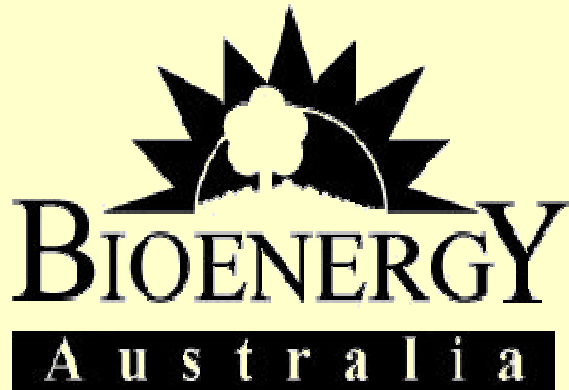


# Biofuels Developments and Prospects

MGSM Forum, 7 May 2007



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# Bioenergy Australia

- Acts as a forum and focus for bioenergy development
- Formed by a core of four Federal Government organisations
- Membership expanded thirteen-fold to include a range of other government and private sector organisations since 1997.
- Membership from across Australia covering forestry and waste management organisations, project developers, energy companies, policy makers, funding and research organisations
- Vehicle for International Energy Agency Bioenergy program participation (3 Tasks) including Liquid Biofuels Task
- Activities set by its Strategic Plan

*[www.bioenergyaustralia.org](http://www.bioenergyaustralia.org)*

# Objectives of Bioenergy Australia

1. Promote an awareness and understanding of the economic and environmental attributes of sustainable energy and chemicals from biomass.
2. Broaden the market for biomass by enhancing opportunities, and by helping to reduce financial, regulatory, fuel supply, technical and institutional barriers, to enable widespread adoption of biomass energy.
3. Facilitate the development and deployment of biomass energy business opportunities and projects.
4. Broaden the support base for Bioenergy Australia to ensure its continued role in promoting biomass energy in Australia.

# Liquid Biofuels

- National target of 350 ML biofuels per annum by 2010 (from 40 ML/a base in 2001)
- Biofuels are primarily ethanol and biodiesel – also diesohol and methanol
- Standards via Fuel Quality Standards Act in consultation with Fuel Standards Consultative Committee
- Ethanol limited to 10% blend (E10)
- Biodiesel Standard since 2003. Still to decide on blend Standard
- Ethanol and Diesohol Standards under consideration and development.

# **Biodiesel – Some Current Producers**

- Australian Biodiesel Group (40+160ML)
- Biodiesel Industries (12 ML)
- South Australian Farmers Fuel (5ML)
- Australian Renewable Fuels (2x44ML)
- Freedom Fuels (30ML)
- Gull Petroleum (40ML)
- Natural Fuels Australia (150ML) - Darwin

*National Biofuels Target 350 ML/a by 2010*



# ARF Picton WA Biodiesel Plant

Bioenergy Australia



Bioenergy Australia



**Bioenergy Australia**

# Feedstocks for Biodiesel

- Tallow, Canola, imported palm olein, waste vegetable oil.
- BP producing synthetic diesel from Tallow at Bulwer Island refinery, Brisbane, Queensland.

# In the Pipeline

- Axiom Energy 150 million litres, Geelong
- Biodiesel Producers, 60 ML, Barnawartha, Victoria
- Riverina Biofuels, 100 ML, Deniliquin NSW

*Biodiesel alone may exceed 350 ML/a target in 2007*

# Ethanol Production- Manildra



**Bioenergy Australia**

# Some Ethanol Plants in the Pipeline

- Agri Energy at Swanhill (100 ML/a), Coleambaly (200 ML/a), Mullewa, Esperance, Oaklands and Condobolin
- Primary Energy at Pinkenba Qld and Kwinana WA, Gunnedah NSW.
- Dalby

*Feedstocks for new plants are grains*

# Biofuels Capital Grants Program

- AUD \$37.6 million as one off grants for new and expanded capacity
- Provided at rate of 16 cents/litre for plant of minimum of 5 ML/a. Max per project \$10M
- Awarded to seven plants – four biodiesel and three ethanol.

