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Project Scope

Guidance for consenting of biomass boiler systems using different solid biofuels for heat production

Background

Currently Regional Air Plan Rules generally permit only the combustion of raw biomass fuel for heat production. These Rules result in potential fuel that has minor "contaminants" such as paint so that painted wood is not able to be legally combusted, and thus is unnecessarily disposed of to landfill. Yet, modern heating systems are designed for a wide range of solid biofuels, and thus some are suitable for combusting these prohibited fuels, with the resulting emissions to air being within the National Air Quality Standards.

Some consenting authorities use the discretionary consent pathway to allow the use of minor "contaminated" fuels but have advised that they would like guidance on the limits that should apply. These limits will depend on the boiler design, the equipment used for cleaning emissions to air, and the degree of emission monitoring.

A number of Regional Rules for controlling emissions to air are based on controlling fuel inputs as well as setting the limits for emissions to air. This project, funded by the Waste Minimisation Fund, will provide guidance on best practice for ensuring emission Rules are met without unnecessarily prohibiting fuel inputs.

Objective

This project is to encourage the beneficial use of recycled waste timber, herbaceous crop waste, and other biomass such as chicken litter, to be used as a fuel for producing heat. The project will produce a best practice Technical Guide for consenting officers and applicants as to the equipment design and monitoring options for boiler systems so that any solid biofuel can be used and meet the national emission to air standards. Use of recycled timber waste as fuel will avoid it being disposed of to landfill.

Scope of different fuels

The project is to provide guidance on consenting for the use of the following fuels which are different from being raw woody biomass:

- Biomass contaminated with paint, CCA, boric, paint and other coverings and treatments
- Herbaceous biomass including, straw, miscanthus, stover, and other agriculture crop residues
- Bark, chicken litter, pruning's and high moisture content biomass such as arborist cuttings.

Methodology

The project team will review international standards and best practice, summarise these, and recommend the best practice which should be applied within the New Zealand air emissions regulatory framework.

The project team will work with biomass suppliers, demolition contractors, equipment suppliers, air emission experts, consultants, consenting officers and owners of existing boilers to identify the evidence that a consenting officer should seek from applicants with regard to the range of biofuels that can be used in the application in order to meet national emission standards. This evidence may

relate to characterisation of the fuel, boiler combustion design, control of emissions to air, air emissions monitoring and reporting.

The project team will also identify model consent conditions that can be recommended to consent authorities.

The output from the project will be a Technical Guide for applicants, consultants, demolition and construction contractors, consenting authorities and heat plant facility owner/operators.

The project will be overseen by a Steering Group of interested parties, and the Bioenergy Association's Solid Biofuels Interest Group which includes major heat plant owners, fuel suppliers, equipment suppliers, consultants and regulators.

The draft Technical Guide will be drafted by a team involving staff from two engineering consultancies (DETA Consulting, Bryn Martin) who have current experience in consenting of boilers for use of different biofuels and the testing of such fuels in existing boilers.

Engagement with equipment suppliers, demolition and construction contractors, and consenting officers will be critical to establishing workable guidance so a team of these from large consent authorities (including Auckland and Canterbury), forming a Steering Group, will be included with the Interest Group members to review and approve the document produced.

The Guide will provide in appendices:

1. A summary of international best practice and international standards where they exist;
2. Guidance on the equipment options for ensuring that biomass boilers meet air quality standards, and
3. Demonstration by example (three mini case studies) how the fuel, consent conditions, equipment, and emissions monitoring methodology will ensure that the emissions to air from the biomass boiler system will meet national air quality standards for the consented solid biofuels.

Once a near final consultation draft is available the Association will host a virtual workshop to consider the guidance and confirm its acceptability. It will then be finalised and published with copies provided to all consent authorities. Copies of the Technical Guide will be freely available to members of the Bioenergy and Demolition and Asbestos Associations, resource consent applicants and others from the website www.usewoodfuel.org.nz

Acknowledgement of funding support

The project is made possible by the receipt of $87,000 funding from the Waste Minimisation Fund (WMF). The WMF invests monies received from the Waste Levy in projects to reduce waste and increase the recovery of useful resources from waste. Lifting New Zealand's performance in recovering economic value from waste also provides environmental, social and cultural benefits and reduces the risks of harm from waste.

The project is managed by the Bioenergy Association and supported by the New Zealand Demolition and Asbestos Association.

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