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Energy White Paper Taskforce
Department of Industry
GPO Box 9839
CANBERRA ACT 2601

Dear Sir/Madam

NRMA submission to the Australian Government's Draft Energy White Paper

The National Roads and Motorists' Association (NRMA) is Australia's largest mutual organisation representing 2.5 million Members in New South Wales and the Australian Capital Territory. For more than 90 years, NRMA has represented the interests of motorists in relation to road funding, road safety, fairer petrol prices, driver education and other related public policy issues.

This submission draws on a substantial body of work NRMA has commissioned over the past 6 years focusing on transport energy security, affordability and sustainability – aspects which form a significant part of Australia's broader energy context and are key to a healthy, equitable and functioning economy.

On behalf of our Members, NRMA is committed to working for a sustainable and less volatile transport energy future. We welcome this opportunity to respond to the Government's Energy Green Paper and would be pleased to provide additional information and assistance as appropriate.

Yours sincerely

Kyle Loades
President

Summary of Key Points

NRMA welcomes this opportunity to provide feedback on the Australian Government's Energy Green Paper. Our submission elaborates on the following key points

Policy Context

1. NRMA is calling for the Government to specifically address transport fuels in the Energy White Paper and to provide the strategic context to reduce Australia's demand for and reliance on imported oil. The current excessive reliance on imported oil has negative implications for motorists and the affordability of transport more generally, and adversely affects Australia's balance of payment position.
NRMA calls for the Government to set the strategic framework in place for establishing adequate future transport fuels and for ensuring that Australia's transport energy supplies are: **Secure; Affordable; and Sustainable**.

Security

2. NRMA calls on the Federal Government to prepare a supporting comprehensive **Transport Energy Plan for Australia** to ensure the safety, well-being and prosperity of all Australians is protected in the event of disruption to national fuel supplies.
3. **The 2015 National Energy Security Assessment (NESA)** should include the following aspects:
 - a. Scope: To assess the risks to our oil and liquid fuel supply chains, the 2015 NESA should include a broader risk assessment of Australia's liquid fuel supply vulnerabilities. It should encompass the whole of the liquid fuel supply chain, including import and refining infrastructure and critical supply linkages, both in the public and private sectors. It should examine the supply chain risks in peacetime and in conflict scenarios. It should also be accompanied by appropriate risk mitigation strategies that are incorporated in an update to the Energy White Paper.
 - b. Participants: If the 2015 NESA is to be more comprehensive than the last, it needs to be developed cooperatively by a wide range of Government agencies in addition to the Department of Industry. These should include the Attorney-General's Department, Department of Transport, Department of Agriculture Food and Fisheries, Department of the Environment, Department of Foreign Affairs and Trade and Department of Defence. The process should also involve greater participation by State Governments, business and consumer groups.
 - c. The Energy White Paper process must remain open to the results of the 2015 NESA and respond where appropriate.

Affordability

4. NRMA urges the Australian Government to encourage **investment** in a broad suite of **transport "energy resources"** to include conventional and renewable energy resources as well as energy efficiency – identified by the International Energy Agency as "the world's first fuel"
5. The proposed **Infrastructure Australia Review** should be informed by and support the Transport Energy Plan for Australia to ensure that Australia's energy and transport infrastructure delivers a transport energy system that is:
Secure; Affordable; and Sustainable.



Sustainability

6. NRMA supports Mandatory fuel consumption (CO₂ emission) standards – modelling suggests that this could achieve a 23% reduction. However, these need to be set at levels that will result in tangible outcomes and should be in line with the best in the world. Business as usual is not acceptable and trends worldwide are for rapid reduction in CO₂/fuel consumption in new vehicles
7. NRMA recommends that the Government initiate a coordinated research & development effort with the objective of securing 30% of Australia's transport energy from alternate sources by 2030.

Policy Context

The opening two sentences of the Minister's foreword to the Energy Green Paper very effectively capture the importance of energy – and good energy policy – to Australia:

Australia's economy and prosperity are built on access to secure, affordable and reliable energy.

Our energy diversity is one of Australia's natural strengths and one of our most potent competitive advantages.

Unfortunately these comments totally ignore the transport energy sector where Australia currently does not enjoy any natural strengths or competitive advantages.

Australia's supply of transport energy:

- **is not secure;**
- **is becoming less affordable;**
- **is almost wholly dependent on international supply chains and markets;**
- **enjoys almost no diversity; and**
- **is not sustainable in the longer-term.**

NRMA believes this situation and the overwhelming importance of transport to Australia's economic and social wellbeing requires a comprehensive policy response.

While the Energy Green Paper devotes considerable analysis to the stationary energy sector, dedicating one chapter each to electricity and gas, transport energy receives much less attention. NRMA believes this is an oversight which does not reflect the importance of transport energy in Australia and which should be remedied in the final Energy White Paper.

Transport is the lifeblood of the Australian economy and essential to the wellbeing of Australian society at large. Transport fuels are predominantly used for road transport (75%), but also for other sectors: aviation (18%); rail (3%); and shipping (4%). Each plays a critical role and without which, society would cease to function as we know it.

Yet the transport energy sector faces real challenges. These are both short- and longer-term. In the short-term, Australia has a very shallow and rapidly diminishing capacity to absorb a major disruption to supplies of transport fuel which could have very severe consequences. Such a disruption could occur at any time and with little or no warning. In the longer term, the transport sector's total dependence on oil and gas, with its associated geopolitical risks and environmental impacts has implications for motorists and the affordability of transport; implications for the broader economy through a worsening petroleum balance of payment position; and implications for the Australian environment through increased discharges of air pollutants. These challenges indicate that a detailed and targeted policy response is warranted.

This submission draws on a large body of detailed work commissioned by NRMA over the past 6 years and identifies those areas where the Government has the opportunity to respond to these challenges, strengthen Australia's transport energy resilience and contribute to continued national security and prosperity.

Advice received by NRMA is that the risk to Australia of a major disruption to transport fuel supply is significant and growing. Accordingly, the primary recommendation in this submission is directed toward addressing this risk. We note however, that a comprehensive response to this risk will also address the longer-term challenges identified above. In other words, there is a great deal of complementarity between policy measures addressing energy security and the longer term sustainability of Australia's transport energy sector.

A clear policy direction to improve the security, affordability and sustainability of Australia's transport fuels is in the national interest and should be a key objective of the Energy White Paper. Although Australia is vastly different to the USA in size and geopolitical reach, lessons can be drawn on the value of setting energy policy strategically.

