



EnergyManagement

Association of New Zealand

Transitioning to a Low Emissions Economy

Submission to the New Zealand Productivity Commission
2 October 2017

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1. Executive Summary

EMANZ welcomes the publication by the New Zealand Productivity Commission of an Issues Paper on how New Zealand can transition to a low emissions economy and the opportunity to comment on it. We believe New Zealand faces a huge challenge in meeting its international commitments on emissions reduction and faces severe financial risk if it fails to do so. Time is short if New Zealand is to come close to achieving its targets and EMANZ calls for swift and decisive action to reduce the exposure of New Zealand businesses and the New Zealand tax payer to this risk.

This submission outlines actions that the New Zealand Government should take to reduce this risk. Subsequent sections discuss in more detail the reasoning behind our recommendations. In summary, however, the recommendations are:

Recommendation 1

EMANZ supports the introduction of a longer term and rolling planning cycle to developing energy efficiency and carbon reduction strategies. Strategies should be developed across government departments and agencies or by an independent agency adopting a long term, holistic perspective.

Recommendation 2

The NZEECS 2017-22 continues to target industrial process heat as a fruitful area for intervention to accelerate carbon emissions reductions, although this should not be at the expense of other areas of potential improvements, such as commercial buildings.

Recommendation 3

The NZEECS 2017-22 should be amended to provide continuing support to the development of skills and capabilities in improving energy efficiency and carbon emissions reductions in the commercial building sector.

Recommendation 4

NABERSNZ should be made mandatory in New Zealand.

Recommendation 5

The reporting of emissions performance should be made mandatory for all publicly listed companies in New Zealand.

Recommendation 6

Public sector bodies should be required to report emissions performance.

Recommendation 7

Emissions performance targets should be incorporated into KPIs (Key Performance Indicators) for senior executives in the public sector.

Recommendation 8

The adoption of accelerated depreciation on qualifying energy and carbon management investments be introduced as a financial incentive to the take up of relevant, new technologies.

Recommendation 9

A Green Investment Bank be established to support investment capacity in projects that will improve energy efficiency and reductions in carbon emissions. The bank should operate on a commercial basis with a long term investment horizon and funding applications should be entertained from businesses of all sizes and any industry sector. Investments, however, should not include pure R&D projects, rather they should make funds available on a commercial basis for projects delivering tangible improvements in energy efficiency or reductions in GHG emissions.

Recommendation 10

The introduction of vehicle emission standards as part of Warrant of Fitness checks within a regime that does not inequitably impact lower income groups.

Recommendation 11

The introduction of a mandatory energy management policy and plan, compliant with ISO50001, for companies above specified size thresholds. The size thresholds could differ by industry sector, as appropriate, to avoid excessive compliance costs.

Recommendation 12

Government supports EMANZ to put together an education and training programme that will upskill New Zealand businesses in understanding carbon emissions and how they can be mitigated. This to include the introduction of professional standards and qualifications in energy and carbon management and creating a career pathway to attract a new generation of professionals into careers that expressly encompass carbon management in their roles, thereby ensuring these skill sets are available to New Zealand businesses as the realisation of their need arises. Given the lead time this will require, early action on this recommendation is essential.

Dr M Hopkins

CEO, EMANZ

2nd October 2017

2. Introduction and Background

EMANZ welcomes the publication by the New Zealand Productivity Commission of its Issues Paper on how New Zealand could transition to being a low emissions economy. The initiation of the Inquiry is timely as target dates incorporated into international commitments on climate change, most notably the Paris Agreement (COP21) with its key target date of 2030, are quickly approaching and urgent action is required to reduce risks associated with a failure to meet the target. Specifically, the risk of the New Zealand tax payer being exposed to having to purchase credits on international markets at a price that is difficult to predict but that is commonly expected to be at least US\$50 per tonne of CO₂ equivalent.¹²

EMANZ represents the energy managers of New Zealand. We enjoy a strong membership and a key role in delivering energy management training and accreditation. EMANZ members operate extensively in the commercial building sector and increasingly in the industrial sector. EMANZ members have been delivering energy savings and energy productivity improvements to New Zealand businesses for around four decades and EMANZ as an association has existed since 1993. EMANZ and its members believe we can play an important role in helping drive down Greenhouse Gas (GHG) emissions in the commercial and industrial sectors in New Zealand and welcome the opportunity to contribute to the Inquiry.

EMANZ members and EMANZ as a collective can offer expert level comment on many, but not all, of the issues raised by the Commission. Comments in this submission are, therefore, confined to those areas where we feel we can provide valuable input.

2.1 The Task at Hand

The challenge of meeting our international commitments is demanding. Recent history has seen New Zealand increasing its GHG emissions. Between 1990 and 2015 New Zealand's net emissions rose by 64%³. Formally, the key emissions target is for net emissions to be 30% below 2005 gross emissions levels by 2030. So, this decrease is not only substantial but needs to take place against a backdrop of currently increasing emissions. A corner needs to be turned even before we start to see a downward sloping curve of emissions. This target can more easily be understood when translated into a single volume metric which is that in order to achieve the target, New Zealand has to have net emissions of at most 57.7⁴ million tonnes of CO₂ equivalent by 2030. Failure to achieve this target will result in New Zealand having to purchase credits on international markets. Many scientists are predicting this to be the case. The Climate Action Tracker, for example, describes New Zealand's current performance as "Insufficient"⁵. What is unknown is the number of international credits that will need to be bought and at what price they will be trading at. In May 2017, Newshub

¹ Thomson-Reuters/Point Carbon, *EU ETS in 2030: A long-term price forecast*, 2017

² Carbon Pricing Leadership Coalition, *Report of the High-Level Commission on Carbon Prices*, 2017

³ Environment Commission, *Stepping Stones to Paris and Beyond*, 2017

⁴ Environment Commission, *Stepping Stones to Paris and Beyond*, 2017

⁵ Climate Action Tracker, <http://climateactiontracker.org/countries/newzealand.html> , sourced 29/9/17

ran a story suggesting overseas purchases will total \$14.2bn over ten years, based on a carbon price of US\$50⁶. The New Zealand taxpayer, therefore, is exposed to likelihood and magnitude risk over the purchase of these credits. Should New Zealand be in a position to sell credits, then the volume available for sale and their price are equally relevant to the New Zealand economy. In essence, every tonne of carbon equivalent emissions that can be saved is a benefit to the New Zealand taxpayer and likely a significant one.

This submission is intended to highlight ways that New Zealand, and specifically the New Zealand Government, can act in the short term to deliver these longer term benefits and reduce this risk exposure. This submission is delineated into seven sections. Following the Executive Summary and this Introduction, the third section discusses the current emissions situation and recent trends, the fourth and fifth sections outline recommendations to enable and expedite a transition to a low emissions economy and the sixth section addresses the issue of carbon pricing. We note that the Commission has raised specific questions on the transition to a low carbon economy and EMANZ's responses to these questions are listed in Section 7.

