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f3 – Swedish Knowledge Centre for Renewable Transportation Fuels

Biofuels for Transport in Australia

Kes McCormick
April 2013



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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)

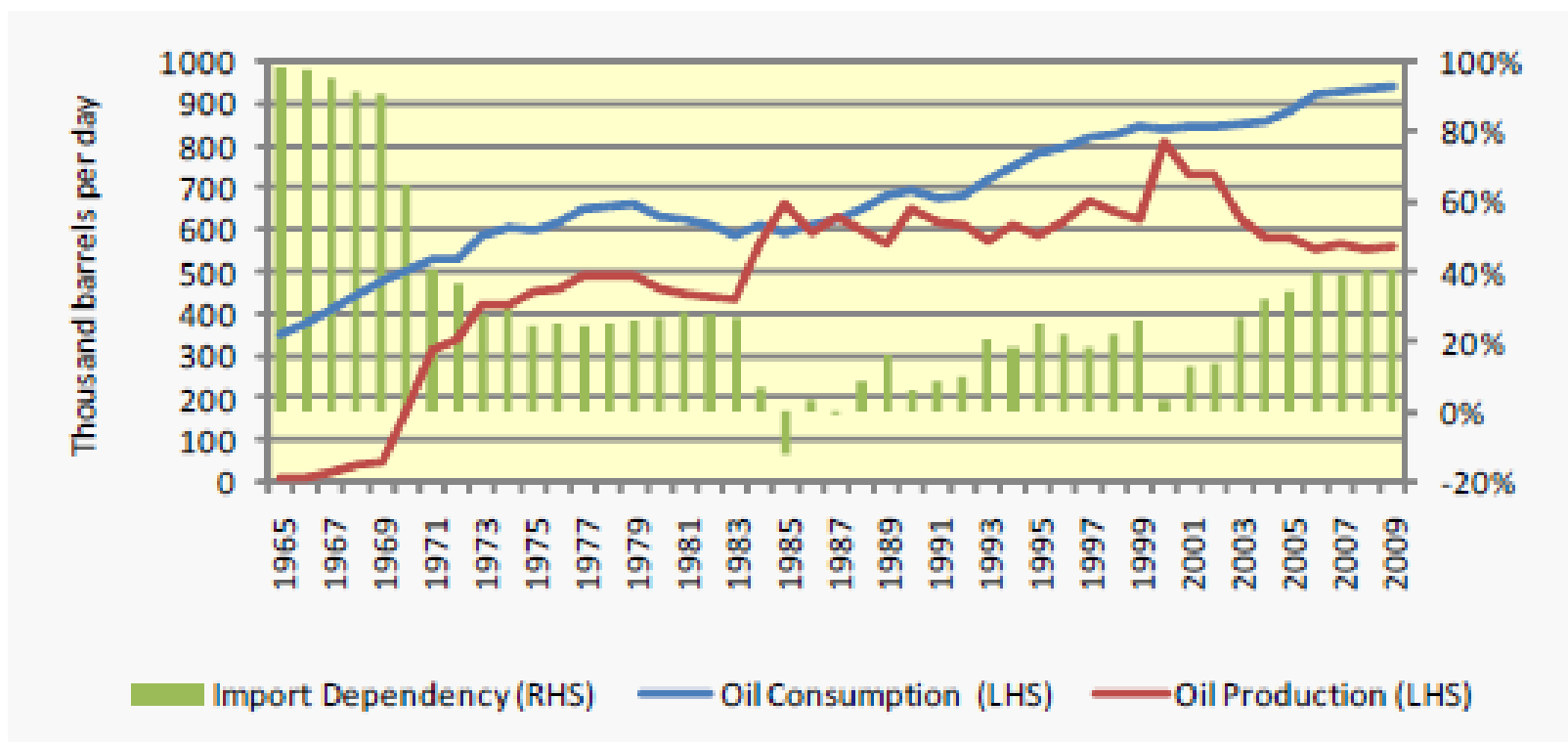




Energy in Australia

- 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.

