

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

Discussion paper (June 2015)

Submission prepared

by

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**The author**, though now retired from the University of Sydney, has made significant contributions to discussions, at Federal and State levels, regarding the adverse health effects of tail-pipe pollution from fossil-fuel powered vehicles - and the benefits of biofuels.

e.g.,

(a) Expert witness to no fewer than five NSW Parliamentary Inquiries regarding the need to install filtration in vehicle tunnels to remove toxic exhaust particles and noxious gases.

(b) Principle author of the submission to former Prime Minister John Howard regarding biofuels, including ethanol. The submission raised for the first time, at the Federal level, the beneficial health issues regarding biofuels. (2003)

(c) Principle signatory to a Petition to the former Prime Minister John Howard:

*"We the undersigned urge the Government to put in place clear policies in support of the expanded use of renewable and alternative fuels such as ethanol, biodiesel, and liquefied natural gas (LNG), which are known and proven measures to reduce the risks petrol and diesel fuels pose to human health."* (27th July, 2003)

(d) A major contributor to the Federal Government's Taskforce on Biofuels (June, 2005)

(e) Major contributor to the NH&MRC Review of Air Quality in and Around Traffic Tunnels (2008)

(f) Submission to the Senate Inquiry into Health Effects of Air Pollution in Australia (August, 2013)

(g) Author of numerous articles regarding the benefits of ethanol biofuel.

(h) Guest speaker at numerous conferences regarding health impacts of fossil fuels.

**The author has NO conflicts of interest in promoting biofuels and ethanol.**

## **Summary**

- Oil companies have been slow to commit to the use of ethanol.
- In contrast to Australia, where a campaign of fear has discouraged the use of ethanol in fuel, other countries are switching to ethanol as more environmentally and people friendly than current fuel additives.
- Mandates are required, however, as implemented overseas, **to force oil companies to be committed and to cooperate in our national interests.**
- Ethanol added at 10% to petrol can be used in all modern cars without modification and can increase fuel octane by up to 4 units.
- Many advantages of using ethanol-blends include less dependence on imported crude oil
- Biofuels such as ethanol is a way to enhance the national security of Australia and to boost our economy as well as protect the environment.
- Australia has yet to come to terms with its own dwindling oil reserves and a dependency on oil imports costing approximately one billion dollars a month.
- The relationship between air pollution, death and disease has been studied for decades, leading to the recent conclusion that combustion of diesel and petrol is among the most toxic sources of emissions today.
- In Sydney, twice as many people (approx 1400 pa) die from exposure to vehicle pollution than from road accidents. In the USA, fine particle pollution kills 21,000 people each year. Diesel exhaust poses a cancer risk that is 7.5 times higher than the combined risk from all other air toxics. The risk of lung cancer for people living in urban areas is three times that for those living in rural areas.
- WHO, in 2012, declared diesel fumes to be a Level-1 human carcinogen.
- Ethanol blends reduce carbon monoxide and toxic cancer-causing hydrocarbons by 20% and fine particulate matter by at least 40%.
- Ethanol is an *oxygenate* which helps petrol burn more efficiently and cleaner resulting in lower levels of particulate emissions (and other toxics) from cars.
- Children are more susceptible than adults (except the elderly) to the adverse effects of air pollution.
- The AMA is absolutely correct to point to the very costly health effects that can be traced directly to the burning of fossil fuels by cars and trucks – a public health issue that can be eliminated by turning to alternative fuels: ***“The AMA is a strong advocate on initiatives related to environmental impacts on human health such as global warming. We are equally passionate about the impact of vehicle emissions on human health and we would encourage governments to pursue responsible measures to reduce emissions. The AMA considers the use of biofuels such as ethanol in petrol as a positive move.”*** (Dr Mukesh Haikerwal, President, Australian Medical Association, August 2005).
- CSIRO/Orbital undertook studies to test the emissions of ethanol/ULP in motor vehicles under Australian conditions. The CSIRO/Orbital Research Report (June, 2008) concluded: *“The overall finding is that there is a*

*health benefit to the Sydney population arising from a move from ULP to ethanol blends in spark-ignition vehicles...."*

- The classic risk-based approach is to ignore the evidence so long as it is not 100% watertight. Use uncertainty as an excuse to delay. Wait for the dead bodies to pile and then slowly acknowledge the need for action. Remember asbestosis? Precaution is not (yet) fashionable while risk-assessment is! Doubt is a powerful helpmate when your goal is to maintain 'business as usual' and typifies the current mindset especially of Governments at state and federal levels.
- This has the backing of powerful special-interest corporate groups harnessing governments to deflect and stymie the search for least harmful alternatives. So long as the exact size of the problem is uncertain, risk-assessors call for delay and more study. It is now clearly evident that the insidious delaying tactic of implementing a full biofuel adoption is allegedly to buy time politically and to patronize the oil cartels.
- Unlimited and free access to **clean air of acceptable quality** is a **fundamental necessity and right**.

Basic criteria for health:

- Survival
  - Longevity
  - Efficiency
  - Well-being
- The only thing that stands between us and dramatically healthy air is the **political will** to require these toxic reductions.
  - **Duty of Care:** The NSW Court of Appeal dismissed the appeal of a certain employer and relied on the High Court's statement in *Southern Shire Council v. Heyman* (1985) that:
 

*"When there is a duty to take a precaution against damage occurring to others... breach of the duty may be regarded as materially causing or materially contributing to that damage, should it occur, subject of course to the question of whether performance of the duty would have averted the harm."*

In other words, where there is a *'foreseeable and preventable risk of harm to your 'neighbour' (citizen), the owner (Oil cartels) has a duty of care to remove that risk of harm'!*
  - The concept that ethanol expansion was the underlying and main significant reason for food price increases has been **debunked**.
  - The new reality is ***food and fuel***. For both Australia and other countries, the economic future relies upon a dependable supply of **energy** which is not a commodity.
  - Studies by Morawska & Thomas (2000) concluded:
 

*"PM<sub>10</sub> measurements provide information almost entirely on particles generated from mechanical processes. In an urban environment, this could mean particles resuspended by vehicular traffic and mechanical wear and tear, **but not on the emission of motor vehicles.**"*

- Therefore, PM<sub>10</sub>- measurement, as used for air quality, is **not** an instrument for evaluating traffic emissions. Today, nothing has changed!
- By using PM<sub>10</sub> measurements, the current air-quality particle measurements **exclude virtually the bulk of the constituent particulates arising from the tail pipe.**
- Research shows that the 75% of the toxins, including carcinogens among the polycyclic aromatic hydrocarbons (PAHs), are carried on **soluble** respirable particles < 2.5µm. Thus a 10% ethanol/ULP blend that **reduces** PM<sub>2.5</sub> particles by 33% (CSIRO/Orbital 2008) has a significant health benefit.
- If the eligibility of biodiesel blends for a Fuel Tax Credit ceases then it is highly likely that this will result in the closure of the remaining biodiesel production facilities in Australia.
- If the proposed excise tax on ethanol and biodiesel is implemented in addition to the barriers to entry that the renewable fuels industry has encountered to date - will create a landscape unlikely to support new investment in biofuels production capability in Australia and as these taxes rise to 12.5 cents per litre and 19.1 cents per litre respectively by 2015, it will lessen the probability of existing biofuels production facilities remaining competitive.
- **A mandate of between 5-10% would be preferable.** A two percent mandate is inadequate to foster a viable biofuels industry in Queensland. It is unambitious, untutored and unsustainable! Capacity currently exists to immediately move to 4-5%.
- Compliance of the mandate by the oil majors must ensure that both current industry participants and new entrants have sufficient security and financing. The fuel ethanol mandate must not be less than 5% of the current total fuel consumption in Queensland.
- There needs to be the foresight for an option to increase to 10% in 2020 to avert stagnation.
- The NSW ethanol mandate has not succeeded because of a lax exemptions' framework and MUST be avoided in the proposed mandate i.e., not to exempt but require the oil cartels to comply/conform. Obviously, ethanol purchased by the oil cartels reduces their profits. **The oil cartels already benefit by shifting costs of health impacts (of their toxic product) to the taxpayer.** Lenient exemptions to the oil cartels MUST be avoided to prevent this mandate failing dismally.
- Of major concern is the implications of the **Trans Pacific Partnership (TPP)** which if signed by the Federal Government will allow multinationals e.g., oil cartels to sue us if an action e.g., forced ethanol mandate limits their profits i.e., a liable party may prove that the sale of ethanol-enhanced fuels would be detrimental to their business. The result being a significant decrease in the sales of ethanol enhanced fuel. The government must apply sufficiently high penalties for non-compliance and actively enforce them!
- The renewable energy industry is the fastest-growing energy industry in the world. Because of a lack of **transformational leadership** and an illusion of knowledge by many politicians, coupled with the influence of the oil/car cartels, **we are locking ourselves out of it.** For example,

domestic biodiesel producers say the application of excise when the market is shrinking will make biodiesel production uneconomic within four years.

- Unfortunately, but not surprising, the targets set out by the NSW Biofuels Act have not been reached as yet and provisions under the act allowing for exemptions **have been exploited by fuel industry participants. Hence the need for an *indefinite* mandate.**
- One very good reason for starting/supporting a biofuels industry in Australia is to make up for the **catastrophic plunge in domestic oil production** and the rise in oil imports, putting unbearable strain on the country's balance of payments. To continue to studiously ignore this issue threatens to derail every single initiative that a future Federal Government may wish to undertake, as more and more of the country's income is diverted to paying for oil imports.
- **Should Queensland have an expert panel or implementation board? If so, which sectors should be represented? Beware of 'expert panels'!** Stephen Hawking observed - "**The greatest threat to knowledge is *not ignorance but the illusion of knowledge***"  
Put another way with a line from the famous Persian Proverb - "**They who know not and know not that they know not - are fools - shun them!**"
- Australia urgently needs an industry ***cooperative*** of proactive biofuel stakeholders to passionately promote consumer awareness, policies, regulations, initiatives in research and development as well as to respond to misleading information mischievously promulgated through mainstream media. Such a voice and influence will aim to defend biofuels as one of several viable options to fossil fuels and will lead to the increased production and use of fuel ethanol and biodiesel.

Such a credible and organized voice of the biofuels industry would ***provide strong advocacy, authoritative appraisal*** and analysis of relevant issues as well as being a repository of important data critical to the viability of the industry. As a united voice, the Coalition would be the interface with relevant federal and state government agencies, policy-makers, biofuel strategic partners, marketers, the media and the general public.

All of these matters therefore must constitute the **common purpose** of such a coalition. "**Expert Panels**" are often made up of individuals with **conflicts of interests and patronizing of government.**

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## Background Information

### Grain ethanol

- USA produces ethanol at 103 grain ethanol plants. The smallest plants built in the USA in the last 5 years are 60 million litres. Most new US plants produce 160 ML to 400 ML per annum. Currently 37 plants are under construction.
- The USA will produce over 18 billion litres of grain ethanol in 2006 and in 2007 will produce more ethanol than Australia produces petrol. Federal legislation requires that a minimum of **30 billion litres of biofuels** (overwhelmingly ethanol ) must be used in the USA by 2012.
- Ethanol production growth has led to dramatic process technology advances, improved plant efficiency and reduced manufacturing and new plant construction costs.
- Ethanol added at 10% to petrol can be used in all modern cars without modification and can increase fuel octane by up to 4 units.

### Australia – the ethanol current position

- Australia has adopted E-10 as the ethanol addition level.
- Manildra currently supplies about 40 MLPA for fuel ethanol, and CSR and Rocky Point supply another 10 MLPA. CSR will commission another 30MLPA in August.
- In April 2004 we achieved a legislated national basis for proceeding with fuel ethanol projects.
- However, oil companies have been slow to commit to the use of ethanol.
- Australia's adoption from 2006 of Euro 3 standards, and a developing octane shortage, should build oil company commitment.
- Federal President of AMA called for a 10% ethanol mandate to reduce emissions and as a way of improving the health of all Australians.

### What are the advantages of using ethanol-blends?

- Less dependence on imported crude oil
- Extends Australia's dwindling domestic supply of light crude petroleum use to produce transportation fuels.
- Expanded market opportunity for Australian farmers
- Rural economic development
- Ethanol is a renewable fuel, typically produced from plant matter.
- Ethanol reduces fine particulate emissions, that pose a health threat to children, senior citizens and individuals suffering from respiratory ailments.
- Cleaner air for the health of all Australians.

### Distiller's Grains for Dairy and Beef

- Excellent protein source (34% crude protein)
- High By-pass protein (55% plus of crude protein)
- Very palatable - Increases Dry Matter Intake
- Enhanced with Spent Yeast

### Ethanol Internationally – the current position

USA has now passed Brazil to become the largest ethanol producer

- Brazil uses a 25% ethanol in all petrol, but by the end of 2006 virtually all new cars will be Flex-fuel meaning they can run on petrol or 100% ethanol.
- The US Energy Bill that requires a minimum use of 7.5 Billion Gallons of ethanol (approx 30 Billion litres) by 2012.
- Canada has legislated a 10% ethanol mandate in 3 provinces
- Minnesota has passed a 20% ethanol mandate bill effective in 2012.
- There are 2 million new E85 Flexi-fuel vehicles being added to US road annually. (current total 6 million) and E85 is selling for 20% below gasoline prices.
- EEC requires 5.75% Biofuels use by 2010 and 20% by 2020.
- China has a huge ethanol program, and India, Thailand, Philippines, Japan and about 30 other countries are moving to increase ethanol use.

To date, the Federal Government has been caught out, dickering with the issue of alternative fuels and failed to acknowledge that ethanol provision coupled with other biofuels alone will do more to bring new life to rural Australia than anything passed through Parliament.

In USA, Canada and Brazil as well as in other overseas countries, the oil refining industry and the ethanol industry are working as allies, rather than adversaries. In Australia, the same parent oil companies, it seems, through insidious propaganda and intense lobbying activities have also left their finger prints in the sabotage implementation of cleaner alternative fossil fuels.

With record-breaking production of ethanol (91% increase in 2003 over 1999 production) in USA, former president George W. Bush knew full well that his commitment to biofuels such as ethanol is a way to enhance the national security of USA and to boost their economy as well as protect the environment. The use of biofuels reduces dependence on oil imported from nations that are hostile. The Australian Government, it seems, is placing confidence in its immense Timor Gap oil reserves to stifle the present opportunity to move into alternative, cleaner biofuels.

The backward looking position of the Federal Government compared to that of the USA and elsewhere will ultimately make us dependent on imported energy supplies as well as cause bankruptcy in the existing ethanol producers and rural Australia - unless there is *transformational leadership* at federal and state levels.

Recent tests conducted for the California Air Resources Board indicate ethanol blends help reduce pollution by older vehicles or cars with malfunctioning pollution control systems. Ethanol blends reduce carbon monoxide and toxic cancer-causing hydrocarbons by 20% and fine particulate matter by 40%.

Ethanol has a large and growing positive energy balance. It yields 134% of the energy used to grow and harvest from the biomass e.g., corn and process it into ethanol. By comparison, petrol yields only 80% of the energy used to produce it. Motor car manufacturers approve the use of 10% ethanol in reformulated fuel. Indeed, Ford, Chrysler and Mazda are manufacturing overseas cars that will automatically compute to up to 85% ethanol in blended petrol.

To date, in Australia, ethanol is political. But in rural towns of USA, Brazil and Canada ethanol is about revitalizing rural economies, ethanol is about providing a cleaner, more secure future, ethanol is about the people. Do you hear us, Prime Minister?

### **Overseas biofuel production**

US ethanol production for the week ended June 12, this year moved down 12,000 b/d to 980,000 b/d, falling from an all-time high hit in the previous week, Energy Information Administration.

<http://www.platts.com/latest-news/agriculture/houston/ethanol-production-falls-from-record-high-stocks-21634142>

US ethanol stocks, on the other hand, soared 472,000 barrels to 20.718 million barrels, a six-week high.

Stocks were lower in three of five regions, but there was a 452,000-barrel jump in Gulf Coast stocks to 3.973 million barrels. West Coast stocks nudged up 65,000 barrels to 2.718 million barrels.

East Coast stocks, on the other hand, ticked lower by 21,000 barrels to 7.239 million barrels, Midwest stocks were down by 13,000 barrels to 6.46 million barrels, and Rocky Mountain supplies shed 11,000 barrels to 328,000 barrels.

Weekly imports were non-existent for the eighth consecutive week and the 23rd time in the last 24 weeks.

The four-week rolling average of gasoline demand moved lower by 21,000 b/d to 9.372 million b/d, while the four-week rolling average of the refiner and blender net ethanol input was 2,000 b/d higher at 894,000 b/d. The weekly refiner and blender net ethanol input was 28,000 b/d higher at 912,000 b/d, a record weekly blending rate.

As the lower gasoline demand was outpaced by the stronger blending rate, the four-week rolling average of the ethanol blending rate -- calculated by dividing the four-week rolling averages of the net ethanol input and gasoline demand -- was 0.04 percentage points higher at 9.54%, 0.50 percentage point shy of the 10% "blend wall."