2.2 The Need for Intervention

It is highly unlikely that leaving decisions on carbon emissions mitigation entirely to market forces will be sufficient to deliver the required outcomes. Firstly, market signals are currently insufficient to change behaviours and this is likely to continue in the short and medium term. Secondly, while market and pricing solutions can be effective in altering behaviours at the individual household and business level for some products, rarely are these individual decisions made in the public interest. Climate change is a societal issue and, like health, education and defence, the required results will not materialise without government intervention. Deferring to market forces to generate actions against climate change will result in New Zealand businesses and households acting too late to meet, or even come close to meeting, Paris targets.

This submission focuses on actions that need to be taken by central government to create the right framework and signals to address the looming fiscal crisis that would follow falling short of Paris targets and we call on the Government to act decisively and promptly on these recommendations.

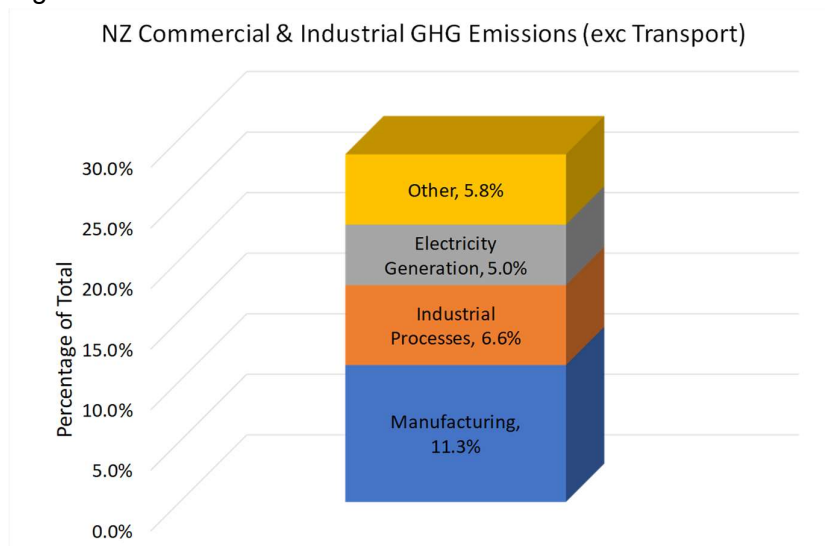
⁶ Newshub, 21 May 2017

3. Reversing the Trend

Despite increasing global awareness of climate change, accompanied by increasing actions to address it in many countries, New Zealand GHG emissions are increasing⁷. While addressing certain sources of GHG emissions, most notably from the agricultural sector, lie outside the expertise of EMANZ members, we are in a position to comment on emissions from the commercial and industrial sectors and transport, the predominant areas of activity of EMANZ members.

The Commercial and Industrial sectors, combined, constitute around 29% of New Zealand's overall emissions profile⁸ and actions that can be taken to reduce emissions in these sectors can make a material difference to the overall emissions profile. The breakdown of emissions sources is illustrated in Figure 1.

Figure 1



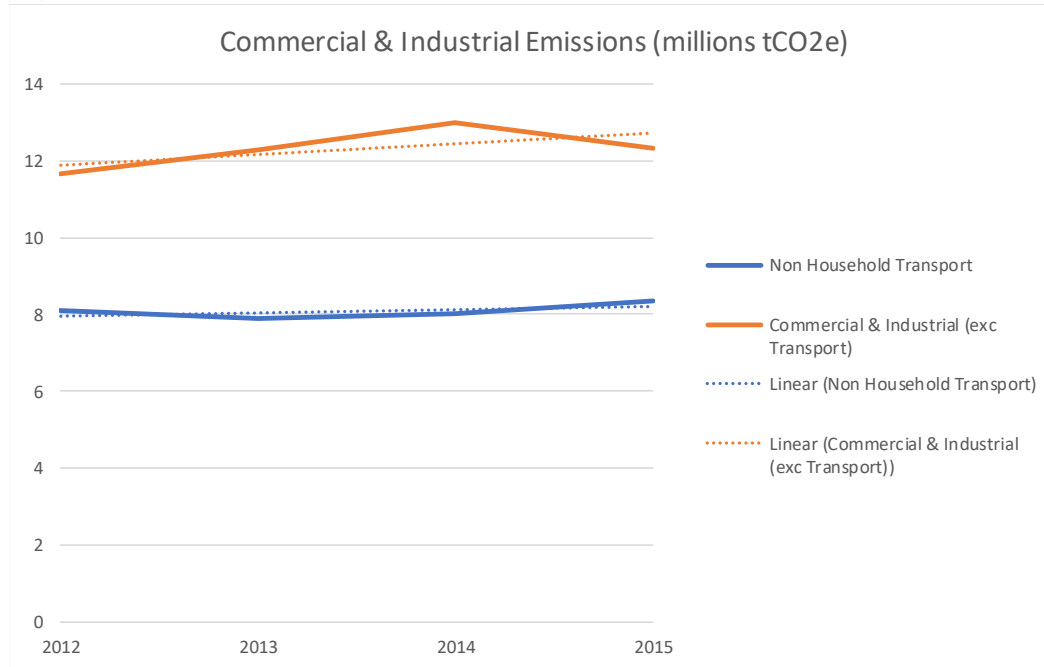
Source: Productivity Commission, *Low Emissions Economy, Issues Paper*, 2017

The trend in emissions from the Commercial and Industrial sectors is illustrated in Figure 2, below, from which we see that the underlying emissions trend in these areas reflects that of New Zealand overall, i.e. a current, upward trend.

⁷ Productivity Commission, *Low Emissions Economy, Issues Paper*, 2017

⁸ Productivity Commission, *Low Emissions Economy, Issues Paper*, 2017

Figure 2



Source: EECA/MBIE End User Database

The underlying trend for the combined sector (excluding transport) shows a compound annual growth rate (CAGR) of 1.89% for the period 2012-2015. Over the same period, the CAGR for emissions from non-household transport was 1.0%.

Numerous, informed commentators have expressed legitimate and substantiated concerns that Business As Usual, even with allowances for new technologies, will not be sufficient to see New Zealand reach its 2030 target. EMANZ does not wish to speculate over what a Business As Usual curve will look like into the future or scenarios that speculate over specific outcomes, rather we wish to proffer recommendations that will result in an improvement relative to BAU, i.e. actions that will contribute towards emissions reductions that market forces alone would not achieve.

4. Key Actions

4.1 Government Approach

Historically, Government priorities for driving energy efficiency improvements have been specified in the publication of a strategy document with a five year cycle, NZEECS (New Zealand Energy Efficiency and Conservation Strategy). The current NZEECS covers the period 2017-22. While this short term focus may facilitate the direct targeting of identified areas of improvement – the proverbial low hanging fruit - it also risks the loss of a more holistic view for reducing overall carbon emissions. This short term perspective can manifest in a sub-optimal solutions in three ways.

Firstly, frequently changing target areas are not conducive to the delivery of longer term benefits and can readily see longer term benefits lost. For example, NZEECS 2011-16 included energy efficiency improvements in commercial buildings. NZEECS 2017-22 barely mentions commercial buildings and is focused very firmly on industrial process heat and electric vehicles. This change of focus, and consequent loss of supporting budgets for commercial building projects, means there is a risk that skills and capabilities developed to drive improvements in the commercial building sector will now be under-utilised as the newer NZEECS is targeting other areas, meaning efficiency and carbon reduction improvements in the commercial building sector may not be fully exploited.