In the USA, George Bush jnr once famously declared "America is addicted to oil" and set a goal of replacing 75 percent of the nation's Mideast oil imports by 2025 with ethanol and other energy sources.

It is in our vital interest to diversify America's energy supply--and the way forward is through technology. Dramatic advances are within reach. Let us build on the work we have done and reduce gasoline usage in the United States by 20% in the next ten years--thereby cutting our total imports by the equivalent of 3/4 of all the oil we now import from the Middle East. To reach this goal, we must increase the supply of alternative fuels, by setting a mandatory fuels standard to require 35 billion gallons of renewable and alternative fuels in 2017--this is nearly five times the current target. At the same time, we need to reform and modernize fuel economy standards for cars the way we did for light trucks--and conserve up to eight and a half billion more gallons of gasoline by 2017¹

Although our aspirations may differ to the USA, a strategic context for Australia's energy policy is no less important. Australia's actions to protect citizens' Transport Energy Security is of critical importance and deserving of no less attention than actions in relation to Border Security and the protection of our citizens from terrorist attack.

RECOMMENDATION 1: Strategic Policy Context

NRMA is calling for the Government to specifically address transport fuels in the Energy White Paper and to provide the strategic context to reduce Australia's demand for and reliance on imported oil. The current excessive reliance on imported oil has negative implications for motorists and the affordability of transport more generally, and adversely affects Australia's balance of payment position.

NRMA calls for the Government to set the strategic framework in place for establishing adequate future transport fuels and for ensuring that Australia's transport energy supplies are: **Secure; Affordable; and Sustainable**

¹ Congressional Record, V. 153, PT. 2, January 18, 2007 to February 1, 2007

Security

NRMA has commissioned three substantive reports² investigating Australia's liquid fuel security and has formed the view that this issue deserves much greater policy attention than it has received to date.

In essence, NRMA believes Australia is currently ill-prepared to answer the following questions:

“How would Australia cope if supplies of transport fuel were severely disrupted?”

“How would people be able to access vital supplies such as food and medicines?”

“How would businesses continue to function?”

“How would society continue to function?”

While the *likelihood* of such a major disruption is thankfully low, the *effects* could be so severe, that we must consider and plan for such an occurrence. The Green Paper does not address these questions at all.

Whilst “security” and “secure supplies” feature in the relevant chapter and sub-section headings, the Green Paper discussion deals primarily with energy “reliability”. As almost all of Australia's transport fuels are imported, the Government should deal with *energy security* and *energy reliability* of transport fuels as two separate and distinct issues. Whilst *energy reliability* is related to the *operation* of markets and is primarily the responsibility of market operators, *energy security* is related to energy policy and market design and is therefore the responsibility of governments. This is an important distinction which appears to be lost in the Green Paper.

Although the 2011 National Energy Security Assessment (NESA) is mentioned in the introductory comments to this chapter, *security per se* is not explicitly addressed, whilst *reliability* is extensively considered.

The Green Paper does provide an overview of some of the issues pertinent to liquid fuel security including Australia's declining refining capacity and notes the availability and barriers to alternative fuels and technologies. The Paper does not however provide any overarching policy context for addressing these issues. NRMA urges the Government to remedy this omission in the Energy White Paper.

Transport fuel is the lifeblood of our society and our economy. Any major disruption to transport fuel supplies would quickly be felt across all parts of society and across every sector of our economy. For example, stockholding for vital goods (such as medicines, foods and transport fuel itself) can be as little as 3–10 days at the point of sale in many cases. Any severe disruption of our fuel supplies would cause catastrophic economic impacts along with disruption to food supplies, medical and hospital supplies, military capability, emergency services and our general social cohesion.

Australia's fuel security policy is currently inadequate to protect our economy, defence, social and community wellbeing in a period of fuel delivery disruption. Key metrics indicate that Australia's

² Blackburn J. 2013, Australia's Liquid Fuel Security; Blackburn J. 2014, Australia's Liquid Fuel Security, Part 2; Blackburn J. 2014, Benchmarking Australia's Transport Energy Policies

continued access to transport energy supplies that are secure, affordable and sustainable cannot be taken for granted. For example:

- Australia's dependence on imports of oil and oil-derived fuels has grown from 60% in 2000 to over 90% today and is continuing to grow.
- In the period 2012 to 2015 we will lose at least 40% of our national oil refining capacity; and there is no Government policy to maintain any refining capacity in Australia.
- Australia's quarterly imports of fuels and lubricants reached \$10.9 billion in December 2013, more than a 300 per cent increase since 2003.

RECOMMENDATION 2: Transport Energy Plan for Australia

NRMA calls on the Federal Government to prepare a comprehensive **Transport Energy Plan for Australia** to ensure the safety, well-being and prosperity of all Australians is protected in the event of disruption to national fuel supplies.

National Energy Security Assessment

The Green Paper notes the 2011 National Energy Security Assessment (NESA) and foreshadows an update in 2015. NRMA supports the NESA update as the 2011 NESA is now outdated and was based on a limited scope.

The NESA is a critical part of the analysis of Australia's fuel security and must address a broad range of energy security issues, including but not limited to, those discussed below. NRMA is surprised that the White Paper is intended to be completed prior to the NESA and recommends that **the Energy White Paper must remain open to input from the NESA and respond to the NESA findings where appropriate.**

There are also important learnings to be gained from the previous NESA. Analysis of the 2011 NESA, conducted for NRMA³ identified that:

the 2011 NESA did not adequately address the concerns of a number of agencies outside the then Department of Resources Energy and Tourism and that the Department did not employ a sufficiently diverse set of scenarios to conduct the risk analysis.

Further, the analysis found that

In reviewing potential scenarios and the impact of refinery closures on Australia's liquid fuel security, the (2011) Department of Industry NESA report concluded the following:

'... there could be scenarios that are more severe such as war in the Middle East, war in the Asia-Pacific region, disruption of shipping lanes or disruption to key refining centres in the Asia-Pacific region. In this case the markets may not operate normally and the impact on the supply chains would need to be considered.'

While the report notes that extreme scenarios '... are things that Governments need to consider ...', such scenarios were not included in the then Department of Resources Energy and Tourism 2011 Liquid Fuels Vulnerability Assessment (LFVA) that supported the 2012 Energy White Paper.

