

## Submitter information

## Submission form: Consultation on the Sustainable Biofuels Mandate

### 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: Simon Mathewson

Email address: [REDACTED] Withheld under section 9(2)(a)

Phone number: [REDACTED]

Organisation: Licella Holdings Ltd

- 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](http://www.mbie.govt.nz) and/or [www.transport.govt.nz](http://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 part of the submission placed on MBIE's website and/or MoT's website because it contains commercially sensitive information related to future market opportunities. The information containing commercially sensitive R&D activities for our technology, has been highlighted, and Licella request this remains outside of the public domain due to technology IP.

#### 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



### About Licella Holdings (Licella)

Licella Holdings Limited (Licella™) are an Australian technology development company that has, over the past fourteen years, developed Hydrothermal Liquefaction (HTL) technology Cat-HTR™ to a stage where commercial plants are now being built with our JV partners in the UK and Canada. Licella has invested over AU\$100m in scaling the technology at our various pilot plants in Somersby (an hour north of Sydney) to the point where our partners are confident in building commercial facilities. Licella recently signed an agreement with Shell Catalysts & Technologies<sup>1</sup> whereby they will provide a standalone upgrading unit that will take Licella's bio-crude and convert it into finished fuels. The bio-crude can also be co-processed at existing refineries. Licella offers a commercially ready technology able to produce advanced biofuels for New Zealand's hard to decarbonise sectors e.g. Aviation, Marine, Heavy Vehicles and Rail, as well as, passenger and light commercial vehicles.

### The Technology

The Cat-HTR™ (Catalytic Hydrothermal Reactor) platform has been extensively tested at the world's first large scale continuous-flow pilot plant, converting wood waste (such as that from sawmills or forestry residues) and other biomass residues (e.g. agricultural stovers) into a stable biocrude or synthetic crude oil. Our oil can be used to produce low GHG sustainable fuels and a range of chemicals

Withheld under section 9(2)(b)(ii)

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<sup>1</sup> <https://www.shell.com/business-customers/catalysts-technologies/resources-library/trade-release-shell-catalysts-and-technologies-forms-global-alliance-with-arbios-biotech-to-pursue-biorefinery-solutions.html>

## 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.

Licella strongly support having a GHG emissions reduction mandate and commend the New Zealand Government for taking the first steps towards a lower carbon future. Bioenergy Australia have suggested that biofuels are not able to have a strong penetration without a mandate<sup>2</sup>, which is supported by biofuel mandate adoption in 68 counties.<sup>3</sup> Therefore this mandate is critical in taking a step towards decarbonising the transport sector.

Furthermore, this mandate will encourage investment in emerging decarbonising platforms and technology, whilst creating employment opportunities and providing a good platform for potential collaborations with international developers interested in building new refineries. Although this is currently only directed at the transport sector, this mandate will provide further opportunity to invest in technology that can contribute to GHG reduction in other ways. [REDACTED]

[REDACTED] Licella is of the view that anything can be made from petroleum crude today can be made from a tree tomorrow using our technology.

Withheld under section 9(2)(b)(ii)

## 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.

Considering that different feedstocks and technology deliver different emissions reductions, certain biofuel would be more effective in achieving the goals of the mandate. A large importance should be placed on defining baselines, criteria and methodology. Thus, Licella agrees that the use of international standards is a good place to start, however in selecting, it is essential to define the start and endpoints whether it be 'stump to pump' or 'stump to pipe'.

Licella acknowledges that this proposal would also favour the investment into more diversified emerging technology such as Hydrothermal Liquefaction.<sup>4</sup> Whereby, Licella recognises that for New Zealand to reach GHG emission reduction targets, it is essential that every step in the biofuel supply chain is accounted for.

Methodologies such as ISCC or Roundtable on Sustainable Biomaterials (RSB) standards enable users to have confidence in the provenance of fuels produced. Similarly, GHG methodologies such as Canada's GHGenius, USA's GREET and EU's BioGrace can be used although it is important to ensure whatever model is used is adopted and utilised consistently to ensure apples to apples comparisons.

<sup>2</sup> [https://www.fairtrading.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0006/599667/Submission\\_181.pdf](https://www.fairtrading.nsw.gov.au/__data/assets/pdf_file/0006/599667/Submission_181.pdf)

<sup>3</sup> International Energy Agency

<sup>4</sup> <https://www.mpi.govt.nz/dmsdocument/41824/direct>

## Sustainable Biofuels Mandate

### 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.

A mandate on all liquid fuels will encourage growth in all fuel type sectors. The IEA have forecast liquid biofuel consumption to grow more than threefold by 2030, primarily for heavy duty trucks.<sup>5</sup> For this mandate to be effective, there is not enough infrastructure for any one fuel type.