Secondly, a relatively short term planning cycle compromises continuity in implementing programmes. For example, NZEECS 2011-16 expired at the end of June 2017. Its replacement, NZEECS 2017-22 was published at the very end of the 2016/17 financial year. With the change of emphasis in the new strategy there is an understandable reluctance to support new activity to support the older targets areas. However, it takes appropriate planning to convert the strategy into actionable programmes and this can extend over many months. By the time new programmes are designed, planned and budgets allocated, the budgets tend to apply to the following financial year. There is a resulting twelve month hiatus of new initiatives. In effect, the programme cycle becomes one year planning, four years actions, one year planning etc., rather than continuous improvement. A longer term, rolling planning horizon would alleviate this stop-start enactment of programmes.

Thirdly, with a five year planning horizon, longer term initiatives may be under-valued if they do not deliver immediate or significant short term benefit. Behavioural change across industry and society is a key requirement for a significant reduction in carbon emissions. Changing hearts and minds is rarely a short term exercise that fits into a five year cycle. It needs a longer term horizon for awareness and education to take hold. While short term targets may well facilitate cherry picking in specific target areas and will bring benefit, a longer term shift in perceptions, outlooks and behaviours requires a more holistic and longer term approach.

New Zealand needs to adopt a longer term perspective rather than the variable focus resulting from this five year planning cycle.

Recommendation 1

EMANZ supports the introduction of a longer term and rolling planning cycle to developing energy efficiency and carbon reduction strategies. Strategies should be developed across government departments and agencies or by an independent agency adopting a long term, holistic perspective.

4.2 Industrial Process Heat

Industrial process heat is acknowledged as an area where substantial emission savings can be made. This is identified as a key target area in the 2017-22 NZEECS and EMANZ supports actions to deliver improvements in this area through a combination of considering fuels, processes, efficiencies and waste treatment.

Recommendation 2

The NZEECS 2017-22 continues to target industrial process heat as a fruitful area for intervention to accelerate carbon emissions reductions, although this should not be at the expense of other areas of potential improvements, such as commercial buildings.

4.3 Commercial Buildings

Historically, EECA has supported the development of skills and capabilities to improve energy efficiency in operating commercial buildings. It has also directly supported efficiency projects. These projects have been highly successful, however, there remains the opportunity for significant improvements as advances in technology can deliver continuing improvements both in respect of the energy performance of larger buildings and by making energy efficiency technologies more relevant to smaller buildings, i.e. technologies are now able to deliver benefit for medium and smaller buildings whereas, historically, only larger buildings could cost effectively benefit. Having previously supported the development of skills and capabilities in this area, there is now a risk of throwing the baby out with the bathwater if support for projects in this area is scaled down. Recent research from the UK concludes that saving energy is five times as cost effective as buying energy⁹. The research, set up to investigate the benefits of Article 7 of the European Energy Efficiency Directive, indicates that these savings have mainly been made in the commercial building sector.

⁹ Regulatory Assistance Project, *Benefits to Consumers and Climate of Article 7 of the Energy Efficiency Directive*, 2017

Recommendation 3

The NZEECS 2017-22 should be amended to provide continuing support to the development of skills and capabilities in improving energy efficiency and carbon emissions reductions in the commercial building sector.

There are other, international examples of successes in driving energy efficiency in commercial buildings. In Australia, the NABERS programme has delivered substantial benefits in energy efficiency and, consequently, emissions reductions. Between the 2010/11 and 2016/17 financial years, the average greenhouse gas intensity reported has decreased from 190 to 130 (scope 1, 2 & 3, in KgCO₂/m²/yr) and average energy intensity decreased from 708 to 561 (MJ/m²)¹⁰. While some of the reduction in these averages will have arisen through new buildings reducing the average, much benefit has also been derived from retrofits. Total emissions saved by the NABERS scheme in Australia is quoted at 826,577,863 KgCO₂/yr.

NABERS is considered a highly successful programme with 82% of the Australian office market now rated, at least at base building level. High rated NABERS buildings enjoy higher rents and higher valuations (per m²). From July 2017 the threshold for mandatory reporting was reduced to 1,000 m², to bring even more buildings into the programme.

A sister scheme in New Zealand, NABERSNZ, was introduced in 2013, with negligible results. Few buildings register for NABERSNZ ratings and there is no discernible improvement in efficiencies in New Zealand as a result of NABERSNZ. The key difference between Australia and New Zealand in respect of NABERS is that in most states in Australia NABERS reporting is mandatory. There is no telling how long improvements in New Zealand will be delayed if take-up is left to the slow penetration of this market information. In short, if New Zealand is to gain from having a NABERSNZ scheme and improve emissions performance materially in the medium term, NABERSNZ needs to become mandatory.

Recommendation 4

NABERSNZ should be made mandatory in New Zealand.

4.4 Financial Reporting

There can be no doubt institutional and private investors are becoming more environmentally conscious and beginning to incorporate sustainability, and especially carbon emission performance, into their investment decision making¹¹. Nevertheless, in New Zealand,

¹⁰ NABERS 2016/17 Annual Report, <https://nabers.gov.au/AnnualReport/2016-2017/nabers-energy-for-offices.html>

¹¹ *Recommendations of the Task Force on Climate-related Financial Disclosures*, 2017, <https://www.fsb-tcf.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf>

companies' carbon emissions performances are reported only voluntarily. Again, this is a practice that may find its way into New Zealand corporates in due course, however, accelerating this by making emissions reporting mandatory for all listed companies would accelerate improvements as it would force emissions performance into the public domain. In turn, this would likely become a corporate performance comparison metric which, consequently, would become reflected in share prices providing direct incentive to improve performance.

Emissions performance reporting could be similarly required for non-listed companies through the company registration process, Statistics New Zealand submissions or tax returns. However, enacting this would place a heavy burden on smaller businesses who will be unfamiliar with measurement techniques and/or would incur additional costs in monitoring and reporting. This is would not only be impractical to implement but also impractical to police and EMANZ would not support such a measure. Rather, inducing behavioural change through education would be more practical for this sector of the economy.

Recommendation 5

The reporting of emissions performance should be made mandatory for all publicly listed companies in New Zealand.

4.5 Public Sector Reporting and Incentives

Similar to the private sector, transparency of emissions performance would create an incentive for improved performance. This would be the case for all public bodies including central government departments, ministries and agencies, local authorities and DHBs. In addition, anecdotal evidence suggests energy efficiency improvements have historically been successful when incorporated into performance targets for Chief Executives in the public sector. Stated and transparent performance targets for carbon emissions would likely be equally as successful.

Greater accountability for emissions in the education sector would also drive greater energy and carbon management awareness and engagement in schools and colleges. In turn, this would see more youngsters embrace good practice and pursue vocational careers in energy and carbon management.

Recommendation 6

Public sector bodies should be required to report emissions performance.

Recommendation 7

Emissions performance targets should be incorporated into KPIs for senior executives in the public sector.