# Biofuels Capital Grants Recipients

- CSR Distilleries – Sarina Qld (\$4.16 million)
- Biodiesel Industries Australia – Rutherford, NSW (\$1.28 million)
- Schumer Pty Ltd (Rocky Point), Qld (\$2.4 million)
- Biodiesel Producers Ltd, Barnawartha, Vic (\$9.6m)
- Australian Renewable Fuels, Port Adelaide, SA (\$7.15m)
- Riverina Biofuels Pty Ltd, Denilquin, NSW (\$7.15m)
- Lemon Tree Ethanol Pty Ltd, Millmerran, Qld (\$5.85m)

# Excise Treatment of Biofuels

<b>Year</b>	<b>Biodiesel c/l</b>	<b>Ethanol c/l</b>	<b>Methanol c/l</b>
1 July 2010	0.0	0.0	0.0
1 July 2011	3.8	2.5	1.7
1 July 2012	7.6	5.0	3.4
1 July 2013	11.4	7.5	5.1
1 July 2014	15.3	10.0	6.8
1 July 2015	19.1	12.5	8.5

# Prime Minister's Biofuel Taskforce

- Examined appropriateness of 350 ML target
- Examined impacts of E10 and E20 on automotive operation
- Health and environmental impacts of biofuels
- Economic and scientific evidence supporting biofuels in other countries.

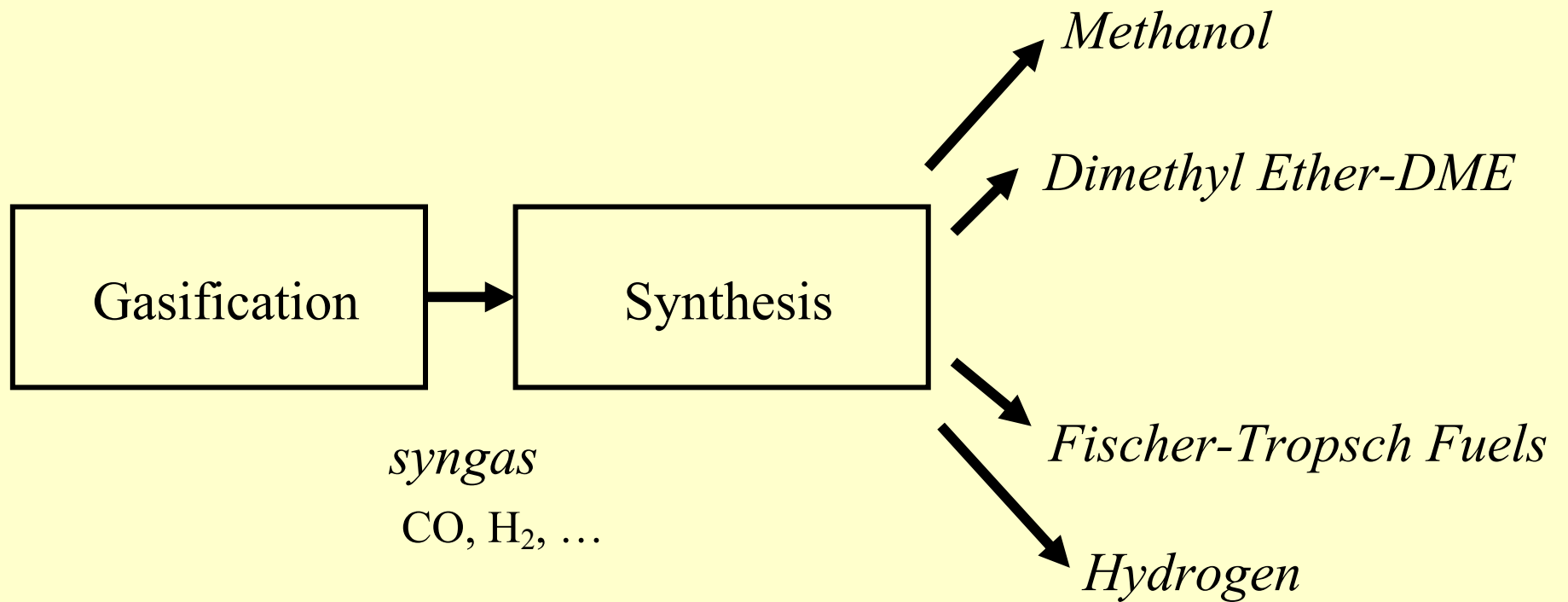
# Biofuels Taskforce Findings

- Potentially greater health benefits than previously thought
- Regional benefits but considerable market barriers
- At Sept 2005, looked like 350 ML/a target would not be met
- Several measures initiated: industry action plans, Commonwealth to use E10, further vehicle testing, increased fuel compliance testing, simplified E10 label, work to standardise biodiesel blend levels, further health testing, B5 trial in Kakadu National Park, Northern Territory.

