

Improving Oil Security.

A Submission from:

The Carbon Sense Coalition

www.carbon-sense.com

in response to the call by the Queensland State Government for comments on:

“Towards Oil Resilience” a paper produced by the Environmental Protection Agency.

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How Markets Work

A crucial requirement for any discussion of supply and demand of any commodity is to understand how markets work, and what causes markets to fail.

Every market comprises suppliers, consumers, traders and governments.

Oil suppliers are interested in maximizing the value of their assets, which comprise oil resources, refineries, tankers, pipelines and retail outlets. Every supplier wants high prices and no competitors. If prices are high he supplies or builds more assets to maximize his profits. If prices fall below his costs, he tries to cut costs or reduce production. If prices are high, and the producer gets most of it, more supply is attracted into that market. Low prices generally produce poor profits, new entrants are discouraged and output stagnates.

Oil consumers are interested in getting as much as they want at the lowest price they can get. High prices discourage consumption, and low prices encourage more usage. A “fair price” is one that balances supply and demand in a free market at any given time.

Oil traders try to foresee market moves and profit from them. No successful trader can increase market volatility. To be successful he must buy when prices are low, and sell when prices are high. He thus ensures prices do not go as high as they would have otherwise, and also do not fall as low as they would have gone without his participation. Traders who buy at the top and sell at the bottom, do increase market volatility but they do not stay in the business long. Only governments backed by the unlimited pockets of the taxpayers, or legislative monopolies backed by the unlimited power of governments, can keep getting it wrong without going broke.

Governments have some very useful roles, and many pernicious ones. Their useful role is to define and protect property rights of every participant, large and small, and ensure there is no cheating, deception, fraud or coercion in contracts and trade.

Most so called “market failures” are caused by interference by governments or by private bodies backed by government powers. They should be called “government failures”. Government activities which usually have perverse results include:

- Over-taxation, which always reduces the supply of the good being taxed.
- Subsidies, which always increase consumption of whatever is subsidised.
- Regulations and red tape, which always reduce the activities being over-regulated, sometimes driving them underground.
- Legislative monopolies, which totally distort markets. They either keep prices too high, causing booms followed by collapse, or prices too low, causing continual queues and shortages. The most famous of such failures were probably the International Tin Council, the Australian Wool Board and the many attempts to control the domestic egg market and milk market. OPEC, the de Beers Diamond cartel and the many government hospitals cartels will prove similar failures in the long run.

Have we seen “Peak Oil”?

Since the first oil well flowed in America just 150 years ago, Ministers of the crown and other Cassandras have been forecasting the end of oil supplies. Generally it appears to them that oil will run out in 20 years or so. There is a very logical reason for this appearance of limited supplies of any commodity, which is well understood by those who understand the exploration-production-reserves process.

There are a couple of factors at work which have the result of making it appear to barrel counters that there is only 20 years or so of many mineral resources left. (Note: barrel counters are bean counters who failed in the financial world.) Factors which confound the barrel counters include:

- All resources are valued by markets using some sort of discounting process. This process gives high value to resources that will generate cash flow in the near future, and very low value to those which will not generate profits for 20 years or more. If a mine or oil field has more than 20 years of reserves, and no plans or opportunities for expansion of production, the market will not pay for more resources unlikely to generate cash flow for more than 20 years – in the jargon of finance, the discounted present value of such distant resources is zero, so nothing can be spent now on proving them up.
- Public companies always attempt to maximise the value of the assets under their control. But in the modern politicised era, this is a balancing game. Directors want shareholders to believe the company has a rosy future with vast reserves to be found and developed, but they fear confiscatory tendencies of politicians in many countries if it appears they have too much riches. Again 20 years of production looks a reasonable reserve to report. Those who understand the resources game know there will be more.

- There is never a fixed supply of any mineral or oil resource. How much there is depends on what consumers are prepared to pay for it. At a price of \$5 per barrel, there is probably only 10 years supply of oil in the world. At \$150 per barrel, there is no end in sight.

What oil price is assumed by the “Peak Oil” barrel counters?

The Story of Whale Oil and the Vast Potential of Methane Hydrates.

