

Towards a clean energy economy: achieving a
biofuel mandate for Queensland

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Background

The Institute of Automotive Mechanical Engineers (IAME) have been the peak body for automotive practitioners in Australia for over eighty (80) years. We have established representatives and offices in every state and territory throughout Australia and have over twenty thousand members. We also have members and affiliations in New Zealand and many other countries throughout our region.

The IAME is a not-for-profit organisation with no political affiliations throughout Federal, State and local governments. Currently, members of our National Council, our CEO and members of the IAME Senior Management team, are currently sitting, or have previously sat, as Board members or Committee Management members or Steering Committee members of numerous Automotive advisory bodies, that seek to develop and improve the Australian automotive industry and its associated and allied industries.

3. Bio Fuel Mandate

3. Is two percent ethanol mandate appropriate?

Whilst the IAME does not advocate to a specific number in relation to the mandate, we are however mindful of the benefit of E10 fuel for both environmental/ health reasons and assisting in optimised efficiency of the engine. This is best described in the terms of electronic adaptability through short and long term fuel settings on a consistent grade of fuel, not forgetting the physical running of the motor, piston and ring harmonics due to again a consistent grade of fuel. In essence a motor vehicle tends to run best on similar blends and grades and therefore should be readily available throughout the state of Queensland. Currently the sales of ethanol blended fuels is approximately at 1.2% - 1.5%, one would have to consider that 2% could be obtain through large sales in the southeast corner and up the east coast, leaving the rural sector devoid of the opportunity thus the mandate needs to be increased to ensure adequate converge.

In supporting of original paragraph a 2% mandate would also be inadequate, if the Queensland Government was to support the creation of Premium Ethanol fuel blend (PE-10). PE10 is a sought after fuel as its higher octane is underpinned by the use of ethanol in the blend. The removal of 10% of the RULP and blending the fuel with ethanol, results in removing a portion of its total sulphur content and creating a fuel of 95 Octane and far lower sulphur content improving overall vehicle emissions.

Further to our opening claim 2% is inadequate and consider this additional example, vehicle manufacturers are currently striving for ultimate fuel efficiency to meet the ever demanding changes to emission standards that are either currently in place in many countries around the world or soon to be implemented. The new, more globalised fleet of motor vehicles soon to be scheduled for import into Australia, will most likely have the requirement of the use of a low sulphur, premium octane fuel.

The comparatively small number of vehicles (on a world scale) that Australia will be importing each year, it is highly unlikely that vehicle manufacturers will make a specific, detuned and possibly more polluting version of the current standard of vehicle sold worldwide. In Australia, we simply do not purchase enough cars to warrant special adjustments to attune the vehicle to current Australian fuel specifications. The importing of these new improved vehicles is mooted to commence in the last quarter of 2016.

Fuel quality is one of the strongest tools utilised by vehicle engineers to reach the ever-demanding targets of engine performance and emissions released levels verses fuel efficiency. For some manufacturers, they have no tools left in their arsenal other than demanding higher fuel specifications and increasing processes speed and sensor location that makes up the car's electronic unit. With a blend of fuel such as PE-10, we can achieve marks such as an MON of 86.1 a RON of 98.2 and a sulphur content of 13 milligrams/kilo (equalling parts per million).

Following the commencement of a strong consumer training and education program, combined with new cars that will warrant a higher octane, cleaner fuel, like E-10 and with Queensland currently consuming approximately 1.2% of 'non-mandated' ethanol blend fuel supply, we feel the starting point of a mandate of 2% will just be too ineffective.



3. Bio Fuel Mandate

9. Is there alternative method of defining the retailer? For example, should all sites that sell 3 or more petrol blends be included under the definition? Or should all sites that trade over a certain volume of fuel be included?

As with our answer of Question 3, the IAME wishes to see adequate availability of E10 as a choice to the end user throughout QLD, liable parties should therefore be based of volumes of sales of petrol at their individual sites and would probably range around 60,000 litres per month to act as a mandated ethanol blended fuel offering to the consumer.



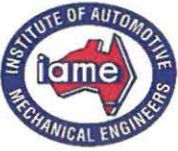
3. Bio Fuel Mandate

15. Are these penalties appropriate?

The IAME does not have a position on the penalties or its structure and administration, other than the following;

That any penalties that are applied and funds that are collected as a result of penalties paid, be placed in a trust account.

The funds from this trust account should be used exclusively for the conducting of information, education & training and advisory programs that would lead to a greater awareness of, or growth within the Queensland biofuel industry.



