



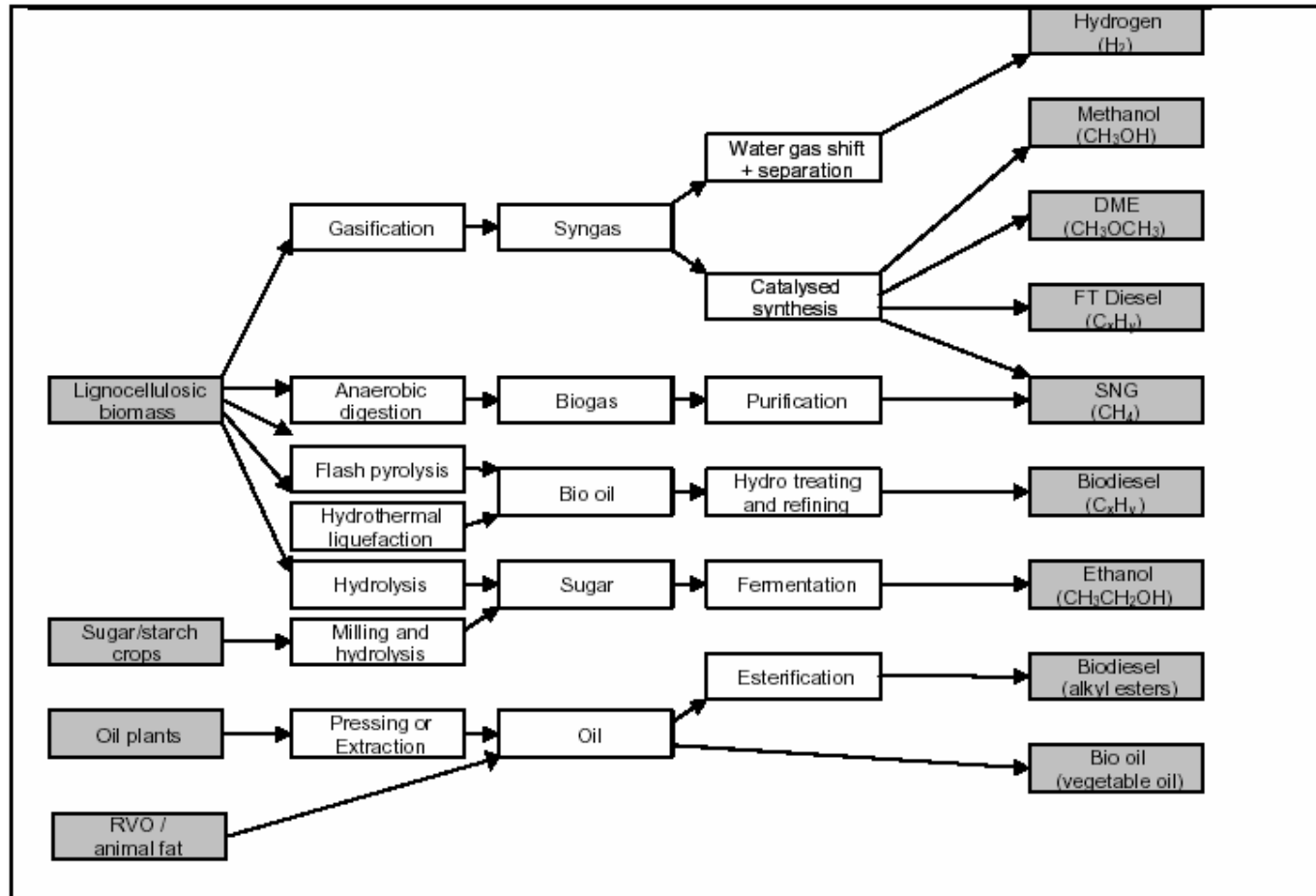
Action For Sourcing Transport Biofuel

Brian Cox
Executive Officer
Bioenergy Association of NZ

9th Annual New Zealand Energy Summit
13 August 2007



Range of Paths to Follow



What are the Options

- Futures prices for light oil essentially flat price out to 2015 at around US \$70/bbl
- Other technologies may also be viable at these prices such as coal to liquids plants. Need both technologies.
- Feedstock costs are a significant proportion of biofuel cost (50% to 80%)
- Effect of biodiesel production on feedstock and glycerine market is uncertain.
 - Will tallow prices rise and glycerine prices drop as biodiesel production increases globally

Feedstock options

- Ethanol
 - Whey
 - Crops
 - Woody biomass
- Biodiesel
 - Tallow
 - Crops
 - Woody biomass -> bio-oil
 - Woody biomass is the biggest opportunity but also most difficult