The blend wall occurs when the maximum amount of the US gasoline pool has been blended to a level of 10% ethanol. Refiners then will be under pressure to run higher ethanol blends, buy renewable credits known as RINs or push for Congress to alter the Renewable Fuel Standard.

### **Ethanol: the untold story**

*"In contrast to Australia, where a campaign of fear has discouraged the use of ethanol in fuel, other countries are switching to ethanol as more environmentally and people friendly than current fuel additives. In the last Federal budget, the Government put an excise on ethanol (it was previously exempt) to be paid to the ethanol industry as an incentive. However, this assistance phases out over such a short period of time that it gives little real incentive for the industry to develop."*

<http://newsweekly.com.au/article.php?id=1305>

Ethanol is produced from a variety of crops including sugar cane and wheat. Ethanol

reduces harmful exhaust emissions from cars, is safe to use in engines and, if it were mandated at, say, 10 per cent in Australian fuel, would be an enormous boost to key agricultural commodity industries such as sugar and wheat.

In America, because ethanol is derived largely from corn starch fermentation, critics have based their attack on the belief that ethanol is solely to blame for rising food prices - another planted 'doubt'. There are numerous factors that drive up rising food prices, including the increasing cost of oil. The respected global agriculture and food-industry research firm, *Informa Economics*, undertook a study based on 20 years of price data that **debunked** the concept that ethanol expansion was the underlying and main significant reason for food price increases. To do so is to grossly under-consider all the forces at work! It seems because food prices are rising, there is a blame alert underway accompanied by a feeding frenzy in the media. Fortunately the ethanol critics are not getting much traction - at least in the American halls of power. This is evident by the U.S. Energy Bill signed into law by former President Bush to increase production of ethanol to **143 billion litres a year by 2022.**

The new reality is **food and fuel**. For both Australia and other countries, the economic future relies upon a dependable supply of energy which is not a commodity as pointed out by E. F. Schumacher (1973): *"There is no substitute for energy. The whole edifice of modern society is built upon it....It is not 'just another commodity' but the precondition of all commodities, a basic factor equal with air, water and earth."*

Unlike many other overseas countries, Australia has yet to come to terms with its own dwindling oil reserves and a dependency on oil imports costing approximately one billion dollars a month.

With our ingenuity coupled with initiative, agriculture in this country can be made so incredibly productive such that it is not a contrived choice of food or fuel but rather we must embrace the new reality of food and fuel.

There is little doubt that the current fuel vs. food 'doubt' debate about whether we 'burn it or eat it' will fall silent when, in 3-12 years, the second generation of cellulosic biofuels, based upon non-food components of biomass feedstocks, such as wheat straw and sugar cane bagasse, reaches production stage.

Mandates are required, however, as implemented overseas, **to force oil companies to be committed and to cooperate in our national interests.**

We can no longer continue with a carbon-based economy. Current political attempts to do so will only end in multi-system failures. Airlines will increasingly come into financial problems. Some experts believe the nation will soon need to be placed on a war-footing and fuel rationing needed to conserve fuel for essential services. No more business as usual. Other alternative fuels including biofuels and compressed natural gas (CNG) should be used immediately. Biofuels can be used to power farm machinery, trucks and transport agricultural produce while the rural rail lines need revitalizing. To conserve fossil fuel, CNG should be used in buses, trucks, construction and mining machinery. Yet, Canberra continues to hibernate and in their slumber, deviate over trivial matters when the looming oil crisis really transcends party politics!

Australia's need to import oil at a cost of more than one-billion dollars a month highlights the failure of our governments - past and present - to put in place appropriate contingency plans to maintain our energy security. Why the failure? One reason is the political and bureaucratic incompetence coupled with appalling indifference. The second is the lobbying power and influence of the oil cartels here.

Cures for us are similar to for what also ails the economy of US - a once honoured but now a disgraceful, greedy nation - full of soggy-bottom minions drawing obscene 'salaries' and wallowing in ill-gotten wealth are:

1. Change the American/Australian lifestyle that is unsustainable both economically and environmentally.
2. Eliminate the US military-industrial complex responsible for 48% of the world's total military spending, consuming over 41% of US tax payer's money excluding hidden costs. Ditto Australia's defence expenditure!
3. Stop meddling, and live with others in peace and harmony without selfishness as a sole motivation for survival.

Australia, in the interests of its national energy security MUST urgently implement measures to remove its dependency on imported oil and put in place alternative fuels including compressed natural gas and biofuels.

### **Ethics and Skeptics: The Lingering Threat of Fossil Fuel**

The relationship between air pollution, death and disease has been studied for decades, leading to the recent conclusion that combustion of diesel and petrol is among the most toxic sources of emissions today (USA Clean Air Task Force Report, Feb. '05) viewed at the link: <http://www.catf.us/publications/view.php?id=83>

These exhausts contain numerous dangerous compounds, ranging from respiratory irritants to carcinogens including a host of air toxics, particulate matter, carbon monoxide and nitrogen oxides.

The very fine particles adsorb toxic gases and liquids onto their surfaces. On a weight basis, a billion ultra-fine particles are about equivalent to one coarse particle 10 micrometres in diameter, but have 1000 times the surface area. The fine particles are mainly soluble and penetrate deep into the lungs. Health research indicates that the invisible exhaust may be the most dangerous of all. Technology exists right now to clean up emissions from these engines and to remove such toxics from road tunnels. The only thing that stands between us and dramatically healthy air is the **political will** to require these reductions.

NSW Health knows that in Sydney, twice as many people die from exposure to vehicle pollution than from road accidents. Yet, despite NSW Health's protestations and legal advice, as disclosed in tabled internal documents, NSW RTA deliberately refuses to install filtration in the toxic vehicle tunnels.

In the USA, fine particle pollution kills 21,000 people each year. Diesel exhaust poses a cancer risk that is 7.5 times higher than the combined risk from all other air toxics. The risk of lung cancer for people living in urban areas is three times that for those living in rural areas (CATF Report, Feb. '05). Air pollution was not on the agenda of the former NSW Labor Government in deciding to power its new bus fleet with toxic diesel that replaced clean LPG.

## Health impacts of fossil fuels

Unlimited and free access to **clean air of acceptable quality** is a **fundamental necessity and right**.

Basic criteria for health:

- Survival
- Longevity
- Efficiency
- Well-being

In Sydney, NSW Department of Health estimated that almost three-times more people die (up to 1400 deaths p.a.) from exposure to vehicle exhaust-pollution than from road accidents. Cost of pollution-associated health impacts to the taxpayer for Sydney alone is between \$2-3 billion each year.

Particulate emissions, along with other toxins, have been linked to health problems related to air pollution.

Ethanol is an *oxygenate* which helps petrol burn more efficiently and cleaner resulting in lower levels of particulate emissions (and other toxics) from cars. An oxygenate analogy is a Bunsen burner where a lack of oxygen causes the gas-flame to burn uncleanly (yellow) while an increase in oxygen causes the gas-flame to burn cleanly (blue).

Children are more susceptible than adults (except the elderly) to the adverse effects of air pollution because:

- Children are more active and breathe more rapidly.
- They have more lung surface area compared to their body weight and inhale more air kgm-for-kgm than adults.
- They have higher lung volume to body size, higher respiration rates and spend more active time in the polluted outdoor environment.
- When exposed to fine particles, children have slowed lung function growth, increased emergency room visits, increased incidence of asthma, bronchitis and crib death (CATF Report, Feb. '05).

Why then is the 'Precautionary Approach' not taken? Because the risk-based approach to public health is adopted instead i.e., wait until the dead bodies can be counted. Whilst diesel fumes are a known cause of lung cancer, health bureaucrats state they are "not yet sure" how big the problem is and "we have not identified the extent of the problem".

This is the classic risk-based approach. Ignore the evidence so long as it is not 100% watertight. Use uncertainty as an excuse to delay. Wait for the dead bodies to pile and then slowly acknowledge the need for action. Remember asbestosis? Precaution is not (yet) fashionable while risk-assessment is!

The risk-based approach to biofuels and unfiltered tunnels, as it also is for diesel and petrol, is to adopt the principle ‘business as usual’. This has the backing of powerful special-interest corporate groups harnessing governments to deflect and stymie the search for least harmful alternatives. So long as the exact size of the problem is uncertain, risk-assessors call for delay and more study. It is now clearly evident that the insidious delaying tactic of implementing a ‘filtration trial’ and a full biofuel adoption is to buy time politically and to patronize the oil cartels here. Tabled internal documents show because consultants can be ‘bought’ or ‘hired’ to reinterpret old data to cast doubt on the nature of a problem, action can be stalled for decades.

Doubt is a powerful helpmate when your goal is to maintain ‘business as usual’ and typifies the current mindset especially of Governments at state and federal levels. The risk-based approach waits for the holy grail of scientific certainty to emerge from the data. Then, alas, Government is likely to enact legislation to take away yet another of your ‘rights’ i.e., to litigate against sheer bureaucratic negligence.

### **Evidence why ethanol e.g., 10 percent ethanol blended with ULP is a benefit**

Spurious, untutored arguments continue to be used, especially by invested interests in the fossil-fuel industries, to thwart the introduction of ethanol as an alternative fuel on the grounds e.g., that research has not been undertaken in Australia “under Australian motoring conditions”.

However, as a result of recommendations by the Taskforce on Biofuels Inquiry (June, 2005), the CSIRO/Orbital undertook studies to test the emissions of ethanol/ULP in motor vehicles under Australian conditions. The CSIRO/Orbital Research Report (June, 2008) concluded:

See link:

<http://www.environment.gov.au/atmosphere/fuelquality/publications/pubs/ethanol-health-impacts.pdf>

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*The overall finding is that there is a health benefit to the Sydney population arising from a move from ULP to ethanol blends in spark-ignition vehicles. Based on the average fleet make up in 2006 this value is approximately \$16 million for a 50% uptake (by ethanol compatible vehicles) of E10 and is \$17 million per annum for a 100% take up of E10 in 2011. Potential health cost savings for Urban Australia (Sydney, Melbourne, Brisbane and Perth) are estimated to be \$39 million for a 50% uptake (by ethanol compatible vehicles) of E10 in 2006 and \$42million per annum for a 100% take up of E10 in 2011.*

*.... The overall benefit of using ethanol blends is overwhelmingly dominated by reductions in particulate matter. Sensitivity analysis reveals that although these values can vary significantly, the overall conclusion in respect of a health benefit is robust given the assumptions of the model.*

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- The testing of vehicle exhaust tailpipe emissions shows that, in broad terms,  $PM_{2.5}$  emissions are reduced by operation on ethanol blends. The PM reduction with ethanol blends was often seen to be statistically significant for individual vehicles. The PM emissions when operating on ULP were generally seen to increase with accumulated vehicle mileage with many of the vehicle model pairs in the test fleet showing this behaviour. In absolute terms the PM emissions when operating on ULP over the cold start CUEDC drive cycle were found to be, generally, below 5mg/km (the limit set for Euro5 diesel and direct injected petrol passenger vehicles).
- $PM_{2.5}$  emissions from the tailpipes of 2006+ model year vehicles that were tested showed a 19% decrease when using E5 and a 33% decrease when using E10.
- Particle size and particle distribution data suggest that approximately 94% of the PM emissions are present as  $PM_{2.5}$ , and approximately 85% as  $PM_{10}$ .

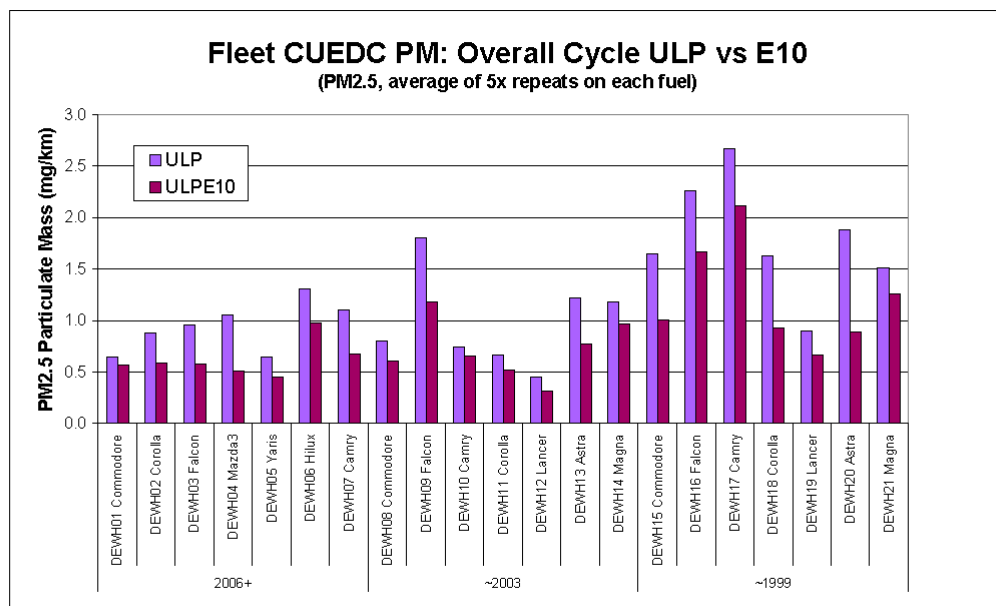


Figure 4-14 : Comparison of Fleet CUEDC  $PM_{2.5}$  for ULP vs E10

As a fuel additive, ethanol changes the emissions profile of unleaded petrol (ULP), creating a cleaner, safer motor fuel. Real-world evidence demonstrates that ethanol blending reduces municipal smog levels and cuts down on atmospheric concentrations of harmful toxins. **How valid are current standards for air-quality and health risk?**

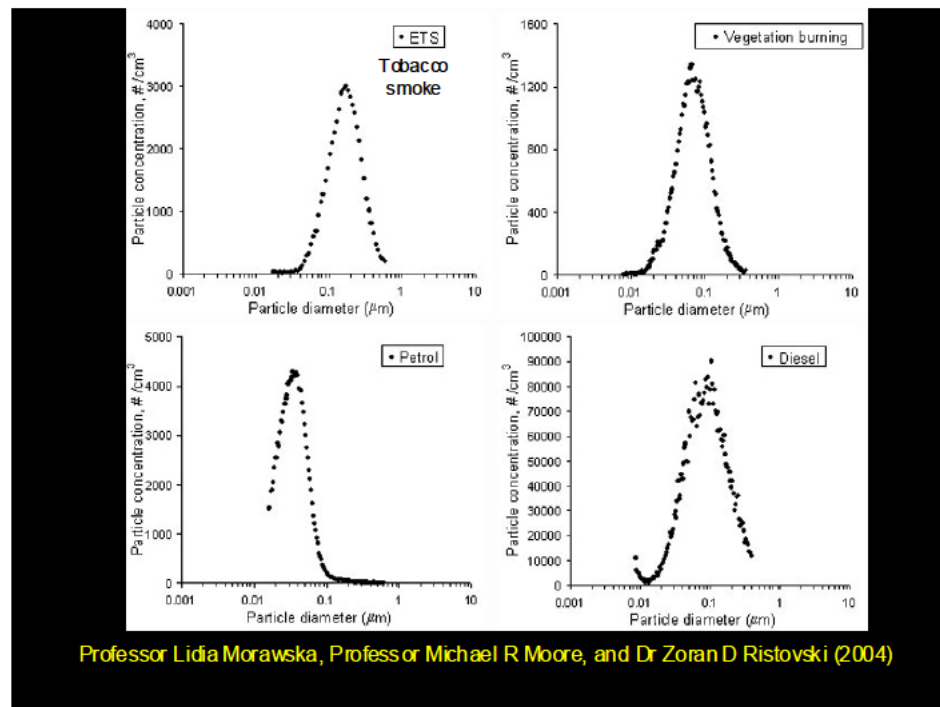
We are told by NSW Government politicians and their bureaucrats that “*NSW has stringent air-quality standards*”. NOT TRUE! The claim by former NSW Government that the  $PM_{10}$  measure “*is stringent*” is refuted by the findings of Professor Lidia Morawska and colleagues who found that only 3% of combustion particles between  $0.1\mu m$  and  $1\mu m$ , representing more than 85% of tail-pipe particles, are present in  $PM_{10}$  measurements.

Studies by Morawska & Thomas (2000) concluded:

*“ $PM_{10}$  measurements provide information almost entirely on particles generated from mechanical processes. In an urban environment, this could mean particles resuspended by vehicular traffic and mechanical wear and tear, but not on the emission of motor vehicles.”*



L. Morawska et al 2004 reported the distribution of particles in cigarette smoke, diesel, petrol and bush-fire smoke as follows:



Therefore, PM<sub>10</sub> measurement, as used for air quality, is **not** an instrument for evaluating traffic emissions. Today, nothing has changed!

The invalid PM<sub>10</sub> data for measurements of traffic/industrial emissions implies the health risk “assessment” is also **grossly under-estimated and flawed**.