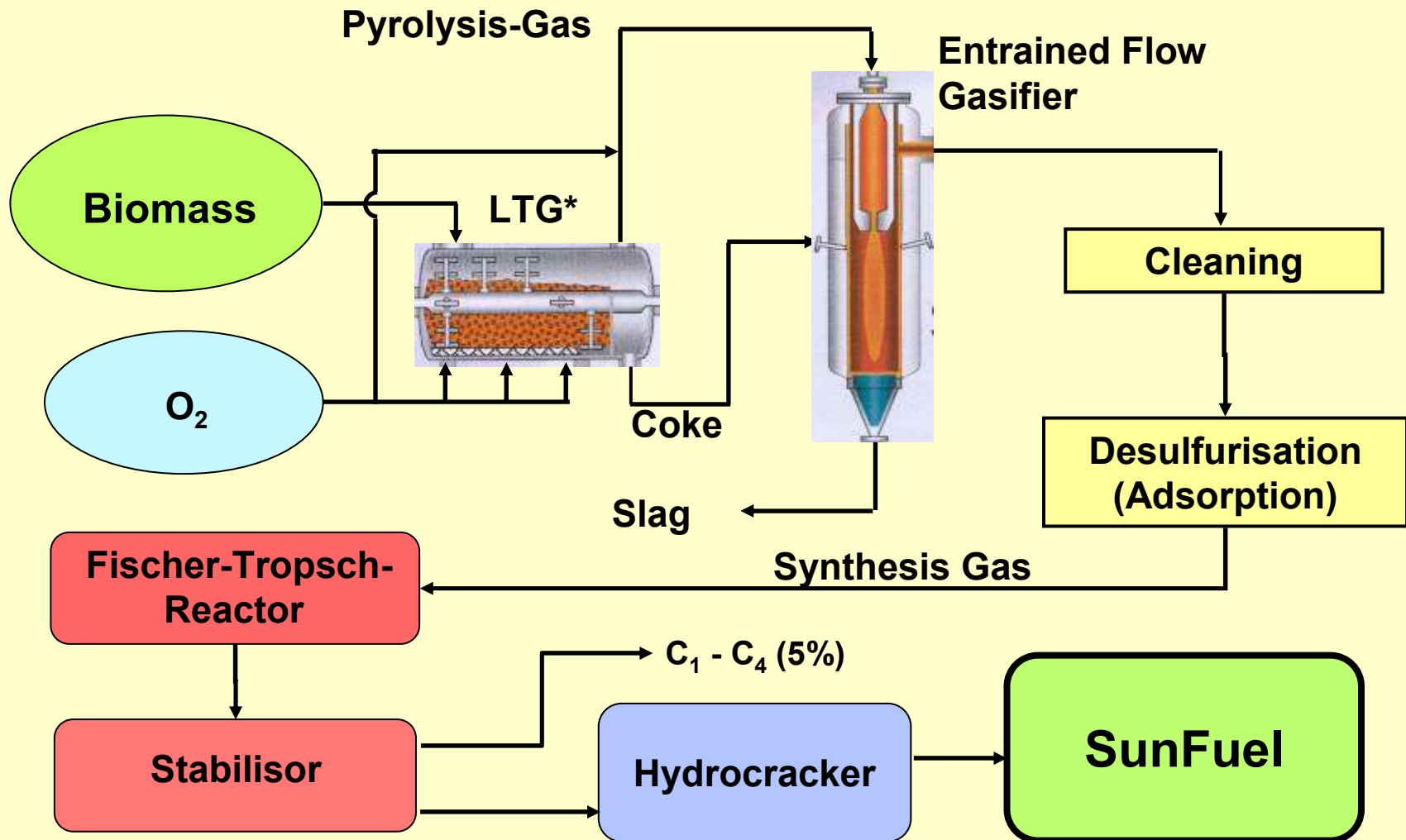
# Other Developments

- Some States have policies to promote biofuels
  - Qfleet to run on E10 and +e promotion including Qld Ethanol Conversion Initiative (\$4.82 million)
  - NSW 2% ethanol mandate (10% by 2011) and E10 for Govt vehicles
  - Vic 5% biofuels by 2010
- \$17 million over 3 years for infrastructure for E10. \$20,000 per service station – requires pass through of subsidy at 3c/l under petrol.
- Roundtable between Govt and Oil Majors 23 May 2007. Oil Majors providing 27 Ml of total 68 Ml ethanol for 06/07.
- Senate Rural and Regional Affairs and Transport Committee conducted an Oil Future Supply and Alternative Fuels Inquiry.
- Victoria, Western Australia, Tasmania recently conducted Biofuels Inquiries.
- Ethtec raising capital for cellulosic ethanol pilot plant and diesohol development.

