



**CALTEX**  
Caltex Australia

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1 August 2014

The Research Director  
State Development, Infrastructure and Industry Committee  
Parliament House  
George Street  
BRISBANE QLD 4000

Dear Sir/Madam

Caltex welcomes the opportunity to make a submission to the Queensland State Development, Infrastructure and Industry Committee ('the Committee') inquiry on the Liquid Fuel Supply (Ethanol) Amendment Bill 2014 ('the Bill').

Caltex has engaged extensively on biofuels policies with government at both the state and federal levels. Caltex was heavily engaged in consultation with the Queensland Labor government for several years following its 2006 proposal for an ethanol mandate, and with the Federal government on its Biofuels Action Plan in 2005-07. There has also been a long history of engagement in New South Wales where Caltex has been complying with the biofuels mandate since its introduction in 2007; this includes consultation over various policy reviews and regulatory amendments.

The mandate set out by the Bill is largely analogous to the ethanol mandate in NSW where throughout the history of its existence, overall industry compliance has never exceeded 4 per cent compared to the regulated target of an average 6 per cent ethanol in petrol. Caltex believes that in its current form, the Bill would repeat a number of the NSW policy failures and fail to achieve its desired objectives. There are policy approaches that would avoid these failures, and these are outlined in a recent submission to the NSW government's Ethanol Mandate Consultation Paper, which is enclosed.

Biofuels are potentially an important part of the energy mix in Queensland. Caltex is a major retailer of E10 and biodiesel blends in NSW and also sells these products in Queensland. We have invested heavily in storage and blending infrastructure and service station conversions and we tender for supply from all ethanol and biodiesel producers, including those in Queensland.

Policy issues relating to biofuels are complex, as evidenced by our detailed regulatory submission to the NSW Government. We support the Australian Institute of Petroleum (AIP) position on mandates, which deals with biofuels policy issues at a broader level. A copy of this position is also attached for the Committee's reference.

If you would like to discuss this submission in further detail, please contact Nicole Buskiewicz,  
Senior Government Affairs Adviser, [REDACTED]

Yours sincerely

A handwritten signature in black ink, appearing to read 'Frank Topham', with a long horizontal flourish extending to the right.

Frank Topham  
Head of Government Affairs

**Enclosure**



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Dear Sir/Madam

Please find attached Caltex's submission to the Office of Biofuels on the Ethanol Mandate Consultation Paper.

If you have any questions or would like to discuss this submission, please contact

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Yours sincerely

Frank Topham  
Head of Government Affairs



## **Caltex submission on the Ethanol Mandate Consultation Paper**

**17 February 2014**

Contact:

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[Redacted contact information for Michael Ridley-Smith]

Frank Topham

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## **Executive Summary**

The NSW Government has released the Ethanol Mandate Consultation Paper (the 'Paper') outlining two broad options to promote an increase in industry compliance with the legislated 6% ethanol mandate: broadening the mandate and introducing premium ethanol-blended petrol.

Caltex supports the Government's efforts to increase compliance with the mandate and welcomes the opportunity to provide feedback on the Consultation Paper (the 'Paper').

### **Option 1**

- The NSW ethanol mandate target has been set by the government at 6% of total fuel sales. However the current level of compliance is 3.49% and steadily declining. The government has indicated it is committed to increasing compliance with the mandate.
- Option 1 of the Consultation Paper attempts to address the issue of operational control through the reduction of the major retailer threshold or the transfer of mandate liability to individual retailers. Although a threshold reduction (Option 1A) does not resolve this issue, transferring liability under the mandate to individual service stations (Options 1B and 1C) is a necessary part of any policy change.
- When practically applied, Options 1A, 1B and 1C would all fail to achieve any material ethanol percentage compliance gains. This is in part attributed to the small sales volumes at those sites currently not captured under the mandate: although the approximately 750 outstanding sites comprise 30% of total NSW site numbers, they sell only an estimated 15% of the state's volume.
- However, the a major reason why Option 1 fails to generate material ethanol volume gains is due to the prevalence of sites offering both regular unleaded petrol (ULP) and E10, or just ULP. Sites selling only E10 as regular grade petrol make up an estimated 80% of NSW ethanol volume.
- A case study of 15 Caltex sites in south-west Sydney where only E10 was sold found an average E10 market penetration of 50% of total petrol sales (with the remainder being PULP grades). However, when ULP was reintroduced, E10 market penetration dropped quickly to an average of about 20% (with the remainder being premium unleaded petrol (PULP) and ULP).
- On this basis and historical (pre-mandate) data for NSW and Queensland, we project that the ultimate petrol market share of ethanol in NSW, assuming choice of E10 and ULP at all sites, is about 2%.
- Displacement of ULP is the most effective method of increasing compliance towards the government's mandated target due to entrenched consumer distrust of E10. It is expected that compliance could reach 5% with full displacement.
- When implemented in coordination with a stronger and more strategic compliance regime, a modified version of Option 1C has the strongest potential to increase ethanol penetration of the fuel market.
- Caltex suggests a compliance regime where compliance with the ethanol target escalates progressively in line with increased vehicle E10 compatibility and the capability of retailers to convert to E10. This would be complemented by an enhanced exemption framework. The compliance regime would aim to level the competitive playing field and move retailers towards displacement of ULP by E10.
- It is projected that by 2020 over 93% of the vehicle fleet will be compatible with E10. If ULP was phased out, some motorists would have to purchase PULP but this will not

place significant financial burden on remaining consumers: as the remainder of incompatible vehicles that will be required to purchase PULP will be older and travel shorter distances, Caltex estimates the additional cost of PULP for these vehicle owners to be marginal at about \$50, or approximately 1% of total annual running costs. This is analogous to the historical phase-out of other types of petrol.

- Given previous campaigns in NSW and Queensland that did not lead to substantial ethanol gains, a government-coordinated information campaign would have limited success in convincing consumers of the benefits of ethanol. Even if implemented, the impact on ethanol volumes of such a campaign is estimated to be only 0.2% (10ML).

## **Option 2**

- Consumer demand for premium ethanol blends is highly sensitive to price. A consumer survey undertaken in February 2014 found it was the main reason cited by respondents for their willingness to purchase or not purchase E10PULP. This suggests if the product could be offered at a competitive price, no mandate would be needed to encourage its uptake.
- There would not be a substantial price advantage for E10PULP as the cost of blendstock would be not much less than PULP. We estimate E10PULP could be priced at approximately 2 cents less than PULP. In addition, as there is currently no terminal infrastructure to store blendstock, ethanol would have to be blended with regular premium unleaded petrol (PULP), making its price even less attractive.
- Option 2A would effectively ban regular grade E10. This would have a devastating impact on ethanol levels as previously displaced sites would reintroduce ULP as their base grade petrol in the absence of E10. Overall compliance would drop to about 2% as a result.
- It is unclear whether Option 2B places liability on the wholesaler or primary wholesaler controlled sites. If the former, it is unlikely that there will be any demand by retailers who will be reluctant to replace an existing grade with a less popular and less competitively priced premium ethanol blend. If the latter, the mandate will unfairly target wholesaler controlled sites to the exclusion of other industry players.