Morawska’s research shows that PM<sub>1</sub> measurement provides very good information about contributions from the combustion engine and does distinguish “*traffic influence emissions*” from “*suburban background*”, unlike PM<sub>10</sub>

By using PM<sub>10</sub> measurements, the current air-quality particle measurements **exclude virtually the bulk of the constituent particulates arising from the tail pipe**. This exclusion then totally fails to acknowledge the existence of the **enormous surface area** (> 1000 fold) of respirable particles that carry toxins when only the PM<sub>10</sub> mass/M<sup>3</sup> measurements are made.

The following diagram illustrates the fact that weighing particles does not convey their toxin-carrying potential. Note that the CSIRO/Orbital report records measures of the fine PM<sub>2.5</sub> particles by weight and found a reduction of up to 33% in E10/ULP-blended fuel. This does not convey the enormous reduction in surface area of *soluble* fine particles as it would if numbers per unit volume were used as illustrated in the diagram below e.g., one-million soluble PM<sub>0.1</sub> particles are equivalent to one *insoluble* PM<sub>10</sub> particle, but have 100 times the surface area.



	<b>Fine Mode</b>	<b>Coarse Mode</b>
Formed from:	Gases	Large solids/droplets
Formed by:	Chemical reaction; nucleation; condensation; coagulation; evaporation of fog and cloud droplets in which gases have dissolved and reacted.	Mechanical disruption (e.g. crushing, grinding, abrasion of surfaces); evaporation of sprays; suspension of dusts.
Composed of:	Sulphate, SO <sub>4</sub> <sup>2-</sup> ; nitrate NO <sub>3</sub> <sup>-</sup> ; ammonium, NH <sub>4</sub> <sup>+</sup> ; hydrogen ion, H <sup>+</sup> ; elemental carbon; organic compounds (e.g., PAHs); metals (e.g. Pb, Cd, V, Ni, Cu, Zn, Mn, Fe); particle-bound water.	Resuspended dusts (e.g., soil dusts, street dust); coal and oil fly ash, metal oxides of crustal elements (Si, Al, Ti, Fe); CaCO <sub>3</sub> , NaCl, sea salt; pollen, mould spores; plant/animal fragments; tire wear debris
Solubility	Largely soluble, hygroscopic and deliquescent	Largely insoluble and non-hygroscopic
Sources	Combustion of coal, oil, gasoline, diesel, wood; atmospheric transformation products of NO <sub>x</sub> , SO <sub>2</sub> and organic compounds	Resuspension of industrial dust and soil tracked onto roads; suspension from disturbed soil (e.g. farming, mining, unpaved roads);

	including biogenic species (e.g. terpenes) high temperature processes, smelters, steel mills, etc.	biological sources; construction and demolition; coal and oil combustion; ocean spray
Lifetimes	Days to weeks	Minutes to hours
Travel Distance	100s to 1000s of kilometres	< 1 to 10s of kilometres

Research shows that the 75% of the toxins, including carcinogens among the polycyclic aromatic hydrocarbons (PAHs), are carried on **soluble** respirable particles < 2.5µm. Thus a 10% ethanol/ULP blend that reduces PM2.5 particles by 33% (CSIRO/Orbital 2008) has a significant health benefit.

Unlike overseas countries, Australia only has a standard for PM<sub>10</sub> but neither for PM<sub>2.5</sub> nor PM<sub>1</sub> – only guidelines which, unlike standards, are *not enforceable*.

The relationship between air pollution, death and disease has been studied for decades, leading to the consistent conclusion that combustion of diesel and petrol is among the most toxic sources of emissions today (USA Clean Air Task Force Report, Feb. '05) viewed at the link: <http://www.catf.us/publications/view.php?id=83>

See also NH&MRC Report (2008) on Air Quality Around Tunnels – link: <http://www.nhmrc.gov.au/guidelines/publications/eh42>

These exhausts contain numerous dangerous compounds, ranging from respiratory irritants to carcinogens including a host of air toxics, particulate matter, carbon monoxide and nitrogen oxides.

The very fine particles adsorb toxic gases and liquids onto their surfaces. On a weight basis, a billion ultra-fine particles are about equivalent to one coarse particle 10 micrometres in diameter (PM10), but have 1000 times the surface area. The fine particles are mainly soluble and penetrate deep into the lungs. Health research indicates that the invisible exhaust may be the most dangerous of all.

## Benefits of E10

The USA Renewable Fuels Association (RFA) reports that ethanol can reduce tailpipe soot and particulate emissions by as much as a qualified 50% overall, with the greatest reductions being achieved in the highest-emitting vehicles. (Dr. G. Whitten: See [http://www.ethanolrfa.org/page/-/objects/documents/69/nec\\_whitten.pdf?nocdn=1](http://www.ethanolrfa.org/page/-/objects/documents/69/nec_whitten.pdf?nocdn=1) ).

Given that the American Lung Association links these emissions to cancer, asthma, and heart attacks, ethanol blending can play an important role in improving public health.

Studies that depict ethanol as having a negative impact on air quality are based on computer modeling of hypothetical scenarios, and are consistently out of sync with

on-the-ground results of ethanol blending mandates in states and cities across the US. A study by Stanford University's Mark Jacobson sparked debate about ethanol's air quality impact. However, Jacobson's study has been criticized by the RFA and the Natural Resources Defense Council for making unrealistic assumptions and omitting crucial factors that affect real-world outcomes. Jacobson's concerns simply are not reflected in the real-world data. For example, ozone exceedance days dropped 16% in Wisconsin after adoption of a 10% ethanol blend. See links:

[http://www.ethanolrfa.org/page/-/objects/documents/1061/smog\\_reyes-jacobson.pdf](http://www.ethanolrfa.org/page/-/objects/documents/1061/smog_reyes-jacobson.pdf)

[http://www.ethanolrfa.org/page//objects/documents/1071/reapresponse\\_jacobson85.pdf?nocdn=1](http://www.ethanolrfa.org/page//objects/documents/1071/reapresponse_jacobson85.pdf?nocdn=1)

[http://www.pacificethanol.net/site/index.php/media/straight\\_story\\_article/345/](http://www.pacificethanol.net/site/index.php/media/straight_story_article/345/)

### A wake-up call!

Evidence is shown below of metabolic disruption of a mushroom species by petroleum products (e.g., diesel fumes) in an inner Sydney – Lane Cove Bushland Park. The phenomenon is known as 'rosecomb'. The epigenetic effect on morphogenesis – to cause gills to appear on the top of the fungus - is analogous to the effects of thalidomide and is an example of another metabolic disrupter in our environment.

## Disruptive selection

Increases the two extreme types in a population at the expense of the intermediate or hybrid forms.  
An example of disruptive selection in action is in studies of species of *Hygrocybe* growing on soils and creek banks exposed to heavier pollution



Low pollution



High pollution

*Hygrocybe reesiae*

'Rosecomb'  
due to petroleum products  
Abnormal changes (fungal teratology) in  
*Hygrocybe reesiae*  
Analogy is the effect of thalidomide



All photos copyright to Ray & Elma Kearney 17.3.12

## Summary of consultation questions

The following lists the proposed questions (blue) in the Discussion Paper to which responses are given.

### The policy environment

#### 1. Will the changes to excise arrangements proposed by the Federal Government have an effect on the use of biofuels by consumers?

##### **RK Response:**

- If the eligibility of biodiesel blends for a Fuel Tax Credit ceases then it is highly likely that this will result in the closure of the remaining biodiesel production facilities in Australia.
- If the proposed excise tax on ethanol and biodiesel is implemented from 1 July 2011, this in addition to the barriers to entry that the renewable fuels industry has encountered to date will create a landscape unlikely to support new investment in biofuels production capability in Australia and as these taxes rise to 12.5 cents per litre and 19.1 cents per litre respectively by 2015, it will lessen the probability of existing biofuels production facilities remaining competitive.
- If the announced compensation for various consumer groups for the higher prices of petrol and diesel due to the Carbon Pollution Reduction Scheme is implemented, it is highly likely that investment in the Australian biofuels industry will be delayed until the compensation ceases.
- If any combination of the above changes leads to a reduction of support to the biofuels industry in this early stage of its development and before the true value of carbon and security of supply is factored into normal market prices, it is highly likely that the biofuels industry in Australia will stall and any potential projects will find funding almost impossible to secure.

**(Ref: Biofuels Assoc of Australia - Submission 16 October 2008)**

The balance of payments is important because Australia is already importing 20-30% of both its petrol and diesel requirements, and in net volume terms, imports around 70% of its crude oil requirements. Even though Australia does export crude oil, the net balance of payments situation for petroleum in 2007-08 was a negative \$8.8 billion:

- Petroleum imports of \$A30.5 billion
- Petroleum exports of \$A21.7 billion
- Net negative balance of \$A8.8 billion.

This negative petroleum balance of payments is only going to increase as transport fuel demand increases and Australia's oil reserves continue to decline.

**(Ref: Biofuels Assoc of Australia - Submission 16 October 2008)**

## Effectiveness

### Ethanol

While these taxation policies have seen the ethanol industry expand its production to just over 120 million litres (ML) per year from first production in 1994, the industry has had to recover from a significant drop in demand in 2004 and 2005 due to marketing issues around higher ethanol blends.

Summary Table - Ethanol

Year	Production (ML)
2003	51.27
2004	23.63
2005	27.27
2006	60.05
2007	111.95

This means that the industry will not have developed to the extent necessary before net excise applies from 1 July 2011.

There has also been added uncertainty around significant changes in Government policy over the past 14 years, which has led to difficulties in attracting new investment. The Ethanol Bounty Scheme was cut short by the Government in 1996, a new fuel tax regime was announced after the Fuel Taxation Inquiry in 2000, and the current Government is signaling further changes to biofuels policy. In all that time there has only been one green fields production plant constructed in Australia, the Dalby Bio-refinery plant in Queensland with production due to start in October/November 2008. At that time there will be only 3 fuel ethanol production facilities in Australia, although there has been expansion of existing production facilities at the CSR Sarina plant and the Manildra plant in Nowra.

**(Ref: Biofuels Assoc of Australia - Submission 16 October 2008)**

### **Federal Coalition Commitments**

In October 2001, the Coalition (Howard Government) made a commitment to the use of biofuels such as ethanol and biodiesel to ensure biofuels provides 2 per cent of our transport consumption by 2010.

It also undertook to promote the production, distribution and transport use of ethanol and biodiesel in the knowledge that these fuels would provide cleaner air for our cities and new industries and jobs for rural Australia.

Meanwhile, it committed to maintaining the fuel excise exemption for ethanol and biodiesel and undertook to provide a capital subsidy from 2002/03 for new or expanded production infrastructure for biodiesel until total production is reached by end 2006/07.

In support of the Federal Coalition's 2001 Election commitment, we urge the current Federal and State Governments to:

- Expand the market for domestically produced renewable biofuels to:
  - reduce Australia's dependence on imported petroleum,
  - spur rural economic development creating new jobs and tax revenue, and
  - improve environmental quality by reducing emissions of harmful pollutants and greenhouse gases.
- Enact a more aggressive Renewable Fuels Standard than is currently in the legislation, noting biofuels offer an immediate alternative to imported fossil fuels. They are completely compatible with current transportation infrastructure as petroleum blending components of stand-alone fuels and in the longer term, is an ideal hydrogen source for fuel cells.
- Enact legislation to use ethanol as an oxygenate in petrol and to reduce levels of carcinogenic volatile organic chemicals e.g., benzene.
- Enact legislation that allows durable excise rebates for the greenhouse credits, urban quality and health gains from ethanol and biodiesel in proportion to their proven environmental and health benefits.

## **2. What measures can be taken to offset any possible negative impacts by the proposed changes to excise arrangements by the Federal Government?**

The author welcomes the bipartisan agreement on the taxation of biodiesel and ethanol produced in Australia.

The agreement will see the excise rate payable on biodiesel phased in equal increments over the next 16 years, beginning at 0% in 2015-16 and increasing to 50% of the diesel excise rate in 2030-31.

This proposal will now allow the industry to focus on the longer term and provides a sustainable footing for the biofuels industry to grow and delivers on the government objective of moving biofuels into the excise framework.

Without this agreement, the domestic biodiesel industry faces the very real possibility of forced closure by 2018. Now, with this proposal, Australian biodiesel producers are able to take a long term view and plan their growth.

### **Recommendation:**

That the timing for the implementation of the net taxes on biofuels be delayed for a further 5 years until 1 July 2020.

Reasons why?

- Market development has been much slower than anticipated because these biofuels are competing with fossil fuels that already have infrastructure in place.

### **Assistance needed**

- Assistance is needed in the general development of the biofuel industry. This includes new storages, crushers, refineries and associated infrastructure.
- Need to legislate fuel standards to include renewable biofuels such as biodiesel and ethanol-blended petrol.
- Address the escalating costs of e.g., growing canola crops because of enormous amounts of inputs, disease levels and diminished yields giving unprofitable returns.
- There is an urgent need to increase farmer confidence for canola and sugar cane.
- Long term excise relief (or domestic producers credit) is required to engender confidence that lenders will have debts/loans re-paid.
- Capital subsidy be provided for enhanced ethanol production to attract investment capital from prospective owners.

### **The ethanol percentage**

#### **3. Is a two per cent ethanol mandate appropriate?**

##### **No!**

Motorists have become more comfortable in recent years with using ethanol-blended fuels, with E10 widely available in south east Queensland. The two percent mandate proposed in the discussion paper is a modest benchmark, which will roughly double current sales of ethanol. A two percent mandate means 20 percent of all petrol sold in Queensland would be E10.

However, Katter's Australian Party, which has its roots in North Queensland's cane country, wants it set at 10 percent which may not be practical in the current agricultural scene where cattle farmers oppose it for political but untutored reasons e.g., not want to compete for sorghum (cattle food) which might be used for ethanol. When the mandate is in place, almost 90 percent of vehicles in Queensland will be compatible with E10 and this number will increase.

##### **A mandate of between 5-10% would be preferable.**

Ethanol is a renewable resource that is proven to have a lower particulate matter output, which is why groups like the Asthma and Allergy Foundation of America support the use of ethanol fuels.

Secondly, we have a problem in the country with fuel security and the more we can look at domestic production of fuel sources the better.

Thirdly, for motorists feeling the impact of high fuel prices, an ethanol blend is actually a cheaper fuel.



#### 4. Should the percentage increase, and if so, over what time period should any increases occur?

- The mandate should start in January next year (2016), rather than the currently suggested date of July 1, 2016.
- The proposed ethanol mandate of 2% in Queensland is too low. The capacity is there to go to a higher blend rate of higher than 3 or 4 per cent a lot faster.

Some 64 countries have mandates or targets e.g., Canada (2%); Argentina (10%); Brazil (25%); USA corn ethanol (14.4 in billions of US gallons); EU 5.75% to 10% by 2020; UK 4.75%; China seeks to move to a 10 percent biofuels mandate by 2020, and currently has a 15 percent overall target for 2020.

Originally, a Queensland ethanol mandate of 5% in all unleaded regular petrol was due to be implemented from 1st January 2011 – but uncertainty around the federal excise regime *postponed this move* and a bill to mandate the use of ethanol was *rejected* in October 2014.

NSW has 6% mandate but its full implementation has been vigorously thwarted by the oil cartels is all aspects to ensure political and market control. [ethanol blend in New South Wales, actual consumption is only about 3.1% because of market exceptions available to oil companies.](#)

Ethanol sales only hit 14.6 million litres in November, 2014, rather than the 28.21 million litres that should have been sold if the mandate had been enforced. The state pledged to impose a 10% blend as of 2011 but that has yet to materialize. At the same time, national oil imports have soared to A\$22.6 billion from just A\$600 million in 2001. This was accompanied by negative propaganda by the oil cartels and activities to discourage the sale of E10.

Unfortunately, the targets set out by the Biofuels Act 2012 have not been reached as yet and provisions under the act allowing for exemptions **have been exploited by fuel industry participants.**

In July 2013, the NSW government appointed an expert panel to advise them as to how they may be able to lift the blend percentage to the target 6% level. The renewable fuels have boosted Queensland's economy and brought environmental benefits over fossil fuels. A 2% seems more manageable but should increase to at least 6% , preferably higher, over the next 5-years.

In NSW it is common to see E10 bowsers tucked down the back as an after-thought because the oil companies would make less money out of an E10 blend. Simply having a bowser selling E10, would be a missed opportunity.

The State Government must bring in a phased-in mandate where the Government would require fuel retailers to have a certain percentage of ethanol in their overall fuel mix and this percentage ramped up over time, say 5-years.

The State Government should support jobs and industry in Queensland by fully embracing biofuels with a phased-in mandate for ethanol fuel.

## 5. What is an appropriate mandated percentage for biodiesel?

## 6. What timeframe would stakeholders need to prepare for and meet this requirement?

**As soon as possible!**

Industry needs *certainty* to make further investments. One of the important objectives is for all stakeholders, from growers to everyday consumers, to work together to galvanise investment into the industry and to do that stakeholders must have a clear and well-grounded regulatory and legislative environment to allow investment to take place for the long term. One outcome would be to bring about clear pricing signals and appropriate fiscal initiatives to encourage low carbon solutions.