3. Bio Fuel Mandate

18. Should Queensland have an expert panel or implementation board? If so, which sectors should be represented?

The IAME has witnessed in other states i.e. NSW, where exemptions were discussed in minor detail by the Motor Vehicle Advisory Council, however this was not reflected in the outcomes in the expert panel, additionally the Motor Vehicle Advisory Council had a wide and diverse group of stakeholders and the expert panel did not replicate this same mix. The IAME endorses diversified interest groups making up stakeholder engagement with the QLD government to ensure fair and equitable implementation and exclusion, this would obviously include any changes but more so if suspension of minimum biofuels requirements was to be imposed.

4. Implementation – managing the risks

24. What are the issues that need to be addressed if consumer choice is maintained?

The IAME strongly believes that consumer choice needs to be maintain, there is no doubt that the average age of the QLD light vehicle fleet is reducing. The January 2014 Australian Bureau Statistics indicate the average age of QLD fleet is 9.6 years of age. Therefore the average QLD car would have been built in approximately 2005 and the average Holden, Ford and Toyota is compliant with E10 blended fuels in that year.

Unfortunately, the IAME believes that the urban myth that ethanol is bad for motor vehicles has directly impacted or swayed the consumer into not utilising their E10 choice on these cars built from 2005 onwards. It was proved many years ago that 4 cents a litre can influence the buying pattern of a consumer and thus our fuel discount vouchers were born. The IAME feels that with a strong education campaign about utilising E10 in a vehicle that has been engineered to run on E10 and if an additional 4 cents a litre discount was on offer, consumers would be demanding a wider choice by demanding E10 on each site.

One of the main limiting factors of E10 is the octane rating of the fuel and that not all cars can run on fuel in the bracket of 91-93 octane. Therefore we do require a higher octane rating available for these vehicles.

As we said the average age is 9.6 years, so we do have vehicles that could date back to when carburettors were still in use. These cars would not have the engine sophistication to warrant high octane fuel nor would they have the ability to self-enriching which a fuel injected car could to adequately run on an E10 blended fuel. This is where a standard ULP could be utilised. These cars are not over prevalent, however we must correctly cater for their needs. The same can be said for a lot of motorcycles. Most motorcycles today, demand either high octane or if older they still utilised carburettors not fuel injection systems, which is probably best suited to straight run ULP. Consequently, providing consumer choice, training and education and at a competitive price, the consumer will not only be protected but possible have an advantage over what is offered today.

4. Implementation – managing the risks

26. Would a targeted education campaign on the actual benefits and disadvantages of biofuels / E10 contribute to informed customer choice?

The definitive answer is YES. And to support this, there are many things to consider to this intricate question, which requires a multi-faceted response.

Firstly, whilst the consumer is the end-game user, the people that influence their choice is varied. The most predominant person in a consumer's life when it comes to automotive issues regarding their motor vehicle, is the person who looks after the maintenance of their vehicle. This is usually the Automotive Technician, Motor Mechanic or Service Centre that takes responsibility for the on-going maintenance and reliability of the consumer's vehicle.

After much research, the IAME has concluded that there are still many automotive practitioners working within our industry today that have inaccurate information regarding the appropriate use of biofuels, in particular, ethanol blends that are freely available for use in over 85% of our current vehicle fleet. Much of this information has come from industrial misinformation, inaccurate anecdotal evidence and mal-adjusted experiential activities assigned to a vested interest.

The best and most efficient way to address this, is with a targeted accurate information, training and awareness campaign based around the positive facts of correct utilisation of biofuels. This should focus on not just the automotive facts regarding vehicles and their operational characteristics, in areas such as octane ratings, vapour pressure, fuel additives and the effects on engine performance when dealing with biofuels. It should also include information regarding ethanol's history within Australia, the economics and energy security surrounding biofuels. Together with a significant section on ethanol science and technology, as well as highlighting the environmental effects and societal impacts surrounding biofuels within the Australian community.

Creating a program as outlined above, and distributing it to targeted cohort groups would ensure that Automotive practitioners would be equipped with the appropriate knowledge and skills, which would allow accurate information to be passed on to consumers regarding the use of biofuels in their vehicle. This in turn, would allow consumers to then make informed judgements and decisions about the fuel types that will be beneficial to be used in the operation of their vehicle(s).