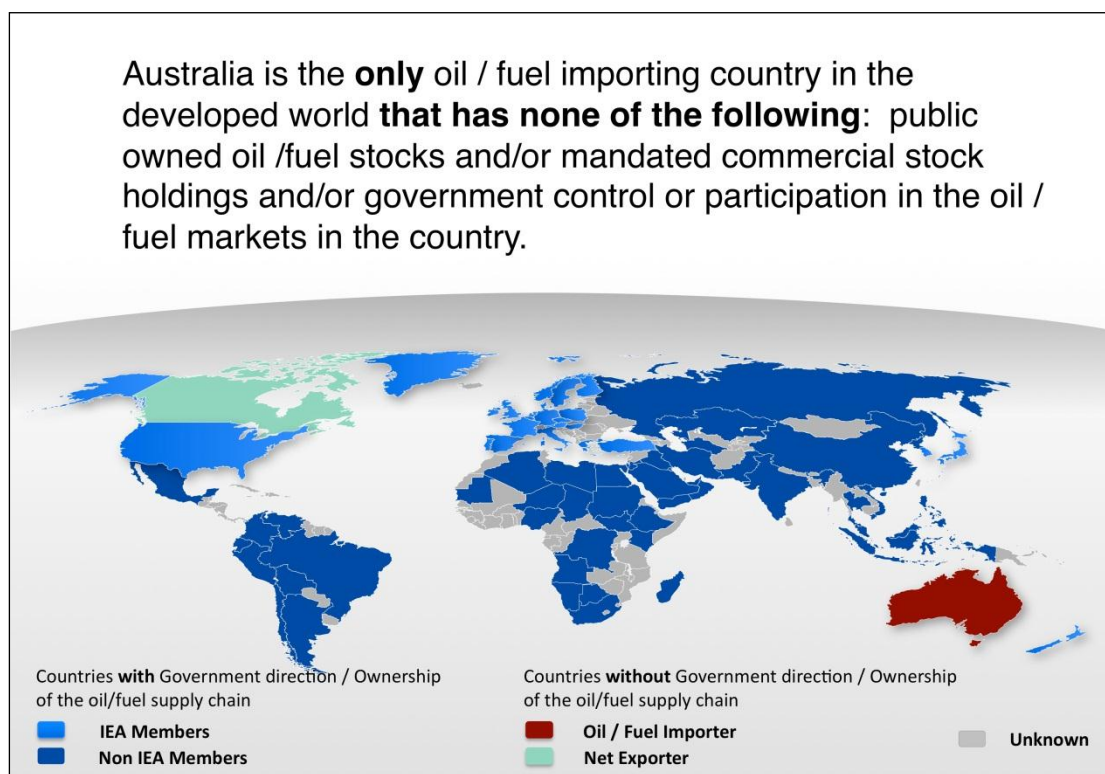
³ Blackburn J. 2014 Australia's Liquid Fuel Security, Part 2

It is clear that past Governments have been of the view that our energy security can be reliant on market forces without Government intervention on the supply side.

Australia's energy security policy is out of step with international norms

NRMA commissioned a review of the transport energy policies of 75 countries globally which revealed that Australia is alone in its total reliance on “market forces” to ensure secure access to transport fuel– critical to the functioning of society and the economy.⁴

Figure 1 Australia's Transport Energy Policy Position vs Other Nations



The benchmarking review also draws attention to the recent meeting of the G7 Energy Ministers and the EU Commission for Energy in Rome on 5-6 May 2014. The resulting *Rome G7 Energy Initiative for Energy Security Joint Statement* identified core principles for energy security which include the need for:

- Development of flexible, transparent and competitive energy markets, including gas markets.
- **Diversification of energy fuels, sources and routes, and encouragement of indigenous sources of energy supply.**
- Reducing greenhouse gas emissions, and accelerating the transition to a low carbon economy, as a key contribution to enduring energy security.
- Enhancing energy efficiency in demand and supply, and demand response management.

⁴ Blackburn J. 2014, Benchmarking Australia's Transport Energy Policies

- Promoting deployment of clean and sustainable energy technologies and continued investment in research and innovation.
- **Improving energy systems resilience by promoting infrastructure modernization and supply and demand policies that help withstand systemic shocks.**
- **Putting in place emergency response systems, including reserves and fuel substitution for importing countries, in case of major energy disruptions.**
- In particular, Paragraph 8 of the Joint Statement noted:

*‘Energy security must include timely investment to supply energy in line with economic developments and environmental needs. Some investments in infrastructure, needed to increase security of supply, and that **cannot be built according to market rules**, could be supported by regulatory frameworks or by means of public funding.’*

The Benchmarking review concludes that Australia alone

amongst all developed oil importing countries, relies completely on commercial market forces for our transport energy security. This is no less perilous than contracting out our Defence Forces or out-sourcing our food supply⁵

Australia’s Refining Capacity

NRMA is concerned at the rapidly diminishing refining capacity in Australia and that the country may lose access to a viable domestic refining capacity without adequate consideration of the implications this outcome may have for transport fuel security. There is currently no government policy to retain any specific level of refining capacity in Australia and previous advice from Department of Industry has been that government is content to allow refineries to operate or close in accordance with market forces. That is, government policy apparently attributes no particular strategic value in a domestic refining capacity.

To the best of our knowledge, this position is not grounded on a detailed assessment of the importance of a domestic refining industry under a full range of plausible scenarios. We are not aware of any publicly available analysis which attempts to identify if Australia should retain a refining capacity and if so, how much. The Green Paper identifies the NESAs process as being responsible for providing “early warning” to any problems arising from a decline in refining capacity:

Extract from Green Paper page 52:

Australia has six major oil refineries. One of the largest, Kurnell in Sydney, is scheduled to close in the second half of 2014. Bulwer Island in Brisbane is to close in 2015. These closures reflect the comparative disadvantages of Australian refineries, including age, small size, and labour and construction costs. The NESAs will monitor this declining capacity, assess the potential impacts and provide early warning if it is likely to become a problem.

NRMA notes the shortcomings of the previous NESAs as discussed above and queries the mechanism by which the (hopefully more comprehensive) 2015 NESAs findings will be incorporated into an Energy White Paper scheduled for completion prior to the NESAs.

