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Emissions reduction plan consultation
Ministry for the Environment,
PO Box 10362,
Wellington 6143

climateconsultation2021@mfe.govt.nz

Submission from the Bioenergy Association

Transitioning to a low-emissions and climate-resilient future

The Bioenergy Association is pleased to see the proposals in the discussion document *Transitioning to a low-emissions and climate-resilient future* and considers that these can speed up reduction of greenhouse gas emissions. However we also believe that there are significant missed opportunities that can be taken before 2035 which would better utilise the \$6.4billion reportedly planned to be spent on international emission reduction credits.

Our stakeholders

The Bioenergy Association represents a significant portion of owners of biomass fueled heat plant, biomass fuel producers and suppliers, waste-to-energy investors and their consultants, researchers and equipment/appliance suppliers across New Zealand. It has members who have an interest in policies relating to the utilisation of biomass and waste for the production of energy; reduction of emissions to air in communities from both residential and commercial/industrial scale heating applications, and from decomposition of waste; and wise use of our renewable natural biomass resources for the betterment of communities. Residual organic waste is considered to be a recyclable biomass resource and it is pleasing to see this being recognized in the associated consultation on the Waste Strategy.

The Association has Interest Groups whose members manage the Association's specific technical matters relating to the use of solid biofuels, production and use of gaseous biofuels, and liquid biofuel sectors, specifically with regard to standards and best practice. The Interest Groups host workshops and dissemination of information to those interested in the respective sectors, or considering investment.

This submission is complementary to the individual submissions from members which provide more detail on specific aspects of the discussion document.

Main points in our submission

Responses to specific questions and details are provided at the end of this submission.

While it is pleasing to see that the use of bioenergy and biofuels as solutions to assist reducing emissions is included, the proposals fail to achieve anywhere near the potential of bioenergy and biofuels to deliver rapid and early reductions cost effectively. There is also a need to build greater diversity into New Zealand's renewable energy streams to support the security and affordability of energy while building its sustainability trilemma.

New Zealand has many bioenergy and biofuels related methods for reducing greenhouse gas emissions which use proven technologies and can be implemented immediately. These include:

- Use of biomass and waste to replace fossil-based fuels such as coal, gas and diesel for stationary heat. In a number of situations biofuels can be a drop-in replacement for fossil fuels, thus avoiding unnecessary capital expenditure for conversion.
- Processing of waste to avoid discharge of methane emissions and produce biogas and bio-fertiliser – two valuable products. The biogas can be used directly for heat or be upgraded as a drop-in replacement for natural gas and LPG, and as fuel for suitable vehicles.
- Use of liquid biofuels as drop-in vehicle fuels, particularly for land freight, coastal shipping and aviation. Internationally these are well proven and scaling but lack of familiarity is holding New Zealand back.

These methods of reducing greenhouse gas emissions also assist regional economic growth, clean air, clean waterways and provide additional revenue streams for stakeholders. It is therefore pleasing to see this recognized by the inclusion of bioenergy and biofuels within proposals for a wider bioeconomy based on circular economy principles.

Biomass is a storable energy source and supply is able to be expanded to meet demand. It is also able to be easily switched between uses according to market changes. It is the most versatile of energy sources as it can be economically used to produce heat, generate electricity, and be used as a vehicle fuel all activities which result in greenhouse gas emissions reduction. The other environmental, community, and societal benefits come for free.

It appears that a reluctance to promote greater use of bioenergy and biofuels solutions in the discussion document is because no work has been undertaken to identify the potential for additional biomass above what is already available, and there are few demonstration examples in some areas such as liquid biofuels production. Assumptions on biomass and biofuels use are based on current availability. Analysis by the Bioenergy Association identifies that instead of basing policies on how much biomass is available, having a different approach based on how much biomass can be available sustainably, would allow greater emissions reduction. Our analysis shows that the current 50PJ of biomass energy that is used nationally could increase to at least 150PJ of energy by 2035. Additional emission reductions would be available in following years. This would ensure that, rather than purchasing international credits, investment instead stays onshore and delivers embedded infrastructure with long term benefits for New Zealand.

Currently there is the equivalent of 145PJ of energy exported as low grade logs to markets which may not continue. Currently export of logs to China is down 35% and, with a downturn in Chinese construction, an aggressive Chinese planting programme and an increase in carbon prices in New Zealand, is expected to be depressed for some time. In addition, new biomass can be sourced from farm forestry by encouraging farmers to use the 6-9% of a farm which is currently not highly productively used. Land use should be encouraged to be managed sustainably by a mix of forestry and traditional food products. It is not Either/Or – it should be both. In addition, Scion's modelling shows that by growing longer-term crops, such as energy forests, New Zealand could build a biofuelled future.

The key to ensuring that there is enough biomass and organic waste to develop a world leading bioeconomy is:

- Improving the information flows between who needs biomass and who can supply it,
- Identifying and pursuing the opportunities for additional sources of biomass so that there is the right biomass, of the right type, in the right place, at the right time and at the right price.

The Association analysis shows that all demand for biomass to build a bioeconomy can be met if we plan and act appropriately.

The Association is pleased to see policies being promoted around New Zealand becoming a circular economy, encompassing bioenergy and biofuels within a bioeconomy. The work which the association has done over the last two decades lays a foundation on which the circular/ bioeconomy has already started to be built. We don't need new policies to start the circular and bioeconomy process, as the foundations have already been built. With regard to the circular and bioeconomy the Emissions Reduction Plan need only address actions and policies which would extend and improve the efficiency of the existing circular economy/bioeconomy practices and encourage uptake.

The Bioenergy Association would be pleased to assist with further details and looks forward to using the skills and expertise of its members to work with Government to implement the policies.

Response to questions

Meeting the net-zero challenge

Transition pathway

1. **Do you agree that the emissions reduction plan should be guided by a set of principles? If so, are the five principles set out above, the correct ones? Please explain why or why not.**

No. What are there are ok but not sufficient. The current principles fail to include for policies and activities which build foundations for the emissions reductions which are currently not yet economic. (Eg liquid biofuels are a long term solution and actions must be taken today where benefits may not be realised for say 30 years.)

The current principles also fail to put a focus on emission reduction solutions which assist continued use of existing assets and infrastructure and have the least inconvenience and unnecessary costs to users. (Eg drop-in fuels for heavy transport allow existing vehicle engines to be used without any capital expenditure. Production and use of green gas in the existing natural gas and LPG infrastructure makes use of the existing infrastructure without capital expenditure and gas users are not affected. Wood chip, renewable diesel and bio-coal can be a drop-in replacement fuel for some fossil fuelled heat plant). Current favoured solutions such as electricity and hydrogen for transport require extensive capital expenditure by equipment owners when there are biofuel solutions which are not being considered allow the continued use of existing equipment with no capital expenditure. Requiring energy users to replace good serviceable equipment results in them personally subsidising emissions reduction, which is a public good, when the same result could be achieved at no cost to them.

2. **How can we enable further private sector action to reduce emissions and help achieve a productive, sustainable and inclusive economy? In particular, what key barriers could we remove to support decarbonisation?**

Many of the bioenergy and biofuels emission reduction opportunities can be economic if the right assistance is provided by Government to address market barriers which are slowing uptake. The barriers are:

- Lack of good technical and market information for all participants
- Unnecessary capital expenditure
- Lack of technical advisory competency

Reducing these barriers and providing incentives will speed up uptake .

The private sector will take action to reduce emissions if any action is easy for them. (Eg if they can use a drop-in fuel to existing vehicle engines they are more likely to do that compared to having to replace a good serviceable vehicle so as to change to say electricity or hydrogen. Similarly a boiler owner will convert from coal if they can use a biomass fuel such as wood pellets with minimal capital expenditure.)

