend the Commission:

- Clearly highlights and evaluates the potential for emissions leakage and increased global emissions that may result from reduced domestic industry activities.
- Clearly identify the price responsiveness of different sectors of the economy to emission pricing and make policy recommendations accordingly.
- Recognise and evaluate the rate of technology adoption across different sectors which will differ in relation to asset life and value.
  - This has implications for policy certainty to enable high capex / long asset life emissions reducing investments to be made.
  - The risks associated with premature asset closure, caused by policies that do not take into account the rate at which a sector can respond, should be identified.
- Recognise the interconnections between NZ's industrial assets e.g. Evonik Peroxide is supplying the hydrogen peroxide required by New Zealand's wood processing sector (thermo mechanical pulp).

### *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?*

Evaluation of product substitution opportunities should be considered. Where not viable, as is the case with Hydrogen Peroxide, this should be clearly identified.

Analysis of opportunities to “effectively reduce emissions” should recognise the risk of carbon leakage.

***Q4 What are the main opportunities and barriers to reducing emissions in agriculture?***

We recommend that the Commission recognises that other sectors face similar challenges as agriculture. In the case of Evonik Peroxide incremental changes “Fine tuning” to achieve energy and emissions efficiency is ongoing, but fundamental barriers remain (chemistry / thermodynamics) that preclude significant emissions reductions.

The inquiry should acknowledge that agriculture makes up 50% of the emissions profile and that industry should not bear a disproportionate burden.

In the absence of solutions being available, investment in science/technology and support to business to identify and develop alternative production / emissions mitigation options is required.

***Q6 What are the main barriers to sequestering carbon in forests in New Zealand?***

Evonik Peroxide suggests that the NZ ETS may in itself be a barrier due to its cost, complexity and uncertainty of policy settings. This is reflected in the 53% of the total post 1989 forest area that foresters have elected not to opt-in to the NZ ETS.<sup>3</sup>

We would caution against overly focussing on a low carbon price as being the barrier.

***Q7 What policies, including adjustments to the New Zealand Emissions Trading Scheme, will encourage more sequestering of carbon in forests?***

Evonik Peroxide recommends the:

- Adoption of more logical / scientifically based forestry accounting rules for Harvested Wood Products within the NZ ETS as is now being considered; and
- Consideration of alternative policies to the NZ ETS, such as an extension of the afforestation grant scheme.

A simplistic focus on lifting carbon price to meet the expectation of foresters may increase reward to foresters above the marginal carbon price signal that is required for afforestation. In turn this high carbon price will have significant economic impact on other NZ ETS sectors, including households, who may not be able to reduce emissions in response to the high price.

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

Energy efficiency is not a new concept to industry and all the technologies identified by ICF International that are referenced in the issues paper have been employed by Evonik Peroxide as normal business practice.

Based on networking with other industry in New Zealand we would suggest that our situation is not unique. We would therefore recommend that the Productivity Commission carries out a Pareto type assessment of manufacturers to confirm this assessment.

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<sup>3</sup> Out of a total post-1989 forest estate of 647,558 Ha, only 304,900 Ha is registered in the NZ ETS.  
Source: 2016 ETS Facts and Figures - <http://www.epa.govt.nz/Publications/ETSFactsAndFiguresReport2016.pdf>

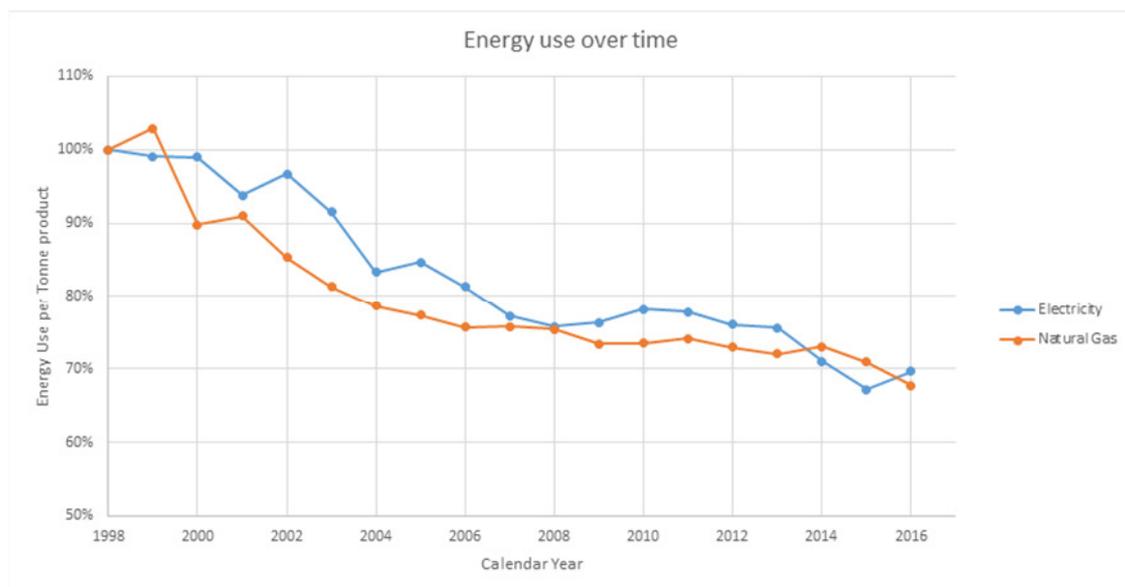
Our current focus is on incremental improvements, because we have already achieved significant reductions through the following:

- More efficient air compressors
- Heat Recovery
- Boiler Burner
- VSDs for pumps & fans / cooling towers
- Partnership with EECA for Energy Engineer support

Smaller manufacturers may still have scope, and we support government initiatives such as the current support through EECA. But overall there may be a risk of overestimation of emission reduction potentials in manufacturing unless proper data is collated.

