

Inquiry into Australia's future oil supply and alternative transport fuels

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Endorsed by Torquay Landcare Group Inc.

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This submission has relevance to the **Inquiry into Australia's future oil supply and alternative transport fuels with particular reference to subsections -**

* flow-on economic and social impacts in Australia from continuing rises in the price of transport fuel and potential reductions in oil supply; and

* options for reducing Australia's transport fuel demands.

Introduction:

This paper briefly presents observations and arguments relevant to nine (a-i) identifiable "flow on economic and social impacts in Australia" Within each of these nine categories indications of what Australian governments can do about it are highlighted.

Flow on Impacts:

- a. Big cost increases for inputs into rural production
- b. Big cost increases in urban food supplies
- c. Lower economic value and use of major highways
- d. Obligatory use of alternative power sources and water saving practises
- e. Transference away from current trends towards better targeted public funding

- f. Forced change of community attitudes from consumerism to essential needs
- g. An enforced re assessment of what constitutes suitable alternative fuels
- h. Radical change in employment options and housing of rural workforce
- i. Accelerated shift from `fossil fuel dependent` to biological farming

Options: a. *big cost increases for inputs into rural production*

Observations and arguments

i: Increased fuel costs both ways – for large volumes of fuel and fertiliser inward and produce outward – a short term negative (for fuel saving); but as higher prices and increasing regional, `in season`, and now profitable, regional supplies replace `long haul` subsidised produce, fuel use for this purpose will reduce - medium to long term plus.

ii: Combine (i) with severe limitations on much more expensive irrigation water and we will probably see some reduction in overall production, primarily of perishables, with the heaviest bulk loadings transferring to rail; a plus

iii: Decreased use of tractor and bulk fuels; fertiliser (*ammonia is produced from large volumes of natural gas needing heavy power inputs*) combined with an increasing switch to biological farming practises driven by cost economics will result from i & ii. a plus

iv As the water retention values of soils improve with implementation of biological farming and of accompanying shelter plantings reducing evaporation, so does the need for irrigation decrease. What irrigation is necessary will result in an increased use of `in-ground` soaker systems to ensure maximum efficiency of water use. This will require oil for plastics but the overall manufactured product and fuelling used for current irrigation systems will reduce. net gain (The ANUTEC reflector solar technology (*ref d iv.*) can be adapted for manufacture of plastics from vegetation)

Torquay Landcare Group Inc (TLC) region:

Within this region the country within a radius of 15kms of the major urban area (Torquay) has only five properties (5%-10% of the total area) large enough to maintain conventional fossil fuel dependent agriculture with the rest of the country broken up into smaller areas containing some `bush blocks` but primarily farmlets, hobby farms and `lifestyle` properties.

At present these blocks have within them a small number of vineyards and a lesser quantity of other horticultural activities such as olives and blueberries. There is virtually no vegetable and fresh fruit production though it is ideally suited for these. The last small farms that grew such produce during the 1980s up to the late '90s are now defunct with the 'golden times' being back in the early days of settlement. These areas are completely dependent on the water they can harvest within their own properties and are unable to compete with irrigated areas servicing the major metropolitan and export markets however, as the past experiences demonstrated, particularly during the '80s and '90s, they, with the implementation of superior minimal water use technologies and biological farming practises, are more than capable of providing for the fresh produce needs of their region. The exponential growth of farmers markets in regional areas assure a ready, publicly accepted, market. There is no recognition or acceptance of this reality within the planners of local and state governments.

What governments can do:

Promote the proven success of biological farming and minimal water use irrigation for over 20 years experienced by those few brave and determined enough to persevere with it and provide educative support and finance to carry producers through the 3-5 years of transition.

Increase the funding for secondary local roads and improved rail efficiency, in part by transferring funding from super highways designed to carry massive road transport loadings.

b. *big cost increases in urban food supplies*

Observations and arguments:

- i. As the cost of subsidised (abundant, cheap water and super highways) fresh and value added produce from inland areas increases, so does the competitive edge over local and regional producers diminish.
- ii. Growers on smaller local and regional acreages will be able to compete for much of the local supplies needed with minimal transport costs and an extension of the already growing demand for local markets.
- iii. The supermarket stranglehold on produce sales will be eroded and the excessive transport costs of those presently forced to use these retail outlets will be reduced. (ref. *'Hidden Costs of Food Miles'*)

TLC region:

There is local government support just being initiated by the Surf Coast Shire for farmers markets but, to this point, the only supplies of fresh produce for them are being transported 15 – 40kms from outside areas. Once initiated, there is massive local support for these markets within the shire. At present there are only two (Deans Marsh and Aireys Inlet) both villages distant from the major population area and neither in the TLC region.