3. **In addition to the actions already committed to and the proposed actions in this document, what further measures could be used to help close the gap?**

- Assistance from Government to ensure opportunities occur. There is no government agency(s) established to assist investors succeed. (eg an investor looking to transition to biofuels is not assisted by consenting authorities who are focused on the standards to be met, rather than providing assistance on how to meet the standards)
- Too many initiatives are being approached in an uncoordinated manner when a more collaborative approach would provide economies of scale and allow barriers to be more easily addressed. (eg in a region there is little coordination of the demand for biomass so potential suppliers are left to respond to individual initiatives when they would respond differently if they saw the aggregated demand for biomass).

4. **How can the emissions reduction plan promote nature-based solutions that are good for both climate and biodiversity?**

A focus on developing a bioeconomy is by its nature using nature-based solutions.

5. **Are there any other views you wish to share in relation to the Transition Pathway?**

There is inconsistency in the terminology when using the word decarbonisation when at the same time promoting a bioeconomy which is based on carbon in the form of biomass and waste. The text should focus on low-emissions which is what the policies are about. Promoting a bioeconomy is promoting the use of carbon based materials – the opposite of decarbonisation.

Compared to some areas there is a high level of support for transition from fossil fuels to biomass and organic waste. Increased support to the use of biomass and biofuels would encourage near immediate emissions reduction. The main constraints are economic and this could be addressed if Government changed its approach to that of avoiding having to spend the \$6.4bn on purchasing international carbon credits. Government should alternatively spend that level of funds on domestic emissions reduction which will also create new employment, new business and result in long term sustainable wellbeing. Spending \$6.4bn on purchasing international emissions reduction credits should be seen as a policy failure rather than being accepted as a consequence.

The Bioenergy Association has been promoting a number of these proposed policies for a number of years and has developed information dissemination tools, technical standards and industry best practice guides which will assist rollout of the policies. The association would like to see the relevant government agencies partnering with the association and other sector bodies to deliver the desired level of emissions reduction. Government doesn't have to do all the heavy lifting. One reason why the level of emissions reduction has not been as great as hoped is because the Government has not made best use of some sector organisations who have members who are actually in the position of implementing solutions which will reduce emissions.

The discussion document sets out many concepts which are new to Government but the private sector has been advocating for these for some time. As a result the gap between what Government is targeting tends to be much smaller than private sector operators believe is

achievable, with Government assistance. Bioenergy Association sees many missed opportunities and would like to work with government agencies to identify them and take action to include them within this or the next Emissions Reduction Plan. Bioenergy Association believes that it is only a policy failure if Government has to purchase international emissions reduction credits for the reported \$6.4billion when that money could achieve domestic emissions reduction for less funding.

Helping sectors adapt

6. **Which actions to reduce emissions can also best improve our ability to adapt to the effects of climate change?**

Having a diverse energy supply can allow risks to be managed easier. Having too large a proportion of energy supply on electricity and fossil fuels has left NZ unprepared for responding to future needs. Diversifying into greater use of energy derived from biomass and organic waste will ensure that we have the flexibility to respond in an orderly and well prepared manner. All options are needed if we are to meet the emission reduction targets.

As the whole world is transitioning away from fossil fuels there will be an international shortage of renewable energy sources and consequently the cost of energy is going to increase significantly. NZ can avoid those adverse consequences by immediately adopting domestically produced renewable energy products such as transport and gaseous biofuels.

NZ is also in the fortunate position that not only has it already got a very large biomass resource, but it can grow significantly more sustainable biomass provided planning for such growth occurs at an early stage. Constraints will not be technical or environmental but because we didn't take the policy opportunities to best manage our future.

Regional Economic Development units could be better resourced to work with proponents of emission reduction projects to ensure that the opportunities succeed. Currently project proponents tend to be left to fight alone for their project against the system. This can be similar to the NZTE business mentoring and assistance programmes which assist new start up business be become established and remain viable.

7. **Which actions to reduce emissions could increase future risks and impacts of climate change, and therefore need to be avoided?**

The main action which will increase risk is inaction. In the bioenergy and biofuels solutions space we need to be planning and implementing a strategy where we have the right tree, of the right type, in the right place, at the right time and at the right price. The actions are not difficult or costly but the consequences of inaction are severe.

The lack of coordination between industry and Government with regard to domestic liquid biofuels production will result in loss of opportunity for domestic production and its consequential benefits because import will be the only option.

Working with our Tiriti partners

8. NA

9. NA

10. NA

11. **NA**

12. **NA**

Making an equitable transition

Equitable Transitions Strategy

The Commission recommends developing an Equitable Transitions Strategy that addresses the following objectives: partnership with iwi/Māori, proactive transition planning, strengthening the responsiveness of the education system, supporting workers in transition, and minimising unequal impacts in all new policies.

13. **Do you agree with the objectives for an Equitable Transitions Strategy as set out by the Climate Change Commission? What additional objectives should be included?**

Yes. The Climate change Commission objectives are adequate.

14. **What additional measures are needed to give effect to the objectives noted by the Climate Change Commission and any other objectives that you think should be included in an Equitable Transitions Strategy?**

Provide financial assistance to industry and community groups to identify opportunities and to drive them. Similar to the success of the COVID vaccination roll out when local providers were empowered to work with those who they knew and with whom they already had a relationship. In the emissions reduction area these will generally be the industry associations and regional economic development units.

The Commission suggests that the Equitable Transitions Strategy should be co-designed alongside iwi/Māori, local government, regional economic development agencies, businesses, workers, unions, the disability community and community groups.

15. **What models and approaches should be used in developing an Equitable Transitions Strategy to ensure that it incorporates and effectively responds to the perspectives and priorities of different groups?**

In the energy area EECA has established Collaboration Agreements with some sector agencies where tasks are mutually identified and agreed, EECA provides the funds and the sector organisation manages the execution of the task.

Other actions

16. **How can Government further support households (particularly low-income households) to reduce their emissions footprint?**

Subsidise the price of drop-in transport biofuels so that the price is at least equivalent to mineral transport fuels.

17. **How can Government further support workers at threat of displacement to develop new skills and find good jobs with minimal disruption?**

Assist sector organisations promoting low emission solutions to establish and deliver upskilling training courses. Most of these organisations are underfunded and can currently only do the minimum.

18. **What additional resources, tools and information are needed to support community transition planning?**

Make better use of Economic Development Units and ensure that they are well funded to deliver on regional transition of low emission solutions.

19. **How could the uptake of low-emissions business models and production methods be best encouraged?**

Demonstration by example from central and local Government agencies

20. NA

Aligning systems and tools

Government accountability and coordination

21. **In addition to the Climate Change Commission monitoring and reporting on progress, what other measures are needed to ensure government is held accountable?**

Publication of annual reporting on progress both regionally and centrally

22. **How can new ways of working together like mission-oriented innovation help meet our ambitious goals for a fair and inclusive society and a productive, sustainable and climate-resilient economy?**

Establishing Collaboration Agreements between government agencies and sector groups as EECA has done, provide a mechanism for identification of priorities and successful execution.

23. NA

Funding and financing

24. **What are the main barriers or gaps that affect the flow of private capital into low-emissions investment in Aotearoa?**

A lack of a coordinated and agreed vision and aspiration from government, and lack of incentives to bring it about.

Low emission solutions are often more costly than carbon intensive solutions so the public good component of transitioning to low emission solutions needs to be funded by the public through Government.

Availability of capital is a significant barrier, coupled with the often low financial investment returns from some low emission investment options. Adopting an accelerated depreciation provision for emission reduction projects would provide significant incentive for projects “on the margin”. Such a scheme is fiscally neutral but is a significant assistance to investors of capital intensive projects.