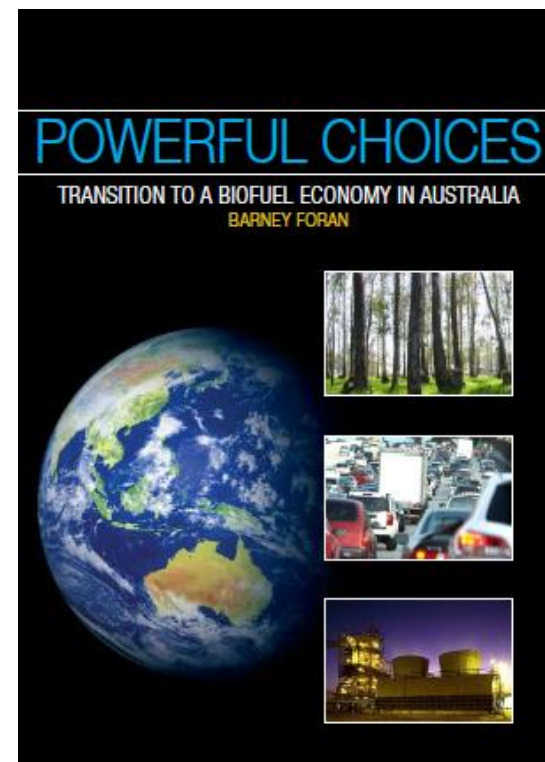
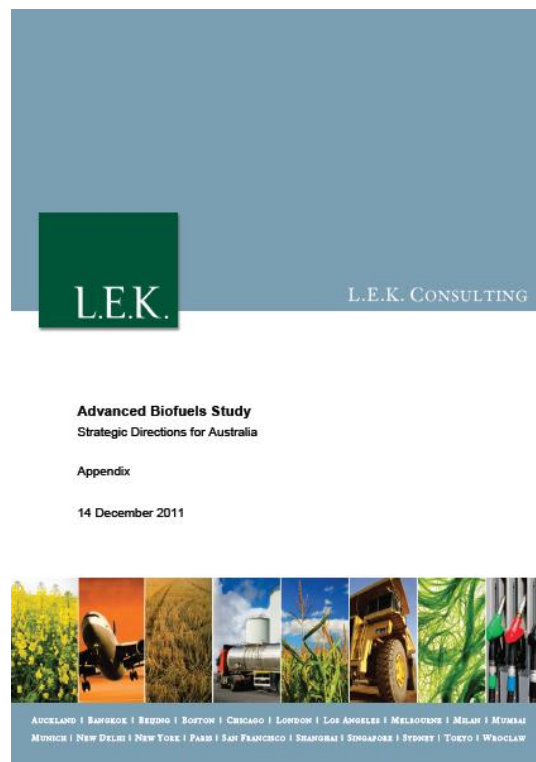
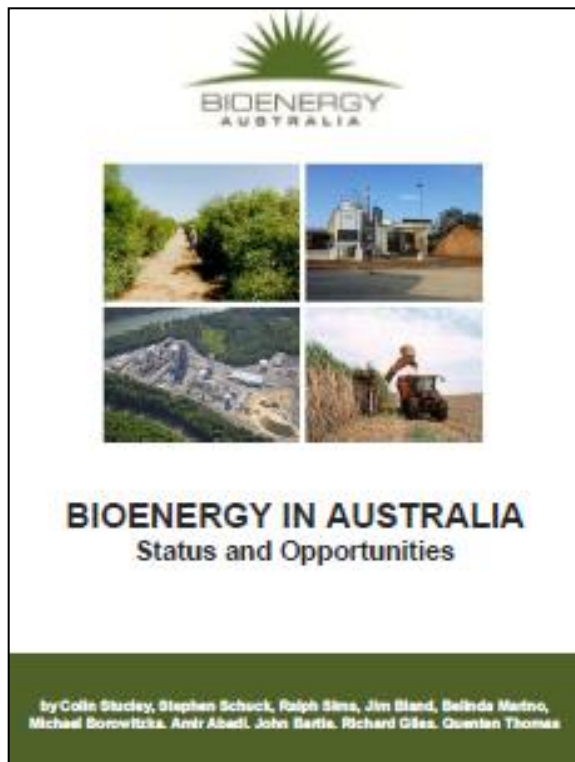