Rich Foresters Throwing \$\$ Away



On-site Residue Processing Technology



Residues Turned into a Valuable Commodity



Focus on Forest Residues

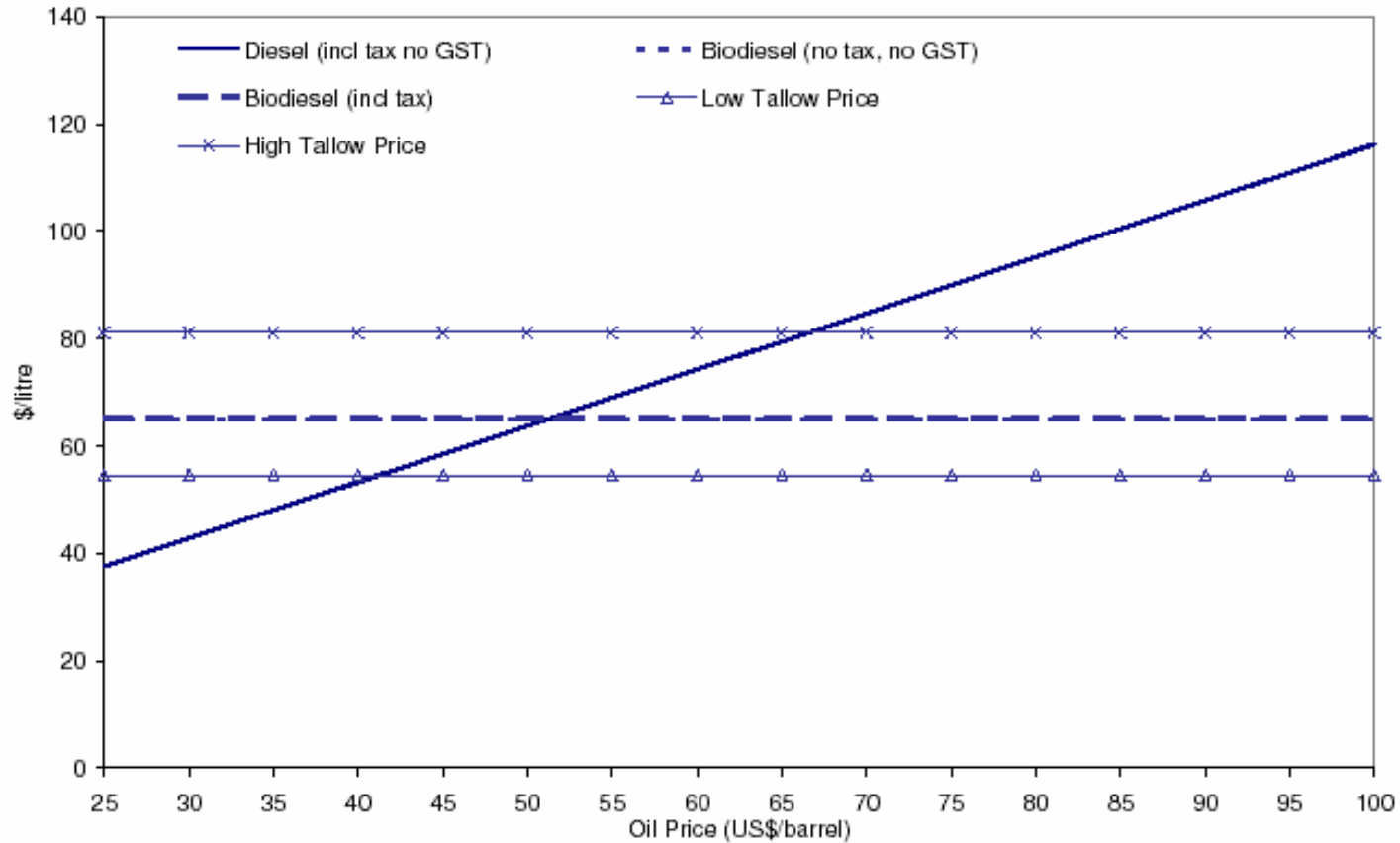
- We can extract energy from
 - Wood processing residues
 - Forest harvest residues
 - Purpose grown tree crops
- Forest residue is the untapped resource we need to focus on
- Forest residues are currently turned into waste
- We already collect the biomass
 - The collection cost is sunk
 - The next steps are easy
 - We have the technology

What Is The Barrier To Using Forest Residues

- Alternative energy sources are still cheaper
- Few role models
- Unknown cost structure
- No leaders
- No entrepreneurs