4.6 Financial Incentives

Few interventions focus the mind and spur action better than financial incentives. These can take the form of grants, subsidies, tax credits or favourable tax treatments aimed at delivering specific outcomes. It is not yet clear what specific incentive or subsidy programmes will emerge from converting NZEECS 2017-22 from a strategic direction targeting identified areas into actionable activities. Historically, EECA has used a subsidy approach directly with industry supported by facilitating and enabling activities, for example by helping EMANZ develop training and accreditation materials and programmes. This approach has been successful and further, future success can be expected. Nevertheless, this type of support could be considered Business As Usual and - while unquestionably beneficial - will not deliver the scale of change required to meet Paris targets, at least under current funding arrangements. Indeed, there is a school of thought that a switch of emphasis from supporting efficiency and carbon reductions in the commercial sector, in particular targeting commercial buildings, to supporting electric vehicle initiatives will deliver less benefit than continuing to target the commercial building sector. Either way, these areas of support could be considered Business As Usual.

EMANZ believes financial incentives could be used more extensively to good effect. Specifically, we believe a financial benefit of accelerated depreciation on energy and carbon management initiatives, appropriately certified by qualified energy management professionals, would expedite the adoption of newer and more efficient technologies with lower carbon footprints. While this would not resolve the problem endemic in New Zealand businesses of investment assessment dominated by a crude payback measure, it would at least help some projects demonstrate earlier returns on investment.

New Zealand is an earthquake prone country and many older buildings are being required to undergo seismic strengthening. These refits provide an excellent opportunity to upgrade with more efficient plant. Currently, we typically see replacement on a 'like for like' basis at the cheapest cost and, with the replacement equipment likely to have a lifespan of ten to twenty years, a great window of opportunity to improve is being wasted. An upgrade incentive would see many of these buildings improving their energy productivity now, the alternative being a long term deferral.

Recommendation 8

The adoption of accelerated depreciation on qualifying energy and carbon management investments be introduced as a financial incentive to the take up of relevant, new technologies.

4.7 Access to Finance

Energy and carbon efficiency improvements commonly stumble because of the difficulty of access to competing funds. Large companies invariably face a portfolio of investment projects and standard investment decision making will suggest that those delivering the strongest rates of return will be those pursued. Under capital constraints, it is likely that projects that would deliver a positive benefit may still not be pursued if other projects are expected to deliver stronger returns. Introducing carbon pricing into investment decision making, while good practice, is not compulsory. Common use of carbon pricing would provide some headway towards addressing this. However, while the inclusion of carbon pricing is beginning to penetrate multinational investment decision making¹², it remains rare outside very large companies. Projects aimed at reducing energy and carbon improvements will still be competing against a wide portfolio of other investment opportunities and will need to deliver an ROI better than competing projects in order to be financed.

The introduction of a government supported, green investment bank could provide easier access to investment funding that would deliver energy and carbon emission benefits. This approach has been adopted in the UK, where its Green Investment Bank was established in 2012. The UK Green Investment Bank became profitable in the 2014-15 financial year and was sold into the private sector in 2017.

Australia too, has its Clean Energy Finance Corporation. The CEFC was established in 2012 and commenced funding investments in 2013. It is financed by the Australian Government at a level of AU\$2bn per year for five years and is tasked to operate on a commercial basis.

Recommendation 9

A Green Investment Bank be established to support investment capacity in projects that will improve energy efficiency and reductions in carbon emissions. The bank should operate on a commercial basis with a long term investment horizon and funding applications should be entertained from businesses of all sizes and any industry sector. Investments, however, should not include pure R&D projects, rather they should make funds available on a commercial basis for projects delivering tangible improvements in energy efficiency or reductions in GHG emissions.

¹² Ahluwalia, Manjyot Bhan, *The Business Of Pricing Carbon: How Companies Are Pricing Carbon To Mitigate Risks And Prepare For A Low-Carbon Future*, Centre For Climate And Energy Solutions, September 2017

4.8 Vehicle Emissions

Applying standards around vehicle emissions is a common method of limiting air pollution. The benefits of vehicle emission standards extend beyond reducing carbon emissions. They include improvements in air quality and a reduction in particulates, which is associated with positive health outcomes. While New Zealand applies vehicle emission standards for new vehicles entering the fleet, the requirements for existing vehicles is at best haphazard, relying on a visual check for smoke rather than emissions analysis.

It is important, however, that any emissions standards are fuel agnostic. In New Zealand, diesel fuel is often perceived as dirty. The reality is that diesel fuel contains more energy per litre than petrol and diesel engines are more fuel efficient, leading to better fuel economy and fewer carbon monoxide, carbon dioxide and hydrocarbon emissions than petrol vehicles per kilometre travelled. Modern diesel vehicles built to the latest standards are also able to capture or convert dangerous nitrous oxides and particulates. New Zealand's vehicle emission problems lie not with a particular fuel source, rather with the extensive use of old, inefficient and dirty engines. Emissions standards will encourage a switch to newer, more efficient and cleaner technologies, which includes electric vehicles. Of course, the introduction of vehicle emissions standards will potentially hit lower socio-economic groups most as this group will tend to have a higher ownership of older vehicles. It is important, therefore, that any measures to introduce vehicle emission standards or to modernise the vehicle fleet do not adversely impact lower income earners inequitably.

Recommendation 10

The introduction of vehicle emission standards as part of Warrant of Fitness checks within a regime that does not inequitably impact lower income groups.

4.9 ISO50001

Article 8 of the EU Energy Efficiency Directive requires member states to implement a programme of mandatory energy audits for large companies. In the UK, for example, the response has been to mandate regular (four yearly) audits for all companies with more than 250 employees or with turnover exceeding €50m or balance sheet exceeding €43m. While it is too early to assess the long term impact of this programme, highlighting the issue of energy efficiency through regular auditing can only improve energy efficiency and productivity.

EMANZ believes an even more effective driver would be the mandating of energy policies and plans, compliant with ISO50001, the international energy management standard, for larger companies. ISO50001 compliance will direct larger New Zealand companies down a path of efficiency and productivity delivering the double benefit of reduced carbon emissions and protection of marketing position, i.e. defending New Zealand's clean, green image.

It is important, however, that this is accepted as a driver to improved efficiency and productivity rather than additional compliance cost and, therefore, only larger companies should be included in the scheme. EMANZ is happy to work with Government and accreditation providers, such as Enviromark, to set a framework for compliance based on industry sector and size to ensure only appropriate companies are included in the scheme.

Recommendation 11

The introduction of a mandatory energy management policy and plan, compliant with ISO50001, for companies above specified size thresholds. The size thresholds could differ by industry sector, as appropriate, to avoid excessive compliance costs.

5 An Educated Business Community

While the recommendations listed in Section 4 of this document are all positive steps over and above BAU towards addressing New Zealand's looming emissions crisis, EMANZ believes the most important action available is to enable corporate New Zealand to clean up its own act.

Many of New Zealand's major businesses operate globally and there is increasing consumer pressure internationally for more transparent information on carbon performance. This not only applies to producers of end-use products but will also be a requirement throughout the supply chain. Overseas, we already see manufacturers requiring suppliers and contractors to have sustainability policies¹³ and this is a trend we can expect to see emerge in New Zealand. It is consumer and investor demand that will drive businesses to improve their GHG performance. However, given its reliance on a highly promoted and currently exposed clean, green image, New Zealand cannot afford to be reactive to changing expectations on emissions performance. Rather, it must be – and be seen to be – proactive in addressing environmental issues, of which carbon management is probably the most important.