## **1. Option 1: Broadening the Mandate**

### **1.1 Introduction**

Since the implementation of the mandate, the compliance percentage has varied greatly between the various volume fuel sellers. Results from the Office of Biofuels for the fourth quarter of 2013 vary from 1.62% to 4.90% ethanol (as a percentage of total petrol sold), with an average of 3.49%. The compliance percentage peaked at about 4.0% in third quarter of 2012.

For sites not supplied by volume fuel sellers and therefore without any mandate liability, there are some sales of ethanol blends but there is no information on volumes or market penetration.

For sites supplied by volume fuel sellers, compliance percentages (i.e. ethanol percentage of the petrol market) have varied greatly between sites depending on volume seller control of the types of fuel offered.

It is clear that Option 1 addresses the issue of operational control of sites. Caltex is encouraged by the recognition of this critical policy issue. Unfortunately, detailed quantitative analysis by Caltex shows that Options 1A to 1C by themselves will not lead to any material gains in ethanol volumes.

However, when Options 1B or 1C are combined with a strengthened and strategic approach to compliance, this could lead to substantial increases in ethanol penetration of the petrol market over time.

Without such an effective approach, we believe the overall compliance percentage will continue to decline, resulting in the effective collapse of the ethanol mandate. Urgent policy action is required.

### **1.2 Option 1A**

***1A. Major Retailers are defined in the Act as those controlling more than 20 service stations. The qualifying number of sites controlled could be reduced, for example to five.***

#### **1.2.1 Control**

Option 1A proposes to capture more sites under the mandate by reducing the site threshold that currently defines major retailers (which are a class of volume fuel sellers, along with primary wholesalers).

Option 1A fails to capture franchisees and independents with less than five sites, which limits its volume coverage. Our perception is that a large number of sites will fall below a five site threshold. Another concern is the large retailers with significant overall fuel throughput, for example Costco, which will not be included under the mandate. Unless the threshold is reduced to one and liability is placed on individual sites, there will be high volume retailers with the ability to increase the overall ethanol compliance rate, and a large number of sites with relatively low individual volumes (but significant aggregate volume) that will continue to be excluded from the mandate.

A more fundamental problem is that Option 1A does not in any way resolve the control issue: franchisees and independent retailers supplied by volume fuel sellers will still have no legal liability to purchase and retail E10. In addition, there is no control over which grades of petrol are sold at a site.

In Caltex's case, many franchisees will most likely request that Caltex re-introduce regular unleaded petrol (ULP) into sites that currently sell only E10 as the regular grade of petrol, which has a seriously negative impact on Caltex's compliance percentage. Caltex can't legally refuse to supply ULP. From a commercial point of view, Caltex needs to respond to competitors selling ULP eroding the regular grade market share of E10-only sites, and this need applies to both company operated and franchised sites.

### 1.2.2 Volume/compliance impact

For the purposes of this submission, Caltex has developed an Excel model of the NSW petrol market (using data as at mid-2013) to analyse the impact of the various options. Without such a model, options that may appear effective from qualitative assessment are revealed to be ineffective when assessed quantitatively.

Caltex has estimated the *maximum* volume gains achievable under Option 1A, which is what would be achieved if all 752 service stations not supplied by volume fuel sellers offered E10 (see Table 1 for a summary of service stations in NSW based on data in the Paper).

E10 site statistics - ethanol consultation paper (pp6-7)

		<u>E10 only</u> <u>("Displacement")</u>	<u>E10 and ULP</u> <u>("Choice")</u>	<u>No</u> <u>E10</u>
Total of NSW service stations	2200			
Sites <u>supplied</u> by 7 largest volume fuel sellers	1448	617	296	535
Sites "controlled" by volume fuel sellers	910	537	264	109
Non-controlled sites (by difference)	538	80	32	426
Other sites in NSW	752	N/A	N/A	N/A
Of the 1448 "supplied" sites above				
3+ grade sites with no E10				178
2 grade sites (See Note 1) no E10				273
1 grade sites (See note 2) no E10				84

Note1: Consultation paper states 451 sites with 2+ grades, so 2 grade sites equals 451-178=273 sites

Note 2: By difference from total: 535-178-273=84 sites

**Table 1: NSW site statistics**

Given the lack of data around how many of those sites would be captured under the five-site threshold, Caltex reduced the threshold from five sites to one to estimate the maximum E10 market penetration. This makes the analysis more conservative.

The estimated additional annual ethanol volume under option 1A is 6 megalitres (ML) per year, or an additional 0.1% to the 3.60% overall NSW compliance level for volume fuel sellers in the April- June 2013 quarter. This is because although the 752 sites comprise 30% of total NSW sites, we estimate their relatively small petrol sales per site mean they sell only 15% of the state's volume.

A sensitivity analysis using various alternative assumptions produces a range of estimates from 2 to 19ML. Our base case of 6 ML seems reasonable for policy purposes. A detailed discussion of the Option 1A estimate and sensitivities is included as Appendix B.

### 1.3 Option 1B

***1B. Require all service stations to offer an ethanol blended product. This could be phased in over a reasonable timeframe, and an exemption framework would need to be developed with suitable criteria.***

#### 1.3.1 Control

Option 1B overcomes the problem of lack of control by primary wholesalers over the grades of petrol sold at retail sites. It effectively extends the mandate to those service stations currently supplied by volume fuel sellers, but not selling E10, as well as those not covered at all by the mandate.



As will be discussed later in this submission, extension of the mandate to all retailers is only part of a broader policy solution: it is necessary but will not be sufficient to reverse the decline in the compliance percentage and allow the percentage to increase.

Although 1B does not explicitly propose it, volume fuel seller liability can be removed once the requirement that all service stations offer an E10 blend is implemented.

However, legislation needs to define which legal entity has the compliance liability; a “service station” is not a legal person so can’t have a liability. The most logical person to have the liability is the one who has the ultimate legal right to decide what fuels are sold at the site. This will depend on the commercial arrangements applying to a service station. Who bears the costs of compliance (e.g. site conversion to E10) is a commercial matter that is not relevant to the legislation, although will be of keen interest to some stakeholders.

### 1.3.2 Volume/compliance impact

To comply with Option 1B, service stations would offer E10 as their only regular grade of petrol, or as a choice between E10 and ULP. In this scenario, there would be an increase in E10 sales as there are no doubt sites that are physically capable of offering E10 but choose not to do so because they are not liable under the ethanol mandate.

Caltex estimates that the impact of Option 1B would be an annual ethanol volume increase of 22 ML or 0.36%, assuming all sites offered E10. However, there would be many sites that could claim an exemption under the current or future compliance framework, reducing its effectiveness.