What governments can do:

Institute a determined program to demand that state and local govt planning and development regulations and rural/urban (ruran) zonings cease to militate against more diverse and productive practises and ensure the provision of sufficient low cost, on-site, residences to make this regeneration of rural communities possible.

Demand that this push for much increased local productivity be conducted only within strict macro environmental, sustainable guidelines; that biological farming is supported by incentive schemes and becomes the norm; that technologies used are minimally polluting using the most modern understanding of biological systems; that knowledge pertaining to all this is widely disseminated.

Institute training programs for facilitors able to support this activity and educate to sustain it.

c. lowered economic value and use of major highways

Observations and arguments

- i. As long-haul transport ceases to grow and rail and its necessary `feeder` roads take up the load, so should the funding for secondary roads be increased.
- ii. A significant saving of import costs for heavy road transport should result from the change over to lighter units in regional areas. Fuel costs should reduce simply because less produce will be carted over smaller distances as regional areas become more self-sustaining. (this reference to `less produce` does not imply that a big reduction in **overall** productivity will occur as improved practises and innovations will work against this)

TLC region.

The road network in the specific TLC area is of reasonable standard but emphasis should be placed on improving internal connections between the hinterland settlements rather than `through` traffic. Viz. Upgrading the Princes Highway between the proposed Geelong Bypass and Winchelsea would provide quality entry to improved `feeder` roads giving direct access to coastal centres while, at the same time, providing an internal grid supporting enhanced rural productivity and commerce.

What government can do:

Facilitate the immediate upgrading of the efficiency, sophistication and frequency of rail services and give primacy to the development and maintenance of secondary roads within regional areas.

d: Obligatory use of alternative power sources and water saving practises

- i. Massive power and water savings will result from all new developments being required to include in every planning and construction phase the best of available, and fast improving, sustainable power and water systems.
- ii It needs to be recognised that difficulties in providing adequate service from ageing power and water supply/disposal infrastructures in urban areas as the trend towards more intense re-development grows can be overcome by encouraging self-contained, internal infrastructures and a process of gradual `Ruralisation`. (ref.2) `Integration of Community & Agriculture` It is not unit cost efficiency we must mandate but efficiency in maximum term sustainability.
- iii. The true costs of existing fossil fuel power sources are largely incalculable but known to be too high and unsustainable. There are many alternative options but, though none should be completely discounted, their implementation must be prioritised on the basis of the following values: their utility, the cost of their retail `product`, their degree of sustainability and their environmental impacts. The cost of their further development and installation has to be a secondary consideration. At this moment Co-generation/Micro Power (the combined use of passive design, insulation, solar, wind, and solid (non-fossil) fuels) is the best option; the second is industrial scale wind power (non `storable`), with nuclear, a long way back, third – and, in the long run, unsustainable. Estimates of uranium reserves are more uncertain than those of oil but are commonly spoken of as sufficient for 60 years only. The present governmental push for

`clean` use of coal, though admirable (*if strictly enough implemented*), does not meet the above criteria and its capacity for carbon sequestration is only a concept rather than a reality. Any government funding provided for this must be matched, at the very least, with similar amounts for more appropriate alternatives. It should be remembered that coal, too, is another finite resource, even if its `Peak` is significantly further away than that of oil.

iv. The best option I am aware of will, I am assured, come on line during 2006 – one plant in Australia, another overseas. (I was not privy to the actual sites involved as it was still commercially sensitive). It is one version of a small number of reflector/radiant solar energy systems that has been developed over the last 30 years – this one by the Energy Research Dept at Australian National University Technology (ANUTECH) headed by Professor Stephen Kaneff. This initial version uses solar energy to manufacture a fuel the use of which results in 40% less pollution than do others presently available for turbine generation but uses, also, (within a closed system), the waste heat normally lost in this process, for purifying water. This fuel can be stored for use when needed with none of the disadvantages involved with the battery storage of power from photo voltaic cells. An extension of this principle, demonstrated at laboratory level, (but starved for lack of development funding) splits ammonia into its component gases that, when combined after storage in a closed circuit for a time of need, can generate the necessary heat for the same power generation and water purification. The whole process is pollution free. *Solar power, storable and pollution free, purifying/de-salinating water on the side!* The potential benefits of this technology for the semi arid regions of the world, including Australia, are infinite. It is interesting to note that in all the information I have researched the overwhelming number of references to solar power are confined to photo-voltaic cells which have great value for co-generation in self contained infrastructures but are not as suited to industrial generation as is the reflector solar systems.

