



Energy White Paper 2014 – Issues Paper submission template

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Confidentiality

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Issues for comment are listed against each of the Chapter Headings. In making your submission, you are welcome to make comment against some or all of issues in the fields provided. A field for general comments is provided at the end of the template.

1. The Security of Energy Supplies

The Government seeks comment on:

- ways community expectations can be better understood and reflected in reliability standards;
- the value of developing fuel reserves to meet Australia's international oil security obligations, and augment domestic security;
- ways to increase new gas sources to meet demand and measures to enhance transparency in market conditions; and
- issues relating to the regulation of energy infrastructure.

Please provide any comments on The Security of Energy Supplies below:

As has been seen by the development of the Tar Sands and Oil Shales industries unconventional crude oils have the ability to make significant contributions to crude oil reserves and production.

Deepwater drilling is another area that has been highlighted as a potential area to assist with energy security with significant potential believed to exist in deep water off the southwest margin of the continent and in the Great Australian Bight (source Geoscience Australia).

Unfortunately as stated by the IEA in its 2013 Resources to Reserves report, in many cases, oil production costs have doubled since 2005. For deepwater drilling, reasons for these increases in costs include the costs associated with relief well preparedness as well as the increased costs of insurance following the Deepwater Horizon incident which has now cost BP US\$42.7bn (three times its 2013 profit). These costs, which at its peak BP reported required 6,000 marine vessels, 150 aircraft, six deepwater drilling rigs, two floating production storage and offloading units as well as 48,000 workers, are less than they would have been if these same resources were required off the Great Australian Bight, due to the proximity of the spill to major cities and oil infrastructure.

With oil production costs for deepwater drilling now estimated by the IEA to be in the range of US\$70-\$85 a barrel, it now makes sense to look at producing crude onshore, where these risks don't exist and where far more job opportunities can be created.

Licella (www.licella.com.au) has developed and piloted, with assistance from the Australian Government and Industry, an innovative method of producing a bio-crude, capable of producing the same fuels as from traditional crude, from renewable, non food related, ligno-cellulosic feedstocks. The CSIRO has recently reported (Biomass production for sustainable aviation fuels: a regional case study in Queensland) that suitable volume of biomass could be delivered to bio-crude production facilities at A\$56 a dry tonne. As in most advanced biofuel enable fuel technologies the cost of delivering the feedstock is the most significant cost and with the IEA projecting the cost of crude oil and equivalents in 2035 at \$128 per barrel (in constant dollar) prices, Licella's process is certainly competitive. The IEA also attributes increases in crude oil costs to a 17% (or 15 million b/d) increase in demand during this period.

Key to the success of Licella and other advanced biofuel producers is the ability to have sufficient quantities of suitable biomass and the CSIRO paper referenced above outlined how supply could be scaled in this region. This would deliver significant economic benefit to this and other rural communities as the biomass supply chain is developed.

The development of onshore advanced biofuel capacity such as Licella's, would contribute to insulating Australia's energy security caused by external geo-political factors such as increased demand, cost of offshore production and any future interruption to our current supply lines caused by conflict, as well as developing new industries and mitigating the threat of the problems that can arise from offshore deepwater drilling. Failure to do so would be a significant oversight.

2. Regulatory Reform and Role of Government

The Government seeks comment on:

- priority issues, barriers or gaps within the COAG energy market reform agenda;
- possible approaches and impacts of review of tariff structures including fixed network costs, further time-of-use based electricity tariffs and the use of smart meters;
- possible measures to promote greater price transparency in gas markets; and
- areas where further privatisation of government-owned assets would contribute to more effective regulatory frameworks and better outcomes for consumers.

Please provide any comments on Regulatory Reform and Role of Government below:

The advanced biofuels industry fits well into the governments plan to develop the efficient discovery and orderly development of a multi decade energy and resources project pipeline. However recognition needs to be given to the fact that this is an emerging industry, being developed now, for large scale deployment in 10 or more years time. It is sometimes hard for companies, who one would think would be logical investors in the advanced biofuels industry, to take long term investment decisions due to the demands of shareholders to make short term financial returns. As a consequence investment into what they may consider as non-core businesses, with a horizon of 10 years or more, are not being made and given the economic circumstances in which they operate it is perhaps unrealistic to expect them to do so.

