

## ***Ensuring only biofuels produced from sustainable feedstocks are used in New Zealand***

### **Overview**

Internationally there has been concern that some transport biofuels are produced from unsustainably sourced feedstocks. This situation currently does not occur in New Zealand. However in order to provide New Zealanders with confidence that they are using sustainable biofuels the Energy Efficiency and Conservation Authority (EECA) has established a framework which allows biodiesel producers and retailers to report on the environmental credentials of their products. The reporting is voluntary but monitored by BANZ (Bioenergy Association of New Zealand) and government.

New Zealand's voluntary reporting around the sustainability of the feedstocks used for the production of biofuels is an approach that has, given the size and transparency of the New Zealand market, been easy to implement and administer and is a cost effective approach that has the support of all key players in the sector. It is a win-win for the industry as producers recognise that 'sustainability' sells their product.

The sustainability reporting framework draws on international experience, in particular that of the United Kingdom Renewable Fuels Agency's Renewable Transport Fuels Obligation (UK RTFO) and is consistent with best international practice. Fuels reported on must also meet the New Zealand Fuel Specifications.

This note sets out how the scheme works, what is disclosed by biofuel producers/ suppliers and presents a brief history of why biofuel sustainability needed to be addressed. Supporting materials that helped to inform the process and obtain Parliamentary endorsement are also listed.

Sustainability reporting is a key criteria for accreditation of transport biofuel producers and retailers within the BANZ Biofuel Accreditation Scheme [www.AccreditedBiofuels.org.nz](http://www.AccreditedBiofuels.org.nz)

New Zealand Biofuels Sustainability Scheme - details at - <http://www.eeca.govt.nz/node/8082>

### ***Biofuels in New Zealand – current status***

The New Zealand Energy Data File Report 2011<sup>1</sup> reports the production of over 16.5 million litres of biofuels (biodiesel and bioethanol) from 2007 – 2010. This is almost a 400% increase in 3 years. There is increasing interest in biofuel and a growing use by a wide range of vehicle owners from tourism ventures, race cars, fleet vehicles, haulage trucks, boiler operators and the general public. Significant amounts of bioethanol are also exported. The fuel is becoming more available with both biodiesel and bioethanol blends available wholesale and retail. There are currently around 5 producers of biodiesel and one bioethanol producer in New Zealand.

The economic value being derived from the production of biofuels from waste is both for transport and other uses.

<sup>1</sup> <http://www.med.govt.nz/sectors-industries/energy/energy-modelling/publications/energy-data-file/new-zealand-energy-data-file-2011>

Government support to development of the industry is currently via EECA biofuel sector initiatives (eg support to develop fuel supply clusters), the Biodiesel Grants Scheme, ethanol excise duty exemption and support for BANZ biofuel accreditation activities.

The success of the growth of the transport biofuels sector so far has derived from its commitment to quality and sustainably produced fuels as BANZ emphasized in this 2009 quote —“*The liquid biofuels Industry in New Zealand has great potential—boosted further by the Governments recent Biodiesel Grant Scheme. I would say that they are all well aware of the merits of selling sustainable NZ grown fuels—anything else would be commercial suicide. In todays market its sustainability that sells.*” Executive Officer BANZ.

A full report on the current state of the transport biofuels sector is available at <http://www.bioenergy.org.nz/documents/Homepage/Biodiesel-Grants-Scheme-Progress-Report.pdf>

## Sustainability Disclosure

New Zealand’s leading biofuels producers and suppliers disclose the source of product on the EECA website: <http://www.eeca.govt.nz/biofuels/sustainability>. A sample of the information disclosed is set out in Table 1 below.

The information disclosed is based on the Sustainability Framework methodology set out on the EECA website and summarised below.