25. NA

26. **What else should the Government prioritise in directing public and private finance into low-emissions investment and activity?**

Recognition that transition to a low emissions future is a public aspiration and the public good component needs to be paid for by the public purse.

27. **Is there anything else you wish to share in relation to funding and financing?**

Funding mechanisms such as the Green Investment Fund are generally structured for large investments. The investments by SME are often less supported. However the GIDI Fund is

extending into that smaller area but is grossly under-capitalised. Expansion of the GIDI Fund to include other low emission projects such as in the waste-to-energy area would allow even more emissions reduction.

In the bioeconomy sector there are support programmes for investment in low emissions applications but little support for ensuring that there is adequate biomass available at the right time and right place for even more of those investments. A biomass supply side support fund similar to the Waste Minimisation Fund would assist ensuring that there is adequate supply of biomass.

Emissions pricing

28. NA

29. NA

30. NA

31. **What are your views on the options presented above to constrain forestry inside the NZ ETS? What does the Government need to consider when assessing options? What unintended consequences do we need to consider to ensure we do not unnecessarily restrict forest planting?**

The forestry sector should be expanded and not contracted as the biomass produced is the basis of transition to a bioeconomy and a feedstock for many emission reduction solutions.

Having the NZ ETS encourage more exotic forestry has positive benefits but must be done properly.

An anti-forestry view has arisen by those concerned at specific aspects of changes in land use. New Zealand is fortunate that we have land which is suitable for a wide range of products including food, fibre and forestry. In some cases a forestry use of the land is the most appropriate environmental, societal and economic use of the land, while other land is more ideal for food or fibre. The majority of land will actually be a mix of both.

The NZ ETS settings does not encourage tree planting for farm forestry. The wood from farm forestry can be used to produce biofuels and can be a significant supplement to the biomass from larger plantation forestry.

6-9% of the land of a food producing farm is not highly productively used and can often be appropriate for trees. This may be shelterbelts, steep slopes, riparian strips or small woodlots. If farmers expand their food and fibre production to also include forestry then evidence shows that there can be a significant improvement in their business resilience and land can be more sustainably managed.

The settings for farm forestry need resetting so that they contribute to the counting of emissions reductions and produce other benefits.

Exotic forestry is a faster absorber of carbon dioxide but more work needs to be done on the full range of species. While planting both natives and exotic species provide a one-off emissions reduction benefit there is additionality from exotics when the biomass is used as a fuel to replace fossil fuels and create additional employment. Planting natives or carbon forests that are not harvested provide a one off benefit and not on-going benefits.

32. NA

Planning

33. NA

34. NA

35. **Are there any other views you wish to share in relation to planning?**

To ensure a smooth and optimal growth of a bioeconomy there is a significant need for regional information on biomass supply and likely demands for biomass and organic wastes. This data needs to be collected for both supply and demand for biomass and organic waste for 30-40 years ahead. This timeline aligns with the economic life of capital plant and infrastructure, and the rotation period for some species of biomass.

The data on aggregated demand for biomass needs to be made available on a regular basis to all land owners, forestry and farming, so that they are incentivised to plant trees that will not be used for a number of years. They will only do this if they see a realistic prospect that they will have a customer for their trees. They are also more likely to plant trees if they see the prospect of sale in different markets.

This could be a role of Regional Economic Development units.

Research, science and innovation

36. **What are the big challenges, particularly around technology, that a mission-based approach could help solve?**

The major barrier is that there has been no effort to engage with industry on the technologies which they would like to have available to reduce emissions and what R & D is required to have the technologies proven and commercialised in the New Zealand context. How technologies are identified and funded are like putting the “tail on the donkey” while blindfolded, as to whether the opportunity gets funded.

37. **How can the research, science and innovation system better support sectors such as energy, waste or hard-to-abate industries?**

Yes. Having a market led rather than a researcher led research programme would identify where research funding should occur. In its 20 years of existence the Bioenergy Association has never been approached to propose science priorities. This is partly because the sector needs applied research rather than blue sky research.

38. **What opportunities are there in areas where Aotearoa has a unique global advantage in low-emissions abatement?**

The growing and utilisation of biomass to reduce emissions could increase by a factor of three if there was an applied bioenergy and biofuels research programme.

39. NA

40. **What are the opportunities for innovation that could generate the greatest reduction in emissions? What emissions reduction could we expect from these innovations, and how could we quantify it?**

Research into biomass fuels such as torrefied wood, bio-coal (biochar) and other drop-in solid, gaseous and liquid biofuels (such as rLPG, biomethane, renewable diesel, rDME, bioMFO and bioAvgas) would allow continued use of existing capital plant and infrastructure with the large benefit that facility owners would require no capital expenditure to transition to using a low emissions fuel. Drop-in replacements would smooth the impact on the work

force. These technologies are emerging internationally and would be game changers once available in New Zealand, and some are of particular importance e.g., long-distance international air and marine given our relative dependence on these because of our location.

41. **Are there any other views you wish to share in relation to research, science and innovation?**

There is a major weakness in our public RS&I funding system around funding the NZ-specific mission-oriented applied research needed to address these issues. See the National Energy Research Institute submission for more details.

Behaviour change

42. NA

43. NA

44. **Are there other views you wish to share in relation to behaviour change?**

Sector organisations such as Bioenergy Association have mechanisms for direct contact to a wide range of parties but struggles to deliver more than the minimum. Funding on improved information dissemination and skills development are necessary if behaviour change is desired.

Moving Aotearoa to a circular economy

45. **Recognising our strengths, challenges, and opportunities, what do you think our circular economy could look like in 2030, 2040, and 2050, and what do we need to do to get there?**

There is a world of opportunities from the recycling or reuse of biomass and organic waste but the biggest achievements by those dates are likely to be:

- Business is source segregating their wastes so that they can be reused or recycled
- Manufacturers are reusing their own organic process residues and producing their own energy
- Source segregated municipal organic waste is recycled by composting or anaerobic digestion and mix organic waste by thermal treatment.
- Digestate from anaerobic digestion, including municipal WWTP, is all certified for use as a biofertilizer and no digestate goes to landfill by 2030.
- There is no clean organic wastes to landfill by 2040.
- Agriculture is recycling crop residues into energy or other bio-based products
- Forestry is providing less wood to the export market and more to a wider range of domestic processed products including energy.
- Forestry is providing wood residues for a wide range of reuse including energy

Until we have a fully circular economy where materials are non-toxic, fully recyclable and collected in a manner that supports their recovery, then landfill with biogas capture can be the best place for materials that are not suitable for recovery.

46. **How would you define the bioeconomy and what should be in scope of a bioeconomy agenda? What opportunities do you see in the bioeconomy for Aotearoa?**

Bioenergy Association would like to congratulate the authors of this section on a very succinct definition and summary of the circular economy and the inclusion within it of the bioeconomy as it reflects the Association's own definition and view.

The Association has been working for 20 years to implement the circular economy and bioeconomy through bioenergy and biofuels as the 'foot in the door'. The previous lack of a vision as set out has been a major barrier as bioenergy and biofuels have been considered only of interest to the energy sector and the wider bioeconomy interests have not been recognised.

New Zealand is fortunate in that it is able to produce biomass through growing grass and trees fast and has developed sustainable harvest practices so that forestry can be sustainably undertaken and farm land sustainably managed. (Problems such as Tolaga Bay and poor land use have occurred when what we know has not been put into practice).

The feedstocks for a bioeconomy can come from growing woody and herbaceous plants, and organic waste. Prior to the 1980's New Zealand had a very active R & D programme into how to extract optimal value from biomass and organic waste and this could be revived so that opportunities can again be identified and pursued. We just need the desire to pursue these opportunities and that has to come from visionary leadership at the top.

