

Maintaining Our Prosperity

During Transition to a Sustainable Society

A Submission to the Australian Government Energy White Paper
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Introduction

This submission aims to better inform its readers about the monumental changes that we now face as we pass worldwide Peak Oil and enter into the era of the decline of oil and the overall energy available to our society. This renders our growth dependent economic system (Capitalism) no longer viable, which will have profound effects on the functioning of our society.

Australia's new Energy White Paper will be crucial in dealing prudently and effectively with the immense challenges facing Australia as the era of cheap energy and the economic system based upon it comes to an end. We are now in the early stages of an unprecedented economic failure - the terminal decline and probable collapse of global Capitalism. We are completely unprepared for this failure of our economic system and tsunamic societal change that will soon be imposed upon us. We face the prospect of protracted economic dysfunction and mass unemployment leading to social and political unrest. If we fail to respond prudently to this emergency, we face the prospect of the failure of our essential services and even the collapse of our society itself.

It is remarkable that this profound change is being imposed upon us at exactly the same time that it has become clear that we face a global Sustainability Emergency, which requires that we act promptly to dramatically reduce our greenhouse gas emissions and consumption of natural resources so as to avoid destroying the ecosystem upon which we, and most other life on earth, depend. It is even more remarkable that the actions we need to take to deal with the Sustainability Emergency are much the same actions as are required to deal with the collapse of global Capitalism.

No Return to Business as Usual

The Capitalist economic system is dependent upon ongoing growth in the production of goods and services - economic growth. Until recently, this growth of production has been achievable because we have been able to expand the supply of energy (most importantly oil) at a price low enough to make the goods and services produced affordable to an ever growing number of customers.

From 2005 to 2008 it became apparent that it was no longer feasible to substantially expand worldwide oil supply to meet rising demand. This resulted in a steep escalation of the oil price, which played a major role in triggering the worldwide economic crisis. Furthermore, all the available sources of new oil supply, and works to maintain production from existing fields, are proving to have a much higher development and production costs than the older discoveries of oil that currently provide most of the oil we consume. Hence we face much higher production costs going forward and there is little doubt that the era of cheap oil has now passed. This combination of oil that is in limited supply and increasingly costly renders our growth based economic system no longer viable.

In the short term (2-5 years), even if the economic stimulus spending by governments around the world was to result in a resumption of economic growth, demand for oil would soon once

again exceed supply. The price of oil would again spike to whatever level was required to destroy demand, thereby snuffing out any prospect of a sustained economic recovery.

In the medium term (10-20 years), as the cost of oil increases and supply declines, many of the goods and services that were economically viable when oil was cheap will no longer be affordable to an increasingly large part of the customer base, leading to inexorable declines in many sectors of the economy. Significant industries that face inexorable decline or collapse include the tourism, automotive, road freight, manufacturing, retail goods and import/export industries. Furthermore, the declines in these industries cannot be fully offset by growth in new sectors such as renewable energy, railways and public transport, primarily because lower levels of energy available to society inevitably means lower economic productivity (GDP) overall.

We are now witnessing the emergence of an economic situation characterised by an insolvent financial system, market volatility and uncertainty that renders investment risk inestimable, and inexorable economic contraction for several decades to come. This economic situation renders all private sector investment untenable, including investment in the new energy systems we need to provide for our future societal needs and to phase out fossil fuels.

This economic situation has already resulted in a dramatic reduction in investment in developing new oil supply. Due to the destruction of demand caused by the global economic crisis and the lack of investment in new supply, Peak Oil almost certainly occurred in July 2008. A supply crunch and highly destructive price spike now seems highly likely within a few years as existing fields decline and insufficient new supply is developed. The market is destroying itself.

An element of extreme uncertainty is added to the situation by the ongoing collapse of the US economy and the looming inevitable collapse of the US dollar. The United States of America is insolvent (effectively bankrupt) and it is highly uncertain what the effects of this will be for Australia and world trade generally, but it is unlikely to benefit Australia.

The only thing that is certain is that there can be no return to business as usual.

Crisis Management

The end of our way of life is a diabolical management problem; but manage it we must. First and foremost, if we are to have any chance of averting the collapse of our society, we must cease denying of the problems we face. The first step in solving any problem is to acknowledge the problem. The next step is to seek to understand the problem. Only then can potential corrective measures be examined.