**Table 1: Sample of information on sustainability disclosed under the Sustainability Framework.**

Biofuel seller	Blend/Fuel	Biofuel feedstock	Feedstock origin	Greenhouse gas emissions compared to petrol / diesel	Fuel company statement
Biodiesel New Zealand	100% biodiesel (Biogold™ NZ100)	Used cooking oil (90%) and rapeseed oil (10%)	New Zealand	Greater than 80% reduction	Biodiesel New Zealand's biodiesel is canola-based. The biofuel is produced from a blend of used cooking oil, graded for optimum use, and canola oil (oilseed rape) from rapeseed grown in New Zealand. The rapeseed is grown as a break-crop (between other crops), which allows farmers to condition the soil and raise the fertility of the land for future use in addition to producing both food and fuel. Once the canola oil is extracted, the remaining seed cake is a high protein animal food. <a href="http://www.biodiesel-nz.co.nz">www.biodiesel-nz.co.nz</a>

## Sustainability Methodology

For each blend sold or supplied, the supplier provides a set list of information for disclosure in the table on the EECA website <http://www.eeca.govt.nz/biofuels/sustainability>.

The sustainability is based on disclosure of the type and source of the fuel feedstock and the level of greenhouse gas emissions reduction achieved when using the fuel compared to petrol / diesel. This methodology was developed from two reports commissioned by EECA (one on biodiesel and the other on bioethanol) (see resource 5 and 6 in this note).

{View the [URS report](#)<sup>2</sup>, which the greenhouse gas emissions calculations for biodiesel are based on, and the [peer review of the URS report](#)<sup>3</sup> for biodiesel.  
View the [URS report](#)<sup>4</sup>, which the greenhouse gas emissions calculations for bioethanol from whey are based on, and the [peer review of the URS report](#)<sup>5</sup> for bioethanol from whey.}

The key features from a sustainability perspective are the ability to confirm the origin of the feedstock and what it is; and the greenhouse gas emissions reduction. The company also has an opportunity to present more details in a company statement in respect of the effect on food production and biodiversity so that the source of the fuel is put into context. New Fuels are added as they come to market (e.g. E85).

Fuel producers submit their calculation spreadsheets to EECA which are independently checked. The life cycle emissions of the fuels are then calculated against reference fuels (see resource 9).

The calculation methodology generally follows the PAS 2050 standard, but has been modified to remain comparable with other biofuel emission calculations, for example those provided under the United Kingdom Renewable Transport Fuels Obligation (UK RTFO).

To develop the New Zealand calculation models URS used the emission models and data provided in the UK Office of the Renewable Fuels Agency report *Carbon and sustainability reporting within the renewable transport fuel obligation (ORFA, 2009)* in order to ensure consistency of the overall emission calculations and the significance of individual sources to the overall GHG emission result. URS also analysed the UK emission model structures and used them as a basis for the New Zealand system models, subject to agreed boundaries<sup>6</sup>. Through this process URS identified a range of additional emission factors and data points that had not previously been collected and subsequently added these to the New Zealand emission models.

The New Zealand calculation methodology also follows that of the Roundtable on Sustainable Biofuels.

To check the New Zealand emission models URS used UK input data and emission factors, resulting in similar emission figures as those reported in the ORFA (2009) report. URS then populated the models with the respective default values and emissions factors identified above, reflecting the different production processes of each biodiesel stream.

Carbon dioxide from combusting biofuels is not counted in this calculation. This is because carbon dioxide emitted by the biofuels during engine combustion is effectively cancelled out by the carbon

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<sup>2</sup> <http://www.eeca.govt.nz/node/8726>

<sup>3</sup> <http://www.eeca.govt.nz/node/8727>

<sup>4</sup> <http://www.eeca.govt.nz/node/9247>

<sup>5</sup> <http://www.eeca.govt.nz/node/9248>

<sup>6</sup> URS (2009) Data collection for life cycle greenhouse gas emission default values for New Zealand biodiesels Report prepared by URS New Zealand for Energy Efficiency and Conservation Authority (EECA), 28 May 2009. Wellington, New Zealand.

dioxide that was recently absorbed from the atmosphere by the source of the biofuel, e.g., from plants growing. Greenhouse gases emitted during farming, manufacture and transportation of the biofuel are counted.

The voluntary approach to sustainability reporting has proved easy to implement, it's cost effective and has universal support.