While we have lost a lot of our previous capability, expertise and knowledge in this area the only barrier to growing it again is the lack of desire and assistance from government. Inclusion of the circular economy and bioeconomy within the Emissions Reduction Plan is a great place to start.

The expansion of the bioenergy and biofuels sector is providing a sound foundation for recognition and expansion of a circular and bioeconomy approach. The bioenergy and biofuels markets are developing the biomass and organic waste supply chains which can also provide biomass and organic waste to other high value products and services. Similar the grass growing and harvesting practices from farming will provide another source of herbaceous biomass.

Internationally biomass and biofuels are recognised as being the foundations for development of industrial biotechnologies as often the co-products of energy can provide feedstocks (biochemicals) for the production of bio-based materials. (eg A proposal near Taupo to use willow trees to produce bioethanol found that the value of the lignin and other biochemicals were more valuable than the energy product and so the company changed from being an energy company to being a biochemicals company).

Bioenergy Association analysis shows that there is potentially enough biomass and organic waste to triple the current amount of energy produced from biomass and organic waste (50PJ) to 150PJ. An overview of the range of energy products which can be produced from biomass and organic waste, and the expected sources of supply of the necessary biomass and organic waste is available at <https://www.bioenergy.org.nz/nz-opportunities-policies-programmes>

Concern has been raised about the availability of adequate biomass but that concern arises principally from the lack of planning on how we can get enough biomass for a bioeconomy. Currently there is good data on what biomass is available but no research or information on how adequate quantities of biomass can be made available. Bioenergy Association believes that provided we take action that there should be adequate biomass available of the right type, in the right place, at the right time and at the right price. This will be the most important component of a bioeconomy as without the biomass there will be no bioeconomy.

We believe that it will not be difficult or costly to ensure there is adequate biomass available because once available the revenue will flow back to the investors. Government facilitation and assistance will however be necessary initially to incentivise land owners (forestry and farmers) to plant adequate trees and in the right place. Bioenergy Association is already working to achieve this but assistance will be required. (Information on sources of biomass so that there is adequate supply is available at <https://www.usewoodfuel.org.nz/biomass-sources-availability>)

47. **What should a circular economy strategy for Aotearoa include? Do you agree the bioeconomy should be included within a circular economy strategy?**

As set out in the discussion document a circular economy is wide because it encourages everyone to reuse, recycle and repurpose. We agree that the bioeconomy is within that as much of the feedstock for bio-based products, including energy, derive from recycling of residues, or end of use biomass and organic waste.

The principles of a circular economy should cover all activities. Some, such as in the waste and bioenergy areas, are already reasonably developed and can be expanded while in other areas the linear approach is still predominant.

48. **What are your views of the potential proposals we have outlined? What work could we progress or start immediately on a circular economy and/or bioeconomy before drawing up a comprehensive strategy?**

Bioenergy Association fully supports the proposals as a good start point. However nothing proposed is new. It is only new when recognised by Government under these headings.

The bioeconomy is already well established in the bioenergy and biofuels and agriculture sectors– the focus now needs to be on extending them into wider biotechnologies producing bio-based materials. There is also already wide acceptance of the circular economy in parts of the waste sector – again it is about building on what is already occurring.

Expansion of the principles of a circular economy are already proposed in the revision of the Waste Strategy where the focus is going from minimisation to now also include reuse and recycle of material currently wasted, into new products such as energy. The Waste Strategy will be an important foundation of a circular economy strategy.

Because the circular and bioeconomy are already under way the focus should be on supporting current initiatives in parallel to developing the wider circular and bioeconomy strategies.

Greater support for expansion of the bioenergy and biofuels sector will result in immediate emissions reduction and continue the evolution of both the circular and bioeconomy. In particular, support for increased use of organic waste to produce biogas and biofertilizer and domestic production of transport biofuels can be stepped up with immediate results. Research into new solid biofuel products such as torrefied wood and bio-coal would expand the scope of emissions reduction for non-energy coal uses.

49. **What do you see as the main barriers to taking a circular approach, or expanding the bioeconomy in Aotearoa?**

The main barrier has been the lack of recognition by Government until this discussion document. This is the first time that Government or its agencies have shown interest let alone suggested policies. As a result there is a very small community of interest which is the second major barrier. The concepts set out in this discussion document now need to be promoted widely into the community and in particular into the R & D sector, universities etc.

We can look at Europe to see how it was done over a decade ago and learn from them. Countries like the Netherlands now have very extensive biotechnology industries which are beginning to produce rewards for the Netherlands in terms of new products and new businesses.

The bioenergy and biofuels sector is pleased to be providing a foundation for development of the circular and bioeconomy and is keen to work with Government to speed up its expansion.

The opportunities are too many to list here but suffice to say that we should focus on the current initiatives and ensure that they are successful, the rest will flow from those.

The expansion of bioenergy and biofuels is being done with minimal funding. If these proposals are to be pursued for immediate results then leaving the heavy lifting to industry with its limited resources will only result in slow progress.

Currently there is no single agency responsible for circular and bioeconomy initiatives and that spreads expertise across Government agencies and ministries. An immediate quick fix would be to widen EECA's mandate to include at least all bioenergy and biofuels initiatives including those derived from organic waste, or establish a similar bioeconomy Crown agency. The EECA low emission transport programme should also be widened to include biofuels.

50. **The Commission notes the need for cross-sector regulations and investments that would help us move to a more circular economy. Which regulations and investments should we prioritise (and why)?**

Other than the populist regulatory constraints on land use for growing biomass in some regions the Bioenergy Association is not aware of the regulatory constraints which is being referred to. The biggest constraints are outlined above as lack of aspiration and facilitation.

The priorities for investment assistance are already available in the list of applications for a number of Government programmes including Waste Minimisation Fund and GIDI. There are also a range of land use programmes where priorities can be obtained from applications for assistance. In most of the programmes the criteria are very narrow so these existing programmes will need to be supplemented with information from other sources.

51. **Are there any other views you wish to share in relation to a circular economy and/or bioeconomy?**

Government establishing a circular and bioeconomy programme and having an agency similar to EECA to manage the programme would ensure that the profile for this is increased significantly. Currently the proposals are spread across agencies or buried in other activities with no one having any responsibility for success.

Transitioning key sectors

Transport

We are proposing **four new transport targets** in the emissions reduction plan, and are seeking your feedback.

52. NA
53. NA

54. **Do you support the target to reduce emissions from freight transport by 25 per cent by 2035, and the associated actions?**

Yes. Because drop-in biofuels for freight transport can be used as soon as suppliers have it available the target could be achieved by judicious use of supplies under the transport biofuels mandate. What also makes it easy for freight transport is that drop-in biofuels require no additional investment by vehicle owners and only minimal additional infrastructure is required by suppliers.

The current low emissions transport proposals all focus on subsidising the need to replace vehicles to move to electricity or hydrogen but fail to give similar financial support for the use of biofuels. In the case of drop-in biofuels the support would be to subsidise the cost of biofuel as there would be no need for any support for capital expenditure (As is required for EV and hydrogen) because it is not needed because there is none.

The biofuels mandate will bring biofuel into the market but the cost to vehicle owners will be in the fuel cost rather than any capital expenditure. The Bioenergy Association would like to see the same level of financial support for transitioning to each of electricity, hydrogen and electricity solutions. Currently electricity and hydrogen solutions get large levels of financial support while there is near none for biofuels. The current proposals force freight transport into electricity and hydrogen solutions at a high cost to vehicle owners when there is a zero capital expenditure solution available but not supported by Government.

