



APAC **biofuel** consultants

A JOINT VENTURE OF ENERGY QUEST AND ECCO CONSULTING



## **Australian Biofuels 2009**

### **Study Contents**

September 2009

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## Welcome to **Australian Biofuels 2009**

*It is the role of governments to determine the energy mix of the world, not the role of companies. Governments have the tools to set the mix and can make the business model. Within the energy mix, companies need to be entrepreneurial (Shell, June 2009<sup>1</sup>)*

*The question is- where do biofuels fit in Australia's energy mix?*

Dear Client,

**Australian Biofuels 2009** is an overview of the Australian biofuel industry. This Study reviews the status of developments in the industry, in the light of its contribution to Australian fuel security and environment. It also features special analysis of second generation feedstock development in Australia and a review of life cycle greenhouse emissions.

**Australian Biofuels 2009** is a follow-up to **APAC biofuel consultants** previous annual reviews and multi-client studies on developments in the Australian biofuel industry.

**The biofuel industry has been hit by volatile world commodity prices and the Global Financial Crisis. The Australian biofuel industry is taking a new shape. However the more strategically placed operations continue to thrive.**

**2009 is significant for the industry. The Federal Government is now framing energy (and taxation) policy which will impact on Australia's future energy and fuel mix. The industry needs to be informed about the future direction of biofuels and consider mandates, sustainability and the environment.**

The topics and a list of figures and tables covered in **Australian Biofuels 2009** are set out below. Please contact either of the undersigned if you wish to subscribe to **Australian Biofuels 2009** or complete the Study Order Form on page 7.

**APAC biofuel consultants** remain committed to supporting participants, and to provide ongoing support in biofuel trading, marketing, business development, strategy, government policy and risk management.

Yours sincerely,

**Mike Cochran**

Joint Director

**Ecco Consulting Pty Ltd**

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<sup>1</sup> Jereon van der Veer, Chief Executive, Royal Dutch Shell plc speaking at the 14th Asian Oil and Gas Conference, 7-9th June 2009 – Kuala Lumpur, Malaysia. Extract from the Conference video recording of the speech.

APAC biofuel consultants (BN 04665650) is a joint venture of EnergyQuest Pty Ltd (ABN: 51110284270) and Ecco Consulting Pty Ltd (ABN 18109919799). Graeme Bethune is the CEO of EnergyQuest and Mike Cochran the CEO of Ecco Consulting.

## Australian Biofuels 2009

This study addresses 10 important questions regarding the Australian biofuel industry.

1. **THE INDUSTRY:** What is the future of biofuels in world markets? How has the biofuel industry emerged in Australia over the last twelve months following the GFC and high commodity prices? How do international agencies view the future of biofuels?
2. **WHAT'S CHANGED:** What rationalisation has taken place following record commodity prices in 2008? What is the new 'shape' of the Australian biodiesel industry?
3. **AND FEEDSTOCKS?** Can Australian producers meet the increased ethanol demand? Is there sufficient feedstock(s) to meet mandates?
4. **COMMODITY PRICES IMPACT:** What new challenges are biofuel producers facing - with the changes in world oil prices and feedstock prices; food or fuel; competition from imports; change in government policy?
5. **THE FUTURE:** What is the current and forecast production capacity for ethanol and biodiesel in Australia? How is each producer performing?
6. **NEW GOVERNMENT POLICY?** 2009 Energy White Paper and the Henry Taxation Review –support for the industry? What are the signals from the Federal and State governments regarding biofuels? What assistance is on offer? What is the status of mandating?
7. **THE MAJORS:** What are the strategies of the major oil companies regarding biofuels?
8. **CONSUMER ACCEPTANCE GROWING?** Consumer acceptance of biofuels. What has been the expansion of distribution of ethanol and biodiesel? How have consumers responded?
9. **SECOND GENERATION FEEDSTOCKS.** How important are they for the long term future of biofuels? What are their prospects for Australia? Will Australia become the centre for world algal research?
10. **CARBON EMISSION SAVING?** How do biofuel emissions rank against other fuels? What's the latest LCA in Australia?

# Australian Biofuels 2009

## Summary

### World Biofuel Industry Overview

- Biofuels world context – what's changed
- Impact of GFC on world biofuels
- Putting it in perspective - all is not lost
- World biofuel production
- World ethanol production 2008
- World biodiesel production 2008
- Food for fuel – international and Australia perspective.

### Australian Liquids Fuel Balance

- Liquid Fuels Security – the need for biofuels
- Australian petroleum balance – reliance on imports
- Australia's gasoline and diesel consumption – fuel balance

### Governments and Australian Biofuels

- Federal Government
- State Governments
- Ethanol mandates
- Biodiesel mandates
- Impact of ethanol mandates on fuel imports

### Australia's' biofuel balance

- Overview
- Changes since 2008 Report
- Biodiesel production and demand
- Ethanol production and demand
- Ethanol – matching demand with supply to 2013
- Biodiesel – matching demand with supply to 2013

### Ethanol in Australia

- Capacity 2009 to 2014
- Feedstock requirements
- Apparent feedstock availability
- Feedstock prices
- Import parity price

### Ethanol Projects – Company review\*

### Biodiesel in Australia

- Capacity 2009 to 2014
- Feedstock requirements
- Apparent feedstock availability
- Feedstock prices
- Australian soybean market – snapshot

