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Submission form: Consultation on the Sustainable Biofuels Mandate

The Ministry of Business, Innovation and Employment (MBIE) and the Ministry of Transport (MoT) would like your feedback on a proposal to increase the use of sustainable liquid biofuels in New Zealand to reduce greenhouse gas (GHG) emissions from transport. Please provide your feedback by **5pm, 26 July 2021**.

When completing this submission form, please provide comments and supporting explanations for your reasoning where relevant. Your feedback provides valuable information and informs decisions about the proposals.

We appreciate your time and effort taken to respond to this consultation.

Instructions

To make a submission you will need to:

1. Fill out your name, email address, phone number and organisation. If you are representing an organisation, please provide a brief description of your organisation and its aims, and ensure you have the authority to represent its views.
2. Fill out your responses to the discussion document questions. You can answer any or all of these questions in the [discussion document](#). Where possible, please provide us with evidence to support your views. Examples can include references to independent research or facts and figures.
3. If your submission has any confidential information:
 - i. Please state this in the email accompanying your submission, and set out clearly which parts you consider should be withheld and the grounds under the Official Information Act 1982 (Official Information Act) that you believe apply. MBIE and MoT will take such declarations into account and will consult with submitters when responding to requests under the Official Information Act.
 - ii. Indicate this on the front of your submission (e.g. the first page header may state “In Confidence”). Any confidential information should be clearly marked within the text of your submission (preferably as Microsoft Word comments).
 - iii. Note that submissions are subject to the Official Information Act and may, therefore, be released in part or full. The Privacy Act 1993 also applies.

How to submit this form

4. Submit your feedback:

i. As a Microsoft Word document by email to energymarkets@mbie.govt.nz with the subject line: *Consultation: Sustainable Biofuels Mandate*

ii. By mailing your submission to:

Consultation: Sustainable Biofuels Mandate
Energy Markets Policy
Building, Resources and Markets
Ministry of Business, Innovation and Employment
PO Box 1473, Wellington 6140
New Zealand

Submitter information

Submitter information

MBIE and MoT would appreciate if you would provide some information about yourself. If you choose to provide information in the section below, it will be used to help MBIE and MoT understand how different sectors view the Sustainable Biofuels Mandate proposal. Any information you provide will be stored securely.

Your name, email address, phone number and organisation

Name: Peter Brown

Email address: Privacy of natural persons

Phone number: Privacy of natural persons

Organisation: Miscanthus New Zealand limited

- The Privacy Act 1993 applies to submissions. Please tick the box if you do **not** wish your name or other personal information to be included in any information about submissions that MBIE and MoT may publish.
- MBIE and MoT may upload submissions and potentially a summary of submissions to the website(s), www.mbie.govt.nz and/or www.transport.govt.nz. If you do **not** want your submission or a summary of your submission to be placed on either of these websites, please tick the box and type an explanation below:

I do not want my submission placed on MBIE's website and/or MoT's website because... [insert reasoning here]

Please check if your submission contains confidential information

- I would like my submission (or identifiable parts of my submission) to be kept confidential, and **have stated** my reasons and ground under section 9 of the Official Information Act that I believe apply, for consideration by MBIE and MoT.

Sustainable Biofuels Mandate

How the Sustainable Biofuels Mandate would work

1. Do you support having a GHG emissions reduction mandate?

Yes Yes, with changes No Not sure/No preference

Please explain your views.

My submission is partly as an individual, but is also partly as a result of being CEO of a small but now rapidly developing renewable energy company, Miscanthus New Zealand Limited. I strongly support having a GHG reduction mandate, but as was the case in the earlier effort by the Helen Clark government to get this going, the targets set are nowhere near as ambitious as they should be.

Our original intention in bringing the new woody grass, Miscanthus into New Zealand, was to provide feedstock for the production of liquid fuel -- at that stage, ethanol. Since that original import of Miscanthus in 2008, a lot has changed and we now have access to technology from the USA that enables us to make renewable diesel - a drop-in diesel substitute - from Miscanthus and other cellulosic biomass.

Although it is excellent that the government is finally beginning to take the renewable fuels opportunity seriously, it is clear to us that the challenges that are mentioned in the discussion paper on page 11 are all based on outdated information. Therefore act as a good focus for the comments that I am making. The "challenges" are addressed below with each "challenge" inserted first **in bold**.