### 1.3.3 Exemption criteria

Exemptions from the mandate could be granted for specified periods of time for:

- uneconomic supply: e.g. high ethanol prices that make E10 uncompetitive
- interstate supply: certain service stations located near NSW borders are supplied from interstate to avoid additional costs and higher petrol prices in those regions
- service stations supplied from depots, most or all of which would not have E10 available and would find it uneconomic to provide E10 supply infrastructure
- financial hardship: certain smaller sites cannot afford to convert to E10
- volume thresholds: similar to Option 1C, a standard exemption could exist for service stations under a regulated volume threshold
- unsuitable tankage: where tanks are not able to safely store ethanol (although exemption should be time limited to encourage timely upgrades)
- limited grades due to insufficient tanks and lines to sell another grade
- competitive impact: consideration of any competitive disadvantage resulting from the issuing of an exemption from the mandate to a competitor. For example, a site that has displaced ULP in favour of E10 (i.e. sells only E10 as the regular grade of petrol) will be forced to compete with a neighbouring site continuing to offer ULP under an exemption. This not only creates an unfair competitive advantage for the site offering ULP, but in such cases would likely compel the displaced site to re-introduce ULP to the detriment of ethanol volumes.

These exemption criteria should not confer an absolute right to an exemption (full or partial) but should be taken into account by the minister when providing an exemption.

Small retailers currently not liable under the mandate but not wishing to sell E10 will be required to apply for an exemption, increasing their red tape burden. However, this burden could be minimised for smaller retailers by providing a standard volume-based exemption criterion. This would simply require an annual volume declaration, not the full exemption paperwork.

### 1.3.4 Reasonable timeframe

There are two main factors influencing the reasonable timeframe over which the compliance percentage can increase:

- a variety of factors affecting individual sites, as addressed by the above exemption criteria, in particular financial capability to convert sites to selling E10
- the remaining vehicles in the fleet that are not recommended to use PULP but should on manufacturers' advice not use ULP containing ethanol.

In Caltex's view, the compliance percentage could approach its maximum value (somewhere between 4.5 and 6%) by about 2020, noting that this would require the effective phase-out of ULP in NSW over the intervening period. However, this date needs to be subject to discussion based on various stakeholder inputs.

A reasonable timeframe should balance any exemption applications from retailers based on the above criteria with the need to progressively increase overall compliance. For example, many unconverted sites do not have the tank infrastructure to offer both ULP and E10 and what constitutes a reasonable timeframe under this option will to an extent depend on the circumstances of each site.

The rate at which compliance in NSW can increase should also take into account the declining number of vehicles remaining in the fleet that are incompatible with E10, so that at some point ULP need no longer be available for sale.

This is analogous with removal of lead replacement petrol (LRP) from sale (albeit on a commercial, not regulated, basis). Lead was removed from petrol in 2000-2002. Some pre-1986 vehicles requiring high octane petrol also required an anti-valve seat recession additive (AVSR - other than lead) to protect their engines that could not use PULP. Fuel suppliers therefore offered LRP at service stations. With the declining number of vehicles requiring LRP, various suppliers phased out LRP from sale in 2004-2005. Motorists still requiring AVSR were forced to purchase this as a separate product and add it manually to petrol when refuelling. This situation is analogous to the declining technical requirement for ULP without ethanol, and the potential need at some point for motorists to purchase PULP if their vehicles are unsuitable for ethanol and ULP is not available.

## 1.4 Option 1C

***1C. Require all service stations that sell more than a specified minimum annual volume of petrol to offer E10. This requirement could be phased in over a period by progressively reducing the volume threshold.***

### 1.4.1 Control

Option 1C effectively overcomes the issue of control, transferring liability from the volume fuel seller to service stations selling more than a certain volume of petrol. Smaller stations are unlikely to be captured, especially during initial implementation, but the potential of these sites to make a substantial contribution to the 6% mandate would be limited by their size.

Caltex believes the ethanol volumes achieved under this option will be less than under 1B, as there will continue to be a number of sites excluded from the mandate while the volume threshold progressively decreases.

However, a version of 1C is our preferred option, combined with an appropriate exemption regime that is designed and implemented to enhance compliance.

If Option 1C were pursued, the volume threshold should be implemented through the exemption mechanism rather than being an exclusion from liability. In other words, all retailers would be liable to comply with the mandate but an exemption would automatically be granted if site petrol throughput was less than a regulated annual threshold. This volume threshold could phase down over time.

#### 1.4.2 Volume threshold

Given the average metropolitan service station has an annual volume threshold of 3ML of regular grade petrol, the initial volume exemption could be set at that level. However, more information is required on the size and geographical distribution of sites by volume, and the implications of volume-based exemptions on competition and the ethanol compliance rate. The size and timetable for reductions of the volume threshold should be a matter for further discussion.

#### 1.4.3 Exemptions

Option 1C provides red tape relief to smaller retailers. However in order to further increase the coverage of the mandate, Caltex proposes that all retailers regardless of size should have a liability, but there should be a standard exemption application that can be submitted if a retailer has an annual volume below the threshold. This is preferable to having an automatic exemption for smaller sites as it signals that all retailers are liable under the mandate except as provided by exemptions which are at the discretion of the Minister. It also enables the collection of site location and volume data which is very useful for policy purposes.

Given its potential to overcome operational control issues and red-tape reduction, broadening the mandate to all service stations using a volumetric exemption criterion is supported by Caltex. This would be part of a broader set of exemption criteria.

#### 1.5 Option 1C plus strengthened and strategic compliance

##### **Option 1C plus strengthened/strategic compliance leading to displacement of ULP over time**

#### 1.5.1 Applying a stronger and more strategic compliance regime

Implementation of Option 1B or 1C (we do not support Option 1A) by themselves will not result in achievement of the 6% target. On the contrary, industry experience strongly indicates that ethanol market share would be quite low without an approach to compliance that requires all retailers to ramp up ethanol market share over time. A market that continues to offer choice of E10 and ULP will most likely struggle to achieve even 2% compliance.

Caltex contends that with some modifications to the current exemption framework it would be possible to move industry towards displacement of ULP from all sites – the most effective policy to increase compliance – without placing an undue burden on motorists.

The current compliance framework allows for the granting of whole or partial exemptions from the mandate. The *Biofuels Amendment Act 2012* commenced on 1 January 2013 with the intent of providing greater flexibility in granting exemptions and extending the term for exemptions.

For the September-December quarter of 2013, NSW achieved an overall ethanol compliance rate of 3.49%, down from 3.62% the previous quarter. Individual volume fuel seller compliance ranged from 1.6% to 4.9%, demonstrating the wide range of compliance across industry.

Caltex contends that a staged compliance regime initially targeted at retailers with lower compliance rates will progressively level the playing field, create a fair business environment for increasing ethanol sales and drive up overall compliance with the mandate.

Taking into consideration current compliance levels and projected timeframes for near-full E10 compatibility of the Australian car fleet, Caltex has developed an example of a possible regime which could drive up compliance strategically, without imposing an undue financial burden on motorists.