## 7. When do you think that a mandate will no longer be necessary?

**Keep the mandate indefinitely!**

The renewable energy industry is the fastest-growing energy industry in the world. Because of a lack of *transformational leadership* and an illusion of knowledge by many politicians, coupled with the influence of the oil/car cartels, we are locking ourselves out of it. For example, domestic biodiesel producers say the application of excise when the market is shrinking will make biodiesel production uneconomic within four years.

The same market shrinkage is occurring in Australia's ethanol industry, where Ethanol Production Grants will also be scrapped.

Combined with the loss of mandated targets, and the poor uptake of ethanol-blended fuel, E10, producers are lamenting the loss of a market they were investing heavily in just four years ago. The Queensland government scrapped its 5 per cent mandate on ethanol in 2011.

Put squarely, the market which was promised by successive State and Federal governments was simply - ***not delivered!***

Australia produces minimal volumes of bioethanol – about 400 million litres annually – compared to the US and Brazil, where annual output is over 20 billion to 30 billion litres. Both countries heavily subsidise their ethanol industries. The indifference by successive governments here has led one Review of the Australian ethanol industry to conclude it was “unlikely to be commercially viable” at current market prices for feedstock. (Bureau of Resources and Energy Economics, Feb, 2014).

Meantime, biodiesel imports have jumped almost five-fold in the past year, as international producers and local consumers take advantage of a double subsidy on imports.

The impact of the secretive negotiations of the **Trans Pacific Partnership** has yet to be evaluated.

Oil is a finite resource and experts predict it will run out within 30-40 years. At present, the capacity is not present to satisfy demand should another oil crisis arise in the Middle East. Different replacement options are being developed. Among them are biofuels, including biodiesel and ethanol that do have the potential to herald in a brighter, more sustainable future - *if they are developed wisely*. Even the sheikhs, e.g., in the United Arab Emirates, realize that the oil age will not last forever and have launched into renewable energy initiatives, including biofuels.

Australia, with its large land mass, relatively small population base and unique position in the world, has the potential to be free of fossil fuel dependency in its transport sector by the year 2025, through the development of biomass (e.g., grain-starch, cane-sugar and cellulose) to biofuel processes. **Solar energy** captured in plants by photosynthesis incorporating carbon dioxide and water in the synthesis of simple and complex sugars e.g., sucrose and cellulose, respectively, and a variety of vegetable oils *is released in the combustion of liquid biofuel products*.

By blending ethanol with petrol, overseas experience confirms it extends petrol supplies and provides a major boost to rural economies and farm income. Ethanol reduces dependence on foreign oil as well as reduces harmful vehicle emissions, ozone pollution and greenhouse gas-forming emissions.

However, Senator Barnaby Joyce is right to be alarmed when he stated in the Senate Inquiry on Future Oil Supply, 10 July 2006: *“Do you know any other Western country in the world that has the same lack of intent to find a bio-renewable alternative to oil as Australia? Is there any other country in the world that you can think of that would be as slow as we are on the pick-up of this?”*

Australia needs to act now to develop an economically sustainable alternative fuel industry. This needs to include, but not be limited to, production of ethanol in this country... This will be the catalyst that will keep our nation running for decades. It will strengthen our economy by creating a new export industry and could generate much-needed job growth in regional areas. Australia is falling behind much of the rest of the world in securing alternative fuels for the future. It is time to catch up. Despite this, E10 is available at more than 600 service stations nationally.

Australia's backwardness is illustrated by the fact that flexible fuel vehicles able to run on ethanol blends from E10 to E85 have been available in Brazil, Europe and the US for many years and production is growing - but not now here!

Furthermore, the Australian Government regulations limit the proportion of ethanol in petrol to 10%. This constraint reflects the reluctance of the motor vehicle manufacturers to honour vehicle warranties when higher blends are used.

The biofuels industry in Australia is currently fractured and complex, with each state having its own policy positions- and that is what the oil cartels want backed by the patronage of politicians seduced by lobbyists.

Unfortunately, but not surprising, the targets set out by the NSW Biofuels Act have not been reached as yet and provisions under the act allowing for exemptions **have**

**been exploited by fuel industry participants. Hence the need for an indefinite mandate.**

**The biofuel's industry in this country desperately needs TRANSFORMATIONAL leadership!**

## **Liabile parties**

**8. Is the class of retailer appropriate? Should the definition be expanded to include those with less retail sites?**

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

The question needs qualification!

There is support at national and state levels for a greater role for biofuels in transport. However, the Australian Government regulations limit the proportion of ethanol in petrol to 10%. This constraint reflects the reluctance of the motor vehicle manufacturers to honour vehicle warranties when higher blends are used.

## **Incentives to increase demand for ethanol**

### Mandate E10

#### **Response:**

- For comparison, Brazil already requires 25% ethanol in petrol. The success of the ethanol industry in Brazil and USA has been dependent upon mandating.

Australia's Federal Government has foolishly opted to patronize the Oil Cartels in the naïve belief that a 'gentleman's agreement' will suffice to meet the ethanol goals. To address the current political dickering with the Oil Cartels, state governments should implement a mandate for E10 in the first instance to make it obligatory for the Oil Cartels to comply with such legislation, requiring E10 to be made available at the pump, by law. The current proposal to mandate E10 to perhaps replace ULP is praise-worthy.

### Incentives to convert cars to E85

#### **Response:**

- Similar incentives as currently being offered by the Federal Government to convert cars to E10 or LPG.
- Free parking in the city because of very low pollution from E85, similar to what is offered in Sweden to motorists who purchase a Saab 9-5 E85.

### Motor vehicle registration concessions

#### **Response:**

- Remember the cost of health impacts in Sydney alone from vehicle pollution from the combustion of fossil fuels is over \$2 billion dollars annually. This is the classic method of the corporate stakeholder augmenting profit **by passing health costs to the community**. An incentive for motorists would be to reduce

costs of registration to clean fuel users and levy the oil companies a ‘health-cost tax’ on their profits.

## Reporting requirements

### 10. Is this level of detail appropriate for liable entities?

### 11. Is there any other data or information that should be requested in the quarterly reports?

One very good reason for starting/supporting a biofuels industry in Australia is to make up for the **catastrophic plunge in domestic oil production** and the rise in oil imports, putting unbearable strain on the country’s balance of payments. To continue to studiously ignore this issue threatens to derail every single initiative that a future Federal Government may wish to undertake, as more and more of the country’s income is diverted to paying for oil imports.

For the past six years, the rising costs of imports imposed a balance of payments deficit that grew from less than \$1 billion in 2000-01 to \$7.4 billion in 2007. Already oil imports account for 67 percent of Australia’s balance of payments deficit in goods and services - a situation that is intolerable and is rapidly getting even worse. Australia’s current import bill for petrofuels is \$21.5 billion - as against exports of oil and gas of \$12.3 billion.

Australia is a land made for biofuels but is currently ranked No.14, **when it could easily be No.1**, in the world’s exciting biofuels revolution. The Federal Government makes absurd, tokenistic gestures such as a ‘biofuel target’ of 350,000,000 litres by 2010 (just *one percent* of current fuels consumption) and patronizes the petroleum industry by not mandating biofuels nationally.

NSW has led the way in a mandate, after being advised by a private stakeholder that States do have the constitutional powers to legislate, but only up to E10 (10 percent ethanol, 90% petrol). In befriending the powerful oil cartels, the Federal Government continues to impose upon our home-grown green fuels the same excise taxes as for imported fossil fuels from the Middle East. Meanwhile, a vicious anti-ethanol PR campaign financed by the foreign-owned oil industry in Australia has been allowed to run rampant, nationally.

### 12. Can this information and data be used in other ways to support industry?

## Exemptions

### 13. To ensure the exemption framework is effective, what would be a reasonable timeframe for response to a request for exemption?

### 14. How can Government ensure that an exemption

## Penalties

### 15. Are these penalties appropriate?

### 16. Do they incentivise liable parties to meet their obligation?

Question needs qualification.

According to the Australian Bureau of Agricultural and Resource Economics, the total **invested** in 2004-05 in the petroleum and coal mining industries, in petroleum processing and in electricity and gas (i.e., in all fossil fuel related energy industries) was **\$17 billion per year**. Professor John A. Mathews from Macquarie University's Graduate School of Management in Sydney has proposed an investment *over a decade* for biofuels of \$7.5 billion. **This is less than a half of what is already being invested in fossil fuel related energy industries in just one year**. He said *"There exists a clear alternative to continued investment in the fossil fuel industry, and that is investment in biofuels, which are ideally adapted to the Australian climatic and geographical situation"*.

The key that unlocks the potential of renewable energy sources for development is - as discovered by Brazil - flexi-fuel vehicles, coupled with investment in modern biorefineries.

While much of the debate over biofuels turns on claims that ethanol and biodiesel have less energy than petrofuels, the reality is that ethanol is a near-perfect substitute for petrofuels because it has a high level of energy (around 67 percent of the equivalent volume of petrol) and generates more power than the equivalent volume of petrol.

The great attraction of biofuels is that they are, in principle, greenhouse gas neutral: every molecule of carbon burnt and emitted into the atmosphere is replacing one that has been extracted from the atmosphere by a growing plant in the process of photosynthesis. In Australia, the food versus fuel fears should be put to rest - partly by the capacity of the country to expand food crops as well as *bio-energy* crops. As second generation biofuels come on stream, e.g., cellulosic ethanol, utilizing agricultural wastes and residues which are non-edible, the tensions between food *versus* fuel will diminish.

Today, Australia's best farmers are producing approximately the same amount of wheat from half the acres in a time of declining rainfall and at times, severe drought conditions. The two main reasons for these productivity gains have been the breeding of plant varieties to withstand dry times and still produce good yields, coupled with conservation farming practices. Farmers who fail to adapt will most likely be bought out and taken over by the more efficient operators - including overseas multi-nationals.

The next century promises to be the century of the bio-economy, as many new sectors based on bio-processes and bio-energy come to the fore. Professor Mathews and others believe Australia can be a lead player in these sectors, in the way that it was once a producer of agricultural commodities

## 17. If the mandate increases should the penalties change?

### Expert Panel/Implementation Board

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

Stephen Hawking observed - "*The greatest threat to knowledge is not ignorance but the illusion of knowledge*"

Put another way with a line from the famous Persian Proverb - "*They who know not and know not that they know not - are fools - shun them!*"

Australia urgently needs an industry *cooperative* of proactive biofuel stakeholders to passionately promote consumer awareness, policies, regulations, initiatives in research and development as well as to respond to misleading information mischievously promulgated through mainstream media. Such a voice and influence will aim to defend biofuels as one of several viable options to fossil fuels and will lead to the increased production and use of fuel ethanol and biodiesel.

Such a credible and organized voice of the biofuels industry would *provide strong advocacy, authoritative appraisal* and analysis of relevant issues as well as being a repository of important data critical to the viability of the industry. As a united voice, the Coalition would be the interface with relevant federal and state government agencies, policy-makers, biofuel strategic partners, marketers, the media and the general public.

All of these matters therefore must constitute the common purpose of such a coalition. "Expert Panels" are often made up of individuals with conflicts of interests and patronizing of government.

## Why the current demise and how to reverse it?

What is desperately needed is leadership and an understanding of what is implied.

There needs to be a leadership paradigm shift from the current situation regarding 'Biofuels in Australia'. It is not about tweaking a few things with some flavor-of-the-moment techniques, it is about fundamentally changing the way that many conceive of leadership and organizational structure. This paradigm shift will solve many of the problems that 'Biofuels' are facing in Australia by taking away the assumptions and conditions that give rise to them, and it will significantly raise the performance of a biofuels organization.

This needed shift is a manifestation of intelligence. It is not a substitute for sincerity, nor can it work properly without sincerity, nor is sincerity alone sufficient without intelligent considerations. Unfortunately, many people have the wrong idea about leadership. People are not "under" a leader, if they are following a leader they are *behind* them. Leading means to be out in front. Leaders do not enjoy a position or power, they *respond significantly to a necessity* - in other words, they manifest *responsibility*.

Followers who orbit around a leader are in a cult situation. Rather, good leadership is where followers and leaders form an action circle around a **common purpose**. Thus to *be* a leader means *to lead* - it means to respond to the needs of the situation to a proportionally greater degree than others. It means to recognize what the needs of the situation are, what your abilities are, and to match the two up with courage and determination.

To date, Biofuels Australia seem lacking in this kind of leadership that is reflected in campaign impotence and mediocrity. Leadership is a question of quality and activity - not one of position.

People can lead without a formal position or title, but if a person has a position without leadership quality and activity they seem only a shadow, and an organization that relies on that is merely the shadow of an organization, and its outcomes will be just as ephemeral.

An efficient **organizational structure**, then, has a philosophy where different people contribute their respective strengths to a **common purpose**.

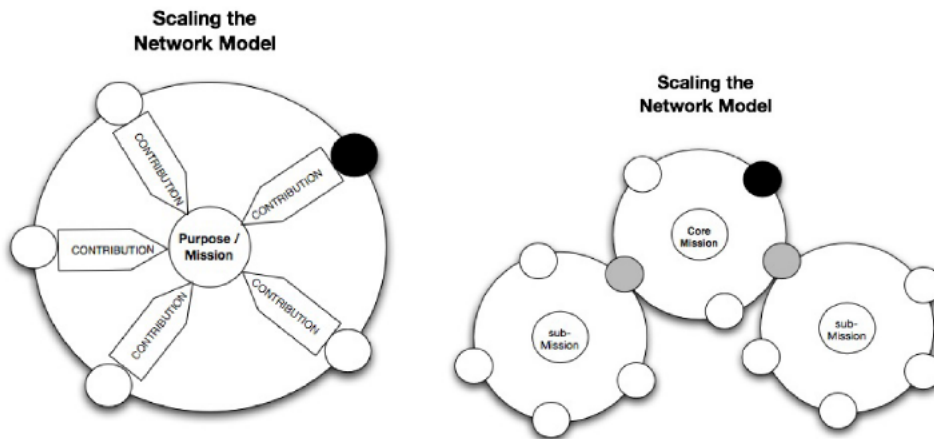
In the manifestation of a **hierarchical organization structure** familiar to all of us, are the formal structures that surround us in contemporary corporate, civil governance, and military contexts. Here power is progressively concentrated toward the top. **Responsibility** flows upward: “subordinates” answer to their “superiors”, but superiors do not necessarily have to account to their subordinates. **Control** flows downward: “superiors”, or positional leaders, direct and control “subordinates”. This model lends itself to creating a focus on capturing and holding a position, rather than on contributing strengths. Reward and punishment maintain this structure. It is not a system that is based on motivation through inspiration or voluntary cooperation. Such a structure seems to contribute to the current demise of biofuel’s advocacy in Australia.

In the **network organization model**, being proposed, rather than focusing on power relationships between the participants in the organization, the focus is instead on the **mission** and the abilities of the participants to contribute to furthering that mission. The network paradigm relies on an infinitely renewable resource: **inspiration**. People are inspired to follow because the leader is responding to a need to a significant degree.

Here is how to scale the network leadership paradigm in a proposed Biofuels Cooperative:

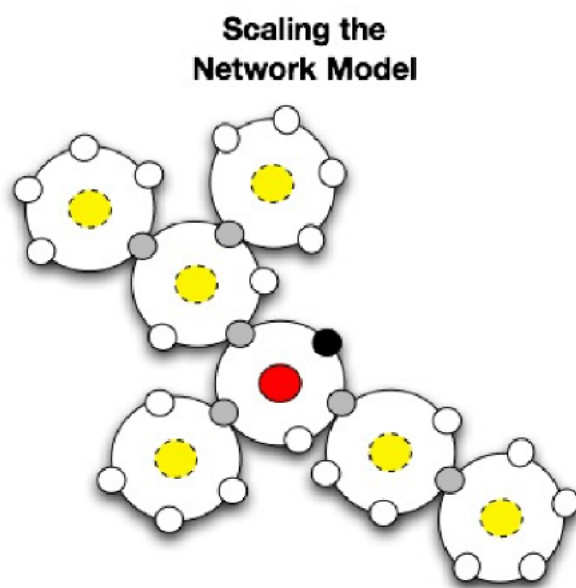
- Take the core purpose or mission objective and build an initial team around it
- Break the core mission into prescribed sub-objectives
- Build a team around each sub-objective
- Recompose the team around the core objective with the leaders of the sub-objective teams
- Repeat *ad infinitum*





Each team feels ownership of the portion of the mission that corresponds to them, because they do own it. They own both the process and the outcome. That same dynamic integrated teamwork has the opportunity to manifest entrepreneurial spirit, leadership, risk and responsibility. The team and its members may take advice and counsel from outside their circle, especially initially, but that mission is wholly theirs, and this stimulates their response.

