



New Zealand Government

Biofuels: market development issues and opportunities

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Agenda

- About EECA
- Transport energy and renewable energy in New Zealand
- Biofuels and biofuel blends
 - Biodiesel
 - Bioethanol
 - Advanced biofuels
- Current market issues and opportunities
- Sustainability and GHG reporting
- Summary





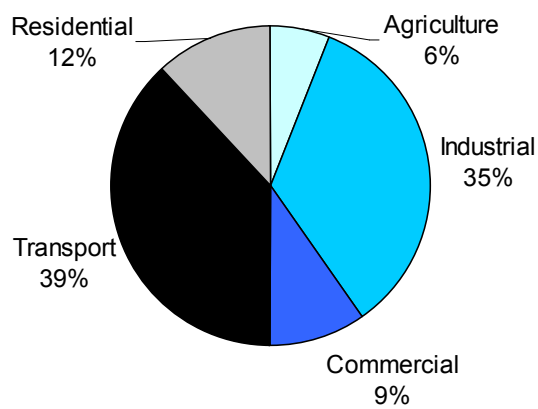
What is EECA?

- The Energy Efficiency and Conservation Authority is a New Zealand government agency (Crown entity)
- Encourages, supports, and promotes energy efficiency, energy conservation, and the use of renewable sources of energy in New Zealand
- EECA helps New Zealanders at home and in business with:
 - Information and advice
 - Business support
 - Funding and incentives
 - Standards and ratings
 - Research and monitoring



Transport is New Zealand's largest energy consuming sector

Consumer Energy by Sector, 2010



Renewable energy by sector

Sector	% renewable*
Residential	67%
Commercial	54%
Industrial	51%
Agriculture	20%
Transport	0.2%

For comparison, in 2009, biofuels met 3% global transport fuel demand (IEA World Energy Outlook 2010)

*Based on 2010 data reported in New Zealand Energy Data File 2011 with NZ electricity generation 74% renewable

Approach to renewable energy for transport

- Changing vehicle technology at the same time as needing a new energy supply infrastructure is difficult and expensive – “chicken and egg” problem of which comes first, the vehicle or the fuel
- Focus is on two complementary options which change only one of either vehicles or energy supply to get started in the market:
 - Biofuel blends used in **existing** vehicles
 - Electric vehicles using **existing** electricity generation and distribution infrastructure to recharge: NZ’s renewable electricity generation can provide significant GHG benefits with EVs

Biofuels 101

- Bioethanol
 - Alcohol
 - Made from starches or sugars
 - E10 = 10% ethanol in petrol
 - Global production 855,000 barrels per day
- Biodiesel
 - Fatty acid methyl ester (FAME)
 - Made from vegetable oils or animal fats
 - B5 = 5% biodiesel in diesel
 - Global production 257,000 barrels per day
- Advanced biofuels include renewable petrol and renewable diesel (eg Neste Oil plant in Singapore making renewable diesel including from NZ tallow) and ethanol from sugars in wood (eg Borregaarde plant in Norway making ethanol and high value chemicals from wood)



Current biofuels in New Zealand



- Biodiesel from used cooking oil and rapeseed grown as a break crop - NZ exports of tallow could meet 4% NZ diesel demand
- Bioethanol from whey (lactose): by-product of milk processing, produced in three North Island locations by Fonterra
- Imports of sugarcane bioethanol from Brazil



Bioethanol in New Zealand

- Up to E10 is allowed for retail sale and must be labelled at the pump
- Fuel bioethanol is exempt from excise duty
- Available in New Zealand since 2007 through Gull in upper North Island (now 235,000 E10 fills per month) and selected Mobil stations in lower North Island
- 5.5 million litres of ethanol was blended into petrol and sold 2010
- In April 2011 Gull launched E85 for use in flex-fuel vehicles (Holden has sold flex-fuel Commodores in New Zealand since 2010)
- Drivers should check with their vehicle manufacturer before using E10



Biodiesel in New Zealand

- B5 can be retailed at the pump and does not need to be labelled
- B5 available at selected Gull stations
- B5 must meet the same fuel specifications as ordinary diesel
- B20 and other blends above B5 can be sold in New Zealand where there is written contract for supply
- Biodiesel Grants Scheme in place which provides a 42.5 cents per litre grant to biodiesel producers when they sell biodiesel into the market for use in engines (no fuel excise on diesel in NZ, Road User Charges applied instead)
- 1.6 million litres of biodiesel was sold into the market in 2010



1st biodiesel buyers' consortium

- Biodiesel producers supported by grant scheme have not been able to get major oil companies to blend their product for retail sale
- Commercial tourism operators in Queenstown wanted to use biodiesel
- Market demand signalled by creating a buyers' consortium supported by Otago Polytechnic Centre for Sustainable Practice and EECA
- Independent fuel distributor won consortium tender for B20
- Queenstown consortium had 1st anniversary in March with 20 companies using 15,000 litres of biodiesel per month in 66 vehicles



