

To: Low-emissions Economy Inquiry  
New Zealand Productivity Commission  
PO Box 8036  
The Terrace  
Wellington 6143

Friday 8 June 2018

Dear Steven Bailey,

**RE: LOW-EMISSION ECONOMY DRAFT REPORT**

Venture Southland would like to thank the Productivity Commission for the opportunity to submit on the low-emission economy draft report. We would like to congratulate the Commission on the report. We recognise the importance of the Commission's findings including the anticipated rise in price of the New Zealand Carbon Units.

Venture Southland is the Economic Development Agency for Southland, delivering a wide range of initiatives, services and events to promote and grow region alongside Southland communities. Venture is a Joint Committee of the Invercargill City, Gore District and Southland District Council and represents all of Southland. Venture Southland facilitates opportunities to improve productivity in all aspects of operations and communities, including behavioural change and supporting these practices with the implementing of sustainable and energy efficient practices and technologies to cut carbon emission throughout the region and providing pathways for the rest of New Zealand.

Whilst working on sustainable initiatives Venture is also focused on increasing business's and workplace operation's productivity and efficiency and has developed a range of programmes to continue Southland's economic strength and to grow the region's GDP. Over the past six years Venture has coordinated 130 businesses through the implementation of **Lean management** programmes that focus on minimising waste, such as time and processes, and maximising productivity whilst growing businesses' EBITDA to ensure that New Zealand's business can be globally competitive in a New Zealand setting. Lean Business has been applied throughout Southland industries. Some key successes include Avon Engineering doubling the number of jet-boats produced per year and Beatties Panel Beaters shifting from 60% to 90% efficiency across both paint and panel shops. Fibreglass Innovation and Beatties Panel Beaters both have won regional and national awards for their achievement. 50 of Southland's leading dairy farmers have participated in the program. Lean processes empower behavioural change and enable exceptionally greater benefits to be achieved than capital investment in efficiency alone.

Southland is a highly productive region, with just over 2.2% of the population contributing to almost 15% of New Zealand's tradeable exports. Exports make up 70% of the region's GDP, well above the national target of 40%. The annual Southland Business Survey reveals that labour constraints continue to be the number one strategic challenge facing Southland businesses, a reflection of an aging population a very tight labour market.

(<http://venturesouthland.co.nz/sites/default/files/media/documents/Southland%20Business%20Survey%20Report%202017.pdf>).

Venture Southland is active in attracting migrants to the region as well as ensuring that skilled workers remain in the region. Southland, like other regions in New Zealand, is affected by poor air quality, polluted rivers and increasing waste management difficulties. For Southland to grow in population in line with the target for 10,000 more people set by the Regional Development Strategy, whilst also sustaining a healthy environment a new approach to productivity, factoring in waste, carbon and pollution is required.

Venture Southland would like to comment on **chapter 13 Heat and industrial process**, section Biomass and Finding F13.4.

Venture Southland is working to reduce Southland's greenhouse gas emissions. From 2014 – 17 Venture Southland in partnership with EECA won the Deloitte Large Energy User of the Year 2017 award for the Wood Energy South project. The project has gained a lot of momentum with the conversion of 17 sites to biomass boilers within the three year period and continues to gain interest from process heat owners and national stakeholders, with significant planned conversions in Southland and other regions such as Otago, Canterbury and Nelson. The Wood Energy South group has got membership from national stakeholders, technical experts and consultants. Venture Southland would like to comment on the following concerns raised:

- **Technology, boiler suitability and efficiency:** Highly efficient and sophisticated modern woody biomass heating technology has been available globally for more than twenty years, with a large range of providers servicing this market including, for example world-renowned, highly efficient and low emitting Binder, Heizomat, Polytechnik and Froeling. Available technology range from small scale domestic to large-scale industrial boilers, suitable for heat and process heat related activities. An example of efficiency gains and emission reduction is Slinkskins Tannery (<http://www.woodenergysouth.co.nz/case-studies/>).
- **Quality concern and source:** Venture Southland has found that a large percentage of the coal boilers operating in our region have pre-maturely failed due to the quality of coal available, especially lignite coal. The quality of wood chips and wood pellets supplied to biomass owners and operators is tested each time for moisture content and quality, as set out in the long-term contract agreement between biomass owners and fuel suppliers that contractually binds fuel suppliers to deliver a set standard of fuel. In addition drying of the fuel and using the same type of wood provides a consistent product. Companies such as Nature's Flame, Niagara and Azwood Energy and other fuel suppliers pride themselves in the quality of wood fuel that they supply and take great care of delivering high quality products to their customers. With the quality of fuel significantly exceeding European standards, the European manufactured boilers are more than suitable to the high quality fuel that New Zealand fuel suppliers provide. Recently a technician from Froeling in Austria came to assist installation of a biomass boiler for the Ascot Community School. He noted that the quality of wood fuel that Niagara, one of the biggest timber manufacturers supply, exceed by far the quality of wood fuels in Europe.
- **Transportation cost and logistical improvements:** although Southland is one of New Zealand most sparsely populated regions logistics and transportation cost have not been a barrier to the uptake of wood fuels in the region. In contrast through the increase in investment of New Zealand in the plantation of trees through programmes such as the One Billion trees, Beef and Lamb's and other stakeholder's plan to aim towards Zero Carbon, planting trees to offset carbon and at the same time providing a fuel source is becoming an increasingly popular option. Through the growth of the wood energy market, significant additional gains in terms of cost and logistics can be achieved to make it viable to recover wood by-products currently left unrecovered in the forests by forestry operations. For

example the Southland Wood Demand assessment showed that an extra 45,000 t per year could be recovered from existing forests in Southland alone, excluding chipping of shelterbelts and wood burned on farms.

With the growth in the maturity of the fuel market significant improvements and efficiency gains can be achieved. For example the Ministry of Education can now send one truck to deliver wood chips to schools in Mossburn and Lumsden at the same time.

Some other companies are able to deliver wood pellets at a cheaper rate than coal to their clients in Otago and Southland. For example Nature's Flame, a wood pellet manufacturer, are able to deliver their product at a cheaper rate to Southland and Otago than transporting coal from the West Coast to Otago or Southland. This becomes particularly interesting when examining the amount of coal already consumed by large processing industries in New Zealand. Most of these operations were built beside a coal mine, that they have already used up and are now using coal from their third coal mine that are increasingly further away with rising cost and increasing difficulties to deliver fuel.

- **Cost and pricing:** Wood Energy is the most cost-effective technology over the lifecycle of the boiler in comparison to other fuels, with the exception of lignite coal. As mentioned above the quality of lignite has significantly declined over the past few years to the point of causing coal boilers to pre-mature fail. In addition various consumers of coal have recently noted the increase in coal price, particularly in Southland. Biomass boilers have significantly lower maintenance cost and on-going servicing requirements. Throughout the Wood Energy South project we have found that the evaluation of suitable infrastructure was often not considering a whole-of-life approach to investment criteria. Venture Southland developed the Specifier practice paper to support also developed the Specifier practice paper to assist consultant advising on biomass heating systems. The paper has now been adopted by the Bioenergy Association: <http://www.woodenergysouth.co.nz/technical-resources/>. Common practice for communal infrastructure building or upgrade such as roads, water and energy apply a whole-of-life approach to technology to estimate payback time, cost-benefit and investment purpose. Venture Southland has found that this was often disregarded by consultants analysing different energy options. You may note that the Ministry for Education is now recommending applying a whole-of-lifecycle approach to evaluate heating options ('Ministry for Education Quality Learning Spaces guideline').
- **Lower greenhouse gas emission, significant health and safety gains:** Burning of wood fuel is considered carbon neutral as the burning of wood offsets carbon the reduction gained through the growing phase of trees. Burning of wood emits almost no emission. Burning of coal emits harmful pm 10 and 2.5 particulates, detrimentally to human health, in particular respiratory health. Through the automation and remote control wood boilers require minimal maintenance with the ash volumes significantly lower than from coal and safer to handle than coal ash, immensely increasing safety and health of boiler operators. Useful links to health effects of coal on humans are:
  - <https://www.odt.co.nz/opinion/opponents-point-out-hazards-lignite-plant>
  - [https://www.env-health.org/IMG/pdf/heal\\_background\\_paper\\_lignite\\_health\\_brandenburg\\_english.pdf](https://www.env-health.org/IMG/pdf/heal_background_paper_lignite_health_brandenburg_english.pdf),
  - <http://large.stanford.edu/courses/2015/ph240/lebovitz2/>
  - [https://www.dea.org.au/images/general/How\\_coal\\_burns\\_Aust.\\_-True\\_cost\\_of\\_burning\\_coal\\_04-13.pdf](https://www.dea.org.au/images/general/How_coal_burns_Aust._-True_cost_of_burning_coal_04-13.pdf)
  - <https://www.aph.gov.au/DocumentStore.ashx?id=d6433753-f5be-4fe3-98ac-53edb84aeab6&subId=460057>