The amount of government funds spent on developing electric and hydrogen solutions plus the high cost to vehicle owners would probably far exceed the subsidy that could be given to the cost of drop-in biofuels to incentivise them to use low emission fuel in their existing vehicle. Bioenergy Association would like to see a cost benefit analysis done on the total public and private costs of adopting each of the three low emission fuel types.

55. **Do you support the target to reduce the emissions intensity of transport fuel by 15 per cent by 2035, and the associated actions?**

Yes. The discussion document refers to the challenge for moving freight transport to low emissions fuel but there is no challenge if drop-in biofuels are the solution. Effort should be placed on getting drop-in biofuels available in New Zealand at the cheapest price.

56. **The Climate Change Commission has recommended setting a time limit on light vehicles with internal combustion engines entering, being manufactured, or assembled in Aotearoa as early as 2030. Do you support this change, and if so, when and how do you think it should take effect?**

This proposal is not supported as it is unnecessary if the drop-in biofuels solution were available to existing and new vehicle owners. It becomes an unnecessary cost on vehicle owners and expands rather than reduces inequities in communities because only the rich can afford to replace vehicles.

The focus should be on making drop-in biofuels available and establishing engine emission levels for existing and new vehicles.

57. **Are there any other views you wish to share in relation to transport?**

Despite the urgency and importance stated in the document with regard to transport there has been a large lack of interest in engaging with the industry and biofuels initiatives proposed to Government have been generally rebuffed often on the pretext that there is not enough biomass which the Bioenergy Association believes is not correct.

There will be a world wide demand for transport biofuels and New Zealand could capitalise on this growing market as many other countries do not have as much access to sustainably grown biomass as we do. We currently export valuable biomass which is then often used in low value applications. The log export market is already encountering problems with the export market and is currently encountering a 35% reduction in the volume being shipped. Immediate development of the wider bioeconomy will provide options for forestry so that they are not so dependent on a single product. Establishment of an appropriate transport biofuel production capability along with capability for manufacture of bio-based materials will continue to build foundations for a bioeconomy producing products in similar value to that of agriculture.

Drop-in biofuels are an ideal solution for rail as this avoids the need for extensive capital expenditure on new engines and extensive new infrastructure for low use rail links such as in the South Island.

Bioenergy Association would like to see greater partnering across the transport biofuels sector in a similar manner as is being discussed with establishment of the Sustainable Aviation Alliance.

While Te Uru Rakau has been investigating the domestic production of biocrude and there is an aviation SAF production project underway the lack of open encouragement and assistance to production of transport biofuels using technologies already in New Zealand has been a major barrier to early adoption of the availability of biofuels to reduce emissions.

Any ban on new thermal electricity generation facilities should be limited to those using fossil fuels and in some situations generation of electricity from solid and gaseous biofuels is economically viable and should be encouraged.

New Zealand has done very limited work on the production of torrefied wood and bio-coal (biochar) which can be used as a drop-in solid biofuel to replace coal. These fuels have characteristics (hard, not hydroscopic) which makes them an ideal drop-in fuel as much of the existing coal infrastructure can continue to be used. These would be ideal fuels for converting Huntley Power Station to biomass fuel and can also be used to replace coal used in industrial processes (eg steel making).

Energy and industry

Energy strategy

58. **In your view, what are the key priorities, challenges and opportunities that an energy strategy must address to enable a successful and equitable transition of the energy system?**

The strategy must cover all aspects of energy equally. Many previous strategies have been more an electricity strategy than an energy strategy. New Zealand is rich in renewable energy resources and with increasing demand for renewable energy to replace fossil fuels it is important that all options are fully explored and included.

Current energy initiatives are developed in silos and the NZ Battery project is a good example where the current investigation of options should have been done before extensive expenditure on the Lake Onslow option. This is a consequence of there being no co-ordination and planning of energy supply and delivery.

The lack of any national energy planning and having reliance on each energy sector player doing their own things, has resulted in no one having any idea of where future new electricity, gases, biofuels and hydrogen are likely to come from. The current “musical chairs” approach to energy planning results in none of the critical energy sources being developed at

an optimal time. The result is that decisions are being made with no understanding on how any new energy will be supplied.

There will be a number of challenges for each energy type so the strategy will need to show how each of these challenges can be addressed. (eg electricity will need many more new power stations; bioenergy will need more biomass; renewable gases will require more biomass and electricity; hydrogen will require more electricity; new electricity power stations will need community acceptance to get resource consents; transport biofuels will require more biomass.) The strategy will need to show how the risk associated with each of these is addressed (eg if new electricity power stations cant get resource consents what is Plan B?).

Of all those challenges the future supply of biomass is probably most controllable by those seeking biomass as they have a wide range of options available (eg a heat plant owner can grow their own biomass, or they can have options for future supply of biomass fuel. The biomass supply is not dependent on specific sources as theoretically biomass can be grown on any land. If say there is a fire in a forest where biomass fuel is being sourced then immediately biomass can be sourced from another forest.

The National Policy Statement for Renewable Electricity Generation should be widened to include all energy so that all energy forms are on the same footing.

59. **What areas require clear signalling to set a pathway for transition?**

All energy types will require clear signalling as the risks of each are similar but different. (eg the risks of future supply of biomass is similar to the risks of not being able to build new electricity power stations.)

The lack of market information and cohesive planning arises because there is no entity separate from MBIE's policy role responsible for this. Transpower has done some analysis but principally only with an electricity focus. The Electricity Authority's scope only includes electricity whereas it should be given a wider all energy scope. If it were an Energy Authority and provided energy market information this would provide information for policy and investment decision making. It is recommended that the Electricity Authority have its scope widened and be established as an Energy Authority. The market information roles transferred to the Authority, while leaving Energy Policy to MBIE.

The challenge for biomass supply is that information on possible demand for up to 30 years ahead is required so that the potential suppliers of biomass can plant additional trees for harvesting at the right time and in the right location. Similarly the demand side needs to have clear signals on the potential availability of biomass over the next four decades. The reason why some perceive that there may not be enough biomass available is because this signalling is not occurring.

The purchasers of solid biofuels have limited information on market prices for solid biofuels. This arises because the delivered price for every user can be different because of location, fuel characteristics and biomass sourcing. However it is normal practice in most markets to have some form of independent price comparison and solid biofuels should be no different. Bioenergy Association is exploring such a mechanism but would be happy to discuss this with Government.

Observations from the current GIDI funding indicates that decisions on whether to have an electricity or a biomass solution is often based on poor information on the future costs of both options. Many advisers do not have access to reliable market information and rely on poor anecdotal information. There is a significant need to upskill many energy market advisers who do not have current experience.

Setting targets for the energy system

60. What level of ambition would you like to see Government adopt, as we consider the Commission's proposal for a renewable energy target?

New Zealand is rich in opportunities as has been identified in this discussion document but many of those opportunities have not yet been properly considered and to date it is often only the easy wins that have been investigated and developed. The Bioenergy Association has identified that from bioenergy and biofuels alone that the expected emissions reductions which may need to be acquired by purchase of \$6.4 billion of international credits alternatively could easily be achieved domestically for that same level of expenditure, and with the added benefit of creating new employment, regional economic growth, and significant environmental outcomes.

Phasing out fossil gas while maintaining consumer wellbeing and security of supply

61. What are your views on the outcomes, scope, measures to manage distributional impacts, timeframes and approach that should be considered to develop a plan for managing the phase out of fossil gas?

Energy in the form of a gas has characteristics which users find very useful and there is extensive existing infrastructure so care needs to be taken in how use of fossil gases is eliminated. While an eventual phasing out of use of fossil fuels is the objective the programmes should be more positively presented as a replacement by renewable gases as with this approach there is no disruption and significant cost to gas users as the renewable gases are drop-in to the existing gas infrastructure.