By far the most disturbing aspect of the Energy White Paper Discussion Paper is that it relies on underlying assumptions that are unstated, wishful and completely disconnected from reality. The most crucial of these assumptions are:

- the resumption of business as usual, and
- the continuation of growth of available net energy.

These assumptions reflect a state of deep denial by our government of the magnitude of the problems we face. Why they are engaging in this denial is not clear. Three possible explanations are suggested here:

1. They so desperately want to believe in the continuation of the current economic system that they seek and accept the wishful and delusional prognostications of ABARE, Treasury and other advisory bodies, thereby deluding themselves that their underlying assumptions are realistic.

2. They know full well that we face an emergency of unprecedented scale and depth, but feel compelled to hide this from the electorate for fear of causing a collapse in business confidence and the consequent collapse of the economy and the government itself.
3. Some combination of 1 and 2.

Drawing an analogy between the response of our government and the response of the theatre staff to a fire in a crowded theatre:

Explanation 1 is as if they can see a small fire in the theatre but wishfully and foolishly believe it can put out with a fire extinguisher.

Explanation 2 is as if they know there is major fire in the theatre but refuse to raise the alarm because they don't know how to evacuate the people without causing panic and a disaster. So they take to the fire with a fire extinguisher.

Yet what needs to be done is obvious - the staff need to inform the people that there is an emergency that requires an evacuation. They need to then manage the evacuation as best they can and recruit capable patrons to fight the fire using whatever resources are available. In this way the largest number of people can be saved and it may even be possible to save much of the theatre.

Clearly our government has a responsibility to announce clearly and unequivocally that this is an emergency that threatens our very survival, rather than remaining in denial and declaring that all is well. All is not well; and if we fail to act promptly and resolutely, this crisis will destroy us.

A democratic government can only make changes that are supported by its electorate. Hence unless the electorate is properly informed about the reality of the situation, they will not support prudent proposed actions by government.

The problem for the government is that there is no politically tenable way of managing this problem. Any government or political party that tries to inform the electorate about the true nature of the problem is likely to be rejected outright by the electorate because they simply don't want to hear it and the emergency is not yet so obvious that it can not be denied. People vote for politicians who tell them what they want to hear, which is always: "I will solve the problems so as to maintain and improve your standard of living".

However, once there is general recognition that this is indeed an emergency, our government will be compelled to overcome its political paralysis and declare a State of Emergency. In so doing, they will suspend 'business as usual' and enact whatever means they deem necessary to deal with the emergency. Once the people understand the emergency, they will rally behind their leaders and support the actions required to best deal with it, even when those actions involve significant personal hardship. This is the type of change that was seen at the commencement of World War 2.

The first emergency action required will probably be to implement a command economy similar to that implemented during World War 2 so that essential services can be maintained.

Another emergency action that may be required is the rationing of petroleum fuels in the event of a supply crunch so as to allocate sufficient fuel for the provision of essential services, particularly production, processing and supply of food, public transport and emergency services.

Another action that is urgently needed is a moratorium on evicting people who have lost their livelihoods from their residences. It is simply impractical and immoral to throw millions of victims of the economic disaster out on the street.

A New Monetary System

It is essential to understand that what we face is the failure of the capitalist economic system rather than a failure of the actual means of production and supply.

There is enough oil and other resources to meet everyone's needs in the medium term. The global economy is like a crashed computer – the hardware remains usable but it has ceased to function due to a fatal error in the program it is running. The crucial error that made this crash inevitable is built into the capitalist monetary system itself.

In the capitalist monetary system, all money is created and enters circulation as interest bearing bank debt (loans). It is only possible for these loans to be repaid with interest if there is a corresponding expansion of money in circulation over the term of the loans. This can only come from expanding bank debt, which can only be sustained while there a corresponding expansion of real economic productivity (economic growth) to provide the income to repay the debt, along with commensurate growth in energy to fuel that productivity.

Consequently our economy depends on perpetual economic growth and commensurate growth of energy available to society. This is clearly unsustainable on a finite planet, especially when that energy comes primarily from depleting fossil fuels. We have clearly now reached, and probably overshot, the sustainable limits to growth and consequently, the capitalist system now commencing its terminal decline and will probably collapse altogether.