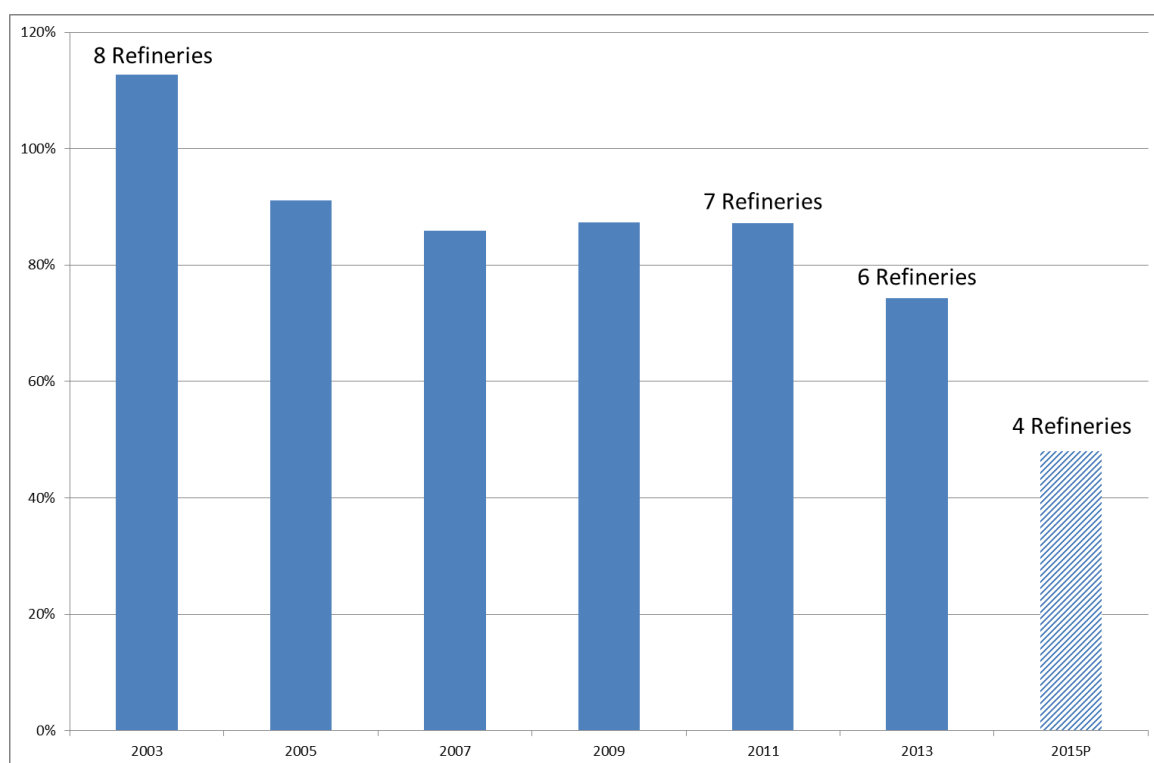
In particular, NRMA notes the very rapid decline in refinery capacity now in progress (40% reduction between 2011 and 2015) and the absence of public consultation on this outcome beyond the single paragraph in the Green Paper noted above.

⁵ *ibid*

Although Australia has always imported oil and to a lesser extent refined fuels, prior to 2003 Australia's installed refining capacity had always exceeded the demand for refined products. The closure of Port Stanvac refinery in Adelaide in 2003 changed Australia's position to one of a net importer.

Steadily increasing demand for fuel coincident with repeated refinery closures has seen Australia's installed refinery capacity as a proportion of finished product demand decline from 113% in 2003 to 74% in 2013 and is projected to reach 48% in 2015 when the latest round of refinery closures will be complete.


Figure 2 Australian Refinery Capacity as a Proportion of Total Australian Demand for Refined Products



Source: Adapted from AIP Downstream Reports 2003-2013. 2015 projection based on announced refinery closures and extrapolated demand at 2003-2013 trend.

On page 53, the Green Paper does recognise that “declining domestic refining capacity and increasing dependency on fuel imports, particularly for specific fuel types, could enhance concerns about the level of risk to Australia’s national security”, but identifies this as a “longer term” issue.

NRMA suggests that declining domestic refining capacity is not a “longer term” issue, but an issue requiring immediate response. By mid next year, Australia will have lost 50% of our refining capacity since 2003 – the majority of that in just the 3 years spanning 2012-2015 – and all in the absence of any strategic assessment of the importance of a refining capacity to Australia. Given the lengthy planning timeframes for decisions about these assets and the timeframes for construction, NRMA considers it imperative that both the Energy White Paper and the 2015 NESAs specifically consider the strategic and security implications of Australia’s domestic refinery capacity.



To address the identified shortcomings of the previous NESA, and ensure the current White Paper has the opportunity to adequately respond to Australia's current energy security position, the following recommendations are made:

RECOMMENDATION 3: 2015 NESA⁶

Scope: To assess the risks to our oil and liquid fuel supply chains, the 2015 NESA should include a broader risk assessment of Australia's liquid fuel supply vulnerabilities. It should encompass the whole of the liquid fuel supply chain, including import and refining infrastructure and critical supply linkages, both in the public and private sectors. It should examine the supply chain risks in peacetime and in conflict scenarios. It should also be accompanied by appropriate risk mitigation strategies that are incorporated in an update to the Energy White Paper.

Participants: If the 2015 NESA is to be more comprehensive than the last, it needs to be developed cooperatively by a wide range of Government agencies in addition to the Department of Industry. These should include the Attorney-General's Department, Department of Transport, Department of Agriculture Food and Fisheries and Department of Defence. The process should also involve greater participation by business and consumer groups.

The Energy White Paper process must remain open to the results of the 2015 NESA and respond where appropriate.