2017 will see the dismissing of vehicle manufacturing in Australia and with such prevalent use of globally harmonised parts, we will see more vehicles arriving in this country that have been destined for other ports and those ports generally utilise E10 – E85 fuels far more than we have in Australia. A point for consideration, General Motors Chevrolet has just announced that their 6.2 L V8 engine will be utilised in their 2017 model Holden. This engine is engineered around the consumption of ethanol based fuels and the most accepted market will be the United States of America. In California alone, they sell more cars in that one state than we sell in the whole of Australia. The new Chevrolet will most certainly be tuned to meet the Californian (Air Quality Act) state pollution laws by utilising E15 fuel. We must start to dispel the urban myth that ethanol blended fuels are bad for our current and future vehicles, that have been purposely engineered and tuned to deliver maximum performance and the utmost fuel efficiency whilst still meeting some of the world's most stringent emission controls, with ethanol enriched fuels.



It appears that each fuel manufacturer has their own specific way of marking their pumps, either coloured coded or numbered, to steer the consumer to the pump of their choice. However, not all pump labelling is accurate as some brands merely indicate that the fuel is an E10 blend yet does not state an octane rating. Other brands indicate the fuel contains ethanol and has a 91 octane rating. Following independent testing of fuels, we believe that there is a gross inaccuracy misleading consumers, the octane rating is often found to be higher. Australia's raw fuel is currently purchased out of Singapore with a RON of 91. Now if you were to remove 10% of this and replace this volume with a full, fuel grade ethanol, this new volume of bio-mix would, under any independent test, achieve an octane well greater than 91 as is often portrayed. The true reading would be closer to an RON of 94. The current signage at the pump is often misleading for the consumer.

It is becoming more common knowledge with many consumers, that to achieve peak performance whilst gaining maximum fuel efficiency, initially the vehicle must be fuelled with an automotive fuel product that has an octane rating no less than what the original equipment manufacturer (OEM) has specified. The fuels on offer could not be accurately assessed by the consumer if all we do is ambiguously state on the pump that a fuel is E10. We need consumers to fully understand the product they are purchasing and whether it is fit for purpose in their individual motor vehicle. This same ambiguity of information applies to one fuel product known as '91', indicating that it contains up to 10% ethanol yet is testing at a RON of 94.

The IAME further feels that other influences that affect consumers opinion and purchasing habits includes service station attendants and some less than professional motor vehicle salespersons. These people are often perceived as people of knowledge or 'experts in their field' and can adversely persuade a consumer to purchase differently than what they would have, if they were to make up their own mind.

Firstly, we will consider the service station attendant. Members of my staff have been told on countless occasions, and I have experienced this myself, not to put an ethanol based fuel into our motor vehicles (which are designed for the use of blended fuels up to E85) because it is a "bad fuel" and "is not good for the car". There is a definite lack of knowledge surrounding biofuels that many service station attendants possess, specifically regarding the octane and cetane (of diesel) ratings of biofuels, the economic benefits for the consumers through their use and the environmental impacts of biofuels on our community health.

We believe this part of the staff training has simply been ignored by the proprietors of the service stations and has not been rigorously supported by the oil companies. They obviously do not see this as important and is not a priority for them to pursue therefore, training of biofuels is not encouraged.

There is a need for service station personnel to be better informed to pass on the message regarding biofuels. However, this cannot be left to be undertaken by proprietors or oil companies. As some may see them as having a vested interest, not to promote the use of biofuels. Any information, training or advisory program that is to be conducted on this cohort group and the organisation undertaking any associated tasks, should be independent, and not be associated with, or aligned with oil companies or it's proprietor structure.

Another myth that we need to dispel is the distraction that some advocates of pure gasoline put forward, is referring to the RON (Research Octane Number) and MON (Motor Octane Number) - which can be shown about 8 – 10 octane lower than the RON. There is no direct link between RON and MON. Pump fuels are typically described in both fashions and the two tests that are used to determine RON and MON are both viable, accurate and openly accepted by engine designers at OEM level. The tests are different and one should not be relied on more heavily than the other. If you were to look at both tests, the most common type of test relating to octane, world-wide, is the one that determines the RON of a fuel. If we continue to identify fuels at the pump by the simplicity of a number, then the number should relate to the RON of the fuel. The consumer could be educated to look at the specifications of a vehicle and buy the corresponding correct fuel grade. The ambiguity of fuel octane labelling should not be continued.



Let us now look at another cohort group who has influence over consumer influence with regard to biofuels. Once again, I have been told numerous times and again, have encountered this myself, the lack of knowledge around biofuels that car vehicle sales persons possess. This largely revolves around the lack of knowledge to do with biofuels for the vehicles they are trying to sell. The car vehicle salesperson is usually focussed around their targets for commission. If there appears to be no additional financial incentive for them, then it is usually something that they do not promote.