# Development of Synfuels from Biomass



# SunFuel-Production by CHOREN's Carbo V Process



Source: CHOREN

\* Low Temperature Gasifier



## **CHOREN Pilot Plant at Freiberg Germany**

**Bioenergy Australia**



## VW SunDiesel Trial and Development

Bioenergy Australia



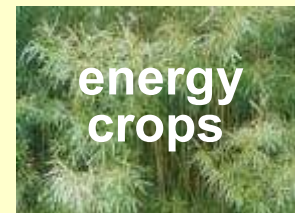
Volvo's DME truck -  
Sweden

# Liquid Biofuels

Litres per year per hectare



1,660 l petrol equivalent



3,907 l diesel equivalent



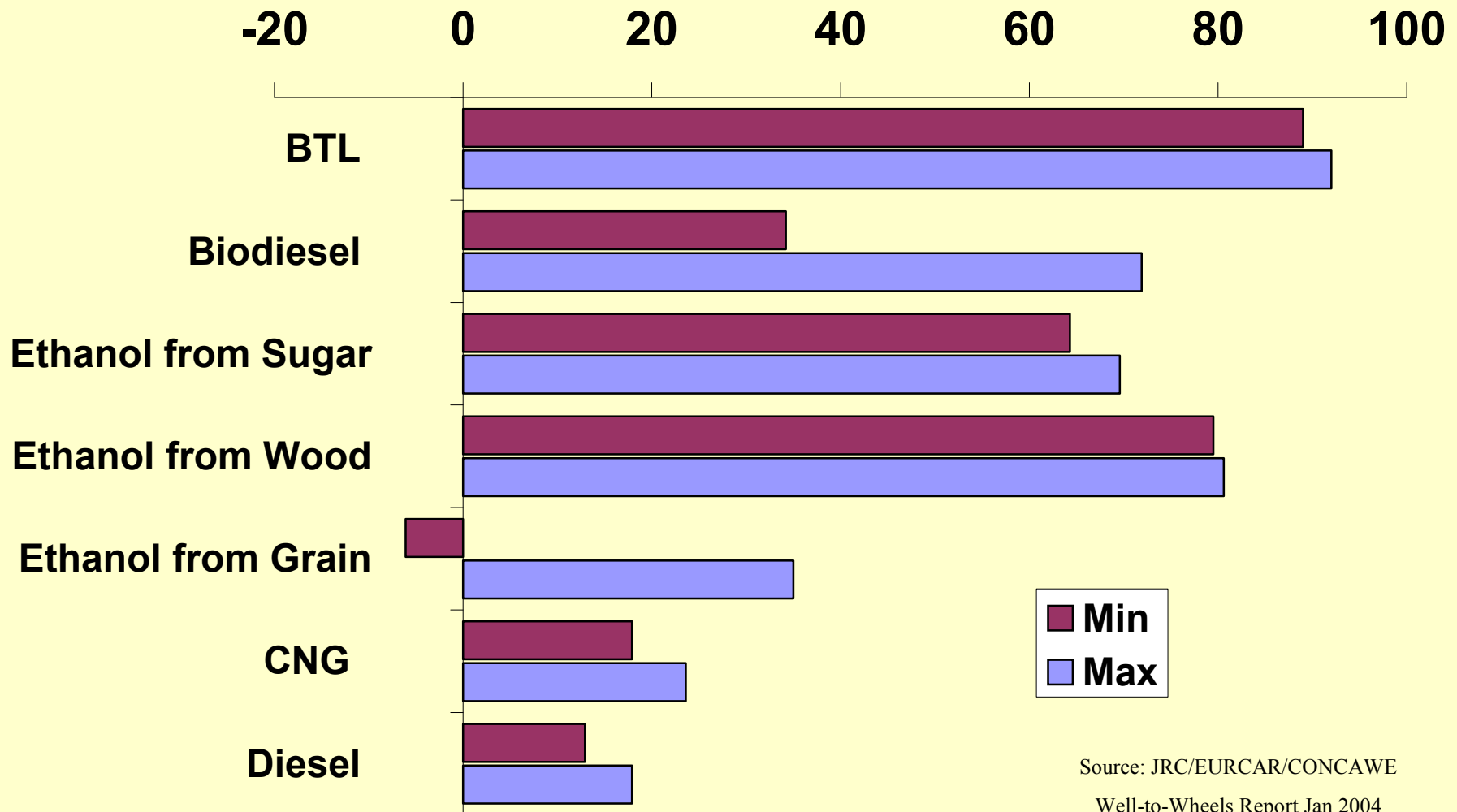
1,408 l diesel equivalent



1,420 l diesel equivalent

Source: FNR (Fachagentur Nachwachsende Rohstoffe, Germany, 2006)