⁶ ibid

Affordability

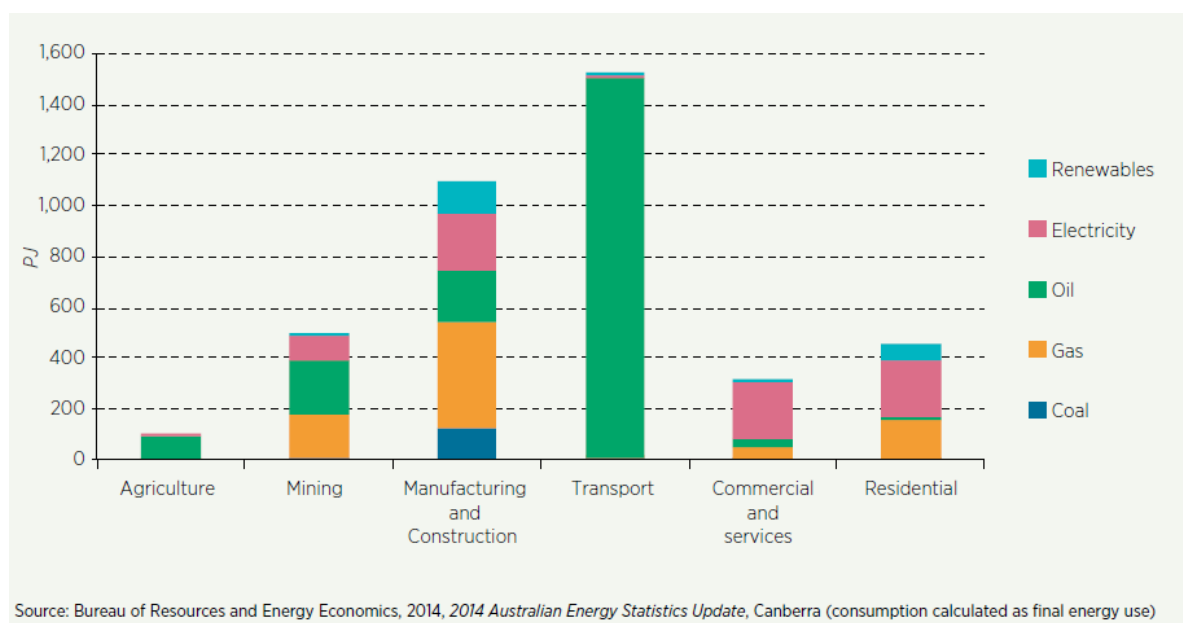
ATTRACTING ENERGY RESOURCES INVESTMENT

NRMA supports the Government's intention to attract energy resources investment (as outlined in Chapter 1 of the Green Paper) and notes that transport energy resources differ markedly from stationary energy resources, requiring a different policy approach.

The Green Paper notes that Australia is endowed with large reserves of non-renewable energy resources and that these provide economic benefit to Australia. NRMA notes however, that in the transport sector Australia is almost wholly reliant on energy imports for transport fuel. The Green Paper does not adequately recognise this fact, nor the risks this reliance poses to the Australian economy and society. It is silent on what energy resource investment might be required to adequately address this issue. NRMA believes this requires a much greater level of analysis than has been evident to date.

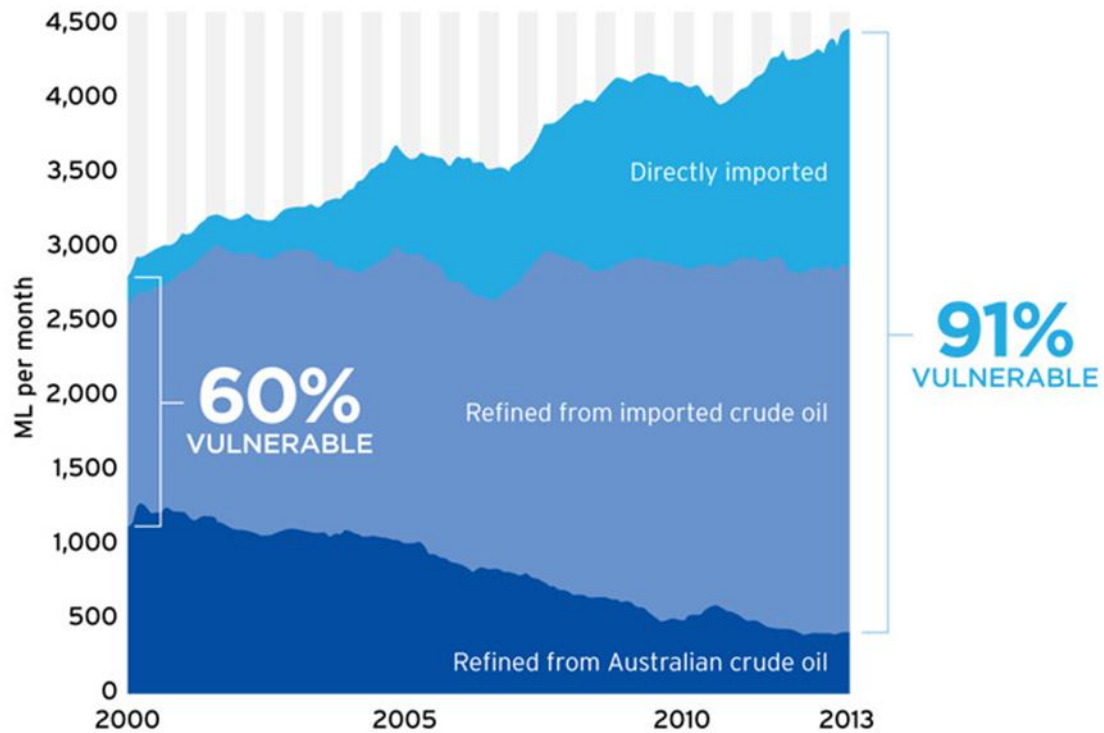
As noted in the Green Paper (page v) and reproduced below at Figure 1, Australia's transport sector, in common with all modern economies, is virtually entirely powered by oil-based fuel. This reliance is in stark contrast to the fuel diversification observed in other sectors.

Figure 3 Energy Use in the Australian Economy



Compounding this reliance on oil, Australia's oil-based resources are declining whilst demand for transport fuel continues to climb. The resulting rapidly increasing dependency on imports of oil and refined fuel and the consequent vulnerability to supply disruption (Figure 3) poses a significant risk to Australia's economic and social well-being that has not been adequately addressed by government policy to date.