Eventually you are going to end up with something that looks like this:



In this model, span of control is limited. It is not one person with a thousand dependents (who then falls down taking them all with them as appears to be the case in Biofuels Australia). What connects each person with the others is their common relationship with the mission. **Mission alignment** is the glue that holds everything together and keeps it on course. The central mission is shown in red (for those viewing this in color). The sub-missions are shown as a dotted circle in yellow.

One thing that we should note carefully about the network model is that there is *leadership at every level*. It's not that there are some people in the organization who are “the leaders”, and the rest are powerless. All members of the organization are responsible for creating the organization and pursuing its mission through their actions.

Leadership is not the domain of a particular class of people. It is not that some people are leaders and others are followers. We *all* lead in some contexts, and follow in others. *Leadership is an action, not a position*.

To lead means *to be out in front by responding to a need to a greater degree than others*.

We each have an area where we have the potential to provide leadership to others. Because we are all unique individuals, we are all uniquely suited to *something* in a way that no-one else wants it. We all have the potential to make a significant contribution that meets a need in such a way that it puts us out in front of others – in other words, in a leadership role.

For a given person - what is their unique make up, the one that uniquely qualifies them to step up to a need and fulfill it in a way that utilizes their talents, gives them the experience of accomplishment, and satisfies their desire to contribute?

For some, that area of talent and contribution is: *To provide clarity and direction in situations of confusion and uncertainty*. Such is one objective of this document i.e., to identify appropriate individuals with proven abilities and talents to contribute to the

**Common Mission** as well as to provide comments about a new dynamic biofuels coalition/cooperative.

In short, such a Coalition must seize every opportunity to adopt a real leadership role and move Australia further along the path of energy independence in which renewable biofuels are a viable alternative.

### **Preliminary suggestions:**

The following represents a brief commentary on which such a coalition can be formed:

#### **A) Coalition's focus:**

The organization needs to identify and agree on its purpose, identify its problems and issues and focus on priority objectives.

Assess the current situation, including the current reality, the sources of power and current capacity, and possible starting points for creating change.

#### **B) Formulate campaign goals:**

1. Current situation
2. Our AIM – Where do we want to be?
3. Our OBJECTIVE – How do we get there?
4. Our STRATEGY – Which way is best- the big picture?

5. Our TACTICAL PLAN – How can we make sure we achieve our aim – day to day tools?

1. Current situation

- a) What is our target audience(s)?
- b) What is the message to which they respond?
- c) Children vs adults; amateur vs professional, citizen vs politician/bureaucrat

2. Developing our OBJECTIVE

- a) SMART – Specific  
Measured  
Achievable  
Realistic  
Timeline

• **Who are we?**

- a. Who are we? What perspectives and identities do we bring to our campaign?
- b. Do we represent someone besides ourselves? If so, what is our accountability to these people?
- c. What are our sources of power?
- d. What are our sources of legitimacy and credibility? From the perspective of those we represent? From the decision makers' perspective?
- e. What risks do we face? What are we afraid of? What might happen if we take action?
- f. What are our values? Why are we engaged in advocacy? How do we want to work together as a group or coalition?

• **What is the problem?**

- a. Who does the problem affect? How? For example, how large is the biofuel-affected group relative to the total population? How intensely does the problem affect people's lives? Does the problem affect different groups differently?
- b. What causes the problem? e.g., threats to mandates.
- c. Who is responsible for addressing the problem?
- d. What are possible solutions?
- e. What will the impact of these different solutions be on the entire affected group? Subgroups?

• **What is our vision of change?**

- a. Identify common ground and build cohesion
- b. Motivate people who do not yet believe change to biofuels is possible or desirable.
- c. Evaluate alternative solutions
- d. Identify practices and behaviours that can be enacted in the present
- e. Imagine a future world that is different for their children and grandchildren
- f. Call 'members' to action now to build toward changes that may not be fully realized in their lifetimes. Peak oil etc.
- g. Bring forth a sense of purpose as a significant sustaining force

To create a **vision** for the group, the following might be asked:

- a. If the changes we want happen, what would be different? Whose lives and what outcomes would be improved? How?
- b. If we created a world based on our belief in the value of biofuels, what would be different?
- c. Will the solutions we want help to create this world with renewable clean energy? How?
- d. What can we do now to begin to create this world on a smaller scale - in our relationships with the oil and car industries, government, communities, organizations, and/or civil society?
- e. Imagine that we resolve all the problems we identify. Imagine a morning ten, twenty, fifty, one hundred years from now. When people awaken, how do we want the world to be regarding biofuels as one alternative to fossil fuels?

- **What objectives - or piece of our vision - are we focusing on?**

Some may be able to see what is needed, but our vision may seem so big, so complex - how could the biofuels coalition possibly do it all? The key is to focus on one piece of the vision - one set of objectives.

As you focus, remember that objectives have short-term and long-term, outward and inward, and multi-levels.

To choose a set of objectives, we should think about which piece of the vision is:

**Important enough?**

- To build the support and/or active involvement of those affected by the issue? Of potential allies? (For example, is it a priority issue for them? If not, will they at least support your efforts?)
- To engage the general public?
- To build toward a vision?

**Small enough to achieve in the short-term (six months to two years)?**

Many steps - and people's sustained involvement - will be needed to reach long-term objectives. A small, achievable step that leads to visible, concrete results will give the group a sense of progress and momentum while the group builds confidence, skills, and support.

**An opportunity to build skills and facilitate grassroots empowerment?**

Inward objectives are incredibly valuable. By drawing people in and creating opportunities for people to “learn by doing,” an advocacy effort can build its long-term capacity, and strengthen and sustain itself in the long run. By investing in “hands-on training” for those directly affected by the issue, advocacy efforts can also begin to shift the power of who can be an “advocate” and who can participate in public argument and problem solving.

Inward objectives also link to outward objectives. By drawing people into the effort, especially those affected by the problem, an advocacy effort broadens its grassroots base and increases its credibility and legitimacy - both to the affected groups and to the key decision makers.

### 3. Strategic plan

a) A campaign is a huge task and must be divided and delegated with precise deadlines.

Issues:

- What does the Biofuels Group want? (goals)
  - Who can give/get it? (audiences)
  - What do they need to hear? (messages)
  - From whom do they need to hear it? (messengers)
  - How can they hear it? (delivery)
  - What is there to deliver? (resources; strengths)
  - What needs to be developed? (challenges; gaps)
  - How to begin? ( initial steps)
  - How to know if the campaign is working? (evaluation)
- “SWOT Analysis.” Where SWOT stands for “Strengths, Weaknesses, Opportunities and Threats,”

### **C) Organizational considerations:**

What organizational considerations do we need to bear in mind? What are our philosophies and policies? What are our strengths? Constraints? Consider key organizational priorities such as gender and cultural diversity, and fundraising objectives. What level of priority does this campaign have? What resources are likely to be available for this campaign?

- SWOT analysis
- Team Types

### **D) Key players:**

Who are the key players? Campaigns involve key decision makers, opponents and allies. We need to get beyond ‘the community’ and ‘the government’ to a deeper analysis of those we are trying to influence and those that can help us. Identify primary targets – the people who can give what is wanted. Decision makers are often individuals within government or corporations. Identify secondary targets who have influence with primary targets. Who will be our key allies in this campaign and how will we work with them Analyse targets in terms of what motivates them, what they fear and who can influence.

Who will be involved in the campaign and what will their roles and responsibilities be? Team members provide some detail about their time available, roles and responsibilities.

**E) Communications:**

What messages do we want to communicate? What key messages will be most appropriate to motivate specific audiences (primary and secondary targets, key allies, constituents, media outlets) to take specific actions (tactics) to support the campaign objectives?

**F) Contributor and community engagement:**

How will you engage constituents (members and the community)? What role will activists, donors and supportive community members play in the campaigning? How will the strategy build our support base? What resources are required to effectively engage people? How will the proposed actions by activists and constituents dovetail with other campaign timelines?

### **19. How can the panel discharge their responsibilities appropriately and facilitate the required mandate being met?**

A real problem for such a 'panel' or coalition is the Federal Government's Energy White Paper (EWP) fails to respond to our worsening fuel security position. Instead of supporting immediate real solutions by promoting biofuels (like the rest of the OECD nations), Australia's plan is to wait for the market to sort something out! That is an alleged dereliction of a duty of national care and responsibility!

As our oil industry has restructured, with 80 - 90% of our fuel now imported and only **a couple of weeks stock held onshore**, maintaining supply is not seen as a problem because shipping will never be a problem to Australia ....is the current foolish mindset in a highly unstable Middle East.

Our national future will NOT see a long bright future for the fossil fuels industry in this country based on foreign oil. **We must have our own energy security** and not underwrite jobs for foreign oil refinery workers and do little to support research, development and technology or jobs in regional and rural Australia - as is the effect of the Federal Government's EWP.

The EWP is silent on policies that ensure the vehicles we purchase today can use the fuels of tomorrow. The European Union and USA already have policies that ensure all imported vehicles sold are compatible with higher blends of ethanol and biodiesel fuels for example.

### **Incentives to increase ethanol production**

#### a) Incentives for production facilities

**Response:**

- The petroleum industry, in this country, MUST recognise that ethanol is a reliable component in meeting consumer demand for clean, affordable fuel.
- In the USA 30% of petrol sold is blended with ethanol. In all of Australia the goal has been to achieve 350 million litres of biofuel (biodiesel and ethanol) i.e., less than 2% of fossil fuel sold in the market place. This highlights the humbug recommendations of the Biofuels Taskforce (2005) and underscores the Australian impediments to ethanol production that must be identified and

rooted out. The NSW proposed mandate (for debate March, 2009) to require all ULP to be replaced by ethanol blends by 2011 was a bold, positive step. However, it requires strong advocacy from the Biofuels Coalition to ensure the misinformation (e.g., food vs fuel) in mainstream media does not spook some of the borderline politicians in Government.

- Assistance is needed in the general development of the biofuel industry. This includes new storages, crushers, refineries and associated infrastructure.
- Need to legislate fuel standards to include renewable biofuels such as biodiesel and ethanol-blended petrol.
- Address the escalating costs of growing crops e.g., canola, grains and sugar-cane, because of enormous amounts of inputs, disease levels and diminished yields giving unprofitable returns.
- There is an urgent need to increase farmer confidence for e.g., canola, grains and sugar cane.
- Long-term excise relief (or domestic producers credit) is required to engender confidence that lenders will have debts/loans re-paid.
- Capital subsidy be provided for enhanced ethanol production to attract investment capital from prospective owners.
- Establish farmer cooperatives (overseas model) to manage grain production and distribution as well as ownership of new ethanol producing facilities. Keep overseas multi-nationals off-limits!
- One of the most important ways to make sure the rural economy is strong is to promote value-added processing, like ethanol production. The dramatic expansion of ethanol production in the USA has been spearheaded by farmer-owned ethanol plants. By 2003, 32 of the 72 ethanol plants across USA were farmer owned. These plants create thousands of new jobs while raising profits for all farmers. NSW must develop the knowledge and skills to implement such ventures.
- By working together, we can create a strong rural economy and reduce our country's dependence on imported energy supplies.
- Establish an expanded Renewable Fuels Association (RFA or equivalent) that provides technically accurate and timely information to the auto manufacturers, and technicians, the media, the policy makers, marketers, refiners and the general public.
- Provide 'RFA members' with the information for informed business decisions.

## **Incentives to increase ethanol distribution**

### Incentives for service station conversion to ethanol

#### **Response:**

- Legislate for the removal of all negative signs and labels referring to 'ethanol'.
- This must be integral with strong Federal and State support of Renewable Fuels as part of a national energy Bill. Enacting these forward looking policies will keep the ethanol expansion growing strong.

Incentives for blending and distribution facilities**Response:**

- Appoint an 'Independent Watchdog Board' to oversee probity issues in 'fair trading' in the availability, supply and cost of petrol for blending.
- An adequate ethanol distribution system must be developed without being stalled by the bureaucratic incompetencies and impediments that characterize the current NSW Regulatory Authorities.
- Adequate stocks of ethanol must be in place.
- Distribution terminals (where appropriate) must be retrofitted (with financial assistance and/or tax incentives) to accommodate ethanol delivery, storage and blending.
- Adequate stocks of reformulated blendstock for ethanol blending must be produced and distributed.

Incentives for the establishment of terminals and depots**Response:**

- Must keep bureaucrats out and limit oil-industry monopoly. Incentives needed by way of tax concessions for construction and or retrofitting.

Targets and timeframes of service stations with the capacity to supply E10 ethanol**Response:**

- Need a broad integrated strategy to include the introduction of E85 and flexi-vehicles with a timeline.

**Case of government gagging:**

Former CSIRO scientists say they have been pressured over talking about climate change [Published 14th February 2006 05:18 PM GMT]

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Australia's government-funded Commonwealth Scientific and Industrial Organization (CSIRO) said (February 14, 2006) that it would hold an investigation into claims scientists had been discouraged from publicly discussing the effects of climate change.

The claims, which follow close on the heels of similar accusations in the US, arose Monday night on the state-run broadcaster ABC TV. **During a current affairs program, three former CSIRO scientists said they had been censored in one way or another by the national government.**

One climate scientist, Barrie Pittock, said he was asked not to write in a government publication about the potential for people to be displaced by climate change. Pittock is currently an honorary fellow at CSIRO, meaning he does research there but is not on salary, a spokeswoman for CSIRO told The Scientist.



Another scientist, Graeme Pearman, who was laid off from the CSIRO in 2004, said he was told not to make any comments indicating he disagreed with government policy on emissions. “At least a half a dozen times over the last year that I was with CSIRO,” he said in the program.

The third scientist, Barney Foran, who retired, said that last August (2005) he had received a telephone call at his desk from CSIRO’s “corporate centre” explaining that the Prime Minister’s department had just requested that he **“did not say anything about ethanol.”**

## **Protecting the environment**

### **20. Are these sustainability principles appropriate?**

Momentum for the use of biofuels as an alternative to petrol and diesel is starting to shift once again around the country with the Queensland government planning to join NSW in mandating ethanol and biodiesel. Governments at all levels recognise the role that increased use of biofuels can have on creating the next generation of jobs, improving health outcomes through reducing harmful emissions, assisting in decarbonising our liquid fuels and reducing our reliance on imported fuels.

The announcement, by the Queensland government, provides investor certainty for the industry with respect to future excise arrangements, also sends a definite signal to the wider community that biofuels have an important role to play in helping Australia create a more sustainable future - and more!

Ninety eight percent of the energy currently used in the transportation industry still derives from fossil fuels, and transportation is responsible for more than a quarter of the world’s greenhouse gas emissions. Biofuels are capable of significantly reducing the carbon emissions of Australian transport, as well as strengthening our fuel security.

According to *Biofuels Association of Australia (BAA)* *"almost every new car on sale today can already use fuel blended with either ethanol or biodiesel. By 2020 a recent report commissioned by the BAA suggests over 98% of all petrol vehicles on the road in Queensland will be able to use E10 and all vehicles will be able to use at least B5 biodiesel."*

By supporting biofuels we are also supporting our farmers, the Queensland economy as well as increasing rural and regional employment.

## **Petroleum-based transportation fuels– the biggest polluter**

- U.S Environment Protection Agency (EPA) claims gasoline is the largest source of man-made carcinogens.
- In USA, deaths from effects of air pollution exceed those of breast and prostate cancer combined.
- Deaths from air pollution exceed those from traffic accidents.

### WHY are the petroleum-based transportation fuels– the biggest polluter?

- “The corporate philosophy of the oil and car industries has **prevented** consumers from buying safer, cleaner, more sustainable fuels and transport choices. **That has stunted the biofuels industries.**”
- “Oil and car industries have **acted again and again** to **deceive regulators** about the hazards of their products and have used their wealth to **hamstring attempts** by state and federal legislators to make laws that address such threats.”
- “The oil and car companies have **stalled the introduction of cleaner-petroleum vehicles** by fighting fuel economy standards, and hindered the introduction of alternative fuel cars by misleading regulators and consumers e.g., by zealously lobbying lawmakers against mandates to offer these products to the public and have deceived lawmakers, regulators and the public about the technology, utility, and cost of such alternatives.”

Terry Tamminen ‘Lives per Gallon’ (2006)

### The Risk-Based Approach to Fossil Fuel

Principle is to adopt “business as usual.”

- Has backing of powerful special-interest groups harnessing governments to deflect and stymie the search for least harmful alternatives.
- So long as the exact size of the problem is uncertain, risk assessors and reviewers call for delay and more study.
- Because consultants can be ‘bought’ or ‘hired’ to reinterpret old data to cast doubt on the nature of the problem, action can be stalled for decades.
- Doubt is a powerful helpmate when your goal is to maintain “business as usual.”
- The risk-based approach waits for the holy grail of scientific certainty to emerge from the data - until then, just do nothing.
- Risk assessment is not a technique that can protect the public from toxic chemicals.