Figure 1 below show natural gas and electricity relative consumption, demonstrating the rate of improvement is now tailing off as the easy options have been exhausted.

**Figure 1: Natural Gas & Electricity Relative Consumption**



We support the use of renewables to generate process heat where appropriate. However in the specific case of Hydrogen Peroxide manufacture, options are limited due to the high temperature requirements of the process.

Natural gas is used both for process heat and as feedstock in the steam methane reforming step to make hydrogen prior to subsequent peroxide manufacture.

***Q12 What changes will be required to New Zealand's regulatory, institutional and infrastructural arrangements for the electricity market, to facilitate greater reliance on renewable sources of energy across the economy?***

Evonik Peroxide supports increased renewable electricity generation and believe that this is a key competitive and environmental advantage for New Zealand. However the generation mix needs to ensure security of supply and an effective cost mix.

We would however not support a blunt fossil fuel moratorium as was proposed in 2007/8 as this may preclude industrial cogeneration applications which can yield substantive emissions reductions.

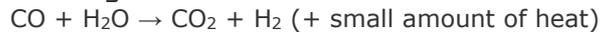
***Q15 What are the main opportunities and barriers to reducing emissions in industrial processes (such as the production of steel, aluminium and cement) and in product use (such as the use of hydrofluorocarbons in refrigeration and air conditioning equipment)?***

As part of the production of hydrogen used in hydrogen peroxide manufacturing process carbon dioxide (CO<sub>2</sub>) is produced:

**Steam-methane reforming reaction**



**Water-gas shift reaction**



The methane (CH<sub>4</sub>) component represents greater than 60% of natural gas usage. CO<sub>2</sub> is currently vented and at present technology for carbon capture & storage has not yet developed for small scale and cost effective implementation.

***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?***

We stress that predictability of policy settings is important and the Stage II outcomes of ETS Review recently released in July 2017 are a good step forward in clear signalling of the future policy decision to be taken. This has however been undermined by the differing party policies released in the lead up to the September 23<sup>rd</sup> general election.

For Evonik Peroxide, an emission intensive trade exposed business, the criteria for ongoing industrial allocation is critical to allow future investment in our assets and to avoid premature loss of economic contribution:

- While planned capital improvement expenditure can sometime be deferred in some cases critical maintenance capital cannot.
- An example is where a critical piece of equipment needs replacement yet policy uncertainty undermines the investment case leading to premature closure of the whole asset.

A review of whether the NZ ETS will ever be effective in reducing emissions in each of the sectors is recommended e.g.:

- transport where price elasticity has to date been very low; and
- Forestry where land prices are inflated by the exclusion of biological emissions and other factors play a key role in investment decisions.

Continually pushing the carbon price up through an internationally isolated domestic NZ ETS 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?***

For the stationary energy and industrial process sector we believe emissions trading is still the most appropriate policy instrument.

For other sectors additional / alternative policy options may be required.

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

We believe across all sectors, government has a role to foster research, development and applied application in the areas that the Commission identifies would result in the most cost effective emissions reductions.

***Q29 Does New Zealand need an independent body to oversee New Zealand's domestic and international climate change commitments? What overseas examples offer useful models for New Zealand to consider?***

At present the absence of political consensus on stringency of NZ's domestic policy and targets means that putting in place an independent body now would be too soon.

***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 should include:

- The science – extent of observed / predicted climate change (physical changes);
- The extent of international action taken by NZ's trading partners;
- Domestic economy developments and emissions profile changes; and
- The availability and uptake rate of new technologies.

These should be reviewed and reported periodically so that all stakeholders have a common basis for decision making and proposed changes to policy.

***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

Evonik Peroxide believes all of the gaps listed above are material to the Inquiry and need to be addressed for the Commission’s report to have credibility:

- Many are common to points raised in our submission
- New Zealand specific parameters (e.g. unique geography and energy / emissions profile) need to be taken into account when evaluating emission reduction potentials based on international studies.

***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?***

The production of Hydrogen Peroxide is an emission intensive, trade exposed activity. Evonik Peroxide believes industrial allocation is vital until such time as a (more) level playing field is achieved through other nations placing a price on carbon:

- Clearly established criteria should be introduced as to when playing field is “level enough”.
- The assessment of whether a level playing field exists requires evaluation of not just if competing international industry faces a C-price but also the level of comparable assistance e.g. allocation / exemptions.
- Reduction of allocation should be activity dependent e.g. hydrogen peroxide manufacture may remain exposed while a level playing field for another activity has been achieved.
- The rate of phase out of allocation should align with trading competitors.

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

Evonik Peroxide strongly believes that it would be ethically inappropriate for NZ to simply export its emissions by shutting down its domestic production.

It would also be economically irrational if in the absence of support mechanisms, domestic production become non-viable when competing against international firms with no or low effective carbon prices, leading to premature closure.

ENDS