Key Actors

- 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

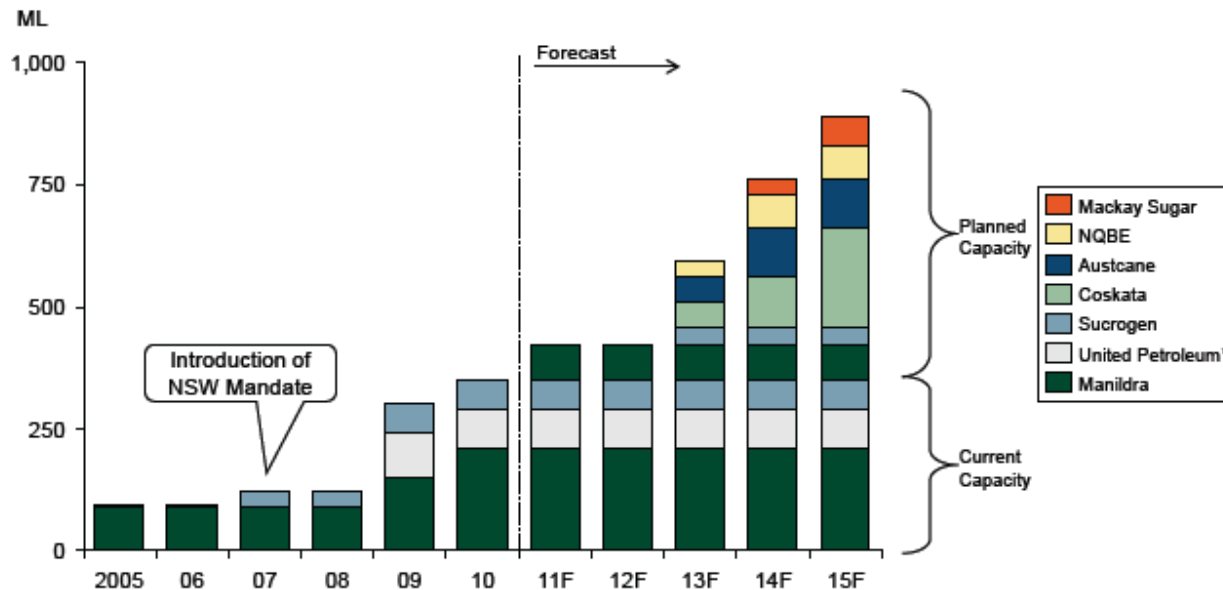




Production of Biofuels

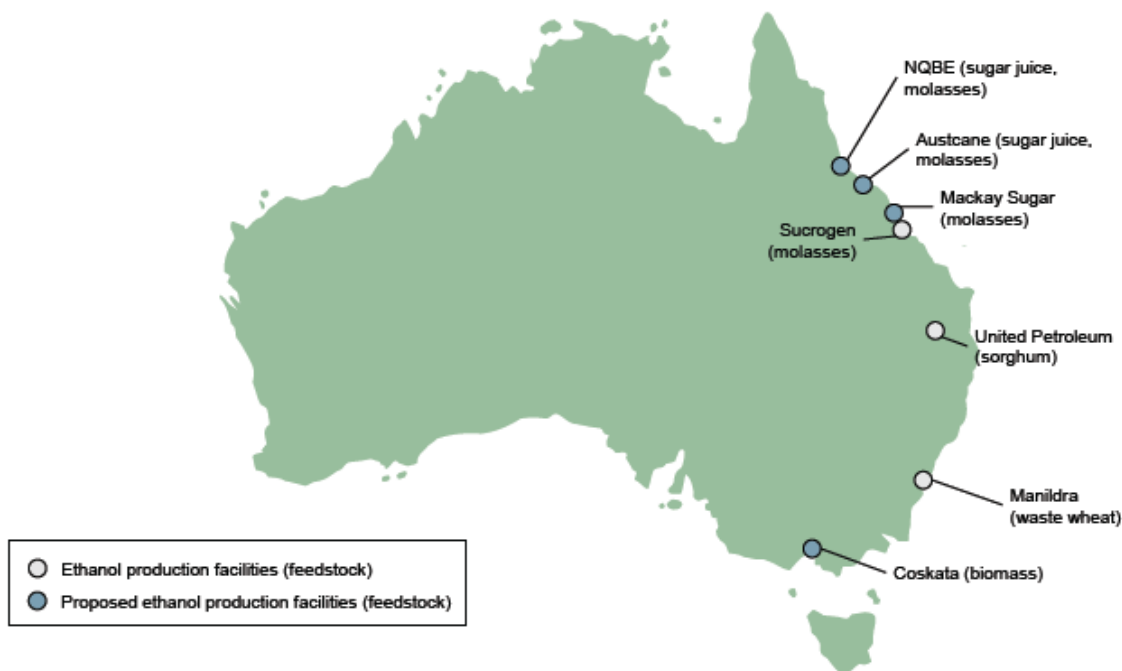
- Ethanol (E10 and E85) and biodiesel are produced commercially in Australia.
- Currently, production represents about 2% of transport fuels (petrol and diesel).
- Ethanol capacity is 440 ML/year from 3 plants.
- Biodiesel capacity is 200 ML/year from 7 plants.

Ethanol Capacity

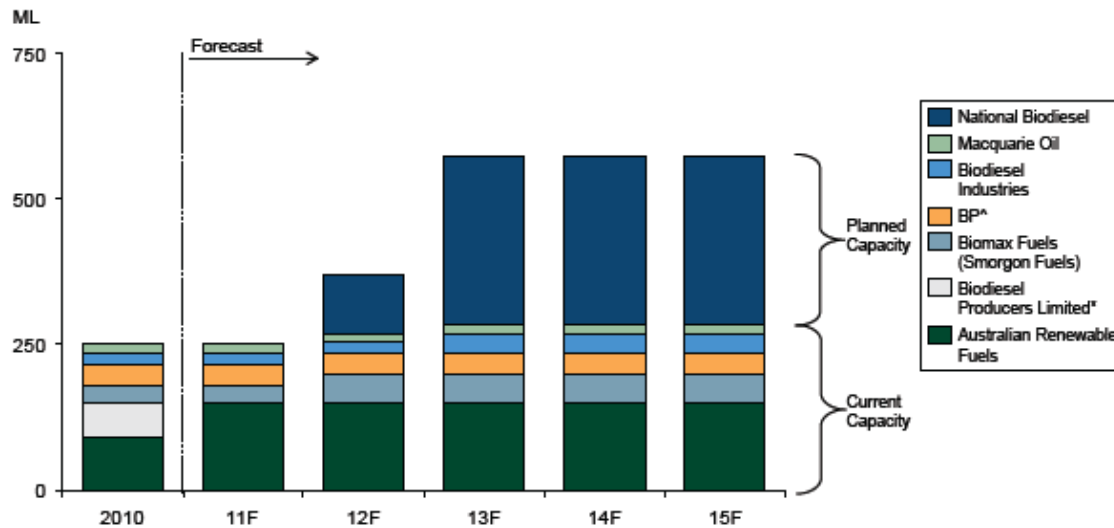


Note: * Previously Dalby Bio

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, hydrolysis 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.
 - Stöd för distribution av E85 och pumpar, inför ev. bidrag eller rabatter för E85-kompatibla fordon.
 - Utveckla en ISO-standard för hållbarhet för biobränslen, både inhemskt producerade och importerade.



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Further Information

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