### Risk assessment is not a science, but is largely an art.

- Instead, it is a technique that gives the public a false sense of security, while allowing health damage to occur.
- People, including scientists, who claim to be able to determine 'safe' doses of chemicals based on risk assessment techniques are deceiving themselves and - - worse -- misleading the public.
- Assessors will make different judgments when faced with the same data (or the same lack of data).
- Yet risk assessment is routinely characterized in the media and elsewhere as a scientific enterprise -- a characterization that is misleading at best, and intentionally deceptive at worst.

## **Oil Industry admits combusted fuel is toxic but suggest callous and insulting remedies:**

- Response to more stringent air-quality standards is strident. – *“The effects on people exposed to ozone are short-term and reversible and people can adapt to it”* (American Petroleum Industry). Are 20,000 premature deaths a form of “adaptation”?
- Another industry rep – *“Effects of ozone are not serious. They are about a temporary loss of lung function of 20-30%. That is not really a health effect.”*
- *“People can protect themselves. They can avoid jogging. Asthmatic kids need not go out and ride their bikes.”*
- *“Statistics of elderly deaths, related to air pollution, should not be counted because the subjects were going to die anyway.”*

## **Anti-trust Conspiracy**

- Unlawful restraint on the development and marketing of alternative cars and fuels and that the competitive market has suffered as a result.

***“The oil and car companies have stalled the introduction of cleaner-petroleum vehicles by fighting fuel economy standards, and hindered the introduction of alternative fuel cars by misleading regulators and consumers e.g., by zealously lobbying lawmakers against mandates to offer these products to the public and have deceived lawmakers, regulators and the public about the technology, utility, and cost of such alternatives.”***

**Terry Tamminen ‘Lives per Gallon’ (2006)**

## **Breach of Duty**

- The NSW Court of Appeal dismissed the appeal of a certain employer and relied on the High Court’s statement in *Southern Shire Council v. Heyman* (1985) that:

*“When there is a duty to take a precaution against damage occurring to others... breach of the duty may be regarded as materially causing or materially contributing to that damage, should it occur, subject of course to the question of whether performance of the duty would have averted the harm.”*

## **‘Peak Oil’**

- ‘Peak oil’ is not when demand exceeds supply.
- It is simply when global production maximum is reached followed by terminal decline.
- ‘Peak oil’ does not mean we are running out of oil. However, it is safe to say we have run out of cheap, easy oil.

## **Australia’s Dilemma**

- We face an immediate clean, primary energy problem of the first order!

- 1 Not unexpectedly, Australia's major oil companies have actively opposed the ethanol industry since it threatens to undercut their revenues.
2. Corruption, unethical practices and corporate fraud have placed an increasing focus on good governance and quality of leadership. There is a 'tsunami of corruption on its way to Australia'. *"Demands for better governance and honesty are escalating."*
3. The United States is responsible for one-quarter of the world's emissions of carbon dioxide and uses one-quarter of the world's crude oil. A unilateral US program to cut emissions might hurt the economy and send business overseas, Bodman said.
4. The fact is that the oil companies have given in to absolute greed and power they have over us right now. The only way to put them in their place is to provide MORE choice for consumers and push alternative fuels.
- 5 Finally people are waking up. Governments here has been selling out Australia and Australians for years. Open slather on selling of national icons and infrastructure, disastrous free trade agreement, blind support of U.S. foreign policy, dumbing down of education and death by a million cuts to tertiary education. Secret Trans Pacific Partnership dealings. It goes on and on. Wake up Australia!
6. The result? A serious lack of concern for non-economic measures of social wellbeing, a total neglect to invest in the future infrastructure and institutions, and a selling out of Australia's industries and workers.
7. Exxon Mobil (2.2.07) -The world's largest publicly owned oil company announced then the largest corporate profit ever, but news of its near \$40-billion (U.S.) windfall in 2006 sparked an angry backlash, coming on the eve of a major report blaming the use of fossil fuels for wreaking devastation on the planet. Exxon shares have risen by about 20 per cent recently. Exxon was not alone in unprecedented oil earnings. Royal Dutch Shell PLC, an Anglo-Dutch company, and U.S.-run Marathon Oil and Valero Energy, also posted best-ever annual results recently. yesterday. Similarly ConocoPhillips Co., also American, recently posted its highest profits. **Profits at the five companies together totalled \$91.1-billion -- in a year when drivers paid record prices for petrol.**
8. Recently, **Brazil's new generation of cars and trucks adapted to run on alcohol has hit the two-million mark. "Flex-fuel" vehicles, which run on any combination of ethanol and petrol, now make up 77% of the Brazilian market.**

### **Adverse impacts on health by pollutants from fossil fuels - petrol and diesel**

The intent of this Response is to highlight the growing body of international and Australian scientific evidence of the risks posed to the public by traffic-related air pollution and the need to **urgently implement policies to produce and make available cleaner alternatives to petrol and diesel, such as ethanol.**

Exhaust pollution including coarse, fine and ultra-fine particles, gaseous irritants (e.g., O<sub>3</sub> and NO<sub>2</sub>), and polycyclic aromatic hydrocarbons (PAH's) either alone or in combination, are associated with, for example:

- inflammatory lung diseases e.g., asthma, bronchitis and alveolitis
- increased cardio-vascular disease
- increased risk of myocardial infarction in susceptible persons
- risk for exercise-induced heart damage
- limited blood flow and increased blood clotting
- increased mucous production and airway hyper-responsiveness
- 1/5 lung cancer deaths (USA) and accelerated tumour growth
- premature death
- symptoms of anaemia e.g., tiredness, headaches, fatigue and shortness of breath.
- low birth weight and small head circumference of neonate.
- intra-uterine growth retardation (for each 10 nanograms PAH's /M<sup>3</sup> increase)
- certain leukaemias e.g., from exposure to benzene.
- loss in productivity, absenteeism from work and school.
- increased sensitivity to bacterial products in airways
- more severe common viral asthma
- reduced male fertility
- significant risk of ovarian cancer from exposure to vehicle pollution
- adverse effects on lung development from the age of 10 to 18 years.

The effect is a major increase in sickness-care costs to the nation's health budget. In France, a study showed 2/3 of health care costs due to pollution resulted when levels of pollution were **below** the national standard for Particulate Matter (PM), less than 10 micrometre in diameter, i.e., PM<sub>10</sub> of <50µg/M<sup>3</sup>/24 hours.

The author, in drawing these life-threatening risks to the attention of the Queensland Government, as a matter of urgency, urges the State Government to put in place clear policies in support of measures that **immediately address and substantially reduce these risks to human health**. This would include:

- Support for the increased production, distribution and use of ethanol as a clean renewable energy fuel;
- Active replacement of toxic fossil fuels (diesel and petrol) with ethanol or ethanol-blended petrol, liquid petroleum gas (LPG) and biodiesel, such that by 2020 at least 20% of fossil fuel (diesel and petrol) currently sold in the market place is replaced with clean re-newable fuel of which ethanol and natural gas together with LPG are the major replacements.
- Reduction of highly toxic aromatics e.g., carcinogenic benzene and PAHs in existing petrol and diesel.

A clear, non-partisan policy, in support of the expanded use of renewable and alternative fuels such as ethanol, biodiesel, and liquid petroleum gas (LPG) and compressed natural gas (CNG) would represent the introduction of known and proven measures to reduce current risks posed to human health by combustion of petrol and diesel fuels. **Ethanol** is particularly suitable as it is renewable and is not a carrier of toxic particles etc found in petroleum fuels such as petrol and diesel. The medium-

term (within 5-years) goal must be to begin to introduce E85 as has already happened in the ethanol revolution in progressive countries abroad with the concurrent availability of 'flexi-vehicles'.

### Issues of air pollution related to health impacts

- Traffic-related air pollution remains a key target for public-health action overseas including Europe, Britain, USA and India.
- Australia has been slow to act. Unlike overseas, Australia does not have health standards for a number of pollutants derived from the combustion of fossil fuel, e.g., carcinogenic 1,3-butadiene and toxic acetaldehyde. Only very recently, it introduced a benzene standard (3ppb) while UK has had a benzene standard for years that is now 1ppb. However, the States are given jurisdiction over the interpretation and application of the NEPC air-quality standards. For example, the NEPC state that the NEPM for PM<sub>10</sub> do not apply to canyons between tall buildings or to point sources, yet, NSW EPA and RTA, Health and NSW Planning apply them to point sources such as pollution from tunnel stacks.
- In a major study in Austria, France and Switzerland by Kunzli et al (2000), air pollution caused 6% of total mortality or more than 40,000 attributable cases per year. Traffic pollution accounted for more than 25,000 new cases of chronic bronchitis (adults); more than 290,000 episodes of bronchitis (children); more than 0.5 million asthma attacks; and more than 16 million person-days of restricted activities.
- Toxic diesel particulates account for at least 21,000 deaths annually in USA (CATF Report, Feb '05).
- In Sydney, twice as many people die from vehicle exhaust than die from road accidents. Cost of morbidity and mortality due to vehicle pollution in Sydney alone exceeds \$1.5 billion annually (ABRE Report, 2003) and may be between \$2-3 billion depending on the value placed upon a life in Australia.
- Vehicle emissions account for up to 65% of urban air pollution. Most of the particulate pollution is in the fine mode PM<sub>2.5</sub> fractions that are soluble in the lungs and have PAH's adsorbed to their surfaces.
- In most States of Australia, the toxic fine particles in the soluble PM<sub>2.5</sub> mode are EXCEEDING the air-quality standards/guidelines set by the National Environment Protection Council (NEPC) and are generally increasing annually. See (a) NEPC (2002) *Exposure Assessment Risk Characterisation for the Development of a PM<sub>2.5</sub> Standard*. (b) NEPC (2002) *Impact Statement for PM<sub>2.5</sub> Variation*.
- Weight-for-weight, fine particles in fossil fuel combustion have an enormous surface area. For example, one billion 0.01 µm particles are equivalent to one PM<sub>10</sub> (10µm) particle but have 1000-times the surface area, hence an enormous carrying capacity for their carcinogenic cargo of PAH's.
- Alternative fuel use will continue to be driven by concerns over clean air and legislation to reduce exhaust emissions. Generally however, lip-service is paid as illustrated by the NSW Government's decision to replace its cleaner LPG-powered bus fleet with a new bus fleet powered by dirty diesel. In contrast, a Bill by the NSW National Party requiring all government cars be powered on 10% ethanol-blended petrol (E10) is a positive step.

- In USA, but not yet in Australia, diesel is classified as an air toxic. Diesel exhaust poses a cancer risk that is 7.5 times higher than the combined risk from all other air toxics (CATF Report, Feb '05).
- The risk of lung cancer for people living in urban areas is three-times that for those living in rural areas (CATF Report, Feb '05).
- A recent Case Study (June, 2005) established that the reduction of vehicle particle pollution by 50% in Tokyo was accompanied by a significant cost-reduction in mortality and morbidity for one year of at least \$A40 billion dollars. (*J. Risk Research* Vol 8, p 311-329; June, 2005)
- Ethanol as a 10% addition to petrol (E10) can reduce particulates by up to a qualified 50%, more in older cars (G. Whitten). See following links:  
<http://www.ethanolrfa.org/white991.html>  
<http://www.ethanolrfa.org/NEC-Whitten.pdf>  
<http://www.ethanolrfa.org/pubs.shtml>  
 See also P. Mulawa et al. *Env.Sci. & Technology* Vol 31 p 1302 (1997)

### **The Art of Perpetuating a Public Health Hazard – Fossil Fuel, the New Asbestos!**

“Denial” of a hazard by an expert may not imply – “*the truth, the whole truth and nothing but the truth*”

M. Greenberg (*J. Occup. & Environ. Med.* 2005;Vol 47: 137-144)

In a document headed, ‘*Fuel Taxation Inquiry: The Air Pollution Costs of Transport in Australia*’, by P. Watkiss (2002) submitted to the Federal Government, data shows that for the inner parts of Sydney (covering 2.5 million), the annual health ‘pollution’ cost is about \$342,000 per tonne of particles and \$1750 per tonne for oxides of nitrogen (NOx). When this information is applied to current stack pollution from the **unfiltered** M5 East tunnel, the annual health-costs are about \$6 million. For the Lane Cove Tunnel (LCT) and using under-reported LCT EIS stack-pollution data for 2006, the annual health-costs alone are about \$5 million.

Applied to Sydney, overall cost (including from other vehicle pollutants) on health exceeds \$3 billion. It is high time lessons from asbestos, tobacco, exposure to radiation and the like are learnt.

### **Unit Pollution Health-Costs<sup>1</sup> for Sydney<sup>2</sup> - BAND<sup>3</sup> 1**

<b>Pollutant</b>	<b>Tonnes/year<sup>6</sup></b>	<b>Unit cost<sup>1</sup> \$A/tonne</b>	<b>Total cost annually</b>
<b>Particles (TSP)</b>	<b>24,370</b>	<b>341,640</b>	<b>8,325,766,800</b>
<b>CO</b>	<b>533,700</b>	<b>3.0</b>	<b>1,601,100</b>
<b>NOx</b>	<b>88,600</b>	<b>1,750</b>	<b>155,050,000</b>
<b>VOC<sup>4</sup></b>	<b>135,870</b>	<b>875</b>	<b>118,886,250</b>
<b>SO<sub>2</sub></b>	<b>23,010</b>	<b>11,380</b>	<b>261,853,800</b>
<b>Benzene<sup>5</sup></b>	<b>2,850</b>	<b>2,425</b>	<b>6,911,250</b>
<b>1,3-butadiene<sup>5</sup></b>	<b>285</b>	<b>90,730</b>	<b>25,858,050</b>
			<b>8,895,927,250</b>

1. Data from Table 23 in *Fuel Taxation Inquiry: The Air Pollution Costs of Transport in Australia* by Paul Watkiss (March, 2002)
2. Data (2002) provided by Chris Eiser  
 Manager Atmospheric Science  
 Department of Environment & Conservation (NSW)  
 Note: Data is for all sources (Mobile, Industry, Domestic/Commercial)
3. Band 1: Inner areas of larger capital cities (Sydney, Melbourne, Brisbane, Adelaide and Perth) – P. Watkiss 2002.
4. Non-methane hydrocarbons
5. Data for 2000, Sydney (C. Eiser)
6. Data provided by C. Eiser

The costs are based on the assignment by Paul Watkiss of \$6 million for a cost of a human life. It is noteworthy that the BTRE assigns a value of \$1.3 million to a human life. Hence the lower cost estimate by BTRE for health impacts.

## Unit Pollution Health-Costs for Sydney - BAND 2

<b>Pollutant</b>	<b>Tonnes/year</b>	<b>Unit cost \$/tonne</b>	<b>Total cost annually</b>
Particles (TSP)	24,370	93,180	2,270,796,000
CO	533,700	0.8	426,960
NO <sub>x</sub>	88,600	1,750	155,050,000
VOC	135,870	875	118,886,250
SO <sub>2</sub>	23,010	4,380	100,783,800
Benzene	2,850	660	1,881,000
1,3-butadiene	285	24,745	7,052,325
			2,654,876,235

Legend: as above, except-

Band 2: Outer areas of larger capital cities (P. Watkiss, 2002)



## Unit Pollution Health-Costs for Sydney - Average of BANDS 1 & 2

<b>Pollutant</b>	<b>Tonnes/year</b>	<b>Ave. unit cost \$/tonne</b>	<b>Ave. total cost annually</b>
<b>Particles (TSP)</b>	<b>24,370</b>	<b>217,410</b>	<b>5,298,281,400</b>
<b>CO</b>	<b>533,700</b>	<b>1.9</b>	<b>1,014,030</b>
<b>NO<sub>x</sub></b>	<b>88,600</b>	<b>1,750</b>	<b>155,050,000</b>
<b>VOC</b>	<b>135,870</b>	<b>875</b>	<b>118,886,250</b>
<b>SO<sub>2</sub></b>	<b>23,010</b>	<b>7880</b>	<b>181,318,800</b>
<b>Benzene</b>	<b>2,850</b>	<b>1542.5</b>	<b>4,396,125</b>
<b>1,3-butadiene</b>	<b>285</b>	<b>57,737.5</b>	<b>16,455,187</b>
			<b>5,775,401,792</b>

**Legend:** as above, except data from Band 1 and Band 2 have been averaged.

**Band 1:** Inner areas of larger capital cities (Sydney, Melbourne, Brisbane, Adelaide and Perth) – P. Watkiss 2002.

**Band 2:** Outer areas of larger capital cities (P. Watkiss, 2002)

At the national level, these health effects are important. It is estimated some 2,400 people die each year in Australia from air pollution, and some 10-15% of the population display respiratory symptoms (NEPC, 1998). These health impacts have major economic costs, estimated at around \$A18 billion/year<sup>1</sup>.

Transport is a major source of these atmospheric pollutants and therefore can be assumed to be a major cause of these health effects.

### Health advantages to using ethanol-blends

- Ethanol is non-toxic, water soluble and highly biodegradable.
- The American Lung Association of Metropolitan Chicago credits ethanol-blended reformulated petrol with reducing smog-forming emission in the city by 25 % since 1990.
- Ethanol reduces tailpipe carbon monoxide (CO) emissions by as much as 25 %.
- Ethanol reduces particulate emissions, especially fine particulates that pose a health threat to children, senior citizens and individuals suffering from respiratory ailments.
- Ethanol is an ‘oxygenate’ that permits a cleaner burn much like an open gas ring on a Bunsen burner allows the gas to combust cleanly with a blue flame.