We must not waste our resources trying to maintain Capitalism on life support; we must take this opportunity to form an entirely new economic system that is not dependent on growth and allows us to begin the transition to a sustainable society.

This submission contends that in order to establish a monetary system that is able to function without growth, the legal right of banks to create money as interest bearing debt must be withdrawn. Instead, the federal government would be responsible for issuing the nation's money into circulation via direct government spending and interest free loans, and for reclaiming that money through taxation and loan repayments so as to maintain a stable value of the currency.

The proposed plan would entail direct government spending on major projects to be owned in common by the people. This would provide the primary capital for a new economy. Private enterprise would provide services to the projects thereby circulating the money through the economy. Where private enterprises were viable within the new economy, interest free loans could be provided to enable them to get established, or re-established, following the economic collapse.

All bankrupt corporations (including the banks) would initially be nationalised and their useful assets used to provide for the common good of the people. However, it is important to note that this is not a proposal to eliminate free enterprise, but to enable the economy to function without economic growth. Free enterprise and private ownership would be retained and supported. As a new economy is established, nationalised companies that were suitable to compete in a free enterprise environment could be re-privatised, where this was supported by the electorate.

Because the capitalist system of money creation is so widely misunderstood, yet deeply culturally entrenched in minds of the people and our governments, it is highly unlikely that such transformational reforms will be implemented immediately. It is far more likely that the government will continue to believe that they need to prop up an essentially insolvent banking system by guaranteeing its deposits and borrowing from it, thereby burdening the people with the debt and the interest incurred.

However such government spending is the only way that there can be a resumption of investment after economic collapse, so it is far better for the government to borrow and spend

for the good of the country than not to do so. Such borrowing by government can not solve the underlying insolvency of the banks and eventually they will have to be nationalised and their debts written off. The absurdity of the people being saddled with a debt to a bankrupt system that they now own would surely be recognised and we may well end up with something close to the proposed reforms by default.

What We Should Do

In the wake of the economic failure now underway there will be an urgent need to get people back to work so as to re-establish a functioning society and there is no shortage of work to do to. We need to build a multitude of new facilities to meet our energy needs as oil supply declines and to enable the phase out of all fossil fuels as soon as practicable.

Specific major development initiatives are proposed:

- Roll out natural gas supply infrastructure as an interim fuel to power public transport, particularly minibuses to service suburban areas that are too sparsely populated for trains and full size buses.
- Build a national electric railway network for freight and passenger rail to reduce our dependence on oil for road freight and air travel.
- Develop and build solar thermal electricity generation on a vast scale. This is the only proven renewable technology capable of providing a large part of our electricity needs.
- Plan and implement large expansions of the electricity transmission networks that will be needed to supply power to an increasingly electric powered society.
- Re-deploy buildings and machinery left unused due to the economic collapse for new purposes (e.g. City office buildings could be converted to public housing, car manufacturing plants could be redeployed to manufacture public transport vehicles)
- Research into the feasibility of new generation nuclear reactors fuelled by Uranium238 and/or Thorium for use in countries where solar thermal power is impractical. If this technology proves viable, it would be a major opportunity for Australia to lead the world.
- Research and development of sustainable agricultural systems that use greatly reduced fossil fuel inputs, possibly including the use of 'bio-char' to sequester carbon into the soil.
- Research into the feasibility of production of oil from algae on a vast scale. This technology is fraught with problems, but there may be potential to produce a significant supply of fuel for the time where oil has declined to a very low level of production.

All these initiatives will need be funded by direct government spending because there is little prospect of private investment due to the underlying insolvency of the financial system when economic growth is no longer viable and the inability to quantify investment risk. The nation must not accept that risk, yet give away the profits to the private sector.

It is vital to understand that these measures can not restore growth to the overall economy because these works will need to be undertaken in a world constrained by steep declines in hydrocarbon fuels, which will inevitably be accompanied by commensurate declines in the overall economy. An increasingly large part of the available fuel will be needed to provide essential services and to build the new energy infrastructure needed for the future. Only the remaining fuel can be used to support the remainder of the economy. Rationing of fuel for private and non-essential commercial use may be required, but this is far from certain.

