



# Argent Energy- Biodiesel

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# Agenda

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- Biodiesel
  - Facts & Figures
  - Argent Energy Plant- Motherwell, Scotland
  - Potential & Issues for New Zealand

# Biodiesel

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- Clean burning sustainable alternative, or complimentary, to mineral diesel fuel
- Can be made from a number of feedstocks
- EU Targets: 2% - 31/12/2005, 5.75% - 31/12/2010
- A scarce resource, best use is in a blend
  - Quality is key
  - Non toxic, biodegradable
  - Lower hydrocarbon/greenhouse gas emissions
  - Sustainable, renewable

# Biodiesel Industry



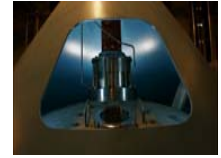
- Over 20 years old
- Potential held back by
  - Legislation
  - Fiscal
  - Blending
  - Interested Parties
  - Technology
  - Learning Curve
- Today industry maturing fast

Global consumption now in excess of 3 billion litres a year

# Different Countries, Different Solutions

## Pure vs Blending

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- Pure
  - Historic
  - Strategic/unsaturated oil crops
  - Advantages/Disadvantages- better understood

# Different Countries, Different Solutions

## Pure vs Blending

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- Blending
  - Adoption of FAME standard
  - Technical issues understood
  - Ease of integration into existing infrastructure
  - Advantages as an additive

Most efficient way to achieve targets

# Maturing Industry needs standards

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- Protect the consumer
- Reputation
- Encourage investment
- CONFIDENCE IS KEY
  - Consumer
  - Manufacturer
  - Supplier
  - Government

# What can biodiesel do for the user?

## Argent Energy customer fleet experience...



- 4 million km trial
  - 1.5-2% fuel saving using B5
- no operational problems



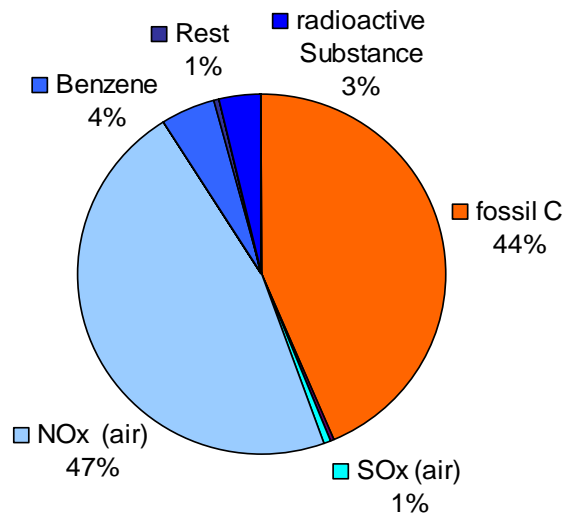
## Own Fleet Experience



- Showing an improvement in fuel efficiency
  - Dedicated contract fleet of EURO II Scania tanker wagons - 200k km pa
  - Fleet managed by supplier – reporting key performance indicators
  - Operating over medium distance motorways/ main routes
  - >4M km driven by fleet since April 2003
  - Regular oil check/ analysis – no additional oil decay
  - Regular maintenance – no increase in wear/ tear
  - Regular driver consultation – no loss of performance
  - Routine monitoring of fuel use – fuel metered onto each vehicle and cross checked against Odomoter
- 1.5-2.0% drop in litres/100km using Bio-Plus vs. year earlier use rates and other fleets
- Fleet company now adopting Bio-Plus for all fleet operations

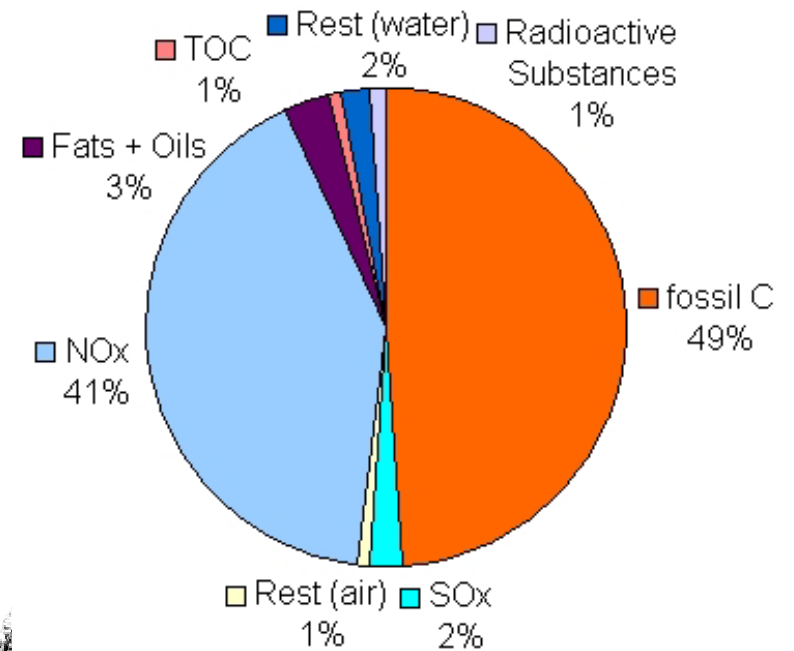
# Life Cycle Analysis

## Biodiesel from Used Vegetable Oil



**4,8 m<sup>2</sup>a/MJ**

## Fossil Diesel



**28,3 m<sup>2</sup>a/MJ**

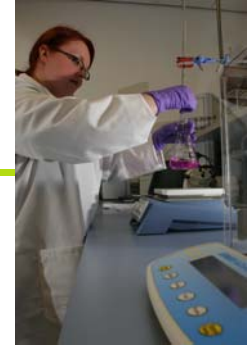
**Overall footprint**



# Life Cycle Analysis

50,000 tonne UCO/Tallow plant...