Biodiesel in use around New Zealand

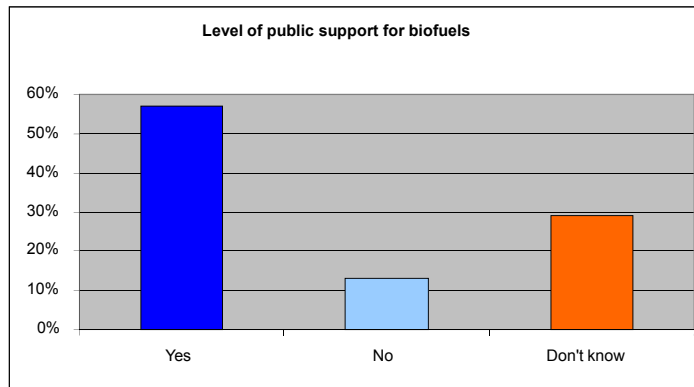
- Biodiesel blend customers include:
 - Fulton Hogan
 - Kea Campers
 - Explore NZ (Auckland and Bay of Islands)
 - KiwiRail auxiliary services
 - Okains Bay Fisheries
 - Ocean Fisheries
 - Christchurch City Council
 - Leopard Coachlines
 - Bridgestone NZ
- 8 more consortia now in various stages of development (Nelson and Marlborough now operating)



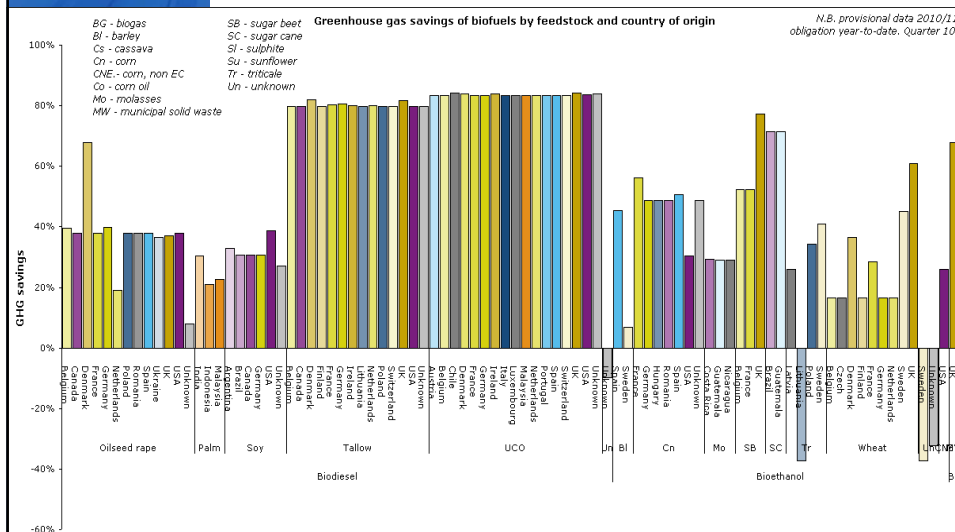



Are biofuels sustainable?

- EECA research showed relatively high proportion of consumers uncertain about biofuels (30%) with sustainability being the main doubt



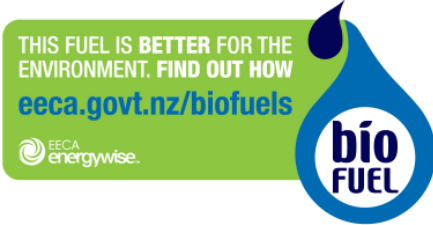
Not all biofuels are created equal Data from UK RTFO






Voluntary sustainability reporting scheme

- Based on UK Renewable Transport Fuels Obligation approach, NZ scheme operating since early 2010
- Methodology including system boundaries have been internationally peer reviewed
- GHG values for NZ producers have been independently peer reviewed
- The majority of retailers and wholesalers in New Zealand offering bioethanol and biodiesel blends are participating in the voluntary reporting scheme





Example of New Zealand biofuel sustainability reporting

Biofuel seller	Blend/Fuel	Biofuel feedstock	Feedstock origin	Greenhouse gas emissions compared to petrol / diesel	Fuel company statement
Biodiesel New Zealand	100% biodiesel	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. For further information visit www.biodiesel-nz.co.nz
Biodiesel New Zealand	20% biodiesel blend	Used cooking oil (90%) and rapeseed oil (10%)	New Zealand	16-18% reduction	(As above)
Environ Fuels	100% biodiesel	Used cooking oil	New Zealand	Greater than 80% reduction	Environ Fuels utilises used vegetable oil feedstock, from the food and confectionery industry, in producing high quality biodiesel to lower carbon emissions and the effects they have on the environment. Currently all of the waste oil is sourced from New Zealand and the biodiesel made from that does not compete with food production or biodiversity, which is an important prerequisite in principles of sustainability". For further information visit www.environmentfuels.com

GHG reductions

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Food, biodiversity and land use issues

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Summary

- Sustainable biofuel blends in the market today are delivering real GHG reductions for New Zealand
- Not all biofuels are created equal – big differences between countries, feedstocks and methods of production
- EECA's voluntary biofuels reporting scheme helps provide confidence to consumers on GHG benefits
- www.eeca.govt.nz/biofuels

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