Many exporters and the tourist industry rely heavily on New Zealand maintaining its clean, green image as part of their marketing propositions. New Zealand, therefore, not only has to be seen to be actively addressing climate change issues but needs to be seen as a leader and innovator in addressing climate change issues.

Left to the market, this will not happen for many years - too late, in fact, for improvements to have any beneficial effect on Paris targets and at risk of New Zealand's clean, green image being irreparably compromised.

In addition, New Zealand's energy productivity is behind where we would like it to be and is not improving as rapidly as other countries. This can be addressed through improved knowledge and skills capacity building.

EMANZ already has expertise in, and an established training programme based on, ISO50001, the international standard in energy management. This includes segments on carbon management. ISO50001 and the existing training programme is an ideal base from which to develop additional content specifically on emissions mitigation. EMANZ is a not for profit and while the knowledge to develop a comprehensive education programme exists within EMANZ, it does not have the resources to develop the programme and deliver it in sufficient numbers to make a swift difference to New Zealand's emissions. Specifically, without financial support, EMANZ will not be able to deliver these benefits to corporate New

¹³ Electrical Contractors Association (UK), *Corporate Social Responsibility Survey* 24 May 2017, <http://www.eca.co.uk/news-and-events/news/2017/may/survey-1-in-2-buyers-require-csr-in-recruitment-p>.

Zealand in sufficient time to make a material difference to achieving 2030 targets. With modest financial support, this programme will make a material difference to achieving targets.

EMANZ proposes it is supported by Government to develop a comprehensive professional career pathway for energy and carbon managers. This will supply New Zealand businesses with the feedstock of knowledge and skills it will undoubtedly require to transition to a low carbon environment.

A key objective of the education programme will be to transition investment decision making away from the short sighted reliance on payback as the dominant investment decision tool.

The adoption of technology solutions and growing status of energy managers will be a global phenomenon and, if we act swiftly, New Zealand can become a leader in the education and training of energy and carbon managers.

“The status of the role [energy manager] will be elevated due to: increasingly sophisticated IT solutions, the increased importance of energy to business outcomes, and the change in relationship with the energy system; making flexible energy management a revenue generating opportunity. Strategic decision making will become central to the role, as change occurs in regulation and infrastructure.”¹⁴

Recommendation 12

Government supports EMANZ to put together an education and training programme that will upskill New Zealand businesses in understanding carbon emissions and how they can be mitigated. This to include the introduction of professional standards and qualifications in energy and carbon management and creating a career pathway to attract a new generation of professionals into careers that expressly encompass carbon management in their roles, thereby ensuring these skill sets are available to New Zealand businesses as the realisation of their need arises. Given the lead time this will require, early action on this recommendation is essential.

The multiple benefits of this include:

- Delivering a material and substantial contribution towards attaining internationally agreed and nationally ratified reductions in carbon emissions.
- Delivering a professional body of individuals appropriately trained and qualified to deliver economic and environmental benefit to New Zealand corporations and public bodies.

¹⁴ Inenco, 2030: The Future Utilities Manager, 2017

- Opening export opportunities for New Zealand professionals in the energy and carbon management space by providing credible, internationally recognised qualifications in energy and carbon management.
- Contributing towards the maintenance and growth of New Zealand's international reputation as being an environmentally conscious nation - the clean, green image.
- Enhancing the international competitiveness of New Zealand businesses both through the national level, reputational benefits of the clean, green reputation and the ability to demonstrate commitment to sustainability at the individual corporate level.
- With a professional qualification structure, membership of EMANZ (possibly requiring renaming for an international market) will likely have international appeal and while EMANZ welcomes the opportunity to train and certify on the international stage, being a New Zealand based organisation will ensure NZ is seen as a thought leader in the field and further enhance the national image.
- Reducing the likelihood and magnitude of the NZ taxpayer having to purchase carbon credits internationally, saving the taxpayer hundreds of millions of dollars.

EMANZ has conducted a cost benefit analysis on this recommendation which reveals highly positive returns on investment and invites the Productivity Commission to endorse engagement of Government with EMANZ with a view to developing an educational programme to bring carbon management knowledge to New Zealand.

6 Carbon Pricing

Allowing market forces to act through exposure to carbon pricing is often cited as a key instrument for improving emissions performance. EMANZ agrees the price of carbon will likely be a material influence on emissions performance. However, the impact of high carbon prices may not have as much influence over business and household decision making as some policymakers may believe or wish.

Outside energy intensive industries and large corporations, energy users are predominantly price takers. We know, for example, that household use of petrol is highly price inelastic, i.e. substantial price changes have relatively little effect on consumption. Continuing with this example, there are many factors contributing to the final end user price of that product. The pump price of fuel is dependent on the price of crude oil, refining costs, transportation costs before and after refining, storage costs at various stages from well to pump, excise duties and taxes, profit margins of suppliers, refiners and retailers and GST. Under this price chain, for the carbon price to materially impact the end user price will require a very high carbon price and for it to influence consumption on a price inelastic product will require a carbon price at the highest end of current predictions. Such a price is unlikely to materialise soon enough through market forces to make a material impact on emissions in the run up to 2030. To achieve this would require government intervention to set a very high carbon price for New Zealand, which would have a highly negative impact on the international competitiveness of New Zealand businesses.

For energy intensive industries and large corporations, the carbon price may be more influential. Nevertheless, in most industries – even large corporations – energy costs still rarely account for a large proportion of their total cost base. Costs tend to be dominated by the costs of raw materials, labour, debt coverage and premises. In all but a small number of energy intensive industries, energy costs are a relatively small proportion of costs. Again, given other cost drivers that make up a final energy bill, the carbon price would be a proportion of a modest proportion of total costs.

In New Zealand, electricity is mostly renewable and so for a carbon price to influence the wholesale and retail power price, and therefore carbon emissions from the sector, will, again, require an extremely high price, likely above what we might realistically expect from market forces.

Recent research among large US corporations confirms that while incorporating carbon pricing into their investment and other financial decision making is an effective tool to help select lower carbon options, it will not in itself deliver a low carbon economy. The report concluded:

“Corporate carbon pricing strategies alone will not be sufficient to ensure a transition to a global low-carbon economy. These approaches must be complemented with other greenhouse gas reduction strategies.”¹⁵

The conclusion is that the carbon price can be expected to have only a modest impact on emissions performance of New Zealand as a whole and, even then, a high price will be required. Expectations of emissions improvements driven predominantly through a carbon price will likely be thwarted. New Zealand needs to look beyond a reliance on carbon pricing to drive emissions improvements.

¹⁵ Ahluwalia, Manjyot Bhan, *The Business Of Pricing Carbon: How Companies Are Pricing Carbon To Mitigate Risks And Prepare For A Low-Carbon Future*, Centre For Climate And Energy Solutions, September 2017

7 Productivity Commission Questions

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

The Commission can best add value by developing a list of recommendations for Government on how New Zealand can transition to a low carbon economy which focuses on improvements over what might be expected under a business as usual scenario. It is widely recognised that BAU and a reliance on market factors will be insufficient for New Zealand to meet its international commitments and well-directed encouragement and support will be instrumental in reducing New Zealand's risk exposure to having to buy carbon credits internationally – at prices that will likely be at the high end of current predictions. The best long term investment decision for New Zealand Inc would be to invest now in projects and initiatives that will reduce this exposure.