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- CO<sub>2</sub> produced from generating one megajoule of energy
  - Rapeseed biodiesel: 1kg displaces 3kg of mineral CO<sub>2</sub>
  - UCO/tallow biodiesel: 1kg displaces 4.2kg of mineral CO<sub>2</sub>

## 200,000 tonnes of mineral CO<sub>2</sub>

# Summary

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- Benefits of blend continue to surprise
- Environmental case enhanced by economic case
- Industry now achieves scale to be meaningful
- Complimentary to existing oil industry
- Quality standards now properly understood

Biodiesel is here to stay



# Argent Energy

The leading biodiesel manufacturer in the UK

# Argent Energy

## What we do...

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- Commitment to UK Govt:
  - November 2003 – undertook to build biodiesel plant
  - To be operational in Q2 2005
- Commitment to EU
  - Demonstration plant
  - Life cycle assessment
  - Prion research
  - Added value
- What we delivered
  - First biodiesel sold March 2005
  - 24 hour operations commenced 11<sup>th</sup> April
  - Producing 50,000 tonnes per annum
  - EU commitment on time

# Argent Energy

## What we produce...

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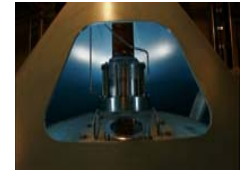


- High quality biodiesel:
  - BS EN 14214
  - Product quality certified in on-site laboratory
  
- Glycerine:
  - Technical grade glycerine
  - 5000 tonnes per annum
  - UK and export markets
  
- Fertiliser
  - Potassium sulphate ( $K_2SO_4$ )
  - 1100 tonnes per annum
  - UK agriculture market

# Argent Energy

## The feedstock...

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- 50,000 per annum feedstock:
  - max 20% free fatty acid
  
- Tallow:
  - 25,000 tonnes own production
  - UK total tallow production 250,000 tonnes per annum
  
- Used cooking oil:
  - Own collection facility 30,000 tonnes
  - UK total collected UCO 100,000 tonnes

# Argent Energy Benefits

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- Small, but big enough to count
  - Credible industrial proposition
- Size enables more professional approach
  - Management
  - Quality control
  - Research and development

**Argent Energy considered to be the first credible  
biofuels operation in the UK**

# Our Markets

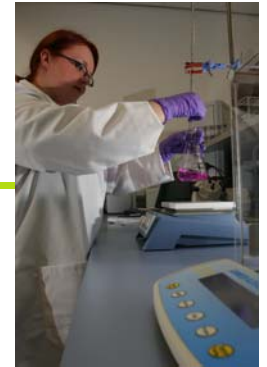
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- Argent Energy has had to create its own markets
- The operation can satisfy supply to the largest current biofuel blender in the UK
- Interest from most major refiners and retailers
- Interest from municipal and large fleet operators

# Our Future In The UK

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- Research into co-products
  
- To cope with anticipated demand
  - Programme for a fourfold increase in capacity by 2008
    - Total capacity 200,000MT
    - More than 1% of UK diesel market
    - 1/5<sup>th</sup> renewable UK obligation to EU
    - 4 million tonnes diesel at B5



## **The Potential for Biodiesel in New Zealand**

# Why Bother with a Biodiesel Strategy?

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- Kyoto
- NZ Transport Strategy
  - Key Objective- environmental sustainability
- National Energy Efficiency and Conservation Strategy
  - Renewable fuels- 2 Petajoules by 2012
- Advantages of developing a strategy late

But, time is running out

# NZ Assets

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- NZ has its own “oil well”
  - Local solution to local issue
  - Produce enough easily for 7% of NZ diesel
  - Exceed your transport renewables fuel target by 100% using biodiesel produced local feedstocks
  
- NZ has its own refinery and distribution system
  
- Nation has “green” attitude to lifestyle
  - Technological forefront in agriculture
  - Tourism

# Issues to Overcome

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- How to use the “oil well”
  
- Costs of fuel
  - Duty structure major disadvantage
  - Methanol availability
  
- Investment costs
  
  
- Standards
  
  
- Scale

# In Summary

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- Currently no legislation or fiscal structure in place to encourage a biodiesel industry in New Zealand
- All the potential exists to deliver totally integrated strategy

A local solution to a global problem

# Argent Energy

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- Real potential for a biofuels strategy in New Zealand
- One plant should exceed the 2 petajoule target
  - Credibility
- Given feedstock of choice, blending is preferable
- Fully implemented by late 2007

***Green Energy. Our Future.***



**Argent Biodiesel**  
The sunrise industry...



[www.argentenergy.com](http://www.argentenergy.com)