Last century, homes were lit by whale oil, and whalers scoured the seas for more supplies. Had there been computers and computer modelers in those days, they could have proved that production of whale oil had/would peak and the world would soon be plunged into darkness. But on 28th August 1859, Edwin Drake, a former railroad conductor, sank a borehole to 68 feet in an oil seep in Pennsylvania. This well produced a steady 25 barrels of oil per day which Drake sold for heating and lighting. Another American chemist developed a distillation process to produce a cleaner lighting fuel. Later, another enterprising American named Rockefeller brought that refined energy to the world. The petroleum era started. The whale oil market disappeared far quicker than anyone expected, but the lights did not go out. And the “Whale Oil Stabilisation Board” became an irrelevancy.

The history of mankind is tied to revolutions in energy.

The first energy revolution was when man learned to harness fire for warmth and cooking. The next revolution came when man discovered how to use that fire to produce metals.

Other men learned to use the energy of horses for battle and oxen for haulage.

Then came a really big revolution when man learned to harness the energy of combustion using a steam boiler. Trains, boats and machinery were soon powered with this new steam energy.

Then while some people were fretting about the amount of horse manure in the streets of New York, another maverick, Henry Ford, working in a shed in Detroit, was about to obliterate all the energy forecasts of his time.

Then, just last century, the magic of electricity emerged like a genie from the bottle to transmit energy from distant steam engines, cleanly, silently and cheaply by wire. This allowed an instant clean-up of the smoggy cities as smelly smoky open fires were replaced by “Clean Coal by Wire”. (The early power stations themselves were dirty, but pollution controls have since cleaned up modern power stations – what emits from the stack now are the clean gases of life – white water vapour and invisible carbon dioxide.)

Nuclear power was the next energy revolution, still-born in many countries by the fears of the new Luddites, but still holding great promise.

A similar revolution in fossil energy resources is probably lurking on our continental shelves, if mankind is allowed to use his genius to explore and develop it.

Vast quantities of naturally occurring methane hydrates are known to exist, and given freedom to try, vast energy resources probably await. Some enterprising nation will do it, and it could be Australia. Maybe we need a new Erwin Drake?

How to Increase Local Supplies of Oil.

Increasing supply of any commodity is easy for governments – they just need to learn to “Get out of the way”. The areas in which oil supply could be increased are:

- Exploration – governments need to make more land available for exploration. Far too much prospective oil land is locked up in Marine Parks, National Parks and other restricted areas. Oil exploration and production can be a low impact activity. Most exploration is unsuccessful, and affects a small amount of land for a short time. Even production of oil is quite compatible with most other land activities. In offshore areas, oil tankers pose far more threat to the coastline and to the Great Barrier Reef than would a few oil and gas drilling rigs. And one or two oil off-shore production platforms would be far less eyesore (and less hazard to shipping) than 1,000 wind towers.
- Production – local production follows exploration, and is maximised when producers get as much as possible per barrel produced. That way, they have a great incentive to get the last drop, even if that requires costly secondary recovery techniques. Taxes on producers cut short the reserves and life of every oil well, as the more costly oil does not make a profit and will be left in the ground.
- Refining Capacity – having refinery capacity in Australia is obviously good security, especially if we have our own domestic oil supplies. Refineries go where the profits are highest, taking into account crude oil supplies, transport costs, power costs, local taxes and regulatory costs. It is thus ironic that a government paper about oil security does not mention how the carbon taxes associated with an Emissions Trading Scheme will probably close every oil refinery in Australia - another good move, Canberra.
- Imports – to ensure local supplies are secure, we need to make sure there are no barriers to the import of crude oil or refined products, and no impediments to establishing large storage facilities for crude and refined products. Naturally, local producers will try to restrict imports, but governments should prevent this.
- Taxes and Subsidies – the market effects of taxes and subsidies are always pernicious and produce many unplanned consequences. Taxes reduce the supply of the thing being taxed, and subsidies always encourage waste or overuse of the thing being subsidised. Therefore taxes should be consistent across all industries, with no complex special deals, and should encourage new investment in exploration and production by allowing immediate write off of all such investment expenditure. But there should be no special deals for any industry – the same generous treatment should apply to the oil and gas industry, the coal industry, miners, farmers, foresters, fishermen, car makers and even those who choose to risk their capital installing windmills and solar panels.
- Security of Tenure – one thing is guaranteed to reduce local supplies of any mineral commodity – confiscate or sterilise the resource assets of a few companies after they have been allowed or even encouraged by authorities to spend money, prove the resource and proceed far along the road to feasibility and development. Queensland has seen a blatant example of this recently – a large oil shale development was suddenly prohibited after considerable money had been spent on exploration and proving. This has NOT improved Australia's oil security.