In addition Venture Southland would add:

- **Cradle to cradle and circular economy principles:** Wood chips and pellets are a waste product of forestry operation production of timber, joints and other wood products, that are given a further life. Venture Southland advocates to prolong product usage to limit greenhouse gas emission and reduce waste. In addition wood ash can be used as a fertiliser for gardens, thus providing further life.
- Operations such as Fonterra and Danone committing to wood energy as well as other key projects, including the Dunedin and Christchurch hospitals, Christchurch Laundry and Dunedin Central Heating considering wood energy reflects a new confidence and maturity in the wood energy market.
- Venture Southland recommends that the Ministry for Primary Industries should consider to extend the Billion Tree programme and allow interested individuals, conglomerates of farmers or towns and cities that do not meet the 1 hA criteria to apply for the planting of trees to enable further planting and reduce emissions. In addition the Ministry could examine additional use of the plantation of trees, such as for wood fuel and timber production and location of these plantations. Working in conjunction with the Bioenergy Association, which is currently advising Beef and Lamb on their Zero Carbon programme, would bring helpful insights.

**Section ‘Possible other policies’ in chapter 13 Heat and industrial processes** Venture would like to see EECA’s role extended to include smaller firms as well as larger firms. Venture Southland believes that operating with larger businesses on a cost-recovery basis might prove difficult. Southland was the first region in New Zealand to have an Energy Strategy in 2003. In the 15 years that Venture Southland has been working with businesses and communities we have recognised the strong engagement, advocacy and support that is required to create awareness, drive feasibility assessments and deliver change.

**Section ‘Boiler standards’** Venture Southland would recommend changing the law to limit any new installation of coal operated boilers. Through the Wood Energy South project it has been shown that wood energy is among the cheapest heating options only lignite coal is cheaper to operate ([woodenergysouth.co.nz](http://woodenergysouth.co.nz)).

**Transport chapter 11:** Venture Southland believes that the Emissions Trading scheme and other Government investment is instrumental to changing the highly carbonised transport sector. Venture Southland has been actively advocating for the uptake of electric vehicles, biofuel vehicles, cycling and is a founding member of the Hydrogen Consortium. We support an incentive mechanism to drive uptake of low-emission vehicles. This should not be limited to Electric Vehicles only, but also other low-emission transport opportunities such as hydrogen and biogas powered vehicles including heavy vehicle fleet. Further Government assistance is required in scoping hydrogen production potential as well as supporting biofuel research and development and developing policies now to support uptake of biofuel when commercially available in New Zealand.

Setting and applying vehicle emissions standards in city and town boundaries has also led to the uptake of more efficient fuel vehicles and upgrading of older vehicles to more fuel efficient standards. Countries such as Germany have introduced these schemes in 2007 and have experienced significantly reduction in the amount of particulates discharged to air within and outside of the boundaries. Government assistance in making conversions, particularly for low-income families could be considered. In addition assistance to drive ‘upgrading’ of cars to low-emission vehicles (such as through the conversion of electrical vehicles) and providing assistance for low-income families and individuals to make the change. In addition phasing out of the importing of fossil fuel vehicles by a set date (e.g. 2025/2030).