No drive from foresters to gain value

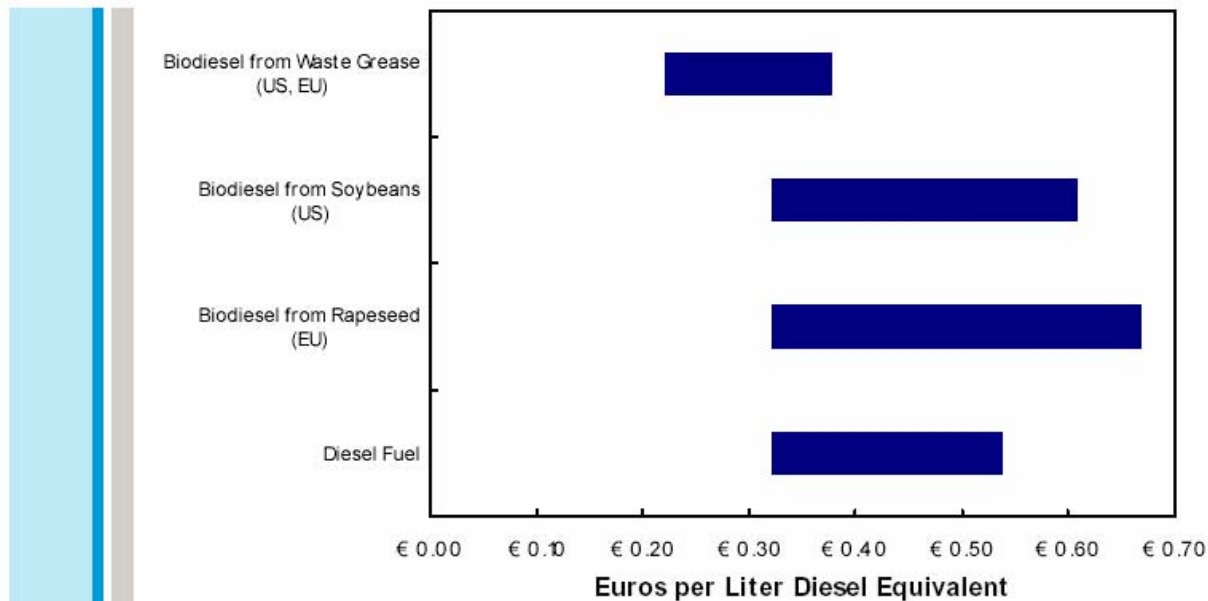
Biodiesel



Source Coverc

Drivers for Bioenergy from Residues

Cost Ranges of Biodiesel/Diesel Production, 2006



Source: IEA, Reuters, DOE

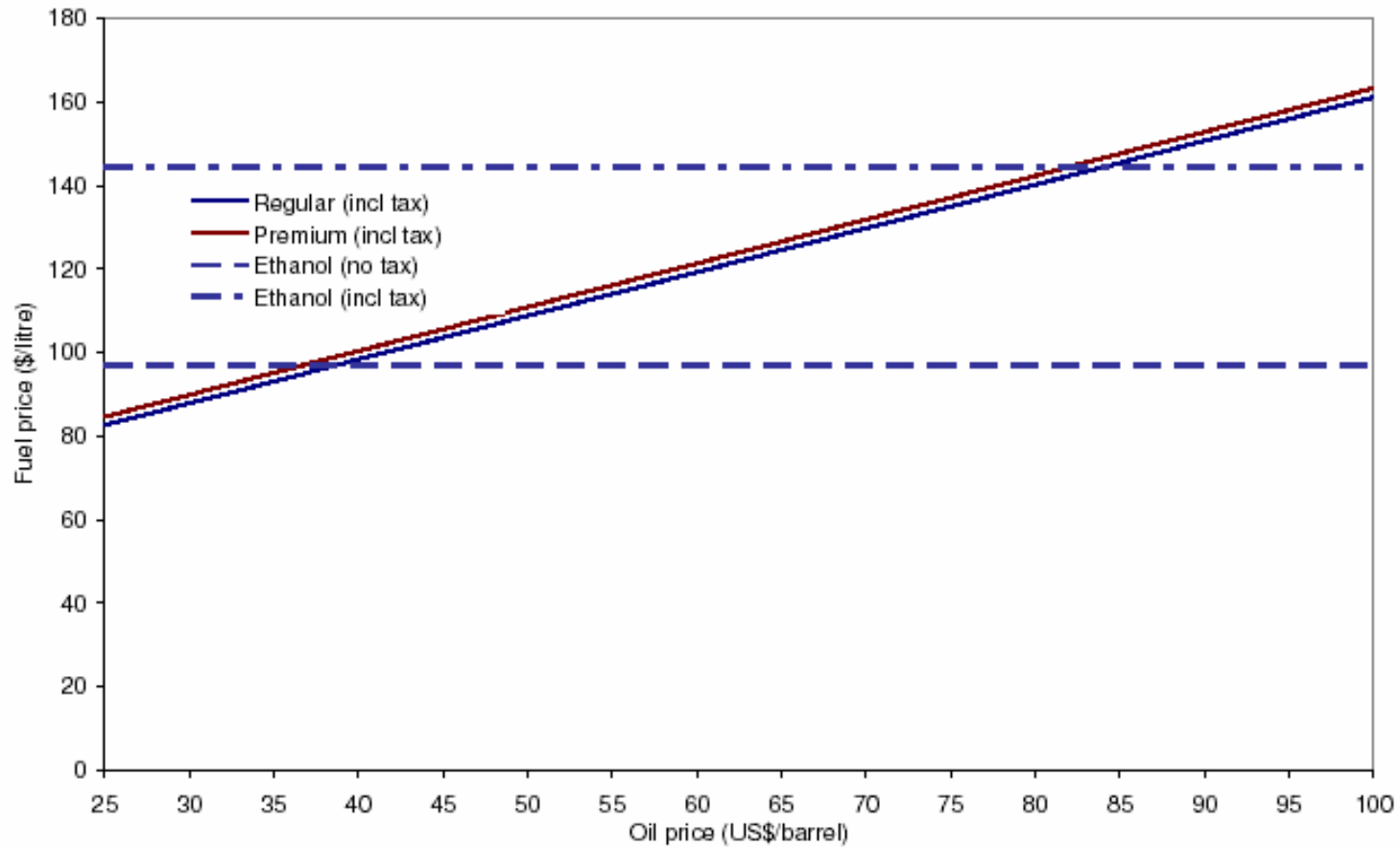
1 Euro = 1.26 US \$
3.784 liters = 1 US Gal