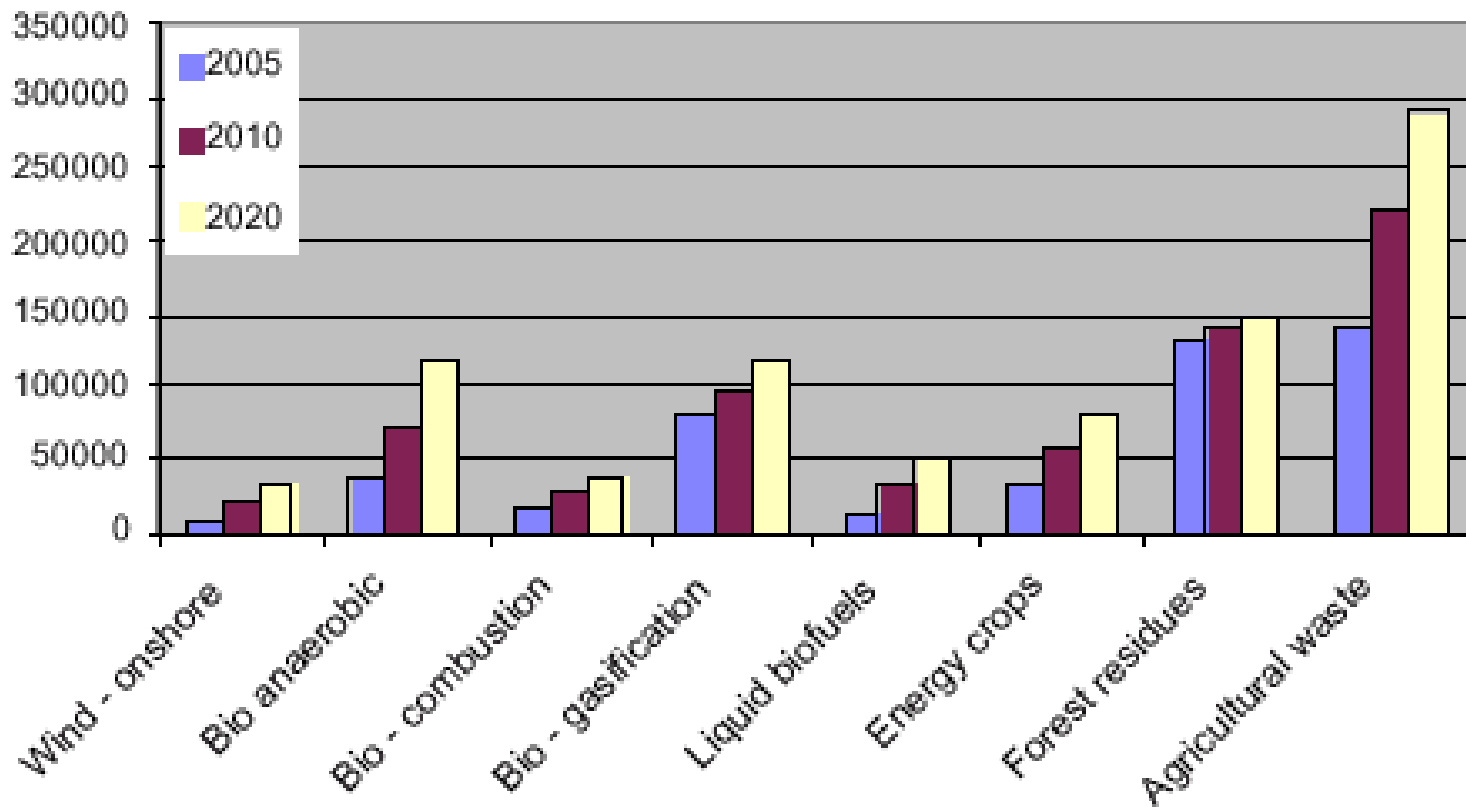
## BTL GHG Reduction Potential [%] (wrt petrol)



Source: JRC/EURCAR/CONCAWE

Well-to-Wheels Report Jan 2004

# Large Rural Development/Job Numbers from Bioenergy



Projected employment in the EU for biomass technologies. Wind is included for comparison.  
Source: EU Altener Report: Impact of RES on Employment, 2000.