**Waste chapter 14:** Venture Southland has been actively supporting the uptake of waste-to-energy plants in Southland following the assessment of the waste-to-energy potentials in the Southland Waste to Energy Issues and Options paper and the Southland Energy Strategy. In partnership with Dairy Green, EECA and NIWA Venture Southland has supported the development of production of energy from dairy manure and is working with many stakeholders in the region interested to gain additional benefits out of their ‘waste’ products. Mitigation of waste emission does not require the development of new technologies. However these technologies are not commonly known and the creation of awareness around the benefits must be supported as well as providing feasibility studies and creating additional incentives to reduce payback times and supporting investments. Other countries such as the Netherlands, France and Germany have for example supported the export of surplus gas or electricity of these and other systems (such as solar) by paying a higher price to ‘renewable energy’ generators that have been supported investment quite considerably and have led to an increase of waste-to-energy generations.

**Chapter 10 Land Use:** Support should be given to the investment of emission reduction technology through the provision of additional revenue streams by supporting surplus energy generation, low-interest ‘green’ loans or funding support (e.g. 30%). Whilst Venture Southland believes it is important to invest in research that has the potential to lower emission within the agriculture sector we also believe it is vital to support systems and mechanism that are available now and can lower emissions now. On our pilot farm we have seen a collection of 8% of the dairy effluent that has provided power of up to 16 hours per day, without any winter barns or stand-off pads which would greatly increase the production of electricity. Venture Southland is currently building a business case and funding mechanism for other farms to adopt this renewable energy technology to reduce the emission of New Zealand’s 6.5 million cows, which are equivalent to the emissions from a population of 97 million people.

There is a wide array of technology available now, farmers require assistance to be made aware of these technologies and to adopt them. New Zealand is investing \$4.8m alone per year to the NZ Agriculture Greenhouse Gas Research Centre, \$3.1m a year to the Pastoral Greenhouse Gas Research Consortium, \$6m per year on the Global Research Alliance on Agriculture Greenhouse Gases as well as significant amounts through Callaghan Innovation and Primary Growth Partnership. A portion of this money could be spent to assist farmers to adopt bioenergy systems, proven and ready technology worldwide, that will cut emission on farms now.

Considerations to allow individuals and conglomerates of farmers apply for New Zealand Carbon Units would increase uptake of carbon reduction mechanism including by small forest owners, currently not participating in the Emission Trading Scheme. Allowing individuals, farmers, conglomerate of farmers and small forest owners apply for the Billion Tree Fund as mentioned above will provide additional off-setting mechanism. In addition using these trees for the use of biofuels will literally ‘fuel’ renewable energy generation (biomass and process heating).

Venture Southland has been actively researching the potential for the development of oat based health foods in Southland that provide a higher return and low-emission land use for the production of healthy foods. Venture Southland is encouraging the Government to assist farmers and others researching, developing and implementing alternative food products including organic foods to diversify the New Zealand economy, provide viable alternative land-use options, reduce carbon emissions and increase income for farmers and health benefits to New Zealanders.

**Chapter six Investment** Venture Southland would like to note that it is vital for New Zealand to change the strategic focus of the New Zealand Venture Investment Fund to identify low-emission investments as a sector of interest as well as where appropriate give advantage to low-emission projects to receive Callaghan Innovation funding. In addition Venture Southland supports for the New Zealand Government debt, equity and finance portfolio to consider re-investing in low-emission investments as well as encourage and support pension funds, institutional, independent investment companies, Maori investors, insurance companies and private investors to re-direct investment into

low-emission investment. It is likely that climate change presents greater risks than the usually modelled banking risks, due to the uncertainty and applicability to all aspects of investment and risks to human life. Matching institutional investors with long-term infrastructure requirements and forestry plantation for renewable energy generation provides a low-risk return and greater value to society. Venture Southland supports the view for the Government not only to create policy to provide clear signals and support an underlying framework but also to use their own funds to support the transition and to apply a whole-of-life consideration approach to infrastructure investment that supports low-emission and health benefits. Providing assistance and sending clear signals as well as providing financial guarantees through taking on default liability in cases of high-risk ventures provides insurance and de-risks investments for investors and financial institutions providing capital.

