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Biofuels for Transport in Australia

Kes McCormick
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Purpose

• To provide an overview of ongoing activities, policies and actors related to biofuels for transport in Australia.

• To identify and explore possibilities for cooperation between Sweden and Australia in the field of biofuels for transport.
Methodology

• Literature review of reports, articles and websites.

• Informal discussions with stakeholders from industry, government and academia at the Bioenergy Australia annual conference.

• Formal meetings and interactions with experts on biofuels and bioenergy.
Background on Australia

- 22 million people
- National, State and Local Governments with 6 States and 2 Territories
- 7.2 million people in NSW and 5.6 million people in VIC
- Victoria (VIC), New South Wales (NSW), Queensland (QLD), South Australia (SA), Western Australia (WA), Tasmania (TAS)
- Northern Territory (NT) Australian Capital Territory (ACT)

Energy in Australia

• Australia has considerable energy resources in uranium, coal and natural gas.
• Coal dominates electricity production supplying about 75% and natural gas about 15%.
• No nuclear power in Australia. But there are exports of uranium.
• Oil resources are more limited and Australia is becoming reliant on imported oil.
Oil in Australia

Bioenergy in Australia

• Bioenergy currently provides 4% of total primary energy in Australia, and makes up 78% of renewable energy.

• Abundant feedstocks are available to significantly expand bioenergy.

• But growth is slow, compared with wind and solar at present.
Biofuels in Australia

• Large potentials for growth of biofuels for transport.

• Small market presently and limited momentum.

• But there are expectations the market for biofuels will expand and investments will increase based on recent reports.
Key Actors

• Bioenergy Australia
  – http://www.bioenergyaustralia.org/

• Biofuels Association of Australia
  – www.biofuelsassociation.com.au

• Rural Industries Research and Development Cooperation (RIRDC)
  – www.rirdc.gov.au
Key Reports

BIOENERGY IN AUSTRALIA
Status and Opportunities

Advanced Biofuels Study
Strategic Directions for Australia

L.E.K. Consulting

POWERFUL CHOICES
TRANSITION TO A BIOFUEL ECONOMY IN AUSTRALIA
BARNEY FORAN
Production of Biofuels

- Ethanol (E10 and E85) and biodiesel are produced commercially in Australia.
- Currently, production represents about 2% of transport fuels (petrol and diesel).
- Ethanol capacity is 440 ML/year from 3 plants.
- Biodiesel capacity is 200 ML/year from 7 plants.
Ethanol Capacity


Note: * Previously Dalby Bio
Ethanol Plants

Biodiesel Capacity

Note: ^ Renewable diesel, *Acquired by Australian Renewable Fuels in 2011

Biodiesel Plants

Recent Developments

• Based on discussions with experts there are several key points that contradict recent reports.
  – The Coskata ethanol plant is not going ahead.
  – The Biomax Fuels biodiesel plant is closed.
  – Current capacity for both ethanol and biodiesel is not being utilised.
  – Further capacity expansion is therefore not expected before 2015.
  – Policy conditions are fundamental to biofuels for transport.
National Initiatives

- Introduction of a price on carbon, establishment of key organisations and increased funding for renewable energy are all positives for biofuels for transport.
- Clean Energy Finance Corporation
- Clean Technology Investment Program
- Clean Technology Innovation Program
- Australian Renewable Energy Agency
National Biofuels Policies

- No National mandate for biofuels.
- Ethanol Production Grants Program and Cleaner Fuels Grants Program offset fuel tax for ethanol and biodiesel (extended to 2021).
- Active support for research, development and demonstration.
State Biofuels Policies

• NSW has a 6% ethanol mandate and a 2% biodiesel mandate, and it is expected to increase to 5%.

• Plans to introduce a 5% ethanol mandate in QLD suspended in 2010.