A plan for replacing fossil gas with renewable gases can be developed immediately and actions already underway should be supported by government. The NZ gas sector (natural gas and LPG), supported by the bioenergy and biofuels sector, already have actions underway to replace fossil gases with renewable gases. (Refer the submission from the NZ Gas Association for details). A plan for replacing fossil gases with renewable gases should be included in the Emissions Reduction Plan as significant progress can be made in the first reduction period. Work on hydrogen is included but the discussion document fails to include for the production of biomethane and rLPG which should have a similar level of support as is being given to hydrogen.

A specific policy which would assist speed up the transition from fossil gases to renewable gases is implementation of a Renewable Gas Mandate similar to the proposed Transport Biofuels Mandate. A Renewable Gas Mandate would require retailers of gas to commercial, industrial and residential users to progressively increase the percentage of renewable gas (principally biomethane, hydrogen, rLPG) that is in their total annual gas supply. A significant strength of such a policy is that it puts the onus on the retailers to source renewable gases according to their individual markets.

A Renewable Gas Mandate could be included in the same legislation which is being developed for the Sustainable Biofuels Mandate, a Renewable Fuels Mandates.

Decarbonising the industry sector

62. How can work under way to decarbonise the industrial sector be brought together, and how would this make it easier to meet emissions budgets and ensure an equitable transition?

A major issue is in the quality of advice being provided by advisers to fossil fuel stationary heat users who are evaluating options for transition to low emission fuels. Bioenergy Association, with the assistance of EECA, has been updating the information available on the

www.usewoodfuel.org.nz website but this is a reactive education tool that is only suitable for those actually seeking information. The Association, with financial support from EECA, also hosts webinars and has established a Registration Scheme for Advisers but again these are suitable only for those wanting to use them. There is a need for encouragement to those not using those tools to do so. Establishment of a training programme to underpin the upgrading of advisers would provide a mechanism for delivery of up-to-date information and skills development.

Information flow between solid biofuel suppliers and users is a step towards a place where long term offtake agreements can be signed which provides confidence to plant investment etc

The Bioenergy Association supports including bioenergy and biofuels with a wider bioeconomy lens as energy is often a co-product of a wider range of bio-based products such as wood processing, extraction of biochemicals for high value bio-based products to replace petroleum based products such as plastics. When using a wider lens the economics of bioenergy and biofuels can be significantly improved but to achieve this requires involvement of a number of parties. This complexity means that a traditional neoliberal approach to biofuels underestimates the value of using biomass.

63. **Are there any issues, challenges and opportunities for decarbonising the industrial sector that the Government should consider, that are not covered by existing work or the Commission's recommendations?**

The current GIGI fund has been very successful and should be extended and expanded to include other opportunities such as those around using industrial organic waste to produce energy. There also seems to be bias towards electricity in the application criteria where GIGI is delivering abatement at an average cost to government of \$5.44/t for biomass compared to twice that cost for electricity (\$11.44).

A focus of decarbonisation of industrial emissions should be on the availability and support for drop-in fuel solutions so that industry can avoid the need to replace existing good serviceable equipment. A programme of support to fuel suppliers for the availability of renewable gases and renewable diesel should be developed for use in stationary heat equipment. There are a large number of existing heat facilities which could convert immediately to low emission renewable fuels if assistance were made to get the renewable fuels available. Extensive financial support is being given to getting hydrogen available and a similar level of support should be given to the availability of renewable gaseous and liquid biofuels. The Liquid Biofuels Mandate will assist but it is too slow when a specific programme to get renewable biofuels available to the industrial heat users would have immediate effect.

Similarly, but not so immediately available, is the availability of bio-coal and torrefied wood which could be a drop-in solid biofuel for Huntly Power Station and other large coal users including NZ Steel and other users of coal for industrial processing. This is an area where research should be undertaken with a goal of domestic production to avoid the need to import such fuels when they could be processed within NZ.

Addressing current data gaps on New Zealand's energy use and associated emissions through an Energy and Emissions Reporting scheme

64. **In your view, should the definition of a large energy user for the purposes of the proposed Energy and Emissions Reporting scheme include commercial and transport companies that meet a specified threshold?**

Yes

65. **We have identified a proposed threshold of 1 kt CO₂e for large stationary energy users including commercial entities. In your view, is this proposed threshold reasonable and aligned with the Government's intention to meet emissions budgets and ensure an equitable transition?**

Yes

66. **In your view, what is an appropriate threshold for other large energy users such as transport companies?**

Same as above

67. NA

Supporting development and use of low-emissions fuels

68. **What level of support could or should Government provide for development of low-emissions fuels, including bioenergy and hydrogen resources, to support decarbonisation of industrial heat, electricity and transport?**

Emissions reduction is a public good and so needs to be fully supported by Government on behalf of the public. Many of the solutions to reducing emissions impose costs on individuals and business. Some of the solutions such as electric vehicles or transitioning from using coal have the private sector owner subsidising the public good on capital expenditure which they wouldn't otherwise incur. To avoid the potentially high cost to the private sector there should be a policy of endeavouring to find solutions which do not incur unnecessary costs on the private sector. Government should therefore be prioritising work to get drop-in biofuels into the market and to assist renewable gases to replace fossil gases, both of which avoid any need for capital expenditure.

69. **Are there any other views you wish to share in relation to energy?**

The proposal to develop a Sustainable Biofuels Mandate is presented in the discussion document as if that will address all of the constraints to using biofuels in transport when it is only one part of the necessary support. Whereas there is constant reference to a hydrogen roadmap but no mention of a similar biofuels roadmap. All that is said to support development of the hydrogen sector equally applies to the needs for developing a transport biofuels roadmap.

Sustainable biofuels to meet the mandate could come from import or domestic production. While there is no roadmap for the production of transport biofuels it is likely that the mandate will only be met by import. Yet there are technologies already available in New Zealand which have been proven but for which there has been little support. If we want to have the option of having drop-in biofuels creating new employment and regional economic growth then we need a more "why cant we" approach.

The discussions on biofuels for industrial heat and transport tend to ignore the work that we should be doing to ensure that there is optimal biomass and organic waste available rather than assuming that what we have is all we can get. Most of the discussion and policies is on the demand side and there is little consideration of biomass supply side where we need to have maximised the amount of biomass so that we can maximise emissions reduction. We tend to approach biomass supply as if the glass is half empty, rather than accepting it is half full, and focusing on how to fill it.

Building and construction

70. NA

71. **What could the Government do to help the building and construction sector reduce emissions from other sectors, such as energy, industry, transport and waste?**

A significant barrier to installation of solid biofuel heating in buildings is the lack of consistency of the regulatory requirements for resource and building consents. There are no standards for installation of wood pellet heaters and boilers and each authority has their own version of consent requirements. The lack of guidance and inconsistencies result in consent applications having to develop and present information, much of which can be standardised.

72. NA

73. **The Government is developing options for reducing fossil fuel use in industry, as outlined in the Energy and industry section. What are your views on the best way to address the use of fossil fuels (for example, coal, fossil gas and LPG) in boilers used for space and water heating in commercial buildings?**

Supporting the development of drop-in biofuels such as renewable gas and renewable diesel would mean that there is minimal disruption to commercial building users and there would be no capital costs they would incur.

74. NA

75. NA

76. NA

77. NA

78. **The Ministry of Business, Innovation and Employment (MBIE) is considering a range of initiatives and incentives to reduce construction waste and increase reuse, repurposing and recycling of materials. Are there any options not specified in this document that you believe should be considered?**

Much construction and demolition wood waste can be used as a solid biofuel in appropriate boilers but current Regional Air Plan Rules prohibit such material being used as a fuel. Bioenergy Association has received funding from the Waste Minimisation Fund to develop a Technical guide for consenting and combusting C& D material within current air emission limits. Technically there should be no C & D material going to landfill when it can be appropriately used as a solid biofuel in appropriate boilers.