In fact in my own experience, when a respected female colleague of mine asked a car salesman if the vehicle she was intending to buy could run on E10. His reply was "Why would you want to put that product in your car". This type of prejudice and misinformation is not uncommon, and needs to be addressed.

Whilst the car manufacturers would not welcome this response from its sales and marketing personnel, I believe they would be only too happy to participate in an awareness campaign from an external organisation. It would be even more attractive and beneficial to them if it was cost neutral and leveraged into an environmentally positive selling point.

In providing evidence to best answer question number 3, we indicated that there will be a need to effectively target many people in the automotive industry as well as consumers and that the IAME can give our definitive answer of "Yes" to the targeted education campaign. Further examples to follow.

4. Implementation – managing the risks

27. What are the key messages that must be included in any education campaign for biofuels? Who is the primary audience and what is the most appropriate mechanism to target them?

The IAME believe that the best and most efficient way to address this, is with a targeted, training and awareness campaign based around the accurate facts of biofuels. Unfortunately, much of the information that surrounds biofuels today is negative or derogatory, they support the urban myth that ethanol is unsustainable and unsuitable for all vehicles and has zero benefit. How this has occurred cannot precisely be determined. However, there has been a high degree of industrial misinformation, a large amount of inaccurate anecdotal evidence and a plethora of mal-adjusted experiential activities assigned to vested interests that has allowed this to occur.

Campaigning the true facts would be able to demystify biofuels and its associated processes together with debunking many of the inaccuracies and erroneous information surrounding biofuels. This would, in turn, boost biofuels to become an important “positive” sell component, relating to the environmental and sustainability aspects of today’s modern vehicles.

Any information, training or advisory program relating to biofuels should have the following objectives;

1. To identify the processes that have been, and are currently used to create biofuels, including the variety of biomasses sources used for current and future biofuel production.
2. Identify the relationships between energy, science, society, agriculture and financial imperatives, particularly targeted at end-user savings and benefits.
3. Determine the benefits and concerns of using biofuels in all automotive vehicles, including environmental and sustainability aspects, and community health issues regarding biofuels.

The IAME believes that the primary audience to focus on are “industry purveyors of knowledge” these are the subject-matter-experts that are supposed to be informed and can pass on valued judgements to the consumers.

Almost everyone has their motor vehicle fixed or repaired my an automotive service centre, Automotive Technician or Motor Mechanic at some stage. If this cohort is educated and trained with “**the facts**” and dispel “**the fiction**”, this will lead to a more balanced view of biofuels. If implemented successfully, there is a significant potential that Automotive Technicians and Motor Mechanics may become the new “Champions for Biofuels” within the automotive industry.

The most appropriate mechanism to target this cohort would be to engage the peak bodies for automotive practitioners and their subsequent networks. Whilst Auto Skills Queensland (ASQ) is no longer trading, I believe, some of the stakeholders of the group may still be willing to be engaged.

An awareness campaign for service station attendance and vehicle salespersons should also be implemented. This can be done in a number of ways.

Firstly, vehicle salesperson should be engaged in a training and awareness campaign relating to biofuels that each Original Equipment Manufacturer (OEM) can link to the professional development plan of each vehicle salesperson. This could initially be self-accrediting and be seen as a corporate responsibility to sign on to a voluntary code of conduct charter. Most OEMs would embrace this, as they would want to be seen as good corporate citizens relating to the environment and its sustainability.



If further incentive needed to be provided, the encouragement to complete an approved training and awareness program relating to biofuels could be linked to state licensing arrangements for this cohort.

Secondly, service station attendants should be availed of the opportunity to become members of a professional body that is specifically targeted at the practitioner. That is, the person that is being asked the questions at the delivery site or service console (not just the site owner or proprietor). This would include a training and awareness program relating to biofuels and specifically contextualised to engage service station attendants and allied personnel.

This would then turn the “coal-face” operators into informed and knowledgeable presenters of biofuel information.



Conclusion

The IAME's position is that biofuels are now a fundamental part of the automotive industry and its vehicle selection process. Biofuels, particularly ethanol has become a vital component in Australia's future fuel obtainability and sustainability and is an integral part of Queensland's fuel future.

We trust that our comments are taken in a positive manner and we would like to take this opportunity to offer the input of the IAME for any further consultation that may be deemed to be necessary in relation to achieving a biofuel mandate for Queensland.