### Current biofuels in Australia and overseas

- In Australia, biofuels with commercial prospects are ethanol and biodiesel.

<sup>1</sup> Note this estimate (NEPC, 1998) is considered high for the effects quantified, as it applies a full Value of Statistical Life (VoSL) of \$A7million to value acute mortality (deaths). The literature now suggests that these deaths only reduce life expectancy by a relatively short period of time and more recent studies factor this into account with the use of a very much lower VoSL.

- Ethanol is mainly derived here from two renewable sources – fermentation from sugars in grains such as wheat and corn and from ‘C’ molasses.
- Fuel ethanol in Australia is used as a fuel blend comprising 10 % ethanol and 90 % petrol (E-10).
- Overseas ethanol-blended fuels may contain as much as 85% ethanol. Car manufacturers e.g., Chrysler, Mazda, Saab and Ford are now marketing cars to compute automatically (flexi-vehicles) to any alcohol-blended fuel.
- Biodiesel is derived from treatment of vegetable oil or animal fats.
- Canola oil is our principal oil seed and is harvested in November and December.
- Biofuels, unlike fossil fuels, are climate and rainfall dependent.
- The European Union in 2001 introduced a proposal to promote biofuels such as biodiesel, bioethanol or hydrogen fuels. The Commission’s goal is to increase biofuel use from 2% in 2005 to 5.75% in 2010 and 20% by 2020.
- Approximately 8% of diesel fuel sold in Germany is biodiesel.
- Australia’s Howard Federal Coalition in October 2001 made a commitment to promote the use of biofuels such as ethanol and biodiesel to ensure biofuels provide 2% of our transport consumption by 2010. This was political tokenism and economic ineptitude.
- More recently, it is evident that the Federal Government had become seduced by misinformation propagated by stand-over lobbyists and through the media by powerful invested interests and their associated ‘dirt teams’ coupled with flawed scientific commissioned reports.
- Fuel ethanol production and use is also being promoted in China, India, Thailand and Japan.

## Issues

### **Energy Security**

1. The global production of crude petroleum in 2005 was approximately 80 million barrels per day, or 29 billion barrels annually. Continued production at this level, based on total global reserves of one trillion barrels, and without any increase to accommodate increasing annual demand, would mean that global oil reserves equate to approximately **thirty five years** supply.  
General consensus asserts that crude petroleum is a finite resource, and global reserves are limited, compounded by a time when demand for crude petroleum starts to outstrip supply.
2. Coupled with this is the problem of spare capacity. In crude oil production terms, spare capacity is pumping capacity that is currently unused but can be turned on immediately if needed in a crisis. The days of spare capacity in the global crude petroleum industry are gone. What this means is that should global crises arise (natural disasters e.g., Katrina hurricane, or wars in oil-producing countries such as Iraq and Iran) supply will barely if at all keep up with rising demand.

It is highly significant that the USA war on Iraq was launched on the false allegation that Iraq had ‘weapons of mass destruction’. Similarly, the current

posturing by USA toward Iran is based on a pretext that Iran has or is planning to develop 'nuclear weapons'. But no war is ever prompted by one factor alone. Oil played a role in USA decision to invade Iraq. Similarly, Iran has immense oil and natural gas reserves and will have a critical role in the world's future energy equation. However, major USA energy companies are prohibited from working with Iran by Executive Order, signed by former President Clinton in 1995 and renewed by former President Bush in 2004.

The truth is the current government of Iran has plans (as did former President Saddam of Iraq) to set up an OIL BOURSE i.e., an oil trading market based on the petroeuro rather than the current petrodollar. This poses a threat to USA's economic supremacy and to London's International Petroleum Exchange and Nymex in New York. Current membership of the proposed Iran Oil Bourse includes Russia, China and India. Iran had plans to open the Oil Bourse in March, 2006.

Tehran has the only military in the region that can threaten its neighbours (including Israel) and Gulf security. Thus, while publicly focusing on Iran's 'weapons of mass destruction', powerful western governments, led by USA, are thinking in geopolitical terms about Iran's role in the global energy equation and its capacity to obstruct the global flow of petroleum e.g., through the Strait of Hormuz. However, the economic threat of an Oil Bourse to the global economic supremacy of the USA is clearly the principal reason the USA will attack Iran and likely via an 'anti-nuclear' strike by Israel. The current USA pro-Israel attacks against Hezbollah in Lebanon are part of a pre-emptive strike against Iran by gauging the new weaponry of Iran being tested by Hezbollah against Israel. Forecasters are predicting Iran will be targeted sooner than later. The sabotage of local oil fields will exact a high price to economies of the Western World. It is especially noteworthy that former President George Bush set a target to replace up to 25% imported fuel with home-grown ethanol as an alternative.

### 3. **Conserve oil and its petrochemical derivatives**

Another factor is that oil is the basis of the petrochemical industry from which is derived numerous products including plastics. For example, a computer has a very large number of petrochemical derivatives in its construction and internal component parts – insulation and other plastic compounds are derivatives of the petrochemicals. It makes good sense to conserve oil not only from an energy perspective but also to allow products of the petrochemical industry to be produced. Hence another virtue in conserving oil, with the introduction of ethanol as a clean alternative, is to allow raw products to be available for useful synthetic derivatives.

### **The Situation in Australia**

1. *Geosciences* have noted that Australia's consumption of crude oil and condensate in 2004 could be sustained by remaining economic reserves for only 9.3 years. We have now passed that date! These figures paint an alarming picture.
2. They suggest that Australia's appetite for petroleum products is rapidly outstripping our indigenous production sources. This equates to a remorseless increase in

Australia's dependence on the highly volatile and insecure international crude oil market.

### **Implications for Australia**

The implications for Australia are simple, and alarming.

As a country very highly dependent on road transport for the movement of both goods and people, and as a country currently committed almost entirely to the use of products derived from crude oil to fuel that transport, **Australia is in a position of great vulnerability**. This is exacerbated by the fact that Australia's indigenous reserves of crude petroleum are lower than the global average, and the rundown of Australia's oil reserves is occurring at a faster rate than the global average.

Thus, Australia needs an urgent shift to policy settings to shift in demand from conventional fuels such as petrol and diesel to more sustainable alternatives, and thereby trigger commercially and socially viable outcomes.

### **Problems of Diesel**

- Complex engineering
- Environmental
- Medical / biological
- Legal
- Management
- Public health
- Ethical
- Public administration and good government
- Fairness and justice - those most harmed are those least able to defend themselves - children of the urban poor.

### **The Risk-Based Approach to Diesel and Petrol**

The principle is to adopt "business as usual."

- Has backing of powerful special-interest groups harnessing governments to deflect and stymie the search for least harmful alternatives. This includes not only the oil cartels but also to some extent, through patronage, by self-interested groups such as the CSIRO whose commissioned reports have, in some instances, been demonstrably biased and scientifically flawed. Patronage is the life-blood of politics and government funding!
- So long as the exact size of the problem is uncertain, risk assessors call for delay and more study. Research funding for some is a survival strategy where the aim in some cases is not to solve a problem but to create others. It all helps to maintain viability, personal and professional development, but often without a social conscience.
- Because consultants can be 'bought' or 'hired' to reinterpret old data to cast doubt on the nature of the problem, action can be stalled for decades. Doubt is a powerful helpmate when your goal is to maintain "business as usual."

- The risk-based approach waits for the holy grail of scientific certainty to emerge from the data, meanwhile do nothing.

### **Why is the ‘Precautionary Approach’ not taken?**

- Because the risk-based approach to public health continues to be adopted i.e., wait until the dead bodies can be counted.
- Whilst petrol and diesel fumes are known to cause lung cancer, health bureaucrats state they are “not yet sure” how big the problem is and “we have not identified the extent of the problem.”

This is the classic risk-based approach. Ignore the evidence so long as it is not 100% watertight. Use uncertainty as an excuse to delay. Wait for the dead bodies to pile, and then slowly acknowledge the need for action. Precaution is not (yet) fashionable – Risk-assessment is!

### **Benefits of ethanol-blended fuels**

- Many countries are adopting ethanol production to reduce harmful emissions from vehicles and enhance economic development.
- Ethanol contains 35% oxygen. Adding oxygen to fuel results in more complete fuel combustion, reducing harmful tailpipe emissions.
- Ethanol also displaces the use of toxic petrol components such as benzene - a carcinogen known to cause some forms of leukaemia.
- Ethanol is a renewable fuel, typically produced from plant matter.
- Ethanol-blended fuels account for 18% (and rapidly growing) of all automotive fuels sold in the United States.
- Now is the time to promote ethanol in blended fuel with a banning of MTBE in USA.
- Ethanol-blended fuels reduced the CO<sub>2</sub>-equivalent greenhouse gas emissions by approx. 3.6 million tons in the USA in 2001. i.e., equivalent to removing 520,000 cars from roads.
- Tripling the use of ethanol in USA would triple the greenhouse gas benefit.
- Ethanol fuels not only enhance energy security and boost rural economies, but can reduce harmful air pollution and greenhouse gas emissions.
- Biofuels can cause a renewal in agriculture and rural Australia and benefit the entire national economy.
- Ethanol is a cheaper alternative to the escalating cost of oil and diminishing supplies that are not meeting demand in countries such as China

### **What are the advantages to using ethanol-blends?**

- Less dependence on imported crude oil
- Extends Australia’s dwindling domestic supply of light crude petroleum used to produce transportation fuels.
- Expanded market opportunity for Australian farmers
- Rural economic development
- Displaces dangerous components in petrol, such as benzene

- Ethanol is made from renewable resources, whereas petroleum comes from limited fossil energy sources.
- Cleaner environment (lower carbon monoxide and smog-causing emissions)
- Cleaner burning engines
- Improved vehicle performance. Saab Motor Manufacturer (Sweden) claims more power is generated from its new engines designed for ethanol-blended petrol than straight petrol.
- Bioethanol fuel shows better performance in reducing volatile organic chemicals (VOC), PAH, benzene and butadiene, relative to petrol.
- 10% ethanol blended petrol reduces fine particulates by up to a qualified 50%

### **Experience with biodiesel**

- Emission reduction for particles, CO and gaseous hydrocarbons but increases in oxides of nitrogen (NO<sub>x</sub>).
- In particulate emissions, the insoluble fraction (coarse mode) decreases while the soluble fraction (fine mode) increases with a net reduction in total PM. The soluble fraction can be reduced by using oxidation catalysts.
- Biodegradation of biodiesel is much faster than for diesel fuel.
- Studies show that, for greenhouse emissions, biofuels substantially out perform fossil fuels (but to a lesser extent) gas fuels.
- Biodiesel has significantly less ecotoxicity than diesel and ideal for sensitive rural areas.
- Biodiesel fuel has a bimodal distribution of fine particles with a 30% reduction in the 0.05 and 0.1 μm diameter particles, but remained the same for larger and smaller particles.
- Recent studies showed biodiesel can reduce emissions of particulate matter by 47% when compared with petroleum in unmodified diesel engines.
- USA EPA report verified a 67% reduction in unburned hydrocarbons and a 48% reduction in CO<sub>2</sub> levels with pure biodiesel (B100). Smaller reductions (12%) were obtained with 20% biodiesel and 80% petro-diesel.

### **Assistance needed**

- Assistance is needed in the general development of the biofuel industry. This includes new storages, crushers, refineries and associated infrastructure.
- Need to legislate fuel standards to include renewable biofuels such as biodiesel and ethanol-blended petrol.
- Address the escalating costs of growing crops e.g., canola, grains and sugar-cane, because of enormous amounts of inputs, disease levels and diminished yields giving unprofitable returns.
- There is an urgent need to increase farmer confidence for canola, grains and sugar cane.
- Long-term excise relief (or domestic producer's credit) is required to engender confidence that lenders will have debts/loans re-paid.
- Capital subsidy be provided for enhanced ethanol production to attract investment capital from prospective owners.

### Recommendations

- The author advocates the expansion of the market for domestically produced renewable biofuels to reduce Australia's dependence on imported petroleum, spur rural economic development creating new jobs and tax revenue, and improve environmental quality by reducing emissions of harmful pollutants and greenhouse gases.
- It is proposed in the light of the current global oil insecurity that by 2020, at least 20% and by 2030 at least 30% of current petrol and diesel usage to power vehicles to transport people and goods be replaced with clean sustainable alternatives, including natural gas and biofuels such as ethanol and biodiesel.
- The Federal Government is urged to enact a more aggressive Renewable Fuels Standard than is currently in the legislation, noting biofuels offer an immediate alternative to imported fossil fuels, are completely compatible with current transportation infrastructure as petroleum blending components of stand-alone fuels and in the longer term, are an ideal hydrogen source for fuel cells.
- Enact legislation to use ethanol as an oxygenate in petrol and to reduce levels of carcinogenic benzene.
- Enact legislation that allows durable excise rebates for the greenhouse credits, urban quality and health gains from ethanol and biodiesel in proportion to their proven environmental and health benefits.
- Enact legislation to require at least a prescribed percentage of vehicles transporting people and goods to be powered by clean alternate fuels other than those based on crude oil.
- The technology exists right now to clean up these emissions from existing fossil-fuel powered engines so that most of the adverse health impacts can be prevented or minimised. The introduction and manufacture of 'flexi-vehicles' capable of being powered by up to 85% ethanol should also be integral to the Federal Government's biofuels policy.
- The only thing that stands between us and dramatically healthy air is the political will at Federal and State levels to require these reductions and the funding to make them a reality.
- Because of significant documented conflicts of interest, the relevant Division of CSIRO be excluded from representation on any Biofuels Taskforce in Australia.

The major political parties at Federal and State levels, the oil companies and car manufacturers have known that whilst 'leaded' petrol is injurious to health, 'unleaded' petrol **has even greater toxic properties**.

The first internal combustion engines ran on 'motor spirit' or alcohol - an exceptionally clean fuel. As vehicle manufacturers strove to produce faster, more powerful cars, dirty fuels replaced clean fuels and later became even more toxic. The

oil-companies' solution to stop the fuel pre-igniting and reduce the 'ping' under compression in engines designed for more power was to add cheap lead.

Very dirty fuels, however, produced a 'smog' problem that worsened due to the vastly increased toxins including sulphur/nitrogen oxides and poisonous particles. Rather than replace fossil fuel with a cleaner product, oil companies introduced the 'catalytic converter' that allowed exhaust gases to pass over a catalyst e.g., platinum, in the 'filter'. Lead in fuel, however, rendered the 'converter' useless. Hence the change from 'leaded' to 'unleaded' fuel. So, what about the 'pinging' problem? The alternatives to lead were **even more deadly!** Catalytic converters became law – thus allowing the oil companies to continue with production of 'dirty' fossil fuels.

Twenty years ago, the NSW Health Department knew that lead was being replaced with more toxic chemicals such as benzene, di-methyl benzene, toluene and xylene. Benzene is known to be associated with many cancers, particularly leukaemia. A decision was made to cut lead and **knowingly introduce substances that would increase cancer rates**. Sound familiar? The cover-up continues to this day, at all levels.

Modern car engines generate smaller exhaust particles in vastly greater numbers with immense surface areas, on a weight for weight basis. The technology created a highly efficient system that delivers toxins deep into our lungs where the very fine particles can dissolve to unload their cancer-causing cargo. Not surprising, a 16-year study, involving 500,000 Americans (*The Journal of the American Medical Association* 2002, vol 287, p 1132), found that up to a **fifth of lung cancer deaths** was attributed to exposure to fine particles, mainly from vehicle exhaust. See also:

<http://www.newscientist.com/hottopics/pollution/pollution.jsp?id=23331100>

In Australia, regular and premium unleaded petrol have high benzene levels of 2-3.3%, respectively, with increased tail pipe emissions of additional carcinogens, in gas and particle fractions. Britain has adopted a national standard for benzene of 1 part per billion (ppb). Australia has no such standard.

In NSW we have been subjected to a disinformation campaign by Government and the bureaucrats in the form of a seductively simple – no lead, no worries.

A UK study (*J Epidemiol Community Health* 1997, vol 51, p151) looked at 24,458 children dying of leukaemia and cancer in the UK over a 25 year period. It found that these children were **35% more likely than chance** to have lived **within 4 km of a major motorway**.

## **21. Should more stringent environmental measures be applied to the biofuel sector?**

The AMA is absolutely correct to point to the very costly health effects that can be traced directly to the burning of fossil fuels by cars and trucks – a public health issue that can be eliminated by turning to alternative fuels: ***“The AMA is a strong advocate on initiatives related to environmental impacts on human health such as global warming. We are***



*equally passionate about the impact of vehicle emissions on human health and we would encourage governments to pursue responsible measures to reduce emissions. The AMA considers the use of biofuels such as ethanol in petrol as a positive move.”* (Dr Mukesh Haikerwal, President, Australian Medical Association, August 2005).