A Wood First programme would create significant additional wood processing residues and additional employment.

79. **What should the Government take into account in exploring how to encourage low-emissions buildings and retrofits (including reducing embodied emissions), such as through financial and other incentives?**

A Wood First approach to building would not only use renewable wood for construction but would avoid the use of steel with its high embodied emissions. Steel also requires the use of non-renewable resources and use of coal for its manufacture. A Wood First programme would also encourage greater planting and processing of forestry which provides the best solid biofuel.

Wood use in buildings becomes a permanent carbon sink

80. NA

81. NA

82. **Are there any other views you wish to share on the role of the building and construction sector in the first emissions reduction plan?**

Applying a circular approach to building construction and modification will also produce additional biomass which can be used as fuel. Green Gorilla in Auckland are a role model of what could be done commercially in all regions. While assistance may be required initially the increased landfill levy should eventually be set at a level where such new ventures should be economic to set up in each region. Assistance may however also need to be given to assist installation of boilers suitable for combustion of contaminated biomass.

Agriculture

83. **How could the Government better support and target farm advisory and extension services to support farmers and growers to reduce their emissions?**

Non animal agriculture emissions are often a “low hanging fruit” for farmers to reduce or at least offset by other farm emission reduction initiatives. In many situations the non animal emission reductions would be big enough to offset many, if not all, animal emissions. Having a net farm emissions regime would provide farmers with greater incentive to reduce their emissions. With the current focus solely on animal emissions reduction the non-animal emissions reduction opportunities are being ignored yet could be included within the first budget period and so avoid the need to purchase international emission credits.

It is not a question of farming vs forestry. We need both. The economic and environmental management of our land requires a multi-product approach where each type of land is used for its wisest use. Farm forestry is part of that balance of land use and if farmers can get emission reduction credits from using the 6-9% of their farm which is less productively being used by planting woodlots and managed shelterbelts these can offset animal emissions. The production of biomass is also needed for use as a solid biofuel to offset fossil fuel use in food processing heat plant.

Agricultural crop residues and dairy effluent can also be used as an energy fuel instead of being wasted or disposed of.

There is a need for Government and land users to develop land use opportunities that significantly reduce agricultural emissions. This is being done by He Waka Eke Noa Primary Sector Climate Action Partnership for animal emissions. Similar needs to be done for non-animal emissions.

a. **How could the Government support the specific needs of Māori-collective land owners?**

Adoption of programmes to create a bioeconomy will generally require collective land owner action to provide economies of scale. Collective ownership of land should not be a problem as growing biomass is generally independent of land ownership. Government assistance to transition land use to producing bio which is necessary for the production of bio-based products will be universally required.

84. **What could the Government do to encourage uptake of on-farm mitigation practices, ahead of implementing a pricing mechanism for agricultural emissions?**

The recognition that farmers are already a major part of the bioeconomy would go a long way to getting farmers engaged. Having programmes which extend existing farm best practices and product range means that farmers are not facing change but extension.

Many farmers are already preparing Farm Management Plans but currently these appear mainly to be nitrogen management plans. The scope of Farm Management Plans should be extended to cover all land use matters relating to the farm. This should include total farm emissions and abatement activities such as absorption of carbon dioxide by grass and trees on the property. Farm Management Plans which included all emissions and abatement data would provide valuable information to land managers on where investment in emissions reduction or offset can be best applied. Credit for delivery of biomass as fuel to offset burning of fossil fuels should be included.

Assisting farms to extend from being Food + Fibre producers to be Food + Fibre + Fuel producers would not only assist emissions reduction but would improve farm business resilience.

85. **What research and development on mitigations should Government and the sector be supporting?**

Currently there is no reliable data on how farm forestry in the form of managed shelterbelts, steep slope plantings, managed riparian plantings, and farm woodlots could contribute to biomass fuel supply. Research is needed into species, management regimes and the value proposition for farm management.

To assist farmers to be producers of biomass as a source of solid biofuel needs research and development of case studies.

Current research is focused on reducing animal emissions. This needs to be extended to cover non-animal emissions and the opportunities for farmers to transition into producing biomass feedstocks for the bioeconomy.

86. **How could the Government help industry and Māori agribusinesses show their environmental credentials for low-emissions food and fibre products to international customers?**

Farm Management Plans which included all emissions and abatement on a farm would allow individual farms provide food source-traced data.

87. **How could the Government help reduce barriers to changing land use to lower emissions farming systems and products? What tools and information would be most useful to support decision-making on land use?**

If farmers are included within the bioeconomy and recognised for what they already do then they will be more receptive of moving into farm forestry and other new land uses. To do that they need data and case studies on land use options. A bioeconomy approach recognises that farmers already produce a wide range of bio products from their grass or trees as raw resource.

88. **Are there any other views you wish to share in relation to agriculture?**

Farm forestry needs to be recognised as a viable production activity of farms and is not just a hobby or to make farms look pretty. Assistance such as the NZ Dryland Forests Initiative should be extended.

Waste

89. **The Commission's recommended emissions reduction target for the waste sector significantly increased in its final advice. Do you support the target to reduce waste biogenic methane emissions by 40 per cent by 2035?**

Yes.

90. **Do you support more funding for education and behaviour change initiatives to help households, communities and businesses reduce their organic waste (for example, food, cardboard, timber)?**

Yes but it should be in the context of the full revised Waste Strategy which included recycle and source separation. These should be supported by regional waste processing of all organics into composting or anaerobic digestion. Where the full waste management chain is understood by communities they are more interested in participating.

91. **What other policies would support households, communities and businesses to manage the impacts of higher waste disposal costs?**

In communities which are making use of the organic waste they receive revenue from sale of compost, biogas and biofertilizer. This income reduces the cost of collection. (eg in New Plymouth the Bioboost biofertilizer which is produced from the WWTF sludge is used as a biofertilizer and the community is proud that it is produced from their own waste water treatment process).

Support should be provided to regional initiatives such as in Taranaki where all the regions Councils are working together to develop a region wide organic waste solution via composting and anaerobic digestion so that no organics go to landfill.

92. **Would you support a proposal to ban the disposal of food, green and paper waste at landfills for all households and businesses by 1 January 2030, if there were alternative ways to recycle this waste instead?**

Yes. There are already suitable composting and bioenergy technologies available. Having a ban would encourage Councils to establish recycling facilities in their area. These could be council owned and operated or contracted to private facility owners as Auckland Council has done with its food wastes. A ban should be framed to practically cater for organic matter that is too contaminated to be recoverable. In such cases landfills with high biogas capture will remain the best option.

93. **Would you support a proposal to ban all organic materials going to landfills that are unsuitable for capturing methane gas?**

Yes. See answer in Q92 above.

Banning organic waste going to landfills without methane gas capture is supported. Emissions from a modern landfill with bioenergy recovery can be close to zero while they can exceed 1,000 tonnes of CO₂-e for every 1,000 tonnes of waste at a landfill without biogas capture.

94. **Do you support a potential requirement to install landfill gas (LFG) capture systems at landfill sites that are suitable?**

Yes. Gas capture at some existing landfills is well established and should be extended to all appropriate landfill sites. The key consideration in implementing this requirement will be to

ensure that it is enacted in a way that allows landfill gas capture to be recognised and incentivised. This is critical to increasing emission reductions from landfills.

95. **Would you support a more standardised approach to collection systems for households and businesses, which prioritises separating recyclables such as fibre (paper and cardboard) and food and garden waste?**

Yes. While there is no problem in having different collection systems it seems inefficient to have each TA develop its own system. However the main thing should be that each community area should be required to have a collection system where the different waste systems are kept separate. The more clean separated organic waste that is recoverable the more that it can be recycled. Mixed waste are often so contaminated that the waste is more difficult to process. In larger regions the mixed waste should be processed in appropriate designed waste to energy systems, or gas capture landfills.