## A Brief History/Background

The following notes set out a brief history of the route by which New Zealand arrived at a Voluntary Disclosure Scheme on biofuels sustainability. In particular, key pieces of Government legislation are noted as key markers in the process. As is clear from the information presented, sustainability has always been a key element of consideration for the sector but the agreement on a voluntary approach to disclosure has been shown to work well and is a win-win solution for the industry and the general public alike. Historically, the general public has never been better informed or better equipped (with tools such as the internet) to be able to confirm or dispute producer claims around sustainability. New Zealand biofuel producers are only too aware of this and have embraced the opportunity to provide information on the sustainability of their fuels voluntarily.

The notes presented here also reference an extensive list of resources that chart the decision making process. These resources are listed at the end of this note.

**Early stages of addressing the Sustainability 'Issue'** - In 2007, prior to the implementation of the Biofuels Sales Obligation (see below) it was anticipated that sustainability would become an issue especially as a result of the negative media attention at the time re food versus fuel, destruction of rainforests and some biofuels not making any contribution to CO2 reduction (for example, ethanol from corn in the US).

The New Zealand lead energy agency, EECA (Energy Efficiency and Conservation Authority) commissioned an investigation into leading reporting and labelling schemes that might be used in the New Zealand context (see resource 1). At the time, the conclusion made was that there was nothing really suitable and so the decision was made to develop a NZ focussed voluntary sustainability reporting scheme. Two further reports were commissioned on the "Food versus Fuel" debate. The conclusions of these investigations were that biofuels weren't impacting food prices but rather the oil price and US dollar exchange rate (see resources 2 and 3).

**The Biofuel Bill and the Biofuels Sales Obligation** - In February 2007 the Government of New Zealand announced a Biofuels Sales Obligation as part of the Biofuels Bill, requiring biofuels to be introduced into the New Zealand fuels market. The Biofuel Bill was passed through Parliament on 3 September 2008, and the sales obligation was to take effect on 1 October 2008.

The Biofuels Sales Obligation required all oil companies to supply biofuels as a fixed percentage of their total sales. Under the Obligation biofuels would have to make up 0.5% of oil companies' sales in the first year of the scheme, 2008, with obligation levels rising by 0.5% increments to 2.5% in 2012.

The Bill contained *sustainability principles* to make sure biofuels sold towards the obligation will: emit significantly less greenhouse gas over their life-cycle than fossil fuels, avoid negative impacts on food

production and not reduce indigenous biodiversity or adversely affect land with high conservation values. Decisions about which type of biofuel is supplied, how much of it is blended with fossil fuels and where it comes from were to be up to the industry. However, on 17 December 2008, the Parliament approved a repeal Bill, revoking the Biofuels Sales Obligation.

The New Zealand Local Government and Environment Select Committee report on the Biofuel Bill, 2008, provides some useful background (see resource 4). It was clear during 2008 from submissions on the Biofuels Bill that the ***main sustainability concerns in New Zealand were CO<sub>2</sub> reduction, impact on food production and biodiversity.***

EECA then commissioned an investigation into the CO<sub>2</sub> reductions from the existing biofuels manufacturing processes in New Zealand. A spreadsheet calculation model was developed where producers could insert their own data to arrive at a life cycle emissions value for their process (see resources 5 and 6). The commissioned reports were also internationally peer-reviewed (see resources 7 and 8).

**Bioethanol excise duty exemption** In recognition of its environmental benefits the Government has from September 2003 exempted bioethanol from excise duty<sup>7</sup>. This was based on fact that the use of ethanol in petrol blends reduces greenhouse gas emissions from the transport sector. Petrol blends may contain up to 10 percent ethanol. There was no specific sustainability requirement.

**Biodiesel Grants Scheme** - The Biodiesel Grants Scheme was introduced in 2009 as a replacement to the Biofuels Sales Obligation – and is the current means of promoting biodiesel to vehicle owners. It is due to run until June 2012. The Biodiesel Grants Scheme is designed to:

- Provide support for New Zealand's biodiesel manufacturing industry;
- Offer comparable treatment with bioethanol for biodiesel;
- Diversify the New Zealand fuel market; and
- Encourage the adoption of environmentally responsible fuels which reduce greenhouse gas emissions.