For example Z Energy have a biodiesel plant on standby in Wiri, however "to provide enough biofuel to blend 10 percent into the 9 billion liters of petroleum powering the country's land transport fleet would require another 45 plants the size of Wiri."<sup>6</sup> Thus, implementation of the mandate will require significant investment from Government and industry to support the development of emerging technologies that will help fill the current gap in biofuel production.

When comparing against the use of electricity and hydrogen energy for GHG emission reductions, biofuels deliver a drop-in fuel to existing vehicle engines. Licella's Cat-HTR™ technology can deliver this bio-based drop-in fuel, that offers a higher energy density than other competitor technologies, such as pyrolysis, to provide a solution ready for application to marine, trucking and aviation.

### 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?

Licella agrees that while infrastructure to support biofuel volume demand is still being established, the proposed emission reduction percentages are appropriate.

### 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?

Licella supports separate reduction percentages across petrol, diesel, aviation and marine fuel. Not all fuel types have an established market and the infrastructure to be sustainable. For example, movement towards SAF requires extensive investment and development. With almost 1 million tonnes of fossil derived fuel consumed daily for aviation alone,<sup>7</sup> meeting GHG percentage reductions based on a biofuel blend would require considerable volumes. In Norway for instance their first mandate for SAF was 0.5% incrementing but with this initial demand was sufficient for investments from Neste<sup>8</sup> and others to be made to meet this growing requirement.

Separate reductions are needed to incentivise development of emerging technologies that tackle the hard to decarbonise transport sector (such as heavy-duty trucking, trains, aviation and marine). Given New Zealand's geographic location it is incumbent on it to ensure emissions associated with aviation and marine in international air space/waters are covered in some part.

<sup>5</sup> <https://www.ieabioenergy.com/blog/publications/iea-bioenergy-news-volume-331-june-2021/>

<sup>6</sup> <https://www.newsroom.co.nz/get-out-of-jail-card-for-fuel-firms>

<sup>7</sup> Air New Zealand, 2019

<sup>8</sup> <https://www.neste.com/products/all-products/neste-my-sustainable-aviation-fuel#867cab74>



## Sustainable Biofuels Mandate

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?

Provisional percentages will support gradual growth within the biofuel industry. Although, time frame may want to be reconsidered due to investment logistics. For example, the EU RED approach utilises a 10-year time frame, allowing adequate time to finance funds. By comparison, in the US, the EPA would have the ability to finalise annual settings in the year for the Renewable Fuel Standard (RFS) resulting in heavy lobbying and granting of exemptions to water down the target as political situation changes. Business needs certainty to be able to make significant investments.

With the requirement of infrastructure to be established, Licella suggests that New Zealand Government consider targets with certainty of at least 10 years. This will encourage investment and establish a smoother transition into biofuels.

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?

Licella supports the implementation of an already internationally established sustainability standard. However, the main challenge will be to make sure all variables are normalised. This will ensure the criteria would contribute to a holistic evaluation of the biofuel production process, making mandate goals easier to achieve in the long run, and ensure appropriate investment into emerging technologies that deliver superior GHG reductions and provide widest feedstock optionality for the future e.g. ISSC or RSB.

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?

Licella supports having an information campaign and appreciate the advantage this would have in aiding a smoother transition to biofuels. Perhaps having the messaging from the Government can be more persuasive as it might not be seen as pushing any solution but more coming from a trusted source of information to try and overcome barriers such as “this fuel is going to hurt my engine”. Australia’s Queensland Government had such a campaign ahead of alongside the introduction of their mandate, with an App where you could easily enter your car registration to determine if it was able to use ethanol or bio-diesel.

Furthermore, educating people about the health dangers associated with particulate emissions from traditional fuels e.g. more people in Australia die from respiratory illnesses caused from particulates from fossil fuels than from care incidents.<sup>9,10</sup>

<sup>9</sup> Harvard University in collaboration with the University of Birmingham and others

<sup>10</sup> <https://www.bitre.gov.au/statistics/safety>

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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?

Following an information campaign, this would be highly suitable as it would allow the consumer to make the choice. As there is general movement toward sustainable-centric zeitgeist, placing the power of choice into the consumer's hand may speed the transition to biofuels and result in larger emissions reductions.

For example, in the UK, under the Road to Zero strategy, the government introduced the 'Know Your Fuel' campaign aimed at encouraging drivers to consider the environmental impact of their journeys and fill up with biofuel blends.