The proposals for municipal residential organic waste should be extended to also cover the collection of commercial waste. Biosolids from WWTF should also be banned from landfills as there are means of recycling biosolids so that they can produce energy and biofertiliser.

Policies should also include construction and demolition wood waste as these can be recycled in appropriate facilities. If the waste levy is not a big enough incentive for investment in boilers that can use C & D material as a fuel then there may need to be a payment from Government.

It is a policy failure if any organics, including biosolids and C & D material goes to landfill.

96. **Do you think transfer stations should be required to separate and recycle materials, rather than sending them to landfill?**

Yes. There should be a ban on clean organic waste going to landfill which would provide the incentive for separation at transfer stations so that the waste can be recycled. If each region has separation and both composting and anaerobic digestion facilities then there should be little organic waste which should go to landfill.

97. **Do you think that the proposals outlined in this document should also extend to farm dumps?**

Yes. A farm dump should be included within the scope of a Farm Environmental Plan and farms should have policies on how they are to handle their wastes and residues. Assistance needs to be available so that farmers don't reinvent the wheel for each farm but that there are guidelines and best practices which can be recommended. A positive outcome will be that organic residues which are currently dumped may be recycled.

98. **Do you have any alternative ideas on how we can manage emissions from farm dumps, and waste production on farms?**

If the policies set out in Q97 are followed then the organic farm wastes should be able to be managed. Assistance on technologies to reduce waste emissions will be necessary so that lack of information and finance is not a barrier (eg covering dairy effluent ponds so that the methane emitted is captured and used for dairy shed heating and cooling).

99. **What other options could significantly reduce landfill waste emissions across Aotearoa?**

Technologies and best practices for handling organic wastes are already known and practiced. What is missing is the will to extend their use so that emissions are reduced. Many of the technologies are economic or near economic but are not practiced because there has been no requirement to do so.

We also often spend a lot of effort on minor abatement opportunities (eg phasing out junk mail) rather than working on where the large gains can be made. Bioenergy Association believes that if we implement the policies and processes suggested in the discussion document, plus those initiatives which are currently not included, that will make reducing emissions from waste easily achievable. The suggestions in this document and the proposed revision of the Waste Strategy are a momentous leap forward and we just need to get on and implement them.

F-gases

- 100. NA?
- 101. NA
- 102. NA
- 103. NA
- 104. NA
- 105. NA

Forestry

106. **Do you think we should look to forestry to provide a buffer in case other sectors of the economy under-deliver reductions, or to increase the ambition of our future international commitments?**

It is a policy failure if we are in the situation where we have to purchase future international emission credits. We should not think of forestry as a buffer but as an economic opportunity to create jobs as well as extend our capability for carbon dioxide sequestration. Extending forest plantings will extend the ease in which bioenergy and biofuels solutions can contribute to emissions reduction because there will be more biomass to replace fossil fuels and produce green gaseous and liquid biofuels to replace natural gas, LPG and fossil fuels for transport.

Extending forestry into appropriate land is probably the least cost abatement initiative provided it is available for continuous rotation. Planting native forests and permanent carbon forests which cant be harvested have limited long term value for continuous abatement. Particularly when the wood is processed into permanent sinks such as buildings.

107. **What do you think the Government could do to support new employment and enable employment transitions in rural communities affected by land-use change into forestry?**

Currently the neoliberal approach to land use is not encouraging forestry and farming to co-exists. If Government is seen as promoting wise land use and the bioeconomy it will provide a more positive platform for rural areas. This can be reinforced by assisting new bio-based industries to locate near the resource.

If farmers are also engaged with farm forestry there is less of a distinction between farming and forestry. Dairy farmers can also be encouraged to contract with their milk processor for the supply of milk and biomass for energy.

The adoption of a bioeconomy approach offers the opportunity for a reset of the relationship between farming and forestry. (eg protein can be directly extracted from grass and grass can be a feedstock for a wide range of bio-materials including biofuels. In Europe some farmers now directly supply their grass for the production of green gas via anaerobic digestion.

Farmers can also provide crops as a supplementary feedstock for a local anaerobic digestion facility processing municipal organics.)

108. **What's needed to make it more economically viable to establish and maintain native forest through planting or regeneration on private land?**

From a climate change perspective exotic rather than native trees should be planted as native trees are very slow absorbers of carbon dioxide. Spending money on a second best option needs to be justified by other reasons than emissions reduction.

109. **What kinds of forests and forestry systems, for example long-rotation alternative exotic species, continuous canopy harvest, exotic to native transition, should the Government encourage and why?**

The Government should not be encouraging any specific species or planting strategy. Government should be ensuring that research is undertaken on a range of species and planting regimes so that the best species or planting regime is able to be chosen by land owners for a specific planting area and application. There has been a lack of research into short rotation species for over 15 years. No research into managed shelterbelts or managed erosion control so that end of life trees can be harvested. Whether native or exotic species is planted should be determined by the specific land and intentions of the land owner. Landowners as manager of the land must be given the freedom to chose appropriate solutions and then held accountable.

a. **Do you think limits are needed, for example, on different permanent exotic forest systems, and their location or management? Why or why not?**

No. The focus should be on land use environmental standards so that land is managed sustainably regardless of the species planted.

To maximise the emissions reduction opportunities we should have best species for the land. Exotics are good carbon dioxide absorbers and planting should be encouraged on appropriate land.

b. **What policies are needed to seize the opportunities associated with forestry while managing any negative impacts?**

Sound land use environmental standards. It is often not the species that is planted which cause problems. It is generally the manner in which plantings and harvesting are done which leads to problems. Standards, education and monitoring policies ensure a good outcome.

110. **If we used more wood and wood residues from our forests to replace high emitting products and energy sources, would you support more afforestation? Why or why not?**

Yes. If we have more afforestation we will have gained all of the economic and emission reduction benefits from using biomass to produce high value products.

111. **What role do you think should be played by:**

a. **central and local governments in influencing the location and scale of afforestation through policies such as the resource management system, ETS and investment?**

Central and local government should set the environmental standards for afforestation and monitor compliance. Land owners should be empowered to make decisions on products and use of the land provided it meets the environmental standards. Environmental Land Management Plans will also assist landowners to optimise land use and protection and plan activities within those standards and their Environmental Management Plans. Central and local government shouldn't dictate if forestry can be on the land. Forestry should be a permitted use within the land use standards.

b. the private sector in influencing the location and scale of afforestation?

The private sector, as land managers, must work within the environmental standards applying to their land when undertaking afforestation.

112. NA

113. NA

114. Are there any other views you wish to share in relation to forestry?

The bio products from land use are what underpin a transition to a bioeconomy. Biomass is the store of biochemicals from which bio-based products can be produced. The forestry and agriculture sectors have perfected methods of efficiently using the biomass in the form of grass and trees to produce food and wood products. This provides a strong foundation for expansion of the bioeconomy so that the economic, social, environmental and climate change benefits are realised. If land owners see the bioeconomy as an expansion of what they are already doing then they will engage and join the journey. If they think it is new and different from what they have spent their lives doing then they will be fearful and fight against the bioeconomy concept. (eg when farmers are told that beef is out and hamburgers will be made from vegetable beef substitute they will fight, but if they see that vegetable beef substitute is a product they could provide as well as beef and consequently improve their business resilience, they are more likely to grow for both. Similarly, forestry and farming are not either/or, if forestry and traditional farming are presented as both revenue gaining farm activities then the farmers will be more comfortable with forestry.