Table 2 below shows how such a staged compliance regime could work:

Year 1	2015	3%
Year 2	2016	3.3%
Year 3	2017	3.6%
Year 4	2018	3.9%
Year 5	2019	4.2%
Year 6	2020	4.5%

**Table 2: example of a staged compliance regime**

In 2015, under the model all retailers achieving less than 3% would be captured. Subject to the issuing of Ministerial exemptions, by 2020 this figure could increase to 4.5%. Given the overwhelming majority of vehicles in NSW will be E10 compatible, 2020 will present an opportune time to review the mandate and scope any possible future increases to compliance (keeping in mind that the lack of consumer demand will mean a practical maximum of less than 6%).

Exemptions would be available according to the standard criteria. However, exemptions would also be considered against the annual interim compliance targets. As 1C applies liability on retailers, exemptions on the basis of operational control would no longer be required. However, exemptions for interstate supply, depot supply, economic hardship due to investment requirements and uneconomic supply chains should continue as part of a strong compliance regime.

The key benefit to industry of a staged compliance rate is that it will ramp up overall compliance while allowing retailers to effectively plan ahead for all necessary actions to increase compliance rates whether through increased marketing, infrastructure upgrades, displacement of ULP by E10 or other means.

Exemptions based on competition would be less necessary under such a compliance regime. For example, two neighbouring competitors not offering E10 on the basis of losing market share to each other would both be able to replace ULP with E10 without requiring an exemption as they would now be subject to the same compliance requirements. Given competition compels retailers to offer choice, which in turn decreases ethanol compliance, limiting the need for these exemptions would positively affect compliance levels.

### 1.5.2 The problem with choice

The fundamental reason why Options 1A to 1C fail to deliver any significant ethanol volumes is because they continue to allow retailers to offer the consumer choice between ULP and E10. The difference in aggregate ethanol volumes at “displacement” sites (E10-only sites) and “choice” sites (sites offering both ULP and E10) across NSW, can be seen in Table 3 below. These figures are from Caltex’s market model.

	<u>Ethanol volume ML</u>	<u>% total volume</u>
<b>E10-only (“displacement”) sites</b>	160	80
<b>E10 and ULP (“choice”) sites</b>	<u>40</u>	<u>20</u>
<b>TOTAL</b>	200	100

**Table 3 – aggregate ethanol volumes (mid 2013)**

Choice sites make up only 20% of NSW ethanol volume, driven largely by the lack of consumer demand for E10 at these sites.

The table demonstrates that as long as choice continues to exist, the total market penetration of ethanol in NSW is unlikely to increase substantially: market penetration can't increase at the displacement sites that make up 80% of the market; and increased market penetration at choice sites can have only limited impact on the overall market.

The only solution is to convert "choice" sites to "displacement sites", which will on average increase E10 site volumes about 2½ times, and include more sites in the mandate through retailer liability.

#### 1.5.3 Market experience at Caltex sites

There is a large difference in ethanol market share between displacement sites and choice sites.

A case study of 15 sites in south-west Sydney found displacement sites had an average ethanol market penetration of 50% of total fuel sales. However, when ULP was subsequently reintroduced, penetration more than halved to an average of about 20% market share.

On this basis, and historical (pre-mandate) data for NSW and Queensland, we project that the ultimate petrol market share of ethanol in NSW, assuming choice of E10 and ULP at all sites, is about 2%.

As long as there is choice in the market, many consumers will continue to choose ULP over E10 and compliance with the mandate will continue to erode.

#### 1.5.4 Displacement

Unlike choice sites, displacement sites in NSW dominate the ethanol market, being four-fold greater than choice sites. This is clearly evidenced in Table 3, which effectively demonstrates that displacement is the only option to increase ethanol volumes towards the government's mandated target.

A compliance regime that creates increased displacement of ULP is therefore the one which will have the greatest success increasing ethanol volumes. Under a scenario where all NSW sites were ultimately converted to displacement sites, Caltex estimates there would be an increase of about 77ML in total ethanol volumes, equivalent to an increase in the ethanol compliance rate of 1.3%.

#### 1.5.5 Consumer demand and ethanol promotion

The preference of some consumers for ULP and concern about E10 largely drives these extreme fluctuations at choice and displacement sites.

A recent Caltex marketing survey (Appendix C) into consumer behaviour found almost 70% of respondents would not buy ethanol when given the choice. 40% cited either doubt about the effect on their car ("I don't know what it is and unsure of its effects"/"I don't think it's good for my car") or fuel efficiency ("it is not the most efficient petrol for my car").

Of those who would purchase E10, 60% gave price ("It's affordable") as the main reason. However, when Caltex has removed choice from service stations, a clear majority switches from ULP to E10 rather than PULP and there are few complaints to our Customer Service line.

In 2005, the Queensland Government launched the *Queensland Ethanol Industry Action Plan 2005-2007*, which had a strong advertising and marketing component to raise public awareness and confidence in ethanol, complementing strong political support for the fuel. Despite the Government's efforts, between October 2006 and April 2008, E10 accounted for a maximum of only 18% of total petrol sales at Caltex sites. During the same period the NSW percentage was a maximum of 14%, effectively demonstrating the very minor impacts of government promotional campaigns.

Caltex has estimated the impact of a scenario in which a government education campaign increases the ethanol penetration of regular grade petrol at "choice" sites by 10 percentage points. The impact of such a government coordinated campaign would be about 10ML or 0.2% to total ethanol volumes.

Given the historical examples and the anticipated low impact on ethanol volumes, Caltex does not believe financial support for such a campaign could be justified. We would however be able to contribute existing marketing or promotional materials to a government-funded campaign to promote the benefits of ethanol.

More effective than a government campaign would be a simple message to vehicle owners that their original equipment manufacturer (OEM) agrees that E10 is suitable for their car. This type of notification with registration would be more effective than a brand-based advertising campaign.

#### 1.5.6 Displacement following site conversions and increased vehicle compatibility

The number of vehicles unable to use E10 is a relatively low proportion of the fleet and decreasing quite quickly.

A 2011 report prepared for the Biofuels Association of Australia (BAA) concluded that by 2015, over 85% of the Australian fleet will be E10-compatible, increasing to more than 93% by 2020 (see Table 4 below). Note that incompatible vehicles include those that are recommended to use E10, so the actual number is less than shown in the table. An updated study is expected to be released shortly.

Year	E10 Compatible	Not E10 Compatible
2006	60.3%	39.7%
2007	63.5%	36.5%
2008	66.7%	33.3%
2009	69.8%	30.2%
2010	72.8%	27.2%
2011	75.7%	24.3%
2012	78.4%	21.6%
2013	80.9%	19.1%
2014	83.2%	16.8%
<b>2015</b>	<b>85.3%</b>	<b>14.7%</b>
2016	87.2%	12.8%
2017	89.0%	11.0%
2018	90.5%	9.5%
2019	91.9%	8.1%
2020	93.1%	6.9%

**Table 4: Estimated E10 compatibility of the overall Australian petrol fleet to 2020<sup>1</sup>**

Over time, the remainder of incompatible vehicles that will be required to purchase PULP will be older and travel shorter distances. Caltex estimates the additional cost of PULP for these vehicle owners to be marginal at about \$50, or approximately 1% of total annual running costs. This suggests that progressive displacement would not impose significant financial costs on owners of remaining incompatible vehicles.