Erik Rietkirk, CEO of UK biodiesel producer Argent Energy, added: "These labels are crucial for informing the public about what the UK is doing to decarbonise transport. Making the most of the huge environmental benefits of sustainable biofuels makes complete sense, and can help reduce emissions during the transition to a low carbon future."

Furthermore, emphasis should be placed on ensuring that ethanol blends meet the 95 octane level. In Australia, despite the blend taking the octane to 94.7, the petrol companies round this down to 94 so people lose confidence in putting it in their 95 octane fuel cars.

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?

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 volumes of feedstock required to meet reduction targets will be more achievable if efforts are focused on decarbonising heavy trucking, marine and aviation. Although, petrol is New Zealand's leading fuel type by use,<sup>11</sup> it is anticipated that the bulk of reductions for passenger vehicles will be achieved from implementation of electric vehicles.

Licella encourages the New Zealand government to incentivise the domestic utilisation of domestically produced feedstocks. For example, in 2018 New Zealand exported 270 thousand BDU of woodchips, with 48% of total forestry exports to China<sup>12</sup>. Introduction of a policy that states domestic residues are to be used internally, with the introduction of a tariff would ensure New Zealand has adequate access to affordable supplies.

Furthermore, across New Zealand, forestry waste accounts for 1.04 million tonnes<sup>13</sup> of potential feedstock annually. Adding incentives for TIMOS to develop aggregation methods would be beneficial.<sup>14</sup>

Also, the implementation of a carbon or emission tax of some form will help overcome the challenges biofuels have when competing against "cheap" fossil fuels. When considering the comparative fuel prices of OECD nations<sup>15</sup>, New Zealand could consider increasing their tax percentage as the major component for petrol and increasing the tax component in general for diesel.

<sup>11</sup> MBIE breakdown of NZ's transport fuel use by type 2017

<sup>12</sup> <https://www.canopy.govt.nz/forestry-data-research/annual-forestry-exports/>

<sup>13</sup> <https://www.bioenergy.org.nz/documents/resource/Report-forest-residue-harvesting-fuels-part-2-Scion-EHE-EECA-May2007.pdf>

<sup>14</sup> <https://www.mpi.govt.nz/dmsdocument/41824/direct>

<sup>15</sup> <https://www.aip.com.au/pricing/international-prices/international-price-comparisons>

## Sustainable Biofuels Mandate

**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?

Licella agrees that this will ensure that the largest suppliers, who have the capacity to develop infrastructure are impacted.

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?

Licella agrees.

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?

Licella agrees with the reporting regime, although penalties for companies should be revised. For example BP made a profit of \$4.0 billion in 2019<sup>16</sup>, a \$500,000 fine is merely a slap on the wrist. Perhaps larger penalties can be determined based on company production volumes.

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?

Licella agrees that consumers have the right to know which fuel distributors are the leaders and those that are the laggards. We also agree that leaders should be rewarded for their efforts by being called out, as such, by the government.

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?

Licella suggests an increased penalty for non-compliance following 5 years. Currently sustainable aviation fuel (SAF) has a market of US\$2100 per tonne<sup>17</sup>. Considering sustainable fuels have a premium associated with them, there needs to be a higher penalty to act as a disincentive.

<sup>16</sup> <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/investors/bp-fourth-quarter-2020-results.pdf>

<sup>17</sup> Argus Media Group, 2021

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Licella also suggests the mandate better defines what steps are included when considering “fuel supplier took all reasonable steps to meet the required emissions reduction”. For example, would this include any external emission reductions methods ie. Carbon sequestration. We also suggest imposing a rectification plan for companies that consistently breach the mandate.

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?

Whilst infrastructure is still being established, Licella agree with the proposed deferral option. Licella also agrees with the inclusion of a deferral penalty, this would maintain motivation for biofuel deployment.

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?

Licella agrees that companies capable of reducing emissions further than the target should be rewarded, by enabling a roll-over of reduction for year to year. However, to encourage continuous development, roll-over for consecutive years should not be allowed – i.e., any rollover credits are only valid for one year following the surplus.

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?

Licella agrees, and again, suggest imposing a rectification plan for companies that consistently breach the mandate, due to continuous yearly shortfalls.

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?

Licella agrees that companies capable of reducing emissions further than the target should be rewarded, by enabling a sale of the carbon credits. This would also offer an opportunity for the carbon credits to be sold internationally, generating further incentives for fuel suppliers to reduce emissions and develop more efficient biofuel infrastructure.