It is for these reasons that 62 countries around the world (source Biofuels Digest) including the European Union and the United States have mandates for the use of Biofuels and in some cases e.g. the United States, specific targets for Advanced Biofuels.

It is these targets that have created the economic environment enabling the Advanced Biofuels industry to develop in these countries.

Similarly the Renewable Energy Target (RET) in Australia shows how new industries can be stimulated, however the RET does not currently include renewable fuels. As part of this Energy White Paper and the RET review, it is recommended that the government sets a target for Renewable Fuels as part of the RET and a specific target for Advanced Biofuels. Such a target and the appropriate mechanism would best be implemented following a review of the effectiveness of schemes in place overseas to learn from these experiences and determine the best way for such a target to be implemented.

Current incentives are in place for renewable fuels in the form of the Ethanol Production Grants (EPG) Program and the Energy Grants (Cleaner Fuels) Scheme (CFG), neither of which currently are applicable to the advanced biofuels industry due to the specific definitions within the schemes.

It is recommended that a review of these schemes and the funding currently allocated to them (~ \$250m p.a. from forward estimates) to determine if this is the most effective use of tax dollars for their stated objectives of producing cleaner fuels. This should consider:

- 1) Whether it is appropriate to provide the same incentive to renewable fuels regardless of their energy content?
- 2) Whether it is still appropriate to provide incentives to established industries e.g. Ethanol if an objective is to develop the advanced biofuels industry?
- 3) Whether it is appropriate to provide ~\$6bn p.a. (source budget papers) in incentives through the [fossil] fuel tax credit scheme?
- 4) Whether it is appropriate to have specific definitions of feedstocks and pathways e.g. the CFG has biodiesel and renewable diesel definitions that preclude production of these products from ligno-cellulosic wastes i.e. the biodiesel definition says:
"Biodiesel is manufactured by chemically altering vegetable oils or animal fats (including recycled oils from these sources) to form mono-alkyl esters"
and for renewable diesel says:
"Renewable Diesel means liquid fuel that is manufactured by chemically altering vegetable oils or

animal fats (including recycled oils from these sources) through a process of hydrogenation (whether or not that process was part of some other process);"

Surely it would be better to have broad definitions e.g. Produce renewable fuels that comply with the appropriate fuel standards and are made from sustainable, renewable, sources. grown on land not involved in the production of food for human consumption.

5) If incentives are to remain for ethanol and bio-diesel made from food sources, these should be lower than those for the advanced biofuels sector as they are in the UK, where advanced biofuels count double, to take into account the different stages the industries are at.

In addition Government Agencies notably Defence can play a significant role both as customers and provision of technical capability. The Australian Navy has interoperability commitments with the US Navy, who have stated that they will be moving to alternative fuels including Advanced Biofuels, their Great Green Fleet is an example of this commitment . This means that if Australian navy vessels wish to be able to refuel from US Navy refueling ships they too must have the ability to run on the same fuels. Defence also has significant technical and logistical capabilities that could be of assistance in the development and deployment of the Advanced Biofuels industry in Australia and at bases around the world.

The government should also consider acquiring, or working with industry to maintain key infrastructure assets e.g. refineries, that are to be closed by multinationals who no longer consider these assets to be competitive. These refineries may not be worth much to refiners of fossil fuels but could be extremely valuable to the development of the advanced biofuels industry, as has been seen by what has happened to the Porto Marghera refinery in Italy where it is being converted to produce biofuels.

3. Growth and Investment

The Government seeks comment on:

- commercial or market initiatives that could enhance growth and investment in the energy and resources sectors;
- areas where approvals processes could be further streamlined while maintaining proper environmental and social safeguards;
- further ways that regulatory burdens could be reduced while maintaining appropriate levels of disclosure and transparency in energy markets; and
- the impacts of variable land access policy and ways the community could be better informed and engaged on development in the energy sector.

Please provide any comments on Growth and Investment below:

If the objective is for the efficient discovery and orderly development of a multi decade energy and resources project pipeline, the development of appropriate onshore biomass sources is critical to deliver sufficient feedstock. The CSIRO report Biomass for aviation fuel production in the Fitzroy Basin, and the work being undertaken by farmers such as Energy Farmers around Geraldton in WA are good examples of initiatives which should be encouraged.

Advanced biofuels plants by their very nature will be dispersed close to the biomass sources in regional Australia and will create significant employment opportunities.

