31 January 2022

Hon David Parker
Minister for the Environment
c/- Parliament

Tēnā koe Minister,

FOLLOW UP: REQUEST TO CALL-IN APPLICATION FOR CONSENT, FEILDING PYROLYSIS PROPOSAL

Late in December we wrote to you to request your intervention in the application of Bioplant Limited for a resource consent to discharge-to-air for a proposed pyrolysis plant in Feilding, Manawatū. We are writing to follow up on our request and to provide some additional information.

In our original letter we outlined our concerns, both in terms of the lack of democratic process surrounding this application and the impacts of such a proposal. We outlined how four key clauses of the RMA Section 142 are triggered by this application, and that there is strong evidence that the application will be non-notified.

Since writing our letter, we have received the Bioplant application to Horizons Regional Council which is appended here. Two additional concerns have arisen from this application that we would like to further draw to your attention.

Use of residual char: landfarming toxic waste?

The proposed pyrolysis facility will produce an estimated two tonnes/day of 'char', the residual material left following the pyrolysis process. This material is primarily comprised of volatile matter[1] (51.40%) and fixed carbon (46.03%). The Bioplant application (p.19) calls this material "biochar" and suggests it is a desirable soil conditioner saying:

> *"The addition of bio-char to agricultural soils is receiving much attention due to the benefits to soil quality and enhanced crop yields, as well as the potential to gain carbon credits by active carbon sequestration. Studies have shown that bio-char can aid in: Nutrient retention and caption exchange capacity, Decreasing soil acidity, Decreased uptake of soil toxins, Improving soil structure, Nutrient use efficiency, Water-holding capacity, Decreased release of non-CO2 greenhouse gases"*

[1] See *Characterization and Utilization of Char Derived from Fast Pyrolysis of Plastic Wastes*, **Procedia Engineering** Volume 69, 2014, Pages 1437-1442. Procedia Engineering | 24th DAAAM International Symposium on Intelligent Manufacturing and Automation, 2013 | ScienceDirect.com by Elsevier

The NZ Biochar Research Centre based at Massey University defines biochar as: "a 2,000 year-old practice that converts agricultural waste into a soil enhancer that can hold carbon, boost food security and discourage deforestation."

By contrast to Bioplant's suggested use of this material, Germany has defined the char from Municipal Solid Waste pyrolysis as hazardous waste that must be handled in accordance with strict regulations:

> *"From 1983 to 2015 a MSW pyrolysis plant operated at Burgau,Germany, despite continuous technology related weaknesses; and no other plant of its type has been built since (Vehlow, 2016). The feed-stock was pre-treated and residual char had to be disposed of as hazardous waste (Quickeretal., 2015)."*[2]

Quite simply, the pyrolysis industry is seeking to cloak their toxic waste product as a beneficial soil conditioner to enable them to get rid of their hazardous waste easily, while avoiding responsibility. This waste would be applied to soil absent any monitoring of the disposal locations and impacts, and free of regulation. Bioplant Limited has not made any application for resource consent for discharge-to-land of this material. Allowing this practice via a consent would almost certainly lead to future socialisation of both the environmental and fiscal costs of remediating potentially irreversible harm. Bioplant's attempt to offload the problem of their waste by-product onto the public purse is clearly out of step with the growing expectation of product stewardship and corporate responsibility.

Plastic-to-fuel production and associated GHG accounting

Bioplant Limited's resource consent application states that 14,000 litre/day of EN590 diesel will be produced, and there is the possibility of using the two tonnes/day of char as a so-called "green fuel" (p.19)

Research from the United States indicates that plastic-derived fuel produces higher exhaust emissions compared to diesel, which leads to high pollution levels.[3] Pyrolysis oil is far more contaminated with solid residue, dioxins, and polycyclic aromatic hydrocarbons (PAHs) than regular diesel, and produces greater quantities of sulphuric content, unburned hydrocarbons (UHC), oxides of nitrogen (NOX), soot, carbon

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[2] Rollinson, A.N., Oladejo, M.S., 'Patented blunderings', awareness, and self-sustainability claims in the pyrolysis energy from waste sector. *Resources, Conservation & Recycling 141 (2019) 233–242*. The specific reference within this article to the treatment of pyrolysis char as hazardous material is from Quicker, P., Neuerburg, F., Noēl,Y., Huras,A.,2015. *Status of Alternative Techniques for Thermal Waste Treatment-Expert Report for the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Project No.Z6-30345/18, Report No. 29217, English Translation*: Bār, H. Rheinisch-westfälische Technische Hochschule Aachen Unit of Technology of Fuels (TEER) Wüllnerstraße252062Aachen.

[3] Kalargaris, Ioannis, Guohong Tian, and Sai Gu. 2017. "The Utilisation of Oils Produced from Plastic Waste at Different Pyrolysis Temperatures in a DI Diesel Engine." *Energy* 131 (July): 179–85. https://doi.org/10.1016/j.energy.2017.05.024.

monoxide (CO) and carbon dioxide (CO2) emissions compared to diesel in a standard engine.[4] None of these issues are addressed in Bioplant's application.

Moreover, turning plastic to fuel and then burning it releases the carbon in the plastic as CO2. Yet Bioplant makes miraculous claims that "*The facility is expected to reduce carbon footprint of 37,000 ton of CO2, equivalent to over 7,500 cars off the road,*" and that 34,898 tonnes of CO2Eq emissions would be avoided by the application of pyrolysis to the 40 tonnes/day of MSW. They make this claim in part by not accounting for the eventual burning of the fuel they are producing - carbon that would otherwise not have been burned.

Similarly the Bioplant application (p.19) promotes the use of char as fuel saying, "*Pyrolysis Bio-char has a higher heating value than many grades of coal and it is also a Green fuel that is CO2 neutral.*" This assertion cannot be taken at face value given that the feedstock will be primarily plastics - burning this char would only be CO2 neutral if the feedstock was exclusively biomass. The application does not include emissions from the burning of this char in its calculations, nor does the application include any analysis of the pollutants/particulate matter that would be released.

Proposal has national implications

As noted in our original letter, Bioplant's application has implications for the whole of Aotearoa New Zealand - and not simply because it would be the first of its kind, but also because the company has plans for other facilities in Gisborne and Hokitika. Central government must demonstrate leadership and guidance on issues of critical national importance such as waste in order that wider societal aspirations and international obligations can be met.

We look forward to your response.

Ngā mihi mahana,

Dorte Wray
Zero Waste Network

Angela Baker, convenor
Feilding Against Incineration

Profesor Meihana Durie, Chair
Aorangi Marae Trustees (Mana Whenua)

[4] Khatha, W., S. Ekarong, M. Somkiat, and S. Jiraphon. 2020. "Fuel Properties, Performance and Emission of Alternative Fuel from Pyrolysis of Waste Plastics." *IOP Conference Series: Materials Science and Engineering* 717 (1): 012001. https://doi.org/10.1088/1757-899X/717/1/012001.