Figure 4 Production and Importation of Australia's Liquid Fuels

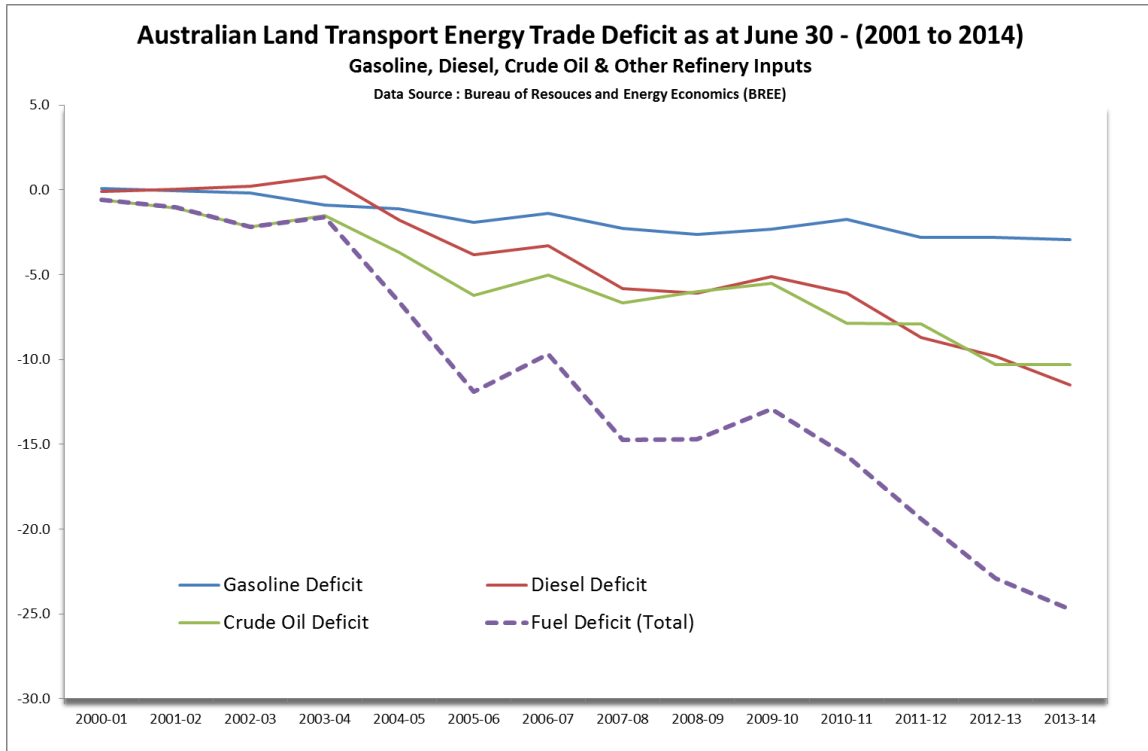


Source: Blackburn J. 2014, *Australia's Liquid Fuel Security, Part 2*

The Green Paper acknowledges that in contrast to Australia's extensive reserves of coal, gas and uranium, Australia has "limited resources of crude oil, condensate, and liquefied petroleum gas (LPG)". While the Green Paper provides extensive commentary on how the Government plans to exploit Australia's plentiful energy resources, there is no commentary on how the Government plans to address the growing risks posed by our dependency on imported transport fuel.

One such risk is the deterioration in Australia's Petroleum terms of trade for Land Transport Fuels (crude Oil + Gasoline + Diesel), which has deteriorated from essentially a neutral position in 2000 to a \$24B deficit in 2013-14 (Figure 5). This represents a large and ever-increasing outflow of money from the domestic economy and places our transport sector at risk from the volatility of international oil and fuel markets.

Figure 5 Australia's Land Transport Energy Terms of Trade



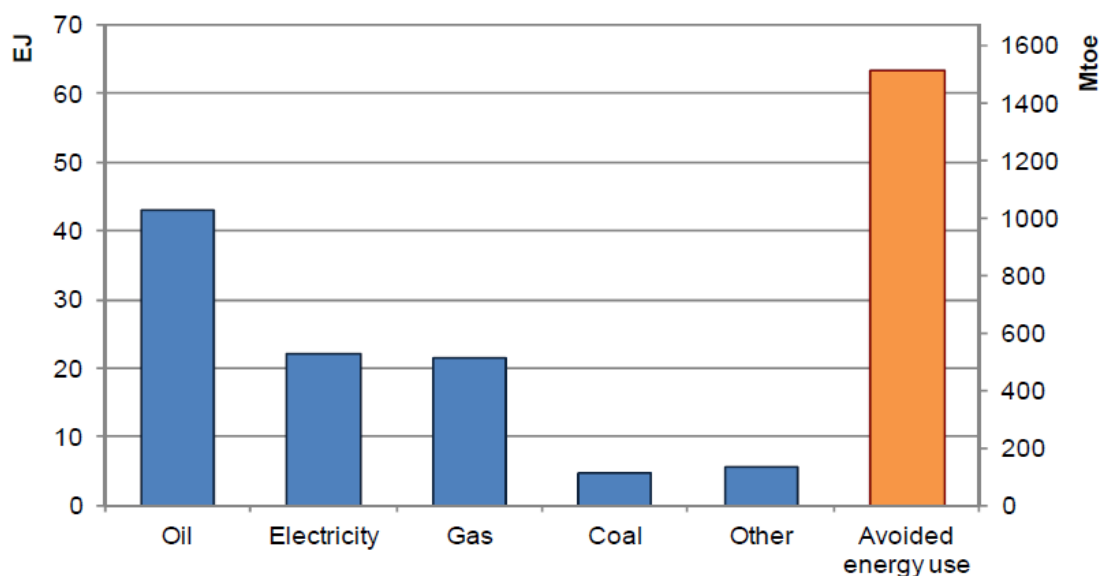
Source: NRMA analysis based on Bureau of Resources and Energy Economics- Australian Petroleum Statistics data

Investment in and development of indigenous energy resources provides the opportunity to diversify Australia’s transport energy resource options and put downward pressure on energy costs.

In the context of Australia’s transport energy future, and given Australia’s limited resources of conventional transport energy forms, investment in “energy resources” should be considered in its broadest sense and should include:

- Investment in alternate energy supply: Research and development into alternative vehicle fuels and technologies drawing on energy resources more readily available to Australia (such as natural gas, LPG, biofuels and electricity); and
- Investment in (reducing) energy demand: The International Energy Agency identified that in 2010, energy efficiency was the largest contributing “energy resource” in a study of 11 IEA countries, exceeding the contributions of oil, electricity, coal and gas (Figure 6), leading the organisation to dub energy efficiency as “the world’s first fuel”.

Figure 6 Contribution of Energy Efficiency in 11 IEA Countries



Source: IEA 2013, Energy Efficiency Market Report 2013

Fortunately, a great deal of research has already been conducted exploring these issues in the Australian context and on which the government can readily draw.

In 2007/08, CSIRO coordinated the Future Fuels Forum, in collaboration with a broad group of industry stakeholders, including NRMA. The Forum identified a number of key risks, opportunities and challenges for the future of transport fuels in Australia, including:

- Increasing cost of oil and the need to reduce greenhouse gas emissions will drive change
- Australia's fuel mix will be more diverse
- The price of oil-based fuel products will increase
- Any increase in transport costs will adversely impact low income Australians
- Technology alone will not be enough to meet the potential fuel supply gap
- Australian travel preferences are as important as fuel and technology preferences in reducing greenhouse gas emissions.

Also in 2008, work commissioned by NRMA identified a *Roadmap for Alternative Fuels in Australia*⁷ designed to break Australia's dependence on imported oil. The resulting 12-step plan contains policy suggestions addressing both supply and demand for transport energy.

RECOMMENDATION 4: Transport energy resource investment

NRMA urges the Australian Government to encourage investment in a broad suite of transport "energy resources" to include conventional and renewable energy resources as well as "the world's first fuel" – avoided energy use.

⁷ Roadmap for Alternative Fuels in Australia, Jamison Group 2008

IDENTIFYING AND ADDRESSING INFRASTRUCTURE CONSTRAINTS

The Green Paper states:

The Australian Government is investing \$50 billion across Australia over seven years to deliver vital transport infrastructure for the 21st century. This should leverage additional infrastructure investment in excess of \$125 billion when combined with expected state and territory government, and private sector funding.