How to Reduce Local Demand for Oil

The bad way to reduce demand for anything is to pass restrictive laws such as rations, quotas, caps or bans. Banning the use of anything never works. For example, decades of increasingly severe measures to ban drug use has been singularly unsuccessful, and has merely encouraged the growth of a huge profitable, untaxed, unregulated black market.

The right ways to reduce local demand include:

- Leave the price alone. High prices will reduce demand, but as soon as petrol prices rise governments start abusing suppliers, introducing price watchdogs, subsidising some users, and generally blunting the market signals.

The quickest solution to high prices is . . . high prices.

- Keep the price of substitutes low, so consumers can switch to other fuels. The best and most feasible alternative to motor fuel right now is natural gas. So why are our market manipulators in Canberra and the state capitals using energy share mandates and carbon taxes (via the ETS) to encourage the waste of valuable gas in a less than optimal use – burning in base-load power stations? This is a pernicious policy that should be abandoned. Clean modern coal power is the most sensible option for base-load power generation in Queensland.
- In the same vein, the Emissions Trading System will also make production of power from coal more expensive, thus encouraging the use of diesel for power generation in some circumstances – again a silly outcome. Governments should ensure there is such a good electricity generation network that no one needs to use valuable diesel for power generation.
- Improve traffic flow. Enormous quantities of transport fuel are wasted by vehicles idling in traffic jams, waiting for uncoordinated traffic lights, sitting at level crossings, and driving at uneconomic and continually varying speeds. Improve road design and traffic flow and drivers will economise their own fuel usage.
- Improve roads. Australia is a big decentralised place and much of it is serviced by rough roads, gravel roads, narrow roads, boggy roads, roads subject to flood closure and roads unsuitable for heavy haulage or road trains. All of these obstacles cause waste of vehicle fuels and damage to our vehicle fleet. Governments should focus on building and maintaining a network of safe, reliable and high-speed roads and our goods would be delivered at lower fuel cost.
- Improve the train services and networks. Government ownership of train services has allowed them to deteriorate everywhere, so maybe the best move is to sell the lot. Fast reliable and economical electric trains, powered by cheap clean coal power stations would greatly reduce oil used for transport and improve the safety and reduce costs for most Queenslanders.
- Allow and encourage car-sharing in cities. Every legislative barrier and traffic barrier to allowing neighbours to car-share should be removed.
- Allow more taxis, jitneys, mini-buses etc to operate. The artificial restriction of taxi numbers by way of taxi licencing does not help consumers or minimise consumption of transport fuel in our cities.

What About Biofuels?

Anyone who chooses to use his own money to build a biofuel plant, buy supplies for it and sell it in a free un-coerced market should be free to do so.

But there should be no official discriminatory support for biofuels as many studies show that this policy has many pernicious effects including:

- **High Food Costs.** As grains, sugar and oil are taken off the food market for the fuel market, it is inevitable that food prices will rise and food shortage become worse. Grains are such a key resource in all food production chains that this has pushed up the price of cereal foods, beef, pork, chicken, eggs, palm oil, all dairy products and other grains - not a bad collection of perverse consequences for just one poorly thought out energy policy.
- **Waste of Energy.** Careful energy audits suggest that production of biofuels does not recover the full energy usually used in its production. Anyone who disputes this should be free to set up a biofuel business, but it is very bad public policy to support such a dubious cause with subsidies, tax breaks and laws forcing it onto fuel retailers and consumers.
- **Unwelcome Environmental Changes.** Biofuel production has increased the amount of land cleared for cultivated crops and plantations, thus causing far more environmental change than a few discrete oil drilling rigs or production platforms.

All of this says that biofuel production should get no special tax breaks, no subsidies, no guaranteed market shares, and no legal obligation on petrol distributors to pollute their product with ethanol. And all consumers should be free to choose or to avoid ethanol motor fuels.

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What About Oil from Coal or Gas?

There are a number of technically feasible and practical methods of producing liquid fuels from natural coal or natural gaseous hydrocarbons. These processes have none of the perverse consequences that arise from subsidised bio-fuels.