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?

To reduce emissions, the focus of attention must be directed towards energy efficiency and productivity. There is still substantial scope to improve energy efficiency in the commercial building sector and extensive opportunities in the industrial sector. There is also a danger that opportunities for efficiency improvements and carbon reductions outside a small area of direct focus will be lost. NZEECS 2017-22 focuses on industrial processes and the promotion of EV take-up. EMANZ supports attacking industrial emissions as a priority, however, we feel financial support to promote the use of EVs is not the most effective application of public funds, rather facilitating energy productivity across the business sector will deliver stronger emission reduction results. This switch in emphasis to EV take-up risks the loss of opportunities for savings in the commercial building environment and the erosion of existing savings as optimum savings will come from continuous improvement rather than stop-start actions.

To what extent is it technically and economically feasible to reliably measure biological emissions at a farm level?

Measurement of biological emissions is not an area of comment for EMANZ.

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

Reducing emissions from the agricultural sector will not only help overall emissions performance but will contribute towards international competitiveness through New Zealand agriculture demonstrating stronger sustainability credentials. For this to become a fruitful target area for reductions, baseline energy use and emissions will need to be assessed at the individual farm level.

Dairy farms, in particular, face a major opportunity to reduce their emissions profile through the use of renewable energy technologies. In addition to solar and wind, anaerobic digestion can be used to generate fuel from slurry and unproductive land can be planted. There is a

growing market for converting farms in Europe to energy self-sufficiency and this trend could be repeated in New Zealand.

The key barriers to the uptake of this technology are lack of awareness of its effectiveness in the rural community, lack of competition in the supply market for farm energy innovation and access to capital. Market forces will likely address the first two of these barriers in due course, however access to investment capital may prove more difficult and is, perhaps, a viable target area for a Green Investment Bank.

What are the issues for government to consider in encouraging alternative low-emissions land uses?

The Government should not subsidise or otherwise distort the market. The forestation of land, including the transfer of pastoral land to forest will be influenced by the carbon price and the relative returns available to landowners. Land use is an area where carbon pricing may materially alter behaviour and choices. However, with current returns from forestry being low, the carbon price will need to be very high for it to become influential.

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

Land will (generally) be used to deliver the highest return to the land owner. Forestation rates will be driven by the relative prices of carbon and the returns achievable from other uses of land. The main barriers, therefore, are a low carbon price and currently low margins on fuel wood.

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

The Emissions Trading Scheme needs to be opened to international prices for this carbon pricing mechanism to take effect. Even then, it is likely the international carbon price may not be sufficiently high to encourage a significant change in land use. To be successful in driving forestation, the ETS may need to remain a closed system with artificially high domestic pricing. EMANZ would not support this trajectory as an artificially high domestic carbon price would be detrimental to New Zealand's international economic competitiveness.

What are the main barriers to the uptake of electric vehicles in New Zealand?

The uptake of electric vehicles in New Zealand has recently been strong. The main barriers inhibiting even faster uptake relate to price and concerns over depreciation. Electric vehicles are relatively new technologies and remain expensive to purchase relative to a similarly sized petrol or diesel vehicle. This is inhibiting in two ways. Firstly, the high price is inhibiting in itself. Secondly, with such rapidly advancing technology, buyers are concerned that current technologies will be superseded substantially and soon, i.e. their currently high priced vehicle will depreciate very rapidly and carry little value in as few as three or four years.

The commonly cited barrier of range anxiety is exaggerated. EV purchasers will have a good understanding of their expected usage profile and most buyers will only consider an EV if

they expect to use it for regular, short trips (e.g. to and from work) with the expectation they will charge at home. Drivers expecting to undertake longer journeys are not presently in the EV market. Government financial support for the installation of additional charging stations is a distortion of the market and does not address the true inhibitors of EV take up.

What policies would best encourage the uptake of electric vehicles in New Zealand?

The uptake of electric vehicles should be left to market forces. The Government could play a constructive role and display leadership by committing to the use of EVs in its own fleet. This would also support the second hand market by providing feedstock.

Electric vehicle uptake could also be supported by the removal of barriers to the provision of “mobility as a service” propositions, for example vehicle sharing. Electric vehicles are cheaper to maintain and run than combustion engined vehicles and so will be relatively more attractive under conditions of higher vehicle utilisation.

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

The most effective action to reduce transport emissions would be measures to improve the efficiency of the national vehicle fleet. This would best be achieved by introducing emissions standards for all vehicles, not just new imports. Over time this would remove the oldest, least efficient and most polluting vehicles from the fleet. However, caution will be required if such a policy were pursued to avoid discrimination against low income households.

The electrification of freight and public transport also offer substantial opportunities to decarbonise transport.

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

The main barrier to the reduction of fossil fuel use in manufacturing is that of price. Currently, energy generation costs using fossil fuels remain significantly cheaper than renewable alternatives or the use of electricity. This will change only at the margin with higher carbon prices. There exist substantial opportunities to reduce fossil fuel usage in water heating through the extended use of heat pump technologies, however, in many cases this will still be more expensive than using fossil fuels, in particular coal. Some applications – those that require more intensive heat – have no currently credible alternatives to the use of fossil fuels.

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?

EMANZ supports a coordinated approach to the development of smart grids. This would include ensuring there are no barriers to technological developments such as peer to peer trading or disincentives to energy efficiency improvements through adopting new technologies.

What evidence is there on the possible physical effects of future climate change on sources of renewable energy in New Zealand, such as wind, solar and hydro power?

EMANZ does not feel adequately qualified to comment on this question directly. However, we note that each of these renewables is dependent on variable weather conditions and, therefore, may be subject to intermittent generation or exposure to dry years. From the perspective of security of supply, EMANZ would welcome more technologies into this mix, for example generating power from waste and tidal power, both of which carry less risk of variability or weather dependency. In addition, we believe that the Government should ensure there are no regulatory or discriminatory obstacles to the use of storage, particularly battery storage, in the electricity system. The addition of more continuous renewables – once they become financially viable – and appropriate storage media would help New Zealand reach the nirvana of being 100% renewable in its electricity generation.

Apart from the regulation and operation of the electricity market, what are the main opportunities and barriers to reducing emissions in electricity generation?

New Zealand faces continuing opportunities to drive up its proportion of electricity generated by renewables. Solar continues to develop from technological and pricing perspectives. There are numerous consented wind farms that could easily be built if market conditions become favourable. The barrier to reducing emissions is the need for fossil fuel generation to support existing renewable technologies at peak or in the event of failure due to the intermittent nature of solar and wind and, in respect of dry years, hydro. These limitations can somewhat be alleviated by an increased use of storage technologies (although many of these, such as battery storage come with their own, associated emissions concerns). Opportunities will likely emerge to introduce additional renewable technologies into this mix that will be less intermittent in nature and be able to displace the remaining fossil fuel generation in the electricity sector.

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)?