Whether or not rationing will be required will be determined by the outcome of the race to the bottom between supply and demand as global economy declines. Since July 2008, the demand for oil has fallen marginally faster than available supply due to the global economic crisis. As the economic collapse of the USA and possibly the entire world economy unfolds, we may well see demand continue to fall faster than supply all the way to total economic collapse. If there is a partial economic recovery at some point, demand would again begin to overtake supply within a few years and possibly as quickly as a few months.

In this situation, it would be highly beneficial to have a worldwide system to ration consumption so as to prevent another highly destructive price spike. However, this would require an International Oil Sharing Treaty to share the responsibility of reducing demand.

It is crucial to understand that the whole world is in this together. Australia can not save itself unilaterally – not from climate change, not from economic collapse, not from the decline of oil, not from population overshoot, not from the collapse of the planet's ecosystem, not from a nuclear holocaust. In all these crises, the most beneficial action we can take is to support initiatives through the UN to undertake fundamental reforms to halt the destruction of our planet and to share the world's remaining resources according to need. Examples include:

- binding agreements to slash greenhouse emissions, including a phase out of all coal mining
- An International Monetary Treaty to establish a new monetary system for international trade
- An Oil Sharing Treaty to enable the world oil market to be stabilised and the oil shared for the common good.

Such agreements could easily be stifled if any major country refused to cooperate – they would require an unprecedented level of international cooperation. Hence it is highly unlikely that such an agreement can be made, which implies we are headed for catastrophe.

To have any prospect of forming these agreements, it is essential that rich countries like Australia lead by example – slashing our own greenhouse emissions, reforming our monetary system and reducing our oil consumption through some form of rationing and/or a major financial disincentive to profligate consumers. A hefty carbon tax, the proceeds of which were distributed in equal shares to all citizens, would provide just such a disincentive for profligate consumers as well as a significant financial benefit to those who conserved energy.

What We Must Not Do

In the era of declining available net energy that we are now entering, how we allocate our remaining resources will be critical to the success or failure of the transition to a low energy society. *If we use our precious resources to pursue fool's errands we will fail profoundly.* Here is a list the most foolish ideas that are already being pursued and should be discredited and dumped as soon as possible:

- **Persisting with Capitalism:**
Throughout history, all societies that have collapsed have refused, or been unable, to abandon the culture and beliefs that have given them success. Instead, they have clung to their culture even as it fails them. Our culture of Capitalism has given us success on an unprecedented scale, but it is now destroying our planet and us. If we refuse to abandon it and fail to act resolutely to save our planet, we will undergo a collapse of civilisation and die off of humans on a scale that is unprecedented on our planet.

- **Carbon Capture and Storage:**

This represents a futile last ditch effort by the coal industry to save itself. It is fraught with technical problems. Even if those problems were soluble, vast amounts of energy would be lost in the process, making it a very inefficient in terms of net energy produced and the capital and resource cost of the required disposal infrastructure is astronomical. All this means that the electricity produced would be very expensive and the consumption of coal would escalate so quickly that we would be undergoing Peak Coal long before the plants could even be built. In short; CCS is the most foolish proposal that has ever been backed by any Australian government.

- **Using Natural Gas to fuel our cars:**

Our Natural Gas is a precious, one off endowment of high grade fossil fuel that will be quickly spent if we fail to use it wisely. If we use it to continue to pursue our car based lifestyle, we will merely exacerbate our dependence on depleting fossil fuels, escalate our greenhouse gas emissions by burning our last major reserves of fossil energy and fail to make the transition to a low energy society. This would leave us with nothing but inevitable catastrophic collapse. NG is a high value fuel suitable to replace oil for our existing essential systems and for swing electricity generating capacity. It should be used only where it is needed to make the transition away from our dependence on fossil fuels.

- **Hybrid cars:**

These cars are proposed by those who are desperate to maintain our car based lifestyle, but are not a feasible solution for several reasons:

- They don't deliver anywhere near the savings in fuel required as our oil supply declines.
- Their life cycle greenhouse gas emissions are higher than comparable vehicles, primarily because of the batteries and because they run on coal fired electricity.
- There are insufficient resources of Lithium to make sufficient batteries for a large scale roll out.
- Right now, we don't have these vehicles but we do have Peak Oil and the economy will be unable to function during the 15-20 year period required to change out our current fleet.
- But most of all – even if these problems were soluble, hybrid cars would only allow us to sustain the unsustainable for a decade or two, delaying the major changes that must be made to avoid societal collapse until it's too late.