To develop a national view on infrastructure priorities and policies to ensure better value for money and deliver Australia's future infrastructure needs, the Government has tasked Infrastructure Australia to:

- undertake five yearly evidence-based audits of Australia's infrastructure asset base*
- develop a 15 year infrastructure plan*
- evaluate proposals for nationally significant economic infrastructure, as well as proposals in the education and health sectors*

NRMA applauds the foreshadowed investment in infrastructure and urges the government to consider transport security and sustainability to ensure infrastructure supports emerging and future needs.

Infrastructure priorities should be informed by the results of the comprehensive Transport Energy Plan which fully considers energy security requirements.

RECOMMENDATION 5: Infrastructure Australia Review

The proposed Infrastructure Australia Review should be informed by and support the Transport Energy Plan for Australia to ensure that Australia's energy and transport infrastructure delivers a transport energy system that is:

Secure; Affordable; and Sustainable

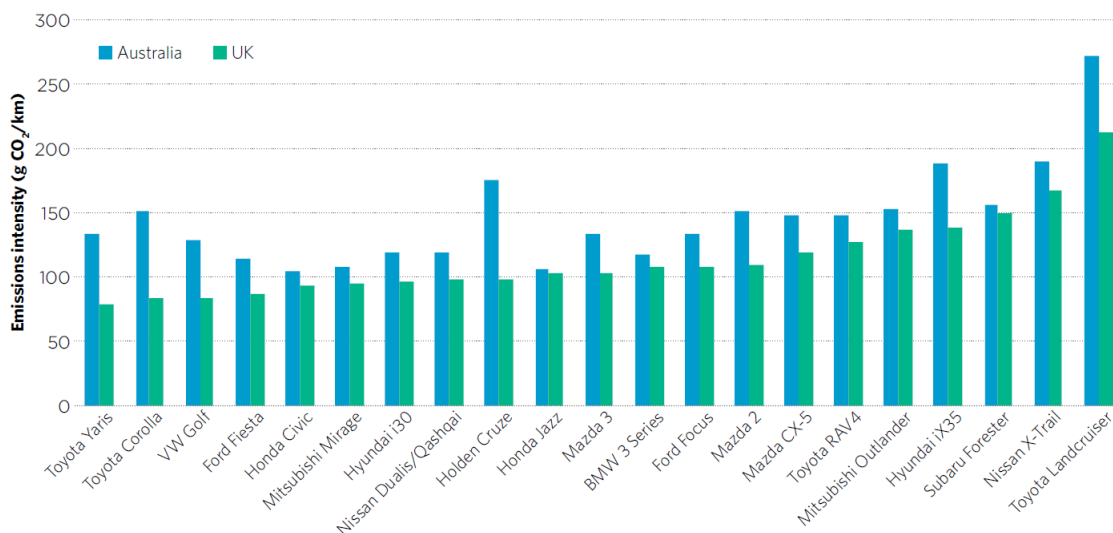
Sustainable

IMPROVING ENERGY PRODUCTIVITY

NRMA welcomes the focus on energy productivity. Fuel costs often form a significant component of household and business costs and as noted earlier Australia’s increasing reliance on fuel imports is leading to a steadily worsening Petroleum Trade Deficit, currently at around \$24Bp.a. Cost-effective opportunities to reduce our petroleum import burden and transport costs for both private motorists and business vehicle operators are therefore welcomed.

NRMA supports the Green Paper proposition for mandatory “vehicle efficiency standards” (more accurately referred to as “fuel economy standards” or “vehicle emission standards”). Australia currently lags much of the developed world as well as emerging economies such as China on light vehicle fleet consumption per kilometer, leading to higher motoring costs than necessary. For example, the most economical variants of some models available in Australia consume about 20 per cent more fuel on average than the most economical variant of the same make and model available in the UK (see Figure 7).

Figure 7 Emissions Intensity of Best Available Variant of Popular Vehicle Models, Australia and UK



Source: Climate Change Authority based on Commonwealth of Australia 2014c and Department for Transport 2014

Source: Climate Change Authority based on Commonwealth of Australia 2014 and Department of Transport 2014

RECOMMENDATION 6: Vehicle Emission Standards

NRMA supports **Mandatory fuel consumption (CO₂ emission) standards** – modelling suggests that this could achieve a 23% reduction. However, these need to be set at levels that will result in tangible outcomes and should be in line with the best in the world. Business as usual is not acceptable and trends worldwide are for rapid reduction in CO₂/fuel consumption in new vehicles

Other opportunities to improve transport energy productivity also exist and should be acknowledged in the White Paper and addressed through a comprehensive Transport Energy Plan for Australia.

Examples include, but are not limited to:

- Stimulating uptake of high-efficiency alternate vehicle technologies such as hybrids and electric vehicles.
- Considering the balance of freight transport modes between rail, air and road. Only 5% of north-south freight on the east coast of Australia is carried by rail. The remainder is carried largely by the trucking industry adding significantly to heavy vehicle usage on intra-state and interstate thoroughfares. Road freight is typically more energy intensive than rail freight.
- Improved transport infrastructure, including road, public transport, walking and cycling infrastructure to provide greater transport choice, reduce congestion and consume less energy per passenger-km than current arrangements.

PREPARING FOR FUTURE ENERGY SOURCES AND KEEP FUTURE ENERGY TECHNOLOGIES OPEN

On page 52, under the section heading *Transport Fuels*, the Green Paper broadly covers Australia's experience with and options for alternative fuels and technologies. NRMA acknowledges this summary and notes the absence of a strategic framework for the role of alternative fuels and technologies to help steer Australia away from total reliance on imported oil-based transport fuels.

Page 61 of the Green Paper, addresses *Next generation transport fuels* and again provides snapshot of current activity but does not provide any strategic context for Australia's involvement. Indeed the opening paragraph of this section frames the discussion of these fuels quite dismissively, noting that

In the short-term, however, they are unlikely to be cost-competitive, and need to address low levels of consumer acceptance, technical barriers, and limited consumer service infrastructure. Large capital investment would be needed to challenge the market dominance of established fuel sources

Whilst some or all of these challenges may be valid, Australia has a strategic imperative to overcome the challenges and seize emerging opportunities, rather than dismiss the opportunity out of hand.