While it is likely that there would be some consumers such as vintage vehicle owners, recreational fishers and petrol powered equipment users who would need to switch to PULP, they would not require large volumes of fuel and therefore the cost impacts would be small.

## **2. Option 2: Premium Ethanol Blends**

### 2.1 Outline of options and issues

The consultation paper sets out two options relating to premium ethanol blends:

- Option 2A: a new provision requiring E10 blended in NSW to conform to the PULP standard. Unblended ULP and PULP and higher octane ethanol blend petrol could still be sold, as could the current E10 blend where it is imported as blended product from interstate.

<sup>1</sup> 'The compatibility of the Australian fleet: a report prepared for the Biofuels Association of Australia', 2011.

- Option 2B: a new provision to require all primary wholesalers to offer at least one premium ethanol blend petrol. Current E10 blends, ULP and PULP could still be sold.

For each option, there are similar issues that need to be addressed:

- consumer preferences: whether E10PULP would be attractive to consumers and, in the case of Option 2A, the impact of banning E10ULP (regular grade E10) from sale
- pricing, which is related to the cost of blendstock and other market factors
- service station infrastructure: the ability of service stations to offer an additional product or, alternatively, the impact of removing existing products
- terminal infrastructure and other supply chain implications, and
- volume fuel seller versus retailer liability, which is relevant to Option 2B.

## 2.2 Consumer preferences

### 2.2.1 Introduction

The effectiveness of Options 2A and 2B appears to be predicated on the assumption that motorists will buy E10PULP because it is a premium grade of petrol at a lower price than unblended PULP.

- Under Option 2A, motorists are assumed to switch from both E10ULP (which is no longer available) and unblended PULP in sufficient volume that the overall ethanol volume percentage increases. As a significant number of motorists seek the cheapest fuel, many would switch from E10ULP to unblended ULP, so Option 2A must assume a substantial shift from unblended PULP to E10PULP in order to increase overall ethanol market share. This seems implausible unless E10PULP is priced not far above ULP.
- Under Option 2B, E10ULP and ULP continue to be available, so the pricing of E10PULP must be sufficiently attractive to encourage retailers to replace an unblended PULP grade with E10PULP. This also seems implausible unless E10PULP is priced close to ULP.

### 2.2.2 Consumer research on E10PULP

Caltex commissioned consumer research on the potential attractiveness of E10PULP in February 2014. The results are summarised below, together with an interpretation of the results.

Likely to purchase E10 PULP?			
Yes (55%)		No (45%)	
Main reason for purchasing (%)		Main reason for not purchasing (%)	
Cheaper than PULP without ethanol		Too expensive	
- all motorists	27	- all motorists	23
- E10 users	34	- E10 users	54
- ULP users	33	- ULP users	34
- PULP95/98 users	15	- PULP95/98 users	3
Better for my car	17	Aversion to ethanol fuel	22
Better fuel economy/performance	13	Bad for engine	17
Good price/quality compromise	9	Manufacturer does not allow use	12
Better for the environment	7	Affects performance	6
To compare with PULP	4	Happy with E10 ULP	6

**Table 5: consumer research into E10PULP**

Base: fuel purchasers in NSW, sample size 597 respondents

Question 1: Suppose for a moment that a Premium Unleaded fuel which contains a 95 Octane level and 10% Ethanol was available to purchase, and that it is priced between Regular Unleaded (i.e. 91 Octane) and Premium Unleaded (i.e. 95 and 98 Octane). How likely would you be to purchase this fuel the next time you visit a petrol station?

### 2.2.3 Observations on the results

- Just over half of the NSW motorists surveyed would be likely to purchase an E10PULP. However, almost half would not purchase the fuel. Current users of E10ULP would be most likely to purchase E10PULP, followed by users of ULP, PULP95 and PULP98 in that order (see Table 2).
- The main reason for purchasing the fuel would be its lower price compared to PULP, with regular grade (E10 and ULP) users in particular having a greater interest in purchase. A significant percentage (30% in total) would be interested because of fuel economy/performance and vehicle benefit, which seems most likely to be related to general perceptions of the higher quality of PULP.
- Overall, the main reasons for purchasing E10PULP could be characterised as value and quality. It is likely the motorists in this category are less sensitive to price and not averse to ethanol, therefore willing to purchase a premium petrol containing ethanol if the price is more attractive than PULP.
- However, the pricing of E10PULP would likely be critical to its acceptance and it would probably only be attractive at a substantial discount to PULP95.
- On the other hand, the main reason given for not purchasing E10PULP was also price, with regular grade (E10 and ULP) users in particular having this concern. This is consistent with many motorists selecting their grade of petrol on the basis of price, in particular E10.
- A significant number of motorists in the “no” category (51%) cited aversion to ethanol, concern about engine damage or lack of compatibility as reasons not to purchase.
- Overall, the main reasons for not purchasing E10PULP could be characterised as the higher price than regular grade petrol and dislike of ethanol blends or inability to use them.

	Market share % NSW Nov 2013	Likely to purchase E10PULP?	
		Yes (%)	No (%)
E10 ULP	33	65	35
ULP	28	54	46
PULP95	39	50	50
PULP98		44	56

**Table 6: consumer likelihood of purchasing E10PULP**

### 2.2.4 Summary and conclusions relating to the consumer survey

In summary, there is a potential market for E10PULP among those motorists who are not averse to ethanol blends and who have compatible vehicles. However, price is the critical factor, as it is the main reason cited by survey respondents for their willingness to purchase or not purchase E10PULP.

A significant number of motorists seek the lowest price for petrol so would not purchase E10PULP. On the other hand, a substantial number say they would be willing to try the product if it is priced between ULP and PULP95.

From a policy perspective, this suggests a significant number of motorists would not want E10ULP to be removed from the market place (Option 2A) but would like an opportunity to purchase E10PULP if attractively priced.

However, this clearly indicates that market forces will result in the product being offered to motorists if it can be attractively priced and is logistically viable, so regulation of the offer of E10PULP (Option 2B) is not necessary.



Unfortunately, both pricing and logistics are likely to pose major difficulties for the product being offered to motorists, as discussed below.

### 2.3 Pricing of E10 PULP including impact of cost of blendstock

Consumers primarily purchase E10 because it is cheaper than ULP. However given the cost of blendstock, Caltex believes E10PULP would not have a sufficient price discount to PULP for a sufficient number of consumers to purchase it.

In order for E10 to meet the national PULP standard, which is regulated under the Fuel Quality Standards Act, a petrol blendstock would need to have the following key characteristics: 92 RON, 83 or 84 MON, 50 ppm sulfur and no MTBE. Australian petrol standards require PULP to have a minimum 95RON and 85MON and addition of 10% ethanol to the blendstock would result in the standard being met.