- **Biofuels:**

If there is anything more foolish than CCS, it must be biofuels. Their development is an act of tokenism and recklessness, aimed at maintaining our addiction to liquid fuels with no prospect of making any worthwhile contribution. The world is rapidly approaching the point where all the agricultural land in the world is needed for food production. Land to grow biofuels can only be obtained by clearing the last of the world's rainforests. We must concentrate on systems to grow sufficient food as the oil supply declines and we must preserve what we can of our rainforests – we must desist with all biofuels (except possibly algae farming in sea water).

- **Coal to Liquids:**

In the CTL process, less than half the energy value of the coal can be converted to liquid fuel energy, which results in a large amount of coal consumed for a relatively small amount of liquid fuel produced and around 3 times the CO₂ emissions of burning conventional oil. Not only is this totally unacceptable, but the sheer scale of the plants that would be needed to replace oil is colossal, which implies that the oil produced would be prohibitively expensive and we would escalate our coal consumption so much that we would quickly burn through our remaining reserves. Another fool's errand every way you look at it.

- **Intermittent renewable power sources:**

Unpredictable power sources such as wind, PV solar, solar thermal without heat storage, and wave are not practical beyond about 15% of the overall grid power. It is very

unfortunate that these very sources have been championed by many as solution to our energy predicament. Believers in these technologies have been hoodwinked by tokenistic programs by governments and the sales pitches of their developers. They are not suitable for large scale roll out and never can be. We must not waste our precious resources building wind power or PV solar power.

- **The Hydrogen Economy:**

This is such far from practical that it is hardly worth debunking. The technical problems are essentially insurmountable, we don't have the available resources to build the infrastructure and there are much better ways of harnessing renewable energy. Thankfully the proponents of this fanciful technology have faded into the background in recent times.

- **Current generation nuclear:**

Current technology nuclear reactors that consume Uranium235 (U_{235}) would be impractical on the scale required because of the very limited supply of U_{235} . Also, there are several unresolved problems with waste disposal and the technology is very expensive and slow to build. Energy Return on Investment is low – possibly too low to be viable. There may be better reactor designs that utilise common Uranium (U_{238}) and/or Thorium that may prove feasible but these would need to be much more fully proven before it would be prudent to deploy them at scale.

Re-evaluating Prosperity

Growth is inherently a transitional phase of the life of any system and the era of economic growth is now ending. We must now learn to function through economic retraction to equilibrium and this is a daunting cultural shift to undergo.

Something in the order of 30% of GDP in Australia arises directly from growth - building new houses, commercial buildings, factories, roads, mines, and so on, along with the manufacture of the materials and equipment required. The people who work to create this growth are dependent on regular employment for the provision of their essential needs – food, clothing, housing, etc. People who work in service industries are in turn dependent on people employed by growth to spend their money for their employers to remain viable. Hence a cessation of growth causes a cascading loss of employment and a systemic failure of the economic system – as is all too evident from the unfolding economic collapse.

Simply stated: far less labour and far less energy is required to maintain an equilibrium economy than a growth economy. A period of cultural adjustment is now inevitable as large numbers of people who were formerly employed by the growth economy remain unemployed and dependent on social security for their basic needs for some time.

Having large numbers of people on the dole is highly socially corrosive because these people are denied a useful role in society and are soon overcome by a sense of despair and anger - it is clearly not a long term solution. Hence we need social policies to promote job sharing, part time work and early retirement so as to transition to lifestyles involving far less work per individual. We also need social programs to involve large numbers of people in the betterment of their communities and the development of the new skills needed for a sustainable society. If we fail to achieve this, we will become a society divided between the privileged employed class and an unemployed underclass, which would inevitably lead to political instability as the poor rise up to demand a fairer deal. Only a society that has a reasonably fair distribution of resources and a sense of community and social inclusion can be a stable society.