TLC region

At present photo-voltaic panels, most connected to the grid with inter-reactive meters (though there are a smaller number of `stand alone` systems) are all that are available here. They are gaining increasing acceptance but this could well be negated by the decision of the Federal Govt to cancel subsidies for them.

What government can do:

Seek out, then finance the development, installation and assessment of all alternative power and water treatment technologies following the suggested priorities. This is potentially a national crisis. To

expect vested interests and market forces to take up this challenge in sufficient time and to an extent sufficient to avoid serious breakdowns of our monetary and social systems is irresponsible.

e. *Transference away from present trends towards better targeted public funding*

Observations and arguments:

- i. Inadequate distribution of essential resources and too restricted opportunities for gainful activities commonly contribute to social breakdowns and degradation of communities. For instance massive, non-participatory sports and recreational pursuits for professionals such as cricket, the various football codes, golf and tennis, however popular, tend to suck resources away from more participatory versions of their activities and can be massively demanding of available finance, infrastructures and energy (particularly for night time events). Fulfilling, time consuming, employment easily recognised by its practitioners and the community they live in as socially valuable and localised recreational and sporting activities have superior value for the greater community. Regional and local regeneration of economies and communities can provide a wider choice of styles and intensity of employment and recreation within which this `social recognition` and sense of community can develop.
- ii. Present social supports such as unemployment benefits tend to be aimed mostly at compensating for damage caused by an inadequate system rather than preventing the damage by improving the system.
- iii. An enforced change in the system towards regional regeneration should be accompanied by changes in social service and taxation incentives designed to encourage participation rather than compensate for non-participation.

TLC region

Sporting facilities provided in the major towns in the area are quite good but at a village level it is a different story. It took 20 years for an area of land to be made available in Aireys Inlet regardless of a burgeoning population and even this is significantly limited in size, covered in bush, and with extremely limited funding for development. The costs and waste of fuel required to travel to venues that do provide adequate facilities is unacceptable.

The same applies for supplies for domestic and commercial goods throughout the region and for the need for a large non-resident workforce, contractors and employees, to have to travel constantly back and forward from home to work as a result of the severe restrictions imposed by local and state governments on adequate housing and village development in these areas.

What government can do:

Extend funding more specifically towards the regeneration of the rural areas and their village centres.

Educational and training institutions should be encouraged to start courses creating awareness of, and training for, the knowledge and skills necessary within this re-generating demographic. This includes the education and training, for instance, of the meaning of sustainability; what is biological farming; why it is necessary for Australia today; the processes of permaculture and its social ramifications, etc.

f. Forced change of community attitudes from consumerism to essential needs:

Observations arguments:

- i. This change of community attitudes will come about primarily through rising costs of essential services – particularly food and transport.
- ii. How long the torrent of cheap consumer goods can keep pouring in will largely depend on how increasing transport costs reduce their flow.
- iii. It is conceivable that the mineral boom could diminish as a result of reduced demand from China, etc when the economic lubricant of cheap oil becomes un-affordable and, in reverse, our exports of high value luxury foods could reduce which would dictate more value adding of our own textiles, forest products, minerals and foods and a regeneration of our base and light industries to make this possible.
- iv. Should this occur we would be well advised to be a world leader in the development and implementation within all industries – primary, secondary and tertiary – of sustainable environmental technologies as a substitute for the loss of raw product exports as well as for our own security and ability to survive.

TLC region

This region is likely to be most affected by the loss of its major industry and employer - the tourist industry. It could well be that this starts to revert to a pattern of cheaper camping and caravan parks closer to the main attraction – the sea-side, and that more centralised `boarding house` accommodation becomes cheaper and more convenient than bed and breakfasts. Also, a rejuvenated, more diverse and interesting hinterland would provide more attraction for visitors to have longer, in house, stay-overs.

The few horticulturists servicing major markets should be affected less as their produce would be largely consumed locally.

What government can do:

Help flag the potential positive opportunities inherent in a more diverse approach to maintaining the positive elements within our present community through recognition of alternative environmentally sustainable ideas and practises for the public at large and within all secondary, primary, and tertiary institutions as a key component of education.