Caltex asked its experienced international product traders to investigate the availability and cost of a blendstock meeting the above specifications. They believe Asian refiners would have the technical capability in the future to produce such a blendstock and it could be supplied to Australia in sufficient volumes, so supply availability is not seen as an issue, particularly if sufficient lead time is available.

Similar blendstocks are common in Europe and the US (although these would not be economic sources of supply for Australia). These established markets provide good insights into product pricing. Pricing is estimated to be US\$1 to 3 per barrel less than PULP, which reflects the similarity of its quality to PULP, but significantly more expensive than ULP.

In arriving at a retail price estimate, several factors need to be taken into account:

- import cost
- Australian supply chain costs including small infrastructure and site conversion costs
- brand premium.

Our estimate is that E10PULP could be priced to motorists at 2 to 5 cents per litre less than PULP.

This pricing assumes there are no major logistics costs associated with use of a blendstock, in particular storage and blending costs. As discussed below, this is unlikely to be the case.

If use of a blendstock is infeasible, a requirement for all E10 to meet the PULP standard (Option 2A) would probably be met by blending ethanol with PULP, so the price of the product would be not much less than PULP, similar to current discounts of E10 versus ULP. This would be of limited interest to motorists.

### 2.4 Service station infrastructure

Service stations have limited ability to sell grades of petrol. The cost of increasing the number of grades is generally prohibitive as it requires new tanks and pipelines and new or modified pumps.

One exception is those sites that have reduced the number of grades on offer by displacing ULP to increase overall mandate compliance. However, in some cases this has allowed an additional premium grade to be offered. In addition, competition from service stations offering a choice of E10 and ULP has resulted in some sites reintroducing ULP.

The following table summarises the likely impact of Option 2 at sites with various grade capabilities.

<u>Grade capability</u>	<u>E10</u>	<u>RULP</u>	<u>PULP95</u>	<u>PULP98</u>	<u>E10PULP95</u>
<u>Typical current offering</u>					
4 grades	Y	Y	Y	Y	
3 grades - with E10 only	Y		Y	Y	
3 grades - with choice	Y	Y	Y		
3 grades - no E10		Y	Y	Y	
2 grades		Y	Y		
1 grade		Y			
<u>Mandatory E10 as PULP - typical</u>					
4 grades		Y	Y	Y	Y
3 grades - currently with E10 only		Y	Y	Or 98	Y
3 grades - currently with choice		Y	Y	Or 98	Y
3 grades - no E10		Y	Y	Or 98	Y
2 grades		Y	Y		
1 grade		Y			

Follow the coloured circles to see how petrol offers change with the proposed regulation



Under Option 2A, E10 would be banned and any E10 on offer would become E10PULP.

Current displacement sites would reintroduce ULP in order to have a base grade offer. Without such a move, they would suffer a major loss of petrol market share. As a result, the ethanol penetration at such sites would fall substantially, with the loss depending on E10PULP penetration of the PULP market plus any base grade customers switching to E10PULP.

Under Option 2A, choice sites would switch from E10ULP to E10PULP but many E10 customers would switch from E10 to ULP as E10PULP would cost more than ULP. There might be a significant number of customers for E10PULP but overall E10 volume would most likely fall as a result of leakage of E10ULP volumes to ULP.

As displacement sites are an estimated 80% of mandate volume in NSW, reintroduction of ULP at sites that are currently E10-only would have a large negative impact on mandate compliance levels.

In effect, Option 2A destroys the E10ULP market in the hope of E10PULP increasing overall ethanol market share. This is most unlikely.

Under Option 2B, retailers would be able to purchase E10PULP. However, at most sites the retailing of this product would require removal of an existing premium product, which would be unattractive to most retailers.

## 2.5 Infrastructure and supply chain implications

Storage at refineries and import terminals in NSW is optimised for three grades of petrol: ULP, PULP95 and PULP98 and there is generally no spare tankage for an additional grade. Caltex makes E10 by blending ethanol with ULP at the loading rack.

The manufacture of E10PULP using a blendstock would require import and bulk storage of an additional grade of petrol specifically for blending. This would require tankage that is not currently available and would be uneconomic to build. In addition, new pipework would most likely be required to connect tanks to the rack and modification of blending facilities.

As a result, E10PULP would lack price competitiveness as fuel suppliers would likely make the product from PULP95 rather than investing in the import and storage of a blendstock. This would result in a product not much cheaper than PULP95 at service stations.

## 2.6 Primary wholesaler liability

Option 2B places a liability on primary wholesalers to offer E10PULP. It is unclear whether this means offer at wholesale, at retail or both.

If it means offer at wholesale, there is probably no incentive for retailers to purchase it and offer it to motorists, for reasons already discussed.

If it means offer at retail, this would compel sites controlled by primary wholesalers to restructure their service station product offering by removing an existing product. For example, a three grade site could be required to remove PULP, E10 or ULP from sale.

Because non-controlled competitor sites would not face such a requirement, this could have dire competitive consequences for controlled sites and would be grossly unfair. This situation could be redressed by Option 1B or 1C but this would simply create problems for all retailers.

## Appendix A: Overview of options

Scenario	Description	Increase in ethanol annual ML	Increase in ethanol share of total petrol %	Pro	Con
Option 1A	Reduce major retailer site threshold	6	0.1	<ul style="list-style-type: none"> <li>Captures additional retailers</li> </ul>	<ul style="list-style-type: none"> <li>Significant number of sites not covered by 5 site threshold and large single sites still not covered</li> <li>Very limited volume potential</li> <li>Fails to tackle fundamental problems of choice and operational control over sub-threshold retail chains – so ethanol market will continue to collapse</li> </ul>
Option 1B	All service stations offer E10	<22	<0.4	<ul style="list-style-type: none"> <li>Captures all retailers</li> <li>Overcomes control problem</li> </ul>	<ul style="list-style-type: none"> <li>Limited volume potential</li> <li>Fails to tackle fundamental problem of choice so market will continue to collapse</li> <li>Red tape burden if individual retailers must apply for exemption</li> <li>Does not explicitly remove primary wholesaler liability although not required after phase-in period</li> </ul>
Option 1C	All service stations above volume threshold offer E10	Less than Option 1B	Less than Option 1B	<ul style="list-style-type: none"> <li>Overcomes control problem</li> <li>Avoids red tape burden for small retailers under threshold</li> </ul>	<ul style="list-style-type: none"> <li>Limited volume potential</li> <li>Fails to tackle fundamental problem of choice so market will continue to collapse</li> <li>Does not explicitly remove primary wholesaler liability although not required after phase-in period</li> </ul>
Option 1C + increased compliance		77	1.3	<ul style="list-style-type: none"> <li>Overcomes control problem</li> <li>Avoids red tape burden for small retailers</li> <li>Provides mechanism to increase mandate compliance percentage</li> </ul>	<ul style="list-style-type: none"> <li>May impose significant burden on individual sites</li> <li>Exemptions need to ensure level playing field and not undermine mandate</li> <li>Administratively complex</li> </ul>
Option 2A	All E10 blended in NSW to comply with PULP standard	Nil – there will be an overall loss in volumes	Nil – there will be an overall loss in volumes		<ul style="list-style-type: none"> <li>Makes regular grade E10 ULP market illegal</li> <li>Service stations will switch to ULP as regular grade petrol</li> <li>High cost of blendstock means E10PULP will not be competitively priced</li> <li>No terminal capacity to store blendstock in addition to ULP and PULP grades</li> </ul>