Presently, the scope for reducing emissions in these industrial processes is limited. While processes involving water heating could substantially be replaced by the use of efficient heat pumps, those requiring more intense heat are most cost effectively satisfied using fossil fuels. The main area of opportunity for emissions reductions in industrial processes comes from energy efficiency to reduce energy demand rather than energy generation or fuel displacement.

Air conditioning and refrigeration systems account for a significant proportion of global electricity generation and GHG emissions. The extent of this market results in new technologies emerging every day to improve the efficiency of product processes in HVAC and refrigeration systems. The key to emissions reductions in these areas is for continuous training in emerging technologies and how they can be used to drive efficiency. Market innovation will deliver technology improvements in these areas. However, New Zealand must continue to address these risk areas as a high priority as they continue to be an area of potential high return in terms of investments in emissions reducing technologies. Dropping the ball on energy use in buildings would be severely detrimental to the achievement of emissions targets. EMANZ notes NZECS 2017-22 barely mentions supporting initiatives in this area and believes a wholesale change of focus away from buildings to the promotion of electric vehicles will be detrimental to achieving emissions targets.

What policies and initiatives would best promote the design and use of buildings that produce low greenhouse gas emissions?

There are many international examples of successes in driving energy efficiency in commercial buildings. In Australia, the NABERS programme has delivered substantial benefits in energy efficiency and, consequently, emissions reductions. Between the 2010/11 and 2016/17 financial years, the average greenhouse gas intensity reported has decreased from 190 to 130 (scope 1, 2 & 3, in KgCO₂/m²/yr) and average energy intensity decreased from 708 to 561 (MJ/m²)¹⁶. While some of the reduction in these averages will have arisen through new buildings reducing the average, much benefit has also been derived from retrofits. Total emissions saved by the NABERS scheme in Australia is quoted at 826,577,863 KgCO₂/yr.

NABERS is considered a highly successful programme with 82% of the Australian office market now rated, at least at base building level. High rated NABERS buildings enjoy higher rents and higher valuations (per m²). From July 2017 the threshold for mandatory reporting was reduced to 1,000 m², to bring even more buildings into the programme.

A sister scheme in New Zealand, NABERSNZ, was introduced in 2013, with negligible results. Few buildings register for NABERS ratings and there is no discernible improvement in efficiencies in New Zealand as a result of NABERSNZ. The key difference between Australia and New Zealand in respect of NABERS is that in most states in Australia NABERS reporting is mandatory. There is no telling how long improvements in New Zealand will be delayed if take-up is left to the slow penetration of this market information. In short, if New Zealand is to gain from having a NABERSNZ scheme and improve emissions performance materially in the medium term, NABERSNZ needs to become mandatory.

¹⁶ NABERS 2016/17 Annual Report, <https://nabers.gov.au/AnnualReport/2016-2017/nabers-energy-for-offices.html>

What are the main opportunities and barriers to reducing emissions in waste?

EMANZ has no comment on emissions from waste.

Policies to lower emissions from particular sources, technologies and processes can have interactions with emission sources in other parts of the economy. What are the most important interactions to consider for a transition to a low emission economy?

EMANZ feels this question is too broad for comment given the enormous array of interactions that exist in the economy.

What type of direct regulation would best help New Zealand transition to a low-emissions economy?

In general, EMANZ believes markets will likely deliver optimum solutions. Notwithstanding this philosophical viewpoint, there are certain actions that will expedite a transition to a low emissions economy and, equally as importantly, reduce the risk of exposure to New Zealand having to purchase substantial numbers of carbon credits on international markets in the run up to 2030. These actions will deliver results in excess of Business As Usual and would not happen without government intervention. These recommendations are detailed separately in this submission, however in short, they include:

- Making NABERSNZ mandatory in New Zealand;
- Introducing emissions standards and testing for road vehicles;
- Mandatory reporting of emissions performance by publicly listed companies;
- Mandatory reporting of emissions performance by public bodies and agencies.

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?

The Emissions Trading Scheme will, undoubtedly, play a part in transitioning to a low emissions future. Expectations over the extent of this influence, however, should be tempered. Carbon prices can be expected to have only a modest impact on emissions performance of New Zealand as a whole and, even then, a high price will be required. Expectations of emissions improvements driven predominantly through a carbon price will likely be thwarted. New Zealand needs to look beyond a reliance on carbon pricing to drive emissions improvements.

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

The Emissions Trading Scheme, once operating at international market levels will be a positive influence towards reducing carbon emissions. Its impact, however, will be dwarfed by the influence of consumer power. Increasingly, consumers are demanding information on corporate sustainability credentials and making purchase decisions based on perceptions of good corporate citizenship. Many New Zealand companies, and the New Zealand economy as a whole, is dependent on maintaining a clean, green image. Indeed, our two most

significant export earners, the agricultural sector and tourism, are so dependent. It is demand from national and international consumers that will drive New Zealand to becoming a low emissions economy. New Zealand businesses, however, need encouragement to pursue this course and we cannot afford to wait for a reactive response. There are two areas in particular that require intervention in the market. The first is to put appropriate regulation in place to nudge New Zealand businesses in this direction through compulsory reporting of emissions performance for listed companies, mandatory energy policies and plans based on ISO50001 for larger businesses, introducing emission standards on road vehicles and mandatory participation in NABERSNZ. The second is to support New Zealand businesses by making sure the skills, knowledge and expertise is available to facilitate their transition. These steps are imperative if New Zealand is to transition quickly and retain its market positioning in competitive international markets.

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

The area corporate New Zealand most needs help in to transition to a low emissions economy is in accessing the skills, knowledge and expertise to understand their carbon emissions, measure them and evaluate options for reducing or mitigating them. Awareness of the implications of carbon pricing remains poor in corporate New Zealand and an education programme targeting corporate New Zealand is required to address this deficiency and offer up routes forward for businesses. Once this awareness has been established, a demand will emerge for skills and expertise in these areas of carbon management. Rather than have a dangerous void emerge, EMANZ proposes the New Zealand Government acts proactively to ensure this demand for skills can be satisfied as it arises by financing a training and education programme to develop professional skills in the areas of energy and carbon management. This could be based on an enhanced variant of an existing EMANZ programme, itself founded on ISO50001, the international standard for energy management.

How can New Zealand harness the power of financial institutions to support a low-emissions transition?

EMANZ believes financial markets, in due course, will recognise the importance of sustainability practices. Indeed, there are already indications emerging from financial markets that corporate sustainability policies and practices will increase in importance. The Task Force on Climate Related Financial Disclosures¹⁷, for example, has recently called for companies to publish details of their corporate sustainability policies and, in particular, statements around carbon emissions. It is likely this type of reporting will become the norm. Nevertheless, this trend will take time to bear fruit and, in itself, does not provide direct financial support for low carbon emissions projects.

The introduction of a government supported, green investment bank could provide easier access to investment funding that would deliver energy and carbon emission benefits. This approach has been adopted in the UK, where its Green Investment Bank was established in

¹⁷ *Recommendations of the Task Force on Climate-related Financial Disclosures*, 2017, <https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf>

2012. The UK Green Investment Bank became profitable in the 2014-15 financial year and was sold into the private sector in 2017.

Australia too, has its Clean Energy Finance Corporation. The CEFC was established in 2012 and commenced funding investments in 2013. It is financed by the Australian Government at a level of AU\$2bn per year for five years and is tasked to operate on a commercial basis.