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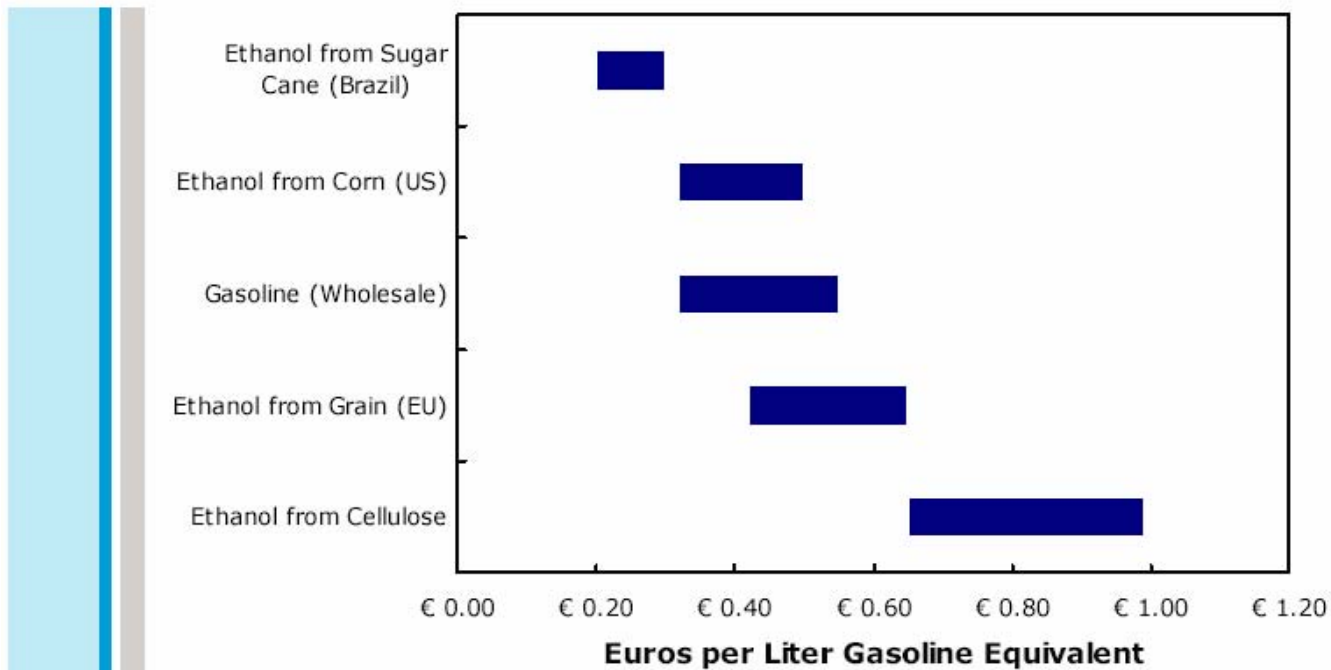
Ethanol



Source: Covec

Ethanol

Cost Ranges of Ethanol/Gasoline Production 2006



Source: IEA, Reuters, DOE

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