Sustain a public information campaign about its essential need just as intense as the anti smoking campaign.

g. an enforced re-assessment of what constitutes suitable alternative fuels

Observations and arguments:

i. the range of potential fuel alternatives is so large as to make it difficult to know just which are best. priority. Initially, priority should be given to those that are the simplest and quickest to bring online; have multiple side benefits (especially environmentally friendly ones); have a wide, rather than specific, application - and are, most critically, sustainable.

ii. The fuel saving effect of Passive Solar and Wind Shelter design in all developments, both rural and urban is immense; is easy; highly adaptive; spreads the `not massive` expense over a very wide section of the community and creates large employment in the event of the housing boom reducing. .

iii. Others that meet the above requirements are – Co-generation (micro power); Radiant Solar; Wind; Fuel sourced from re-cycling of `waste` (carbon, methane); non-fossil solid fuel.

iv. As the inevitable, essential and exponentially increasing process of restoring suitable vegetative cover on 15% to 25% of the cleared lands in our higher rainfall country reaches sufficient maturity (*ref.7,8*) so will a massive resource of minimally polluting, sustainable solid fuel develop. In the meantime millions of tonnes of fuel wood is available locally in old, over mature windbreaks, which the new plantings will gradually replace.

Reserves of the presently preferred native hardwoods are fast depleting and being carted many hundreds of miles. There is no difference in the heat values contained in either hardwood or softwood (*CSIRO research*) – only in the manner of their burning. The emissions produced from this fuel are less polluting than fossil fuel.

TLC region

Landcare projects since 1983 and agro-forestry and experimental plantings by private farmers combined with shelter-belts and landscaping grown by `lifestyle` owners have transformed much of the country in this region though, overall, it still falls a little short of the ideal. The bulk of it has been motivated from an understanding of the need for conservation and bio-diversity and for aesthetics and shelter. More recently there has been an increased emphasis on protection of waterways. Unfortunately the prevailing wisdom about these matters takes little, if any, account of productivity and the extent to which this extraordinarily valuable resource should be regarded as a sustainable product for future security goes unrecognised. Indeed the narrow focus on conservation and bio-diversity has resulted in a number of regulations and guidelines denying use of this resource through being unable to distinguish between sustainable use and destructive exploitation. A project, The `Blenden Project`, to demonstrate and assess the value of developing an underdeveloped property as a completely integrated environmental system incorporating high productive, sustainable and community values was initiated last year and shows great promise.

What governments can do:

Fast track the further development and utilisation of these by Planning and Development regulations, building regulations, differential rating and taxes, and/or direct subsidies.

Require public authorities to process and market, not destroy, all `waste` materials with value as fuels and fertilisers and to facilitate these practises within their bailiwicks. (Tyres can be processed to yield all their component elements; organic wastes can be composted; methane extracted from landfill; timber and wood wastes processed for fuel; etc)

h. radical change in employment options and housing of rural workforce

Observations and arguments:

- i. With implementation of 'Regionalisation' and 'Localisation' increased opportunities for small businesses in maintenance, service and processing will arise primarily on the back of a rejuvenated primary industry now needed to provide for local markets rather than trying to be competitive on a 'cost unit' basis in the dominating export or metropolis markets.
- ii. This rebirth needs people and people need appropriate housing accommodation.
- iii. For most efficient and economic management of rural activities accommodation for the workforce needs to be onsite. Constant travelling on and off site is expensive, fuel wasting and often prevents essential, 'odd hours' emergency supervision.
- iv. The need for value adding of local produce in local and regional areas to minimise the transport costs of carting out a large bulk of unprocessed material, then having to bring back significant amounts as finished product is fuel wasteful. Local, generally small businesses, particularly in the areas of food processing and marketing, are commonly penalised by having to conform to regulations designed for urban or export circumstances that are not just unnecessary, but completely inappropriate, for their situation. Without these restrictions profitability and, consequently, better employment opportunities would increase.

TLC region

Regulations concerning health, packaging, processing, handling and exchange of food, however laudable, can be, while necessary for major urban and export markets, unsuited and not necessary for local mini-business. The extremely high charges and fees demanded for the certification and supervision entailed in these requirements have prevented a number of sound operations from starting, closed down others, and creates a negative attitude for the implementation of innovative ideas.

What government can do:

Recognition that planning, development and health regulations must be tailored to suit the needs of varying types of community is long overdue and a reluctance to address this problem promptly will inhibit the regeneration process. The present 'one coat fits all' attitude to framing regulation is largely urban centric – understandably – as the urban population is so dominant. Planning departments must seek out, and employ, a number of specialists for their staff who have a genuine and comprehensive **understanding of the differing needs of rural community living.**

i. *accelerated shift from `fossil fuel dependent` to biological farming*

Observations and arguments:

Within the multitude of divergent issues and opinions relating to the merits of Biological Farming versus `fossil fuel dependent` farming there is only one that really need be mentioned in this submission though some comment highlighting broader issues is provided.

Present conventional Western style farming is completely dependent on massive volumes of cheap oil ----- Biological farming isn't.