Option 2B	Wholesaler to offer at least one premium ethanol blend	Nil	Nil		<ul style="list-style-type: none"> <li>• Lack of demand for product at likely prices</li> <li>• Control issue as wholesaler is liable under the mandate, not the retailer, so they will not purchase</li> <li>• High cost of blendstock will mean E10PULP will not be competitively priced</li> <li>• Terminals may not be capable of storing blendstock so would use PULP for blending</li> </ul>
Information campaign		10	0.2	<ul style="list-style-type: none"> <li>• May slightly increase compliance percentage</li> <li>• Helps avoid negative commentary</li> </ul>	<ul style="list-style-type: none"> <li>• Limited volume impact as only affects 20% of market that is “choice” volume</li> </ul>

## Appendix B: Explanatory note for low volumes under Option 1A

The following is based on Caltex's model of the NSW market, based on information in the consultation paper and other information from the Office of Biofuels. Caltex has made some assumptions about the 700 sites not supplied by existing volume fuel sellers but even if the assumptions are changed, the answer is much the same, i.e. increasing the number of major retailers by reducing the site threshold has little volume impact.

Worse, if government adopted this option as a solution, it could distract from the real solution, which is individual retailer liability plus enhanced compliance to drive up percentage compliance.

From our own data and model calculations, we assume the non-controlled sites are mainly in country areas or small independent sites so have relatively low volumes. Our model assumes an average of 700,000ML per year of regular grade petrol at each site (ULP and E10). This is approximately 500 ML pa in total or 14% of total regular grade petrol volume in NSW, from 33% of the number of sites. (500ML is 8% of total petrol volume.)

We assume that 50% of these sites already offer a choice of E10 and ULP and that E10 has 25% penetration of the regular grade market. (This equates to 20% of total petrol if PULP has a 20% market share.) So E10 can penetrate the remaining 50% of sites. We also assume all sites would be captured i.e. a 1 site threshold for primary retailer sites, not 5 sites.

500ML regular grade petrol x 50% of sites x 25% market share is 63ML of E10 or 6.3ML of ethanol. This is 0.1% of total NSW petrol volumes (all grades).

There are some assumptions that could increase this estimate:

- Higher average site volume
- Lower existing E10 site offering
- Higher E10 market penetration.

If we assume 1,000,000L average site regular grade volume, 25% existing site penetration of E10 and 35% E10 market share at each site where it is offered, the increase in ethanol volume would be 19ML or 0.3% of the total petrol market.

However, there are some assumptions that could decrease the estimate:

- Many of the sites could obtain exemptions on the grounds of interstate supply, remote location (lack of economic E10 supply), lack of infrastructure (only 2 or fewer grades available) or economic hardship (can't afford to convert)
- Refusal to purchase from volume fuel seller (as no legal liability)
- A site threshold greater than 1, say 5, so not all sites are captured.

If we assume the base case site volumes, E10 site penetration and market share, but 10% exemptions for remote or uneconomic supply, 67% exemption for 2 or fewer grades (this is based on data in the consultation paper) 10% exemption for hardship (essentially the cost of tank replacement, the additional ethanol volume is 2ML or 0.03% petrol market share.

In summary, our best estimate of the option 1A additional ethanol volume is 6ML with a sensitivity range of 2 to 19ML. We think 6 ML is a good estimate.

Appendix C: Caltex market research into consumer preferences

1 MT2 Would you buy **E10 unleaded** fuel (unleaded fuel with 10% ethanol) in the next 4 weeks?



2 MT3 Could you please give a brief explanation as to why you would/"wouldn't buy E10 unleaded fuel (unleaded fuel with 10% ethanol)? [MR]

YES			NO		
	%	Unweighted Count		%	Unweighted Count
It's affordable	60.28	264	I cannot put it into my car (diesel, premium fuel only)	28.53	319
It is just as good/efficient in my car	15.92	54	I don't know what it is and unsure of its effects	20.38	221
Better for the environment	13.33	63	I don't think it is good for my car	10.02	111
It was recommended for my car	5.96	29	It is not the most efficient petrol for my car	9.53	107
It is the only fuel available at some service stations	5.13	15	It is not recommended for my car/ I heard it is not good	7.32	81
I always buy/use it	3.66	21	Not economical	5.33	75
Better for my car	3.49	21	They do not sell it at my service station(s)	4.93	80
Don't Know	1.42	11	I don't trust or like it	4.41	53
Other	6.94	40	Prefer to stick with what I normally use	3.68	39
Total		461	It depends on the price	1.47	16
			Don't Know	1.00	16
			Other	4.73	66
			Total		1164

# Australian Institute of Petroleum National Biofuels Position

The Australian Institute of Petroleum (AIP) strongly supports market based approaches for the supply of fuels in Australia. A market based approach has delivered Australia a highly competitive fuel market that provides the consumer with fuels of an assured quality, delivered reliably at a reasonable price in a geographically dispersed supply chain. Given the demonstrated benefits of a market based framework for liquid fuel supply, AIP only supports market intervention when there is demonstrated market failure that the market or consumers cannot efficiently resolve, and the intervention would result in a net benefit overall. In addition, any fuels market intervention policy must be based on sound science, rigorous economic analysis, equitable application to market participants, and transparent assessment and implementation while minimising unintended consequences.

## **AIP Position on Financial Incentives for Biofuels**

AIP supports the use of transparent financial incentives (excise concessions, production grants and technology and market facilitation grants) to facilitate and encourage the use of biofuels and alternative fuels in Australia provided those incentives are either:

- short-term and aimed at offsetting some of the up-front capital costs associated with bringing the fuel or the fuel use technology to the market

or

- ongoing but solely aimed at recognising significant and demonstrated environmental benefits of the fuels compared to the current environmental performance of mainstream fuels.

In this context, AIP supports the policy of successive governments of fuel excise neutrality based on the relative energy content of the individual fuels.

## **AIP Position on Biofuels Mandates**

The Australian Institute of Petroleum (AIP) strongly supports market based approaches for the supply of all fuels, including biofuels, in Australia. AIP considers that biofuels will have a place in the Australian fuels market as long as they are:

- Available at a competitive price
- Reliably supplied
- Acceptable to consumers
- Produced sustainably.

AIP believes that government policy in support of biofuels (e.g. for environmental benefits) needs to be:

- Transparent, with clear, credible and tested objectives
- Applied equitably to all industry participants
- Stable with clear timeframes for withdrawal of support
- Based on sound science
- Cognisant of other broader policy settings and commercial practice.

In principle, AIP does not support mandates requiring the use of any particular fuel as a way of increasing the demand for that fuel.