• VIC and WA conducted reviews of mandates for biofuels. But no State mandates in place.
Flagship Initiatives

• There are some flagship initiatives that are drawing attention to biofuels in Australia.
  – Australia-USA navy agreement on biofuels.
  – Commitment for an Australian Biofuels Research Institute.
  – Holden is producing E85 compatible vehicles.
  – Establishment of the Australian Initiative for Sustainable Aviation Fuels.
  – Pilot facilities for advanced biofuels.
Navy Agreements

• Australia-USA navy signed an agreement on cooperation in 2012 to develop and utilise drop-in biofuels in their fleets.

• USA navy aims to supply 50% of their fuel requirements from alternative sources by 2020.

• The focus is on drop-in biofuels that suit existing distribution networks and engines.
Research Institute

• Commitment for an Australian Biofuels Research Institute.
  – $20 million from National Government
  – Focus on next generation of biofuels
  – Academia and industry collaboration

• Initial $5 million investment in macroalgal biofuels and bioproducts project at James Cook University in QLD.
Holden Vehicles

- Since 2011, the Commodore Sedan, Sportwagon, Ute and Captiva Petrol model range are factory fitted with E85 capability.
- E85 is promoted as a ‘fuel of the future’ by Holden.
- Additionally, V8 Supercars Australia switched to E85 at the beginning 2009 providing a visible use of E85.
Aviation Fuels

- Inaugurated in 2012, the Australian Initiative for Sustainable Aviation Fuels is a public-private initiative that aims to facilitate the sustainable growth of the aviation industry.
- It brings together leaders in the aviation industry to develop the supply chain for sustainable aviation fuels, particularly biofuels, which draws attention to biofuels generally.
Pilot Facilities

- Research and development of advanced biofuels extends across several universities and government research institutions at both State and National levels.

- There are pilot facilities for advanced biofuels spread across Australia, including the production of lignocellulosic ethanol, hydropyrolysis oil and algal biomass.
Key Challenges

• Limited social acceptance and political legitimacy of bioenergy and biofuels as a viable alternative to fossil fuels.
• Controversy over use of wood waste from native forests has tarnished all bioenergy and biofuels applications.
• There are efforts on developing an ISO sustainability standard for bioenergy and biofuels, which is important to help address environmental and social concerns.
Key Questions

• Australia is shifting from an oil exporter to importer. Will energy security concerns rise and increase interest in biofuels as an alternative fuel?
• It is suggested that LPG provides an alternative to petrol and diesel, and potentially a bridge to electric vehicles. Will LPG take the leading role as an alternative fuel?
• Further research looking at LPG, electric vehicles and biofuels in Australia is important.
Summary

• Policy at the National and State levels induces and blocks the development of biofuels. No strong, integrated and consistent policy framework.

• Market for biofuels lacks momentum and confidence of investors is weak. Current capacity is not utilised. Expansion is not expected before 2015.
Recommendations

- National Government needs to take leading role in stimulating market for biofuels.
  - Define ambition to break dependence on imported oil and expand locally produced alternatives.
  - National mandate needed for ethanol starting with E5 and increasing to E10, similar with biodiesel.
  - Support for E85 distribution and pumps, and potentially grants or rebates for purchase of E85 compatible vehicles.
  - Development of an ISO sustainability standard for biofuels, both domestically produced and imported.
Sammanfattning

• I Australien, på nationell såväl som delstatsnivå, finns policys som både främjar och hindrar utvecklingen av biobränslen. Ett integrerat och konsekvent ramverk saknas.

• Biobränslemarknaden har tappat fart och förtroendet för investerare är svagt. Nuvarande kapacitet utnyttjas inte, och någon expansion väntas inte före 2015.
Rekommendationer

• Den nationella regeringen behöver ta en ledande roll i att stimulera biobränslemarknaden.
  – Bryt beroendet av importerad olja, satsa på lokalt producerade alternativ.
  – Det behövs ett nationellt mandat för etanol och biodiesel.
Key References (1)

• LEK Consulting. 2011. Advanced Biofuels Study: Strategic Directions for Australia
• Rural Industries Research and Development Corporation. 2010. Overview of Bioenergy in Australia.
Key References (2)

Further Information

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