Global finance and capital is shifting into climate-aligned and ethical investments providing greater societal benefit.

Venture Southland agrees with the Commission's findings on the New Zealand Trading Scheme's policy (**chapter four Emissions pricing**) not actively supporting emissions reductions in New Zealand. The current New Zealand Emissions Trading Scheme's business model of purchasing credits overseas does already have an impact on rate payers, is not liked to any real greenhouse gas reduction targets and does not economically or socially profit New Zealand. We agree with the Commission's recommendation to alter the emissions pricing to send right signals to motivate investment in low-emission technologies and processes. Investment in infrastructure in New Zealand will not only future-proof our economy but also support industry, R&D and labour market development that will provide our country with the leadership to compete in the global market.

Investment of the ETS should be done in New Zealand to provide greater benefits to the country by ensuring that the tax money spend provides on-going economic and social benefit to New Zealand, provision of job opportunities, health benefits and other associated co-benefits such as the country's transition to a low-emission economy. In addition Venture agrees with the idea of using a shadow carbon price in the absence of the emission pricing being too low or absent, such as currently being used by the European Investment Bank. A shadow or co-benefit and co-harm price could also be modelled on the social benefit and lower associated healthcare cost. Venture Southland believes that it is vital for the New Zealand Government to invest in research to determine a widely accepted model that puts a price on these co-benefits and co-harms. The knowledge of these prices will drive adoption of low-emission technology the application of these will deliver additional changes.

Venture Southland is committed to long-term carbon reduction in the Southland region. Since developing the first regional energy strategy in 2003, Venture Southland has driven renewable energy uptake and carbon reduction mechanism within the region and beyond. The Zero Carbon Southland programme will be launched this year, to accelerate the uptake of low-emission technology and practices through a regional co-ordinated approach that will provide significant benefits to our region and the greater New Zealand. The programme will build a business case for a platform to provide support to carbon mitigation technologies and practices from carbon emitters such as resource and energy recovery, alternative and sustainable transport solutions, sustainable businesses and warm home initiatives. This could provide additional value from the current Emission Trading scheme, whereby investment through the scheme are made back into required low-emission infrastructure requirements for New Zealand to transition to a low-emission economy. As a result Venture Southland disagrees with the note on page 381 (Waste chapter 14) on discouraging New Zealand Carbon Units for Waste-to-energy projects in recognition of avoided GHG's. The Emission Trading's Scheme's aim is to lower greenhouse gas emission and that it is important to achieve that goal through the scheme. Considerations could be made to re-structure the scheme to provide benefit not only to the regional economies and communities through renewed infrastructure but also through the reduction of greenhouse gas emissions and the increased health benefits for the land, water, air and community. This is of particular importance as \$1.4 billion per annum is required to meet the Government's commitment under the Paris Agreement, excluding further liabilities to transition to a net zero carbon environment by 2050 and its commitment under the UN Sustainable

Development Goals. With limited resources New Zealand should try to gain multi-fold benefit from already committed resources.

Venture Southland would also like to add that it sees great benefit for legislative change to stimulate cradle to cradle and circular economy principles to change design of product, service and technology to ensure an extended life of resources.

In support of New Zealand's commitment to a net zero carbon environment by 2050, the Paris Agreement and the UN Sustainable Development Goals we believe co-ordinated action between Government agencies including Treasury, NZTE, the Foreign Direct Investment, Overseas Investment Office and Ministry for Foreign Affairs and Trade will create positive outcomes.

Venture Southland believes that change on a regional and local level will future proof our economy, provide our businesses with a competitive advantage and support a healthy, sustainable community.

We look forward to hearing from you and would like to speak on this submission.

Yours faithfully

A handwritten signature in blue ink, appearing to read "Stephen Canny".

Stephen Canny

GM Business and Strategic Projects