Sustainable biofuels are not cost competitive with fossil fuels at market prices. This probably was the case some time ago, but the renewable diesel fuel (RDF) that can now be made has such high value co-products, that it can be produced in a way that is extremely cost competitive. Not only that, it can be produced at a fixed price for some time into the future, giving fuel users economic certainty.

It needs to be emphasised that this is not biodiesel. RDF is a direct drop-in substitute for fossil diesel and having been tested by Independent Petroleum Laboratories of Marsden Point, when have the evidence that it meets all the NZ specifications for diesel. It can be made from a wide variety of feedstocks but we have chosen to focus on cellulosic feedstocks..

Our preliminary pro forma financial calculations tell us that the projects can work and deliver a very healthy rate of return with a RDF price of less than one dollar per litre, fixed for at least a year and if needed, for several. No fossil fuel supplier will supply fuel at that price and they certainly will not supply with any guaranteed price for the following 12 months.

Domestic production has reduced and is likely to reduce further because of high international demand for feedstocks. Although I agree that domestic production of biofuels has reduced, if the government gets behind RDF, domestic production will increase, rather than reduce further. This is because RDF, as a direct drop-in substitute for fossil diesel, will then be demonstrated as a viable commercial alternative that happens to be so much better than carbon neutral that it makes electricity production look like a polluting technology. The feedstock material for making RDF can be from a single source or can be a mixture, of several things. The resulting fuel is the same. The potential feedstock materials that are already being produced in significant quantities are cereal straw and forest industry processing residues. In many parts of the country the latter already have a market but in the case of straw, huge quantities are burned to waste each year simply to remove them.

At the same time, it needs to be borne in mind that because the RDF process is so efficient and profitable, the price that can be paid for forest industry processing residues exceeds by quite a margin, the prices being paid for the same material when it is used for other uses. But even more importantly this whole scenario opens the door for purpose grown cellulosic crops, particularly Miscanthus. As a result, demand for feedstocks for this process ceases to become an issue.

Advanced drop-in sustainable biofuels are preferable but developers face high financial and technical barriers. Developers of projects designed to produce RDF as a sustainable drop-in biofuel do not face

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technical barriers at all. The technology has already been commercially proven in the USA so investment in such plants in New Zealand will not be a first. The capital cost of the production plants is not low, but because of the high value of the SuperChar that will be produced, the rate of return on investment in such production plants is significantly better than is required by any realistic investors. As a result, we consider it to be incorrect to say that developers face high financial barriers.

The other issue, regarding scale is that this particular technology is modular. Expansion is achieved by simply adding new modules. So scale up at any one particular site is very straightforward because modules established initially could continue operating while new modules are installed. In addition, the scale is small enough that the technology can be applied regionally.

There is no need to “prove the technology”, because the technology has already been proven. It also seems very safe to assume that demand for RDF will continue and probably expand, because demand for diesel does not look like it is going to shrink very much in the foreseeable future.

We agree that larger-scale development is dependent on the economics of the biofuel production stacking up, but because the RDF is effectively a co-product of the SuperChar production process the price that needs to be realised for the RDF is less than the current wholesale price for fossil diesel. In addition it can be fixed for a defined period into the future which is definitely not the case with fossil diesel.

Use of conventional biofuels is limited by “blend walls” that deter investment. With the use of RDF, there is no such thing as a blend wall. Any suggestion of blending RDF with fossil diesel is akin to a suggestion that distilled water should be blended with ordinary tap water to supply drinking facilities to people. RDF can be used 100% as the fuel in all diesel engines without infringing manufacturers warranties, so while the target of the current RDF plans is production of fuel for heavy transport, there should be no reason why it should not also be used for other sectors.

Use for rail is an obvious possibility, as is marine use, but it also could be used through existing distribution facilities for fuelling the light vehicle diesel fleet.

There is a lack of significant incentives and past uncertainty in biofuels policy. Government support would enable RDF production to begin very promptly - namely in this parliamentary term. The only thing holding it back is ignorance on the part of government officials, who are not familiar with the technology required and who are reluctant to admit this. As a result politicians are ill-informed and political decisions are made based on information and technologies that are years out of date.