A chemical-industrial farm uses 300 units of energy to produce 100 units of food. A biological farm uses 5 units of energy to produce 100 units of food.(ref.9) Biological is fully sustainable – chemical-industrial is not. After just ten years and all the hype involved the evidence is now with us, and, as with the original `Green Revolution`, it is now obvious that there is only negligible net advantage, if any, between the two systems in productivity without a massive input of fossil fuel energy for our current conventional system.(ref. 10,5)

TLC region

A small number of different styles of biological farming have been, and still are, being practised in this area. They are largely unknown and have no influence on the `big picture` but present a nucleus around which an expansion of their principles can grow. The Blenden Project could help with this.

What government can do:

Biological must have the first priority in research and promotional funding. (ref. 5 p4) Conventional plant and stock breeding programs must also be maintained, not replaced by even more fossil fuel dependent technologies such as genetic modification and any other that is unsustainable.

References:

1. Hidden costs of fuel miles. *Dept for the Environment, Food and Rural Affairs UK (2005)*
2. Integration of Community & Agriculture *Fulke Gunther Dept of Systems Ecology Stockholm University (this large paper is a report on a project initiated in Sweden in conjunction with Finland and Iceland detailing the research and conclusions resulting and was conducted from 1988-2006)*
http://www.holon.se/folke/lectures/Ruralisation-filer/v3_document.htm

3. Energy Scenarios Ireland *Foundation for the Economics of Sustainability (Irish Environmental Protection Agency 2006) Three scenarios for probable changes resulting from energy descent problems at 'short term', medium term and long term time scales.* <http://info.energyscenarioireland.com/MainPage>
4. Energy: The End of Cheap Oil *Daniel Leeming; Ontario Planning Journal (2005) Effects of energy descent from a Canadian viewpoint)*
<http://www.ontarioplanners.on.co/content/journal/Opjournal.asp?fn=FEATURES&id=478&nav=section&lang=English>
5. Can Organic Farming Feed the World? *Christos Vassilikiotis Ph.D (2005) Presents a case for the capacity of biological farming as our best, and only real alternative to present systems*
http://www.cnr.berkeley.edu/%7Echristos/articles/cv_organic_farming
6. Whyalla *J Bowman Farmer/Author (2001) (a short article on a perfect example of how a lack of co-operation between Federal, State, Local governments and industry prevented a project of infinite value to the nation from being realised)*
7. Waterworld *J Bowman Farmer/Author (2005) (a brief look at a lateral view of water storage)*
8. The Way To Go. *J Bowman Farmer/Author (Instigated in 1995 as result of a response to a State Govt Planning Inquiry and initiated during 2001-2 this selection is from a booklet published in 2003 and has been expanded and marginally modified since (2005) as appropriate for changing circumstances and has particular relevance for much of the content of this paper. It will be supplied as hard copy via postal mail)*
9. The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics *Vandana Shiva Physicist/bio-technology and Food Resources.(1999) (for a better appreciation of biological practises for superior quantities and quality of food)*
10. Peak Oil and Permaculture; on energy descent. *David Holmgren Author and co-originator of the Permaculture concept.(2005) (text from an interview of Australian expert on the ramifications of energy descent)*
<http://www.globalpublicmedia.com/INTERVIEWS/DAVID.HOLMGREN/html>
11. Suburbia Project: Peak Oil Scenario Planning *Lakis Policarpou Author (2006) (energy descent impact on suburbia)*
<http://www.nea-polis.net>

SUMMATION:

This submission aims to present a concept outside that of a one-dimensional fixation on the notion that a growth economy is the first and only sound approach to providing for all our needs. It has concentrated, not on a 'band aid' approach for improving the performance of present embedded beliefs, nor for immediately destroying them, but to widen our thinking sufficiently to accommodate a preferred, more balanced approach as a priority.

It selects options that are not dependent on grandiose ideas, massive capital inputs and major disruptions but a number of relatively easy and not too costly adjustments to our priorities and assumptions.

By moving promptly to strengthen and re-direct some public funding and, above all, to modify our planning and development ideas to encourage the best of sustainable environmental and social standards we will go a long way to preparing our society for coping with the stresses that seem likely to assail us.

Should all the authoritative, dominating warnings of impending crisis be wrong, it would not alter the fact that the concepts presented in this submission would do nothing but good for the people of Australia by revitalising a section of the community upon which the whole nation, ultimately, will depend.

Relevant Additional Reading:

Global Change and the Earth System. International Geosphere –Biosphere Programme

Running Down. Mary. E. White

Collapse:why societies choose to fail or succeed. Jared Diamond

Natural Capitalism; the New Industrial Revolution. Paul Hawken, Amory B & L Hunter Lovins.