NRMA has published specially-commissioned work by eminent scholars in the fields of energy and transport which identify pathways to reduce Australia's reliance on oil-based transport fuels. In 2008, *A Roadmap for Alternative Fuels in Australia*, laid out a comprehensive 12-step plan to end dependence on oil, while the 2010 report *Fuelling Future Passenger Vehicle Use in Australia* provided greater detail on the range of alternate fuels and technologies available to Australia.

This issue has also been explored extensively and covered in other Australian and International reports such as CSIRO's *Fuel for Thought*⁸, the Academy of Technological Sciences and Engineering Report *Green Growth – Energy, Industry Opportunities for Australia*⁹ and the World Economic Forum Report *Repowering Transport*¹⁰.

⁸ <http://www.csiro.au/Outcomes/Energy/Future-Fuels-Forum.aspx>

⁹ <http://www.atse.org.au/atse/activity/energy/content/activity/energy-content/green-growth-energy-report-2013.aspx>

¹⁰ http://www3.weforum.org/docs/WEF_RepoweringTransport_ProjectWhitePaper_2011.pdf



All of these find that there is very ample scope for alternative and emerging energy sources and technologies to play a significant role in:

- Enhancing Australia's transport fuel security;
- Supporting a reliable and affordable transport fuel sector;
- Reducing transport related greenhouse gas emissions whilst delivering multiple co-benefits.

NRMA's extensive analysis and industry engagement over recent years has provided a greater understanding of Australia's liquid fuel resiliency, sustainability and security. An important part of the mix when building resiliency is conducting realistic assessments of transport fuel alternatives.

In 2008, the Jamison Group published a report for the NRMA which stated:

Now is the time to embrace transport fuel alternatives, and conveniently, many of the technologies for reducing our dependence on oil-based transport fuels are already available. Industries in biofuel technologies, natural gas processing and conversion and smart vehicle manufacture already exist in other parts of the world.

*Australia can learn from these examples and we can develop industries of our own, which are particularly relevant to the local situation. This could be done with relatively small seed funding and with intelligent incentive frameworks.'*¹¹

Energy technology advances since 2008, oil supply chain vulnerabilities, decreasing domestic oil refining capability and increasing community expectations about environmental issues, have combined to create an environment where development of alternative fuels must be on the Government's agenda.

Step 2 of the Jamison Group 12-step Roadmap for Alternative Fuels recommended that the Government needs to take action to reduce dependency on oil-based fuels while promoting the use of alternatives. Specifically:

*A key part of expanding the uptake of alternatives is for comprehensive research to consider in an integrated and robust way the social, economic, engineering and environmental aspects of each option.*¹²

Research and development across the alternative fuels sector in Australia at this point in time does not appear to be coordinated or cooperative with research of varying maturity and viability being conducted by universities, energy companies, CSIRO and with Government funding through the Australian Renewable Energy Agency (ARENA). However, with synchronisation of ideas, funding, experimentation, and trials, the outcomes and benefits of the research could be realised sooner rather than later, and with greater efficiencies.

It is worth noting the observations in the June 2014 Department of Industry's Second Edition of the *Australian Energy Resource Assessment* (jointly undertaken by Geoscience Australia (GA) and the Bureau of Resources and Energy Economics (BREE)). In particular, the point is made that active research into second-generation transport biofuels is essential for Australia to achieve a

¹¹ A Roadmap for Alternative Fuels in Australia, Ending our Dependence on Oil, Jamison Group for NRMA, http://www.mynrma.com.au/media/Jamison_Group_Alternative_Fuels_report_July_2008.pdf, Executive Summary

¹² A Roadmap for Alternative Fuels in Australia, Ending our Dependence on Oil, Jamison Group for NRMA, http://www.mynrma.com.au/media/Jamison_Group_Alternative_Fuels_report_July_2008.pdf, page 4

commercially viable biofuels sector. Second generation research is currently being undertaken in Australia by a range of academic institutions, commercial entities, CSIRO and through ARENA.¹³

In order to understand the scope and maturity of the Australian research into alternative fuels, an audit of sorts would need to be undertaken. Given the importance of this research to the national good, coordination of such an audit should be a role for the Federal Government, for example through ARENA, and potentially in partnership with key industry players.

Once the research was baselined, a whole-of-government strategic framework should be developed to shape, monitor and validate our progress towards the use of alternative fuels.

NRMA recommends that the Energy White Paper also has regard to the recently published *REmap2030: A Renewable Energy Roadmap* by the International Renewable Energy Agency (IRENA) (June 2014). The Roadmap has been the work of 82 national experts from 42 countries (including Australia with 5 participants) who collaborated through a year-long program of webinars, regional meetings and national workshops¹⁴.

This Roadmap has a consistent theme about the centrality of Government commitment and support to achieving energy sustainability and security.

IRENA, and indeed the NRMA, believe that some elements of national capability and security must be the responsibility of the Government. In IRENA's assessment:

*Governments can support value creation through a variety of measures, including programmes to strengthen technology transfer through cluster development, implementation of local content requirements, and product development through **public and private cooperation in the field of research and innovation.***¹⁵

It must be emphasised that markets alone cannot, and should not, be solely responsible for delivering energy security and national resilience for Australia. Government has a key role to play.


The Green Paper recognises that "Increased domestic production of cost-competitive alternative transport fuels could strengthen Australia's liquid fuel security by diversifying supply" but fails to articulate a strategic context or policy preference for adopting either a *laissez-faire* or industry-building approach to alternative fuels and technologies.

NRMA's observation is that the largely *laissez-faire* approach adopted to date has resulted in negligible progress in reducing Australia's dependence on oil-based transport fuels and a worsening of Australia's dependence on *imported* oil and fuel.

¹³ Australian Energy Resource Assessment, 2nd Edition, Department of Industry, June 2014, pp. 326-329

¹⁴ *Remap2030, A Renewable Energy Roadmap*, Summary of Findings, IRENA, June 2014, http://irena.org/remap/REmap_Summary.pdf, p.5

¹⁵ *Remap2030, A Renewable Energy Roadmap*, Summary of Findings, IRENA, June 2014, http://irena.org/remap/REmap_Summary.pdf, p.40



Modelling suggests that biofuels (10%), natural gas (10%) and electric vehicles (12%) could achieve a 32% reduction¹⁶. We understand that it is not desirable to pick a winner in terms of alternative fuels and we support a portfolio of alternative fuels and technologies. A clear policy framework is required to provide the appropriate environment for research and industry to deliver the required outcomes.

RECOMMENDATION 7

NRMA recommends that the Government initiate a coordinated research & development effort with the objective of securing 30% of Australia's transport energy from alternate sources by 2030.

¹⁶ Jamison Group 2010, *Fuelling future passenger use in Australia*.