## Biodiesel Projects – Company review\*

### Consumer acceptance in Australia

- Overview
- Branding
- E10 roll-out
- Role of majors and independents

### Second generation feedstocks in Australia

- Need for second generation feedstocks
- Second generation feedstocks for ethanol
- Second generation feedstocks for biodiesel
- Algae for biodiesel - developments and research in Australia

### Review of life cycle analysis of biofuels in Australia

- Background
- Definition of life cycle assessment
- Biodiesel emissions
- Ethanol emissions
- Comparative emissions across alternative fuels

\* *Review of Australian biofuel plants - operating and planned suppliers covering:*

*Planned developments*

*Location, history and status*

*Capacity, feedstock requirements*

*Preferred Feedstocks/buying arrangements*

*Offtake arrangements, co-products;*

*Other relevant commercial information*

### Figures include

Global asset financing of bio-refineries - 2004 to 2009

Status of biofuel production capacity world wide

Global biofuel output and supply forecast to 2014

World biofuel production forecast to 2030 under three price scenarios (US DOE)

EU biodiesel capacity and estimated production – 2006 to 2008

Australian crude oil and product balance – 2007/08 averages

Australian oil and products demand and supply outlook to 2030

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Australian diesel sales by State and imports - 2008

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Forecast ethanol mandated demand and production capacity, 2009 to 2013

Forecast biodiesel mandated demand and production capacity, 2009 to 2013  
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Ethanol feedstock costs relative to petrol TGP including excise, January 2003 to July 2009  
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Algal bioreactor (Source: CSIRO)  
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Biodiesel LCA emissions from various tallow/ULSD ratio blends  
Biodiesel - comparative B5 LCA emissions from various feedstocks  
Comparative E10 life cycle emission savings  
Comparison of GHG emissions for biofuels and other alternative fuels

## Tables include

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Ethanol plants in Australia - feedstock sources and co-location benefits  
Apparent ethanol feedstock surplus/deficit in Australia, 2008 to 2014  
Import parity price for ethanol - average March to May 2009  
Australian biodiesel production capacity, 2008 to 2014  
Australian biodiesel - feedstock, co-location and offtake arrangements  
Apparent Australian feedstock deficit/surplus for biodiesel to 2012  
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GHG emissions for e10 and b5 based on Western Australia study, 2008

# Australian Biofuel Projects - 2009

## Study Order Form

Report	Fee (excluding GST)
Australian Biofuels 2009	A\$2,950

**Australian Biofuels 2009** is researched and prepared by **APAC biofuel consultants\***. The Study is an update of key industry information contained in corresponding sections of our major client study *Biofuels in Australia. A Growing Sector* (2006) and our follow up client reports on the Australian biofuel industry in **2007** and **2008**.

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## Study Team

### Mike Cochran

Mike Cochran brings to the study experience in commercialisation processes, business development and commodity marketing in the oil, gas, petroleum, and resource sectors. Mike is familiar with the Australian and Asian petroleum market, refining industry, biofuel and alternative liquids fuels markets. He has an understanding of the commercial and trading environment and requirements to establish green field projects, especially relating to energy, commodities, trading and overseas markets.

In 2004 Mike established Ecco Consulting Pty Ltd to provide marketing, negotiation and commercial services to the gas, petroleum, and resource industries in Australia and overseas. In its short history, Ecco Consulting has successfully established excellent working relationships and engaged in assignments with large Australian and overseas resource organisations, government and banks. Ecco has consulted in crude oil marketing and operations, research and analysis for alternative liquid fuels, infrastructure representation, biofuels client (including investment) studies, and commercial negotiation facilitation.

Prior to establishing Ecco Consulting Pty Ltd, Mike has held various commercial and marketing positions, at senior level, with some of the world's largest resource and petroleum organisations - BHP, Rio Tinto (CRA, Mary Kathleen Uranium, Bougainville Copper Ltd) and 22 years with Santos Ltd.

Mike has a degree in Economics from Sydney University and post graduate Diploma of Oil Supply and Refining - validated by the University of Oxford. He is also a Board member of the Australian Institute of Energy and Australian LPG.

### Dr Graeme Bethune

Graeme Bethune is CEO of EnergyQuest, which he established in 2005 to provide strategic research on Australian oil, gas and other energy sources. EnergyQuest's clients include major Australian companies, most Australian governments, institutional investors and a number of international companies.

EnergyQuest also produces the EnergyQuarterly, which provides comprehensive and timely analysis of oil and gas production, reserves, development projects and gas contracts in Australia.

The company has also undertaken major multi-client studies of coal seam methane and biofuels and provided strategic advice on acquisitions and major energy contracts.

Prior to establishing EnergyQuest, Graeme had 30 years in senior finance and corporate affairs roles. For 10 years he held a range of senior positions with the Australian energy group, Santos, reporting to the CEO, responsible for finance, business development, investor relations and media. This included over \$2 billion of major financing and asset acquisitions and divestments.

Graeme has a first-class honours degree in economics from Monash University and a PhD from the Australian National University. He has undertaken the executive program at the Graduate School of Business at Stanford University and is a member of the Society of Petroleum Engineers and the Petroleum Exploration Society of Australia.

### Susan Bethune

Susan Bethune is a partner in EnergyQuest, responsible for market analysis. Susan has 30 years experience in economic and financial analysis with the Commonwealth government, the finance sector and the tertiary education sector. She has an honours degree in economics from Macquarie University and a Masters degree in economics from the Australian National University.