## **22. What other environmental risks must be considered in relation to an expanded biofuels industry?**

Change is hard. Change forces people to rethink, to adjust and to chart a new course that they may not have envisioned and do not support. Change breeds critics, as those unready or unwilling to change make a last desperate effort to cling to the safety of the status quo. But change prevails. Change is inevitable. The challenge is to bring about the change we want to see.

Past years saw the emergence of a food vs. fuel debate, as if we need to choose, as if farmers are incapable of supplying the growing needs for food, fiber and fuel.

The **chattering class of naysayers ignores** that **ethanol biorefineries produce both fuel and feed**, that we only process starch, leaving the high feed value protein to be marketed to livestock and poultry.

## **23. How should they be enforced?**

Framework is not used as a way for liable parties to negate their responsibilities?

## **Maintaining consumer choice**

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

As above

### **25. Will choice of fuel increase costs to retailers or consumers?**

Potentially yes but needs qualification in circumstances of the time

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

Clearly yes!

### **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?**

See above.

## Ensuring consumer protection

### 28. What options could we employ to protect consumers?

A thorough statistical analysis of the issue completed by *Informa* concluded that the impact of rising ethanol demand contributed less than 5% to food inflation last year; and that the overwhelming driver was the rising cost of the marketing bill, as energy prices pushed transportation, packaging and marketing costs to unprecedented levels.

Some have now latched onto the latest iteration of the *food vs. fuel* debate and recent analyses assume it will all come in the most environmentally sensitive parts of the globe, wreaking havoc on ecosystems and eliminating any potential greenhouse gas benefits biofuels might otherwise provide.

These analyses ignore the complexities of the land use debate; they disregard the impacts and interplay of numerous global economic, social and political factors such as urban sprawl and dietary changes in the developing world.

Moreover, they ignore both the reality and potential for increased efficiency and productivity in agriculture.

The flaws with these articles are primarily their failure to address the global implications like farm subsidies, global security and show a narrow regional perspective, lack of appreciation of technology trends, or the factors behind global poverty.

### 29. How can we ensure that fuel companies pass the benefits of ethanol through to consumers?

'Doubt' is a product first used by the tobacco companies and now applied by the oil industry as the best means to compete with the 'body of fact' that exists in the mind of the general public.

It is also the means of establishing a controversy. Its purpose is to delay change and discredit a perceived threat from a competitor.

Rick Wagoner, CEO of General Motors Corp., has gone on public record of saying some concerns by *biofuels critics are inaccurate and overstated*. Wagoner made the comment recently when announcing GM had bought into a company which has developed a commercial viable process to bring cellulosic ethanol to the market in 2011. Globally, GM has on the road 2.5 million flex-fuel vehicles capable of running on E85 and plans to expand its flex-fuel models to 50% of GM's production by 2012. He went on to say that the days of petrol are over and there is a need to grow ethanol production - because the world needs "something" to significantly reduce our reliance on petroleum. That "something" he said is ethanol.

Other car manufacturers have followed with ethanol-powered vehicles while the Swedish car maker Saab and the Melbourne-based independent fuel company United Petroleum have joined forces to provide Australia's first commercially available supply of E85 which is a clean renewable fuel. But it failed here in the face of opposition!

E5 and E10 are not! Thus the next 'doubt' is likely to be planted by CSIRO in a contrived project that will show E5 and E10 have no health benefits as one would expect when bioethanol represents less than 1% of fuel sold in the market place.

Ethanol in E5 and E10 is an oxygenate to allow the fuel to burn more cleanly but it **does not negate the toxicity of the remaining ULP**. So why did CSIRO exclude E85 from their project? Was it to discredit bioethanol with another 'doubt'?

Biofuels alone will never fully replace petroleum but are among the many alternatives as practical options to the rapidly dwindling supply of oil and the escalating cost of fossil fuel, e.g., petrol and diesel, to power the combustion engine. In Australia, spokesperson of the oil titan Caltex recently claimed the cost of fuel at the pump will rise 3-fold in the next five years. Oil is used for products other than fuel and lubricants. It is the source of petrochemicals from which hundreds of products including plastics are derived.

## **Initiatives to promote ethanol**

### **Marketing and education campaign**

#### **Response:**

- Promote Federal, State and Local Government policies, programs and initiatives that encourage expanded use of ethanol. At the same time expose the alleged insidious counter-practices of the Oil Cartels.
- The synergy derived from blending ethanol with petrol goes far beyond expanding petrol supplies. Ethanol provides a major boost to rural economies and farmer income. Ethanol reduces our dependence on dwindling foreign oil supplies.
- Ethanol use reduces harmful vehicle emissions, ozone pollution and greenhouse gas-forming emissions.
- Ethanol use protects the air we breathe and the water we drink. E10 containing 35% oxygen by weight, ethanol improves the combustion of petroleum fuels, thereby reducing harmful tailpipe emissions and ozone-forming pollutants. At the same time, being highly biodegradable, ethanol does not provide a threat to waterways as do some other petrol additives.
- Ethanol blends reduce CO and hydrocarbons by 20% and fine particulates by a qualified 50% by gross polluters (older vehicles or cars with malfunctioning pollution control devices).
- Ethanol is renewable because it is about harvesting the power of the sun's energy.
- Utilizing the solar energy stored in plants, ethanol maintains a positive fossil energy balance. Ethanol yields 134% of the energy used to grow and harvest the crop, and process it into ethanol. By comparison petrol yields only 80% of that used to produce it.

- In 2003, ethanol use in the USA reduced CO<sub>2</sub>- equivalent greenhouse gas emissions by approx 5.7 million tons equal to removing the annual emissions of more than 853,000 cars from the road.
- Cellulosic ethanol could have an even larger impact.
- Ethanol plants produce other high-quality co-products including high-value live-stock feed or distiller's grains.
- Using home-grown ethanol keeps our energy dollars home, thereby stimulating our economy, creating jobs and reducing our trade deficit. The current flood of foreign crude imposes an economic penalty of enormous proportions for our country that is not reflected in the price we pay at the pump. It is a penalty that costs jobs and drains investment capital etc.
- Blending ethanol with petrol stretches our fuel supplies and reduces the amount of oil we need by tens of thousands of barrels each day

### **Appoint an ethanol ambassador**

#### **Response:**

- The success in the USA for example, continues to be immensely helped by the establishment of a properly constituted Renewable Fuels Association (RFA) in 1981 as the national trade association for the US ethanol fuel industry. The RFA serves as a vital link between the ethanol industry and the Federal, State and Local Governments as well as other stakeholders and interest groups to promote increased production and use of ethanol through supportive policies, regulations and research & development initiatives. By adopting such a template in Australia, an ethanol ambassador could be identified here for NSW and nationally. Already a fledgling RFA has arisen in Australia along with other groups but need to be constituted with the appropriate membership and financial structures in place to emulate the US counterpart for nationwide recognition.
- Such an organisation would host an Annual Ethanol Conference to bring together national and overseas stakeholders to share experiences in production, marketing and policy.

### **Possible monitoring and compliance measures**

#### **Response:**

- There needs to be in place not only the statutory control mechanisms but a separate, independent, identifiable, highly professional and effective organisation (similar to the USA RFA) dedicated to the continued vitality and growth of ethanol in the fuel marketplace. The current document aims to identify present organizational problems and provide some suggested solutions.

**Weed whackers** cannot dictate Australia's energy policy. The stakes are too high.

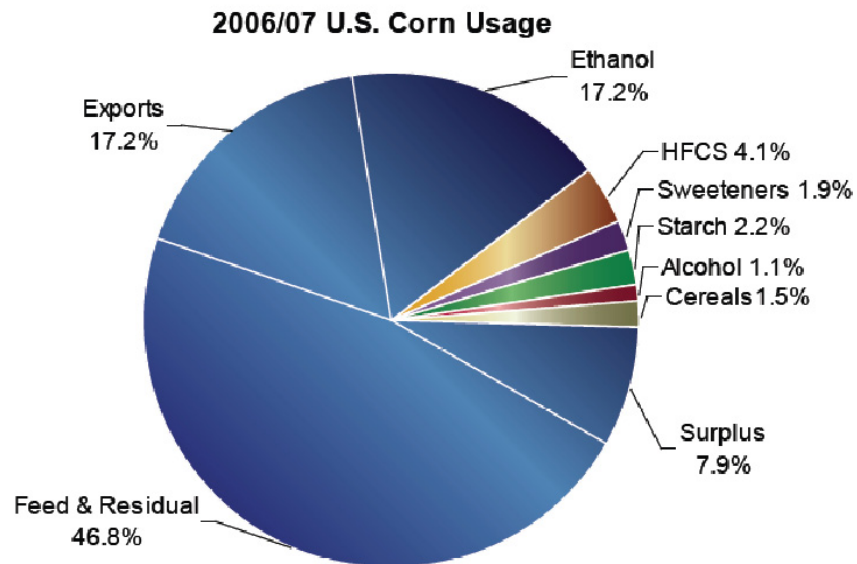
It is **up to all of us to correct misinformation**, promote the positive benefits of ethanol and change the discourse with respect to renewable fuels. Are we prepared to be the agents of change we need to break our addiction to oil?

Furthermore, the critics fail to recognize that ethanol (sugar and cereals) is the best way to get to cellulosic biofuels. In other words, a \$1 rise in the price of corn is liable to increase cereal prices by a 'penny'. In contrast, a corresponding increase in oil prices has a far greater impact on consumer welfare. A study by economist John Urbanchuk notes that *“A 33 percent increase in crude oil prices – which translates into a \$1.00 per gallon increase in the price of conventional regular gasoline – results in a 0.6 percent to 0.9 percent increase in the CPI for food while an equivalent (33%) increase in corn prices (\$1.00 per bushel) would cause the CPI for food to increase only 0.3percent.”* **Increases in energy prices hurt the consumer almost twice as much as increases in corn prices.** If consumers have a complaint about rising inflation, **OPEC and Exxon deserve more blame than ethanol.**

Big Oil has not been averse to funding research (witness Exxon’s history of funding the CEI, or its donation of \$100M over 10 years to Stanford University). **Oil interests have spent considerable funds in a massive PR effort against corn ethanol.**

A Foreign Affairs article noted that filling a 25-gallon tank with ethanol requires about 450 pounds of corn (at today’s yields) – or approximately **18 pounds per gallon.** Coincidentally, it takes approximately **25 pounds of corn to put a pound of steak on our dinner table**. What is more critical to society – a gallon of ethanol or a pound of steak?

**The vast majority of US corn production (including exports) is used for animal feed, and not for human consumption.**



Source: USDA, ERS; Feed Outlook, June 13, 2007  
 Note: Percentages based on Total Supply

**If a tradeoff exists, it is between basic food supplies and expensive beef.**

About 33 percent of U.S. corn will be used for fuel during the next decade, up from 11 percent in 2002

Another common **misconception** is that **corn once used for ethanol is lost for the feed market.** On the contrary, ethanol uses only the **starch** portion of the corn kernel, leaving the more valuable “rest” for other uses, **principally animal feed.** The vast majority of the **protein in corn is recovered as distiller’s grain** when ethanol is produced. The leftover protein is then used as animal feed, **dramatically cutting down the amount of primary corn** the animal needs. Only the (relatively) easily abundant carbohydrates are removed.

Nonetheless, **the pessimism that the world’s poor starve because we don’t produce enough food is absurd.** The Food and Agriculture Organization (FAO) notes that **there is more food per-capita today than ever before – the lack of infrastructure, income, and distribution networks are the real causes of hunger,** and not corn prices

(indeed, the U.S exports just 17% of its corn production, and the majority of even this exported crop is used for livestock feed).

Critics conjure up images of starving children as innocent byproducts of corn ethanol; meanwhile, the [EU actually pays farmers not to grow food](#) (and thus to reduce supply). **The (subsidized) low prices of agricultural products like corn have made foreign farmers in poor countries uneconomic producers.**

Most importantly, in the **future world of cellulosic ethanol,** the \$300 billion the US spends on oil purchases and the EU’s \$136 billion spending on oil imports could be allocated in a more distributed fashion to Africa with its vast potential for biomass cultivation. It would also help developing economies in China, India and Latin America by reducing the price of energy. It may be the single most important poverty alleviation tool we have. Unfortunately, the oil rich Middle-East will be the loser in this transaction.

The NRDC notes that “On average, **ethanol produced from corn in the United States today reduces global warming pollution by 18 percent for every gallon of gasoline** displaced. But not all gallons are created equal. Many of the newest corn ethanol plants rely on much **more efficient systems and natural gas for process heat,** reducing emissions by **about 35 percent.**” Meanwhile, hybrids-vehicles have captured the public imagination as an environmentally friendly technology – even though corn-based ethanol offers the same “carbon emission per mile driven” benefits as the usage of hybrids, at **1/100<sup>th</sup> the cost per car.** How often do we see “hybrid carbon emission reductions” criticized?

Ethanol’s **greatest value** is as a “stepping stone” and transition-point to cellulosic ethanol. Ethanol is **not the long-term future fuel** that will replace all of our oil needs. **Incidentally, cellulosic ethanol using the Range process not only reduces carbon emissions over 75%, it uses 75% less water than corn ethanol, and we estimate it will use 75% less land than corn ethanol too within a decade.** Many critics, mostly economists or scientists with little knowledge of significant technology progress in the small venture funded private companies, dismiss cellulosic ethanol **as too far away.** I disagree. Ethanol is the **gateway to spur investment** in these cellulosic technologies.

Fundamentally, the power of capitalism, innovation in the marketplace, and the innovation ecosystem is a significant force; the **entrepreneurial energy witnessed in the development of the internet in the late 90's is being replicated in biofuels.**

So, it seems to the author that the **real shortage we are facing is with facts and the truth.** There seems to be no drought of myth and misinformation, or of pseudo experts who come with an agenda. **Be wary of those who write gratuitous headlines and stories without plumbing the facts.**

**Diminishing numbers of honeybees necessary for the pollination food and biodiesel crops, are threatening food security** and biodiesel production worldwide.

Since the end of 2006, beekeepers in the US, Europe, Canada, South America, Central America, and Asia, have reported honeybee colony losses of between 30% and 90%. **This means that many bees do not return to the spring pollination areas. The occurrence has been termed colony collapse disorder (CCD).**

The loss of bee colonies would also affect the production of biofuels, as there will be no oil if there are no bees to pollinate oil seed crops such as sunflower, canola, soybean, rapeseed and safflower.

Bees are critical to biodiesel production as all of these crops produce the feed stocks for biodiesel. However, it has **no impact on bioethanol as this is made from cane and maize, both of which do not require bees to pollinate the crops,**

Ethanol's contribution to inflation is limited, USDA economist Ephraim Leibtag said in an interview. **A 50 percent jump in corn prices in 2007** from the 20-year average **only added 1.6 cents** to the cost of an 18-ounce box of Kellogg Co. Corn Flakes cereal.

**Oil prices** are the biggest contributor to rising food prices. Oil closed above \$105 a barrel last week, which is **driving up production and transportation costs.** Bread prices have increased by 41 cents per loaf. Wheat makes up **9% of the cost** of a loaf of bread. According to Toubia, the remaining **ingredients make up about 21%,** and the **rest is packaging, advertising, transportation, and overhead.** In **five minutes** the United States will consume **70,000 barrels of oil.**

**Doubt is our product since it is the best means of competing with the 'body of fact' that exists in the mind of the general public. It is also the means of establishing a controversy.**

Both industries also sought to distance themselves from their own campaigns, creating the impression that they were spontaneous movements of professionals or ordinary citizens: the "grassroots". Some of the worlds best known "think tanks" were also funded by Phillip Morris and Oil Companies. PR companies hired to discredit science and reports. Almost invariably, these organisations promoted doubt. This is not to claim that all the science these groups champion is bogus. On the whole, **they use selection, not invention.**

**30. What is an appropriate method for estimating a ‘reasonable’ ethanol price?**

**31. What is an appropriate balance between costs to consumers and the creation of regional jobs?**

### **Securing food supplies**

**32. Will an effective ‘floor’ in grain prices, as a result of a mandate, signal to grain growers an opportunity to increase production and investment on-farm?**

**33. What mechanisms, if any, should be put in place to avoid distorting the drought feeding market next time drought conditions persist in Queensland?**

### **Bio-manufacturing – a new approach**

**34. What is the role of the Government in attracting a new bio-manufacturing industry in Queensland? Are there specific policy mechanisms or actions that will attract investment and development?**

**35. What additional actions can the Queensland Government take to increase the likelihood of project opportunities becoming operational projects?**

**36. Development of the biofuel industry, specifically ethanol, has struggled from a lack of long-term certainty and a problematic history. How do stakeholders including the Government provide the long-term certainty necessary for the development of, and investment in, bio-manufacturing?**

**37. What regional centres could become hubs for bio-refinery investment/development in Queensland?**

**38. How could Queensland science support the development of the industry? How should it build on previous research (including the involvement of key end users)?**

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