It is a simple reality that lifestyles with less work per individual generate less GDP per person and can not be the high consumption luxury lifestyles that most of us aspire to. There will be far less air travel, less personal car use, less consumer goods and a greater need to share

resources within local communities. In short: we will not be any where near as prosperous as we currently understand the term 'prosperity'.

The overwhelming majority are deeply socially conditioned to believe that prosperity is gained through working hard most of our lives so as to afford a high consumption lifestyle and the social status obtained through conspicuous wealth. However, the need to have most people working hard most of their lives actually arises out of the need for labour and consumer spending to maintain economic growth and to pay the interest on the ever expanding debt.

There is an another, much more valid way to evaluate prosperity, which is to look at what it is that enables us to live fulfilling lives; to enjoy the love and respect of our family and community, and to have time to pursue our personal goals – in short: that which makes us happy. Very few people would consider that a life spent slaving away to support large debt and material consumption was superior to a life with no debt and far more time to spend enjoying life. In the proposed new economy, there would be no interest on debts, very few debts to be repaid, far less material consumption, much less energy used and a much lower income required to meet our needs.

Such simpler, more personally fulfilling lives are certainly possible, but this is a major cultural transition that can only be accomplished over decades. To achieve such a transition there needs to be 'carrot and stick' approach, whereby incentives are given to those who choose to work less and disincentives for those who insist on pursuing high incomes. This could be delivered through a combination of measures such as a steeply rising sliding tax scale and rationing of consumption so that a high income bestowed little additional ability to consume.

Conclusion

It is imperative that Australia's energy policy is not based on the wishful and foolish assumption that there will be a recovery of business as usual following the current worldwide economic crisis. There is no prospect of sustaining a return to business as usual. We must now find new ways to manage our economy so that the services that we all rely upon can continue to function, the essential needs of all our citizens can be met and social cohesion can be maintained as we undergo enforced and profound cultural change towards a low energy society.

We need to accept that energy and economic decline is both inevitable and necessary if we are to save our planet from catastrophe. The great challenge of our time is for our leadership to use the opportunity created by the unfolding failure of our economic system to implement fundamental reforms so as to create a functional and sustainable economic system, and to begin the transition to a low energy, sustainable way of life.

This requires our government to:

- Cease denying the emergency and to start to educate themselves and the public about the nature of the emergency and the cultural change needed to avoid societal collapse. Only a properly informed electorate can support prudent actions by their government.
- Desist with the fantasy that we can accomplish the required transition through business as usual with few minor modifications to the regulatory structure.
- Desist with fool's errands such as CCS, CTL and Biofuels, which are not only futile, but would waste our irreplaceable resources and do major damage to our planet.
- Enact whatever emergency measures are required to maintain essential services as the global economic system collapses and to share our available resources fairly.

- Get a significant number of people back to work building the systems and we need for a much lower energy consuming society.
- Get our best and brightest working on how to implement a new economic system that is able to function in a world of declining energy and GDP.
- Make large investments in research and development of technologies that seem likely to be beneficial in a world without fossil fuels.
- Start developing incentives for people to work less and consume less and have the time to live more fulfilling lives.

Although we face the greatest crisis in human history, I contend that it is still possible to turn back from the brink if we abandon our belief in Capitalism, take the emergency actions needed to prevent a breakdown of essential services and begin the process of transforming our society to be sustainable in a world without fossil fuels.

This involves re-evaluating our conventional view of prosperity. Prosperity is essentially our ability to live fulfilling and happy lives. Prosperity can not be obtained through materialism and certainly can not be achieved if our society collapses or the ecosystem of our planet is destroyed. Hence the best chance we have of maintaining our prosperity is to abandon our belief in Capitalism and take robust action to save both our society and our planet.

About the Author



I am a professional electrical engineer with extensive experience in electricity generation from various energy sources, including renewables. I have a long standing interest in renewable energy, climate change and the sustainability of modern society.

I have studied the Peak Oil issue in increasing depth since 2004 and have become increasingly alarmed by its implications and the complete lack of prudent actions to manage the emerging disaster. For the last year, I have been researching and developing a book, which has the working title "**Peak Capitalism: Our Opportunity to Choose between Transformation and Collapse**".

For contact details and further reading on these issues, including a draft Executive Summary of my book and my Open Letter to Kevin Rudd, go to: <http://members.optusnet.com.au/~lionelorford/>