Having the government provide a financial incentive would be very welcome in terms of simply getting things started, but any business financial analysis needs to be based on the position without such financial incentives. This is because it is a very bad idea to invest in a business where the success of it is dependent on the whims of politicians.

The failure of efforts by Z Energy, Air New Zealand, and Fulton Hogan, is because they have been looking at and utilising what to us is ancient technology. In addition they, like many government officials, are very reluctant to take serious notice of anything told them by small companies. All three of these companies have been informed about RDF. They have been informed about Miscanthus as a purpose grown crops for production of RDF. They have also been informed about the modular nature of the technology that will be being used for production of SuperChar and RDF, and the concomitant lack of need to commence production with a massive production plant. We have no doubt that if they had a large company saying exactly the same things they would have taken notice, as would the government officials.

What we think is needed is simply some regular public statements by the government that they are promoting or encouraging the production and use RDF as a 100% drop in replacement for fossil diesel. It will also be very helpful if they were to remove any consenting roadblocks to such production plants.

While the ETS improves the cost competitiveness of biofuels by placing an emissions price on fossil fuels, it cannot sufficiently overcome the challenges to biofuels set out on page 11. We disagree completely with this statement, because none of the challenges mentioned on page 11 are actually

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true. We have done pro-forma calculations on the economics of production of RDF with SuperChar and have shown that even with very conservative numbers, the required sale price for RDF can be below what commercial operators consider to be economically attractive to them.

2. Do you support the proposal to require certification of lifecycle emissions of biofuels sold in New Zealand using international standards?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Please explain your views.

Independent Life Cycle Analysis (LCA) of Miscanthus production has been carried out by Dr Rocky Renquist of Bioenergy Cropping Solutions. This has shown the growing and production process for Miscanthus to be better than carbon neutral. He also completed an environmental analysis which proved to be very positive. He will have made a submission to this discussion paper and he will be able to supply copies of these documents.

We are very confident that the RDF process is itself, considerably better than carbon neutral, partly because of the associated production of SuperChar, which is permanently sequestered carbon.

3. Do you support applying the Sustainable Biofuels Mandate to all liquid transport fuel?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Please explain your views.

There is little excuse for applying the proposed Mandate to anything other than all liquid transport fuels, because the solution for all exists already. i.e., it should be applied to all fuel types

4. Are the proposed initial emission reduction percentages for 2023–2025 appropriate for New Zealand? If not, what should they be?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

The percentages are too conservative. There should be no suggestion that future renewable fuels production should be based on conventional biofuels with all their limitations.

If mandated percentages are challenging, people will rise to the challenge and will begin to take alternative technologies seriously.

5. Do you support having single GHG emissions reduction percentages across all fuel types, or do you favour separate reduction percentages? Why and how many separate percentages would you suggest we have?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

A single GHG emissions reduction mandate is what is needed. It would be much easier to manage and would be clear to everyone. But the use of conventional biofuels that require blending to be at all useful, should be steadily phased out as quickly as possible, but starting no later than 2025.

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6. Do you support provisional emission reduction percentages being set for 2026–2030 and 2031–2035 with the percentages being finalised in 2024 and 2029 respectively?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

The percentages should be at or near 100% by the end of this decade. The way-point targets for 2025 and 2030 should be set within the year prior to these dates.

7. Do you support the proposal that biofuel producers must be certified against an established sustainability standard to count towards achievement of the emissions reduction percentage?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

There seems to be little point in setting a Mandate if any of the fuel that is to be used to meet that standard is anything other than verifiably sustainable. So the key issue is what is considered sustainable. Our view is that energy in versus energy out is an important part of it. GHG sustainability is also important. The important thing is that full Life Cycle Analysis (LCA) is completed and that it is not confused with other debates that are not based on sustainability.

With Miscanthus being able to be grown on poorer quality land there is a clear LCA benefit for New Zealand as a whole. We are very aware of the many uses for SuperChar, including plant growth enhancement and addition to animal feed to increase growth rates and reduce methane emissions. Graphene production and use is another key element. These could perhaps be included in a LCA or sustainability standard to give a more complete picture of the benefits of these technologies.

8. Do you support having a joint fuel industry/government information campaign to inform New Zealanders about biofuels and the Sustainable Biofuels Mandate?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

It seems to be a no-brainer, but it will be very important to get all the relevant information together and presented in a credible manner. The Government needs to make sure that it is not captured by big fuel producers / retailers when developing this information campaign. It also needs to ensure that organisations such as Scion are not relied upon for informed and independent advice when in fact they are relatively uninformed and have a huge bias – in the case of Scion, to favour forests above anything else in every case.