- While AIP members will work to comply with the requirements of any government imposed biofuels mandate, AIP believes any mandates for biofuels that may help to increase short-term consumer demand must be designed so that they enable a normal and competitive market to develop in the medium to longer term for those fuels.

AIP believes that fuel mandates may imply higher cost fuels, reduce market price transparency for fuel suppliers and consumers, limit price competition and associated marketing innovation, and fail to encourage the development of robust and reliable fuel supplies.



AIP believes that any consideration of support or mandates for biofuels must recognise that:

- Biofuels are generally supplied to the market at a higher price than conventional fuels if the excise exemption is taken into account.
- While biofuels add new sources of supply to the market and thereby increase the diversity of the fuel mix, it is far from clear that this will result in more reliable fuel supplies. There are few suppliers of biofuels in Australia and the market is effectively blocked from utilising ethanol imports. In addition, the inherent fragility of the nascent biofuels supply chains and the lack of redundancy in the biofuels supply system mean there is a significant risk of supply disruption given the demonstrated impact of droughts and flood on biofuels raw materials supply.
- There is strong, ongoing, consumer resistance to using ethanol blend fuels and a proportion of the market, albeit declining, that cannot use ethanol.
- The benefits cited for a biofuels mandate have not been rigorously tested
  - Regional development benefits have not been tested and may not be the optimal use of such a significant subsidy
  - The environmental benefits have been found to be minimal and should be retested under the current fuel and vehicle standards
    - if the carbon emissions abatement estimates for biofuels are robust then biofuels projects should be eligible for support under the Emission Reduction Fund if they are competitive with other abatement options
  - There is no experience to demonstrate a national biofuels mandate will encourage the development of robust and reliable local production of biofuels on a sustainable basis.
- While biofuels mandates and targets may have helped to create increased consumer demand
  - The difference between the 38 cpl excise equivalent customs duty for ethanol imports and the effective zero rate of excise for domestically produced ethanol has made ethanol imports uncompetitive and impeded the development of a properly functioning ethanol market and supply chain.
  - There is ongoing uncertainty surrounding biofuels supply reliability.
  - There is no guarantee of effective competition involving a diverse number of ethanol producers in the wholesale biofuels markets, as this depends on the balance of supply and demand which should include imports.
  - A compliance regime has developed that lacks predictable and equitable outcomes for all suppliers.

### **Minimising the negative impacts of a mandate**

There must be broad consultation with all stakeholders so that the negative impacts and/or unintended consequences of any mandate policy can be minimised. Experience with the NSW biofuels mandate provides significant guidance on problems likely to be encountered in the implementation of a mandate, particularly:

- Consumer research shows there is strong opposition to ethanol from some motorists
- Discontent from consumers having to pay for premium grade petrol or change service stations if regular grade petrol is not available
- Uncertainty around the warranty conditions for passenger vehicles and commercial transport operators utilising biodiesel blends
- Opposition from fuel distributors obliged to spend additional capital on biofuel distribution assets
- Strong opposition from independent service station owners required to convert service stations and/or to undertake premature site refurbishment in order to supply biofuels
- The importance of comprehensive application of a mandate applying to all retailers, not just primary wholesalers and major retailers; liability must rest with the entity that has control over the choice of fuel sold at a site

A number of mandate design features need to be specifically addressed:

1. While the number of unsuitable vehicles will reduce over time as the national vehicle fleet is replaced, there will still be significant numbers of vehicles which cannot use ethanol blends, estimated at 13.7% in NSW in 2013 (11.5% if motorcycles are not included). In addition, some applications such as marine and small engines are generally not able to use ethanol blends. These vehicles and applications will require the ongoing availability of conventional petrol for many years. This could be achieved through unblended PULP even if most or all regular grade becomes E10 by regulation or through market actions.
2. The continued availability of conventional petrol will mean many consumers (market research indicates 20-30% of consumers) who can safely use ethanol blends will choose to use conventional petrol because of negative perceptions of ethanol blends. In effect, the mandate is forcing these consumers to either purchase a biofuels product they may not understand or to "trade-up" to a higher cost conventional and well known fuel. Additional effort needs to be invested in the education of consumers and other stakeholders particularly around the environmental and vehicle operability aspects of ethanol blend fuels.
3. The conversion of the liquid fuel supply chain requires significant investment to construct storage and blending facilities at terminals and depots as well as conversion/up-grade of retail sites. There are lead time and logistics issues which must be addressed in this conversion process.
4. Despite the progressive investment in storage, distribution and retail infrastructure to support biofuels, there are significant numbers of service stations that are unsuitable to supply ethanol blends because of tankage issues. A large proportion (possibly as high as 50%) are independently owned service stations which in many cases will require tank replacement. The significant capital costs involved in these upgrades and changes would affect the ongoing financial viability of these service stations.

An alternative to site refurbishment is to provide broad ranging exemptions to these site owners, but this will undermine the objectives of any mandate, and has been found to lead to unintended but significant reductions in volumes of biofuels sold at nearby complying service stations. This creates a fundamental inequity for service station owners where sites that are not required to invest capital to convert to biofuels because of an exemption also see an increase in sales volume of conventional fuels.

5. Thresholds for eligibility for any exemptions must be transparent so that the associated compliance regime can also be transparent. Experience has shown that this can lead to ongoing competitive disadvantages for market participants without creating any incentives (or penalties) for ethanol producers to enhance the reliability or price-competitiveness of ethanol supplies. Exemption criteria may include site tankage issues, site competitiveness, interstate supply, other supply chain issues (e.g. depot supply), site volume, supply availability.
6. The point of liability for compliance with any mandate can significantly impact on the effectiveness of a mandate. For example, if the liability is imposed on fuel suppliers, those suppliers may or may not have control over the operation of retail sites bearing their brand, and hence the decisions of operators on whether to supply biofuels at particular service stations.
7. Although there is an overcapacity of ethanol supply, the limited number of sources of domestic ethanol supply means disruptions to domestic ethanol supplies may occur as a result of floods and adverse growing conditions in different parts of the country. The fragility of ethanol supply is further exacerbated by the absence of competitively priced alternative supplies through imports from other countries due to the excise/grants/customs duty settings.
8. While assurance of quality and sustainability of biodiesel production is progressively being addressed by biodiesel producers and suppliers, biodiesel quality and availability are still expected to constrain the ability of biodiesel producers and fuel suppliers to meet mandated levels of supply.

Additionally, the requirement to seek a waiver of national fuel quality standards for cetane and

density specifications for biodiesel adds time, complexity, cost and administrative burden in the supply of biodiesel. Although the fuel standards framework (which allows up to 5 per cent in diesel and 20 per cent in commercial applications) is being revised to facilitate market development of biodiesel blends, more consistent advice and endorsement is needed from automobile, truck and heavy vehicle manufacturers on the suitability of biodiesel for use in vehicles.

9. Adoption of sustainability criteria for biofuels production and supply require close consideration as there are currently no clearly accepted frameworks for determining or setting these criteria, nor for measurement and compliance regimes.