4. Trade and International Relations

The Government seeks comment on:

- how to grow the export of value-added energy products and services;
- ways to remove unnecessary barriers to continued foreign investment in Australia's energy sector;
- ways to strengthen support for access to export markets; and
- ways to support business to maximise export opportunities for Australia's energy commodities, products, technologies and services, including the value of Australia's participation in the variety of international forums.

Please provide any comments on Trade and International Relations below:

As a consequence of the mandates outlined in section 2 above and other initiatives such as the US Navy's move to alternative fuels, which will result in requirements for at least 8m barrels p.a. of advanced biofuels by 2020 (source US Navy) there are considerable export opportunities. These cover both Australian bio-crude or derivatives thereof to refineries in Singapore and the US to satisfy these markets ibut also personnel to help establish Licella plants and supply chains around the world.

5. Workforce Productivity

The Government seeks comment on:

- the nature of any current skills shortages being experienced and how these could be addressed by and with industry;
- the capacity of industry and education sector-led programs to meet long-term training and skills development needs of the energy and resources sectors; and
- specific long-term training and skills development needs for alternative transport fuel, renewable energy, energy management and other clean energy industries.

Please provide any comments on Workforce Productivity below:

Licella has benefited from good collaboration with Sydney University, CSIRO and other university and research establishments as we have developed our technology as a consequence of the governments CRC, ARC and other joint industry/research programmes which are very valuable and should be encouraged.

6. Driving Energy Productivity

The Government seeks comment on:

- the current suite of energy efficiency measures, ways these could be enhanced to provide greater energy efficiency or possible new measures that would enhance energy productivity;
- the use of demand-side participation measures to encourage energy productivity and reduce peak energy use; and
- measures to increase energy use efficiency in the transport sector.

Please provide any comments on Driving Energy Productivity below:

Amendments to the current Ethanol Production Grants Program and the Energy Grants (Cleaner Fuels) Scheme to take account of energy content of renewable fuels produced as outlined in section 2 above would help with energy productivity.

7. Alternative and Emerging Energy Sources and Technology

The Government seeks comment on:

- ways to encourage a lower emissions energy supply that avoids market distortion or causes increased energy prices;
- the need to review existing network tariff structures in the face of rapidly growing deployment of grid-backed-up distributed energy systems, to ensure proper distribution of costs;
- additional cost-effective means, beyond current mandatory targets and grants, to encourage further development of renewable and other alternative energy sources and their effective integration within the wider energy market;
- how the uptake of high efficiency low emissions intensity electricity generation can be progressed;
- any barriers to increased uptake of LPG in private and commercial vehicles and CNG and LNG in the heavy vehicle fleet; and
- any barriers to the increased uptake of electric vehicles and advanced biofuels.

Please provide any comments on Alternative and Emerging Energy Sources and Technology below:

As outlined in 1 above, the IEA anticipates crude oil prices to increase to \$128 in today's prices by 2035. As a consequence of increased exploration and production costs and a 17% increase in demand. In order to mitigate the risks of these price increases and to transition to a lower emissions energy supply, the government should encourage the development of the advanced biofuels industry.

As explained in 2 above the government should use the opportunity of this White Paper and the RET review, to include a target for Renewable Fuels in line with most other OECD countries. and in particular Advanced Biofuels.

In these times of economic restraint, current fossil and biofuels incentives (as outlined in 2 above) should be reviewed to determine their value and whether they are really necessary or whether this funding would be better diverted to the development of the advanced biofuels industry.

If it is determined that the existing biofuels support programmes should be retained the definitions should be modified to include all renewable fuels and the support quantum linked to the energy content of the renewable fuel produced.

General Comments

Any further comments?

In the transport sector in the medium to longer term it is reasonable to expect that there will be significant transition away from hydro-carbon based fuels to electric and hydrogen vehicles. This is similar to the way that power generation has migrated away from fossil to renewable forms of generation.

At this stage however aviation has no alternative to energy dense liquid hydro-carbon fuels. This is the reason the aviation industry, of all industry groups, is so keen to see the development of the advanced biofuel industry. With the right policy settings, Australia is ideally placed to be at the forefront of this technology development. Without them and with the high reliance Australia has on aviation we are exposing ourselves to a greater impact through the higher costs of fuels and therefore competitiveness as the available fossil fuels become more scarce.

This is another reason why the development of a vibrant advanced biofuels industry in Australia is so critical.