There is only one question to ask – will oil prices stay high enough for long enough to make such an investment worthwhile? Like any investment in the real world where there is no conscripted taxpayer to pick up the bills for bad ideas, such investment involves risk. Therefore it should be left entirely to the private sector to decide, plan and invest what and how they like into liquids from coal or gas.

Only one thing is required from government – define unambiguous property rights, protect other people's environment and then get out of the way. Naturally they have been unable to do this and because of their dispute generating overlapping tenure system for coal and coal seam gas, one of the more promising and advanced projects in Queensland is mired in property rights doubts.

“Alternative Energy” is Irrelevant to the Question of Oil Sufficiency.

It is becoming tiresome to thinking people how every government Minister must insert a few politically correct but technically worthless comments about “wind power, solar power and global warming” into every policy document. The important role for oil (and gas) is to power our transport fleet. “Alternative energy” is largely irrelevant here, and cap and trade will do nothing except add costs or reduce services in the transport industry. Apart from increasing electrification of trains, there is no feasible alternative to carbon fuels on the horizon.

- Sunshine is the great hope of the Green Power Brigade. But solar power is yesterday’s fuel. It will still have useful modern applications but will never provide reliable unassisted base load power to our big cities and industries. And it will never run our planes, trains, trucks and cars. Sunshine was a great method for powering hay-burners for Cobb & Co Coaches, pony express riders, mule trains and bullock teams. It is an irrelevancy to the transport industry of today and any Minister who allows such stuff to appear under his name raises questions as to his grasp of the realities of his portfolio.
- Similarly, wind power was the dominant energy source for the shipping industry in the days of the sailing clippers. Its importance to the transport industry of today is very low, and its potential to ensure our oil security is close to nil. It is a distraction to the main game.
- All other alternative energy such as hydro, geothermal, tide power etc may have a role in generating minor quantities of electricity in Australia, but have very low chance of replacing oil to power the transport fleet of tomorrow.

Hydrogen is NOT a primary source of Energy - it contains energy extracted from another primary energy source.

Hydrogen may power the nuclear furnaces of the sun, but it does not occur naturally in economic quantities on the earth. There are NO gas wells producing hydrogen. It must be produced from some other naturally occurring substance. It is NOT a primary source of energy on earth – it must be made from something else, USING energy to achieve the conversion.

The most likely sources of hydrogen are water, and some of the solid, liquid or gaseous hydrocarbons such as coal, oil and natural gas.

However to produce hydrogen from water, say, would require prodigious quantities of energy, which at present would most sensibly be supplied by the demonised energy sources of coal or nuclear. Then there is the problem of distributing, storing and using this very dangerous and volatile fuel. This is another pipe dream irrelevant to making us more secure in oil.

Conclusions.

Governments need to make sure the oil market operates freely so that producers and consumers get clear market signals and have the freedom to react to them. Good policy is largely a “Hands Off” policy, far removed from current policies of massive, unpredictable and costly interference - over-regulation, over-taxation, subsidies, mandated energy shares, insecure tenures and increasing risk of confiscation or sudden legislative sterilisation. Such policies are guaranteed to produce volatile markets and sudden shortages, or chronic gluts and depressions.

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This submission was prepared by individual members of the Carbon Sense Coalition on their own initiative with no inducements or policy directions from any other groups.

Disclosure of competency and Vested Interests: The chief author of this paper, Viv Forbes, is a geologist, mineral economist and investment analyst and has worked in government service and industry. He has extensive knowledge of the energy resources of Australia, particularly Queensland and the geology of the sedimentary basins. He has been Chairman of an oil and gas exploration and production company, a director of a coal company and has lost money investing in a welding machine burning hydrogen and oxygen produced from water (it worked, but was not a market success). He and the members of the Carbon Sense Coalition, have a big vested interest in this debate. Many of them (like most governments) earn income from the carbon fuels (coal, oil and gas), or rely on industries that depend on carbon fuels such as cement, minerals processing, steel, transport, power generation, farming and tourism. They will also pay the increased costs caused by featherbedding of energy playthings like most of the renewables. They believe strongly that government is not competent to be trusted with total power to dictate the future of the oil market.

Appendices:

1. How to cause Energy Chaos:

<http://carbon-sense.com/wp-content/uploads/2008/09/planned-energy-chaos.pdf>

2. Wind Power and Hot Air – Why the New Zealand Renewable Energy policy is unnecessary and will fail:

<http://carbon-sense.com/2008/11/04/nz-renewable/>