A grant of up to NZD 42.5 cents per litre for biodiesel or biodiesel content of a biodiesel blend is available to biodiesel producers. Biodiesel producers must meet certain criteria including (in summary):

- The biodiesel must be manufactured in New Zealand and meet New Zealand engine fuel specifications;
- The biodiesel must be sold as a blend up to B20 or sold for the purpose of blending up to B20<sup>8</sup>; and
- The biodiesel cannot be sold for export.

Subsequent revisions to the Biodiesel Grant Scheme criteria mean that producers who are seeking the subsidy are now required to identify the source of their feedstock on their Returns forms.

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<sup>7</sup> <http://www.beehive.govt.nz/node/17787>

<sup>8</sup> Note – the Biodiesel Grants Scheme was extended on 10 July 2010 to cover up to and including B100 (<http://www.beehive.govt.nz/release/biodiesel-grants-scheme-be-extended>)

**The Sustainable Biofuel Bill** - The Sustainable Biofuel Bill was a members bill (drawn from the New Member's ballot<sup>9</sup>) introduced in 2009 and proposed to allow regulations to be made to prescribe sustainability standards for biofuels sold in New Zealand, both imported and produced domestically. The Local Government and Environment Committee examined the Sustainable Biofuel Bill and ***recommended that it not be passed*** rather instead endorsing the existing EECA Sustainability Framework.

The report of the Committee provides a useful summary of the findings and background (see resource 10)

The Committee noted as follows, "*the likelihood of unsustainable biofuels being imported into New Zealand in the near future appears low for three main reasons. First, there is a lack of demand for biofuels in the mainstream retail market and they are mainly used in niche markets, such as eco-tourism<sup>10</sup>. Secondly, the use of biofuels by companies is considered a marketable characteristic, and the importation of unsustainable biofuels would cause harm to a company's reputation. Finally, evidence suggests that biofuel feedstocks that have attracted adverse comment for their sustainability, such as crude palm oil and soy oil, tend to track the pricing of crude oil, and so do not necessarily offer a cheaper alternative.*"

## References

1. *Consumer Information on Biofuel Sustainability A Research Project for EECA, SKM 2008* ([report](#) and [presentation](#))
2. *Rising food prices and biofuels*, Nimmo Bell 2008
3. *Update report: Food prices and biofuels*, Nimmo Bell 2009
4. *Local Government and Environment Select Committee report on the Biofuel Bill, 2008* - [http://www.parliament.nz/NR/rdonlyres/69822D36-C538-4B5D-99A4-3EC9C05A3D43/85776/DBSCH\\_SCR\\_4090\\_6028.pdf](http://www.parliament.nz/NR/rdonlyres/69822D36-C538-4B5D-99A4-3EC9C05A3D43/85776/DBSCH_SCR_4090_6028.pdf)
5. *Life cycle greenhouse gas emission model for New Zealand biodiesels*, URS 2009
6. *Greenhouse Gas LCA of Ethanol from Whey*, URS 2009
7. *Peer review of URS lifecycle GHG model for New Zealand biodiesel*, E4tech, 2009
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9. *NZ Fuel and Electricity Life Cycle Emission Factors Total Primary Energy Use, Carbon Dioxide and GHG Emissions*, AgriLINK NZ Ltd, 2009
10. *The Local Government and Environment Select Committee report on the Sustainable Biofuel Bill, 2009* - [http://www.parliament.nz/NR/rdonlyres/8F420B74-345F-47E9-8166-622DDDD5CE8D/194927/DBSCH\\_SCR\\_5167\\_SustainableBiofuelBill491\\_8414\\_1.pdf](http://www.parliament.nz/NR/rdonlyres/8F420B74-345F-47E9-8166-622DDDD5CE8D/194927/DBSCH_SCR_5167_SustainableBiofuelBill491_8414_1.pdf)

<sup>9</sup> New Members Ballot Process - <http://www.parliament.nz/en-NZ/Features/d/4/a/49NZPHomeNews180620091-Members-bill-ballot.htm>

<sup>10</sup> Note – While this may have been the case at the time the sector sees growth in a range of sectors not least of which is the tourism sector.