EMANZ recommends a Green Investment Bank be established to support investment capacity in projects that will improve energy efficiency and reductions in carbon emissions. The bank should operate on a commercial basis with a long term investment horizon and funding applications should be entertained from businesses of all sizes and any industry sector. Investments, however, should not include pure R&D projects, rather they should make funds available on a commercial basis for projects delivering tangible improvements in energy efficiency or reductions in GHG emissions.

What type of alternative approaches (such as voluntary agreements or support for green infrastructure) would best help New Zealand transition to a low-emissions economy?

In EMANZ's experience, voluntary agreements have limited impact on behavioural change. Ordinarily, the most effective means of altering behaviour is through appropriate price signals. In the case of carbon pricing EMANZ believes this will have some influence on the behaviours of New Zealand businesses and households, however, its impact will not deliver timely benefit and will not be sufficient to amend behaviours substantially.

What are the main uncertainties affecting New Zealand businesses and households in considering investments relevant to a low-emissions future? What policies and institutions would provide greater confidence for investors?

There are several important influences that inhibit investment in technologies that would contribute to a low emissions future.

The dominant investment decision criterion among New Zealand corporates is that of payback, which is, at best, a crude assessment tool. New Zealand corporates need to be educated beyond a reliance on this short term measure and consider alternatives, most notably that of full lifecycle costing. This would rebalance decision making to a longer term perspective and incorporate wider sustainability factors.

Capital constraints are a perpetual problem for businesses and households. Even where investment projects satisfy basic investment criteria, they may still be competing for resources with alternative projects that may deliver superior rates of return. The provision for accessing funds for projects that can satisfy commercial investment criteria and emissions reduction criteria at commercial financing rates would see more projects initiated that, perhaps, would otherwise not have made it over the line.

Finally, with new technologies there is commonly a fear of speedy obsolescence which creates concerns over high depreciation and loss of asset value. Battery technologies are a case in point. Expectations are that battery technologies will continue to improve and that costs will come down. With this backdrop, it is understandable if there is a temptation to defer projects until the costs are reduced. Of course, this is a continuing process and potential emissions saving projects are often continually deferred as a result.

The introduction of accelerated depreciation on low emissions projects would help alleviate the financial impact of early obsolescence and would provide a modest, short term financial incentive to help increase the attractiveness of low emissions projects.

What approaches, such as regulatory frameworks or policy settings, would help embed wide support among New Zealanders for effective reduction of domestic greenhouse gas emissions?

EMANZ believes New Zealanders are becoming increasingly aware of climate change issues and, therefore, the importance of reducing GHG emissions. We believe they would support visible, practical and prudent Government actions to help address emissions. We believe that, currently, relatively few residents realise New Zealand emissions are increasing or that New Zealand's emissions performance is poor by international standards. The introduction of a carbon price – even if transparent to the consumer - would have limited impact on the behaviour of New Zealand households. Much more effective would be the support of educational programmes that would upskill New Zealand to deal with emissions problems and demonstrate the Government is committed to minimising the risk of exposure to buying credits internationally and proactive in this risk minimisation.

Is New Zealand's current statutory framework to deal with climate change adequate? What other types of legislation might be needed to effectively transition towards a low-emissions economy?

EMANZ has several recommendations to help transition to a low emissions economy as outlined elsewhere in this submission. Some of these recommendations will require legislation.

In addition, consideration should be given to mandating minimum energy performance standards for certain products, for example household appliances, light bulbs, etc. History has shown that personal and commercial decision making is commonly driven by price, even where better performing alternatives are available. Minimum performance standards would help improve overall energy efficiency performance, although the full impact of this would take time as items are replaced over a longer term.

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?

An independent body to oversee climate change commitments would carry the obvious advantage of being able to plan with a longer time horizon and be free of shorter term, political influence. This approach has worked well in the UK as highlighted recently by the Environment Commission¹⁸ and should be considered for New Zealand.

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

EMANZ has no specific comment on this point.

In addition to “core” climate policies and institutions, what other changes to policy settings or institutional frameworks are required to effectively transition New Zealand to a low-emissions economy?

EMANZ has no additional comment on this point, please refer to our key comments and recommendations above.

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

EMANZ would be happy to provide additional analysis on potential benefits from emissions reduction initiatives or on developing scenario analyses around initiatives. EMANZ, however, is a not-for-profit organisation and is resource constrained in doing this and so financial support would be required to undertake such analysis.

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?

EMANZ believes emissions pricing has a place in transitioning to a low emissions economy, however its impact will be limited. EMANZ does not have specific comment on the best means of supporting R&D but does note that existing structures (such as Callaghan Innovation) are in place and believes no net, additional support would deliver incremental benefit above its cost. EMANZ believes more productive and cost effective approaches to transition are those listed in this submission as recommendations.

What are the main co-benefits of policies to support a low-emissions transition in New Zealand? How should they be valued and incorporated into decision making?

The key co-benefit of effective energy efficiency planning is that as well as delivering immediate savings in carbon emissions, it also delivers improvements in energy efficiency and productivity. Placing a monetary value on the benefits of New Zealand transitioning would be overly speculative, suffice to say that such a transition is essential for the retention of competitive positioning in international markets.

¹⁸ Environment Commission, *Stepping Stones to Paris and Beyond*, 2017

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

The most important parties will be New Zealand businesses and New Zealand households. New Zealand businesses, in particular, need to be addressing their carbon emissions as a matter of urgency and will need major upskilling to be able to achieve that. There is currently a dearth of understanding in businesses about how they emit carbon or their usage of products that use carbon. Addressing this knowledge deficit will make a material difference to emissions. However, bringing New Zealand up to speed on understanding carbon and how to reduce emissions will not happen without Government support and a considered education programme. EMANZ is in a position to lead this programme, however, is not resourced to do so. Resource support to help EMANZ develop and deliver a professional standard training and accreditation programme would deliver substantial return on investment to the New Zealand taxpayer by reducing the level of carbon credits that would otherwise need to be purchased to achieve 2030 emissions commitments, ceterus paribus.

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?

EMANZ feels this question is too broad for comment given the enormous array of potential support frameworks and losses.

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

Please see the list of EMANZ recommendations.

Should New Zealand adopt the two baskets approach? If so, how should it influence New Zealand's emissions reductions policies and long-term vision for the future?

EMANZ believes target setting is an effective means of focusing attention and assessing outcomes. However, more important is the development of suitable support structures to implement and fulfil transition.

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

EMANZ has no specific comments on this point.

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

For New Zealand, a transition to a low emissions economy is not a nicety but a necessity.

What does your long-term vision for a low-emissions economy look like? Could a shared vision for New Zealand be created, and if so, how?

EMANZ believes any vision for a low emissions economy will come from consensus and will need the engagement of all sectors of New Zealand society - individual, corporate and public. Attaining a single, national vision is a worthy pursuit and EMANZ is supportive of that pursuit.

In the meantime, we have furnished here some key recommendations on specific actions that will make a material difference to reducing emissions and reducing the New Zealand tax payers' risk of exposure to international carbon markets should New Zealand fail to meet its 2030 commitments.

ENDS