9. Do you support the labelling proposal that informs consumers about specific biofuels at the point of sale?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

[insert response here]

10. Should New Zealand try to overcome the challenges that domestic biofuel producers face in maintaining access to affordable supplies of domestically produced feedstocks? Do you have any suggestions for how this challenge could be overcome?

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Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

As stated at the beginning, we do not see this as a factor to be overcome if the right technologies are used. We are confident that Miscanthus can be grown and produced sustainably in competition with all alternatives. The same applies to other feedstocks for the production of RDF. So there is no need to make any real changes to overcome this non-existing challenge. The "challenge" can be eliminated if the Emissions Trading Scheme were to recognise the carbon benefits of production of Miscanthus and SuperChar. For example our indicative calculations show that in addition to the carbon benefits of Miscanthus production – see Dr Renquist's submission - the RDF process sequesters significant amounts of carbon. These figures suggest that for every litre of RDF used, 1.63 kg of CO₂ are permanently sequestered. This is on top of the carbon benefits of using RDF rather than fossil diesel to fuel heavy trucks, trains, diggers, bulldozers, etc.

The thing to be remembered with Miscanthus as a feedstock for RDF production is that it has many other markets in NZ. Example are use for calf bedding, dairy sheep bedding, dairy cow composting barns, commercial mulch and boiler fuel in place of coal.

Feedstock price for RDF therefore has to be competitive with these other uses, so growers can be extremely confident about the economic viability of their operation. When the ETS carbon benefits are included – as they surely must be – the economics can be extremely attractive.

An example of a circular economy use of these technologies is a proposal – currently only at the discussion stage – to site a SuperChar/RDF plant near Te Araroa. This will be able to take forestry logs that currently have no economic home because of the cost of transport to Gisborne. With the RDF plant feedstock price being based on the wider national Miscanthus sale price, the finances of forest production will become much attractive, with even the poorest logs showing a financial surplus. The output from that plant will be centred on SuperChar, the price of which is so high that transport costs are almost immaterial. In addition the RDF that is produced will have a local market for use in place of diesel – at a lower and reliable longer term price than that of fossil diesel. If surplus RDF were to be produced, the syngas from which this surplus RDF would have been made, can instead be used to generate electricity – which itself is currently expensive to supply to that location. The whole local economy will be enhanced. Lastly, Miscanthus will be able to be grown to supplement the feedstock supply

A similar scenario can be repeated regionally around New Zealand because the relatively small scale of these RDF plants.

How could the Sustainable Transport Biofuels Mandate be implemented?

11. Do you think the minimum threshold for compliance of 10 million litres of transport fuel in a calendar year in New Zealand is appropriate? If not, what level would you change it to?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

[insert response here]

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12. Do you agree with the method for calculating a supplier's GHG emission reduction?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

[insert response here]

13. Do you think the annual reporting regime, including its offences and fines, is practical and appropriate?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

[insert response here]

14. Do you support the performance of fuel suppliers being published to enable consumers to reward the industry leaders in reducing GHG emissions?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

Publicity of verified environmental performance is an excellent way to keep the fuel suppliers honest.

15. Will the proposed penalties encourage fuel suppliers to achieve the required emission reductions? If not, would level should they be?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

The penalties may be appropriate but it will be important to ensure that they are structured so as to encourage wholesale production of drop-in fuels such as RDF.

16. Do you support the proposal for fuel suppliers to defer achieving their emissions reductions for years 1 and/or 2, in full or in part, to the following year?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

This might be helpful to new wholesale drop-in fuel producers who are starting up.

17. Do you support fuel suppliers banking any surplus emissions reductions in a year and using it to reduce the percentage needed to be achieved the following year?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

[insert response here]

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18. Do you support fuel suppliers borrowing for shortfalls in emissions reductions in a year, and making the shortfall up the following year?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

[insert response here]

19. Do you agree with the proposal to allow trading through the use of entitlement agreements?

Yes, I agree I agree in part No, I don't agree Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

The whole idea is to get people to produce renewable fuels, not to get people to trade in entitlements.