Inquiry into Energy Efficiency.

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I would like to thank the Productivity Commission for giving me the opportunity to participate in the "Inquiry into Energy Efficiency.

The terms of reference state that improvements in energy use have the potential to lower Australia's greenhouse signature. Improvements in energy use also help cut water usage and since provision of water is the world's second greatest challenge, improvements in energy efficiency are vital for children and their children.

In 'Plan B. Rescuing a Planet under Stress and a Civilisation in Trouble" written by Lester R. Brown, the President of the Earth Policy Institute in 2003, Brown explores what he terms the "enormous potential for raising energy productivity." P.153.

Brown states that some European countries enjoy similar living standards to the United States and yet use about half as much energy per person.
Australia has a very similar ecological footprint to that of the United States and it is arguable that considerable energy efficiencies could also be achieved in Australia.

The following measures could be taken in our country:-
Improving energy efficiency of a range of household appliances. More stringent efficiency standards could be required for both residential and commercial air conditioners. Measures could be put in place to improve the efficiency of new buildings as well as putting in place measures to both improve energy efficiency and lessen the energy demands of existing buildings.

The following, if mandated for new homes and with suitable incentives, retrofitted into existing homes where possible, would improve the energy efficiency of our homes:
Today in Australia , hot water represents 34% of the average household electricity bill, therefore Australian manufactured solar water heaters should be mandated, particularly in the Sunshine State, if possible sited directly over the kitchen, where small quantities of hot water are frequently required, thus minimising the length of piping requiring insulation. Set your hot water thermostat only up to 60 degrees Centigrade and if you have a conventional water heater, turn off the hot water system when you go on holidays.

Water saving devices also lead to energy efficiencies due to the savings that accrue from a lesser demand for water that has to be stored in dams and treated and then transported to our homes. Mandated water tanks, front-load washing machines, 'grey' water reuse, shower flow restrictors, tap aerators, dual flush or composting dry toilets, all fit into this category of energy efficiency measures.
In Japan, hand-washing water is used to flush toilets. The toilet cistern lid is dished with a hole in the middle, with a filler pipe above the lid. So you flush the toilet and wash your hands in the water stream above the cistern as the cistern fill up again.

Lighting represents 13% of the average household electricity bill and in today's changing climate, surely in the "Smart State" 'daylight saving' needs to be seriously revisited as a valuable energy efficiency measure.
On the home front, mandated skylights would be cost-effective energy efficiency measures.
There would be huge energy efficiency gains in replacing all incandescent lights with Compact Fluorescent Lights, which according to Brown, use only one third of the electricity and last ten times as long. P154
The use of fans, air conditioners and other cooling devices represent 10% of the average electricity bill and there are energy efficiency gains to be made by retrofitting the existing housing and building stock in Queensland and other tropical areas of Australia. Ceiling insulation is very cost effective.

In Queensland new housing stock needs to be built to suit a tropical climate rather than continuing with an on-going provision of housing stock more suited to regions with harsher winters.
It is false economy to try to keep down the price of budget housing stock by building such

housing stock with minimum height walls and minimal width eaves. The orientation of houses can provide energy efficiency gains, particularly if homes have a long East/West axis, with large window areas facing north and a narrow western wall with few small windows or a carport shading the western wall or if that is not possible, dense native shrub or low tree cover to shade the western wall.

There are huge energy efficiency gains to be realised when Australia seriously embraces solar photovoltaics. According to Brown in "Plan B" 'Trends in Energy Use by Source 1995-2002.' At 30.9% Solar Photovoltaics is the energy source with the world's highest annual rate of growth. Brown states: "Over the last seven years, solar sell sales have expanded an average of 31% annually, doubling every 2.6 years. Since there is little doubt that solar cells will one day be an inexpensive source of electricity as the scale of manufacturing expands, the challenge for governments is to leapfrog into the future by accelerating growth of the industry. Only very modest government incentives are needed to do that." P 164.

There are also huge gains in energy efficiency to be made once Australia embraces wind energy which with its annual growth rate of 30.7% is second highest after solar photovoltaics.
Australia should be part of that action; more of same is just not good enough today. "Dig it up, ship it out, quarry Australia" might have sufficed in the past; but knowing what we now know, this attitude is no longer acceptable.
As the old Chinese saying puts it: "Unless we change direction, we may end up where we are headed." We must embrace new technologies like photovoltaics and wind power for the sake of our children who, although they only represent 20% of our population., are 100% of the future.

Transport is an area where massive gains in energy efficiency can be made, if the optimum mode of transport is chosen. So what is the best way of transporting people or goods between two points, with the least adverse impact on people and non-voting species living between these two points?

According to the Federal government, approximately 100 bicycles can be produced from the materials used to manufacture one car. Cycling uses about 1/3 the energy of walking, 1/4 the energy of public transport and 1/50 the energy of the average car. The Federal Government estimates savings of approximately $130 million a year from those who already cycle, through health benefits.

Queensland today has the highest levels of childhood and adult obesity in Australia, with our country being close to that of the USA, the country with the world's worst levels of obesity.
We drive around the corner in a machine that weighs a tonne, that runs on a non-renewable resource, to buy a packet of chips. How energy efficient is that, when even wars have been fought over that valuable diminishing resource?

An unhealthy 'battery reared" child is driven to and from school each day on ever more congested roads.
Present transport behaviour in Australia generates an incredible 38% of household greenhouse gas emissions, to such an extent that the over-use of the car is changing the climate. But to date such examples of gross energy inefficiency have not yet changed our climate of thinking and action.

According to Neil Kinnock, the European Transport Commissioner, traffic congestion in the European Union costs $100 billion per year; that is four times the spending on public transport.
Closer to home, according to the Science Show on ABC Radio , 21st August this year, traffic jams cost us $12.8 billion in 1995 and road crashes cost us $17 billion per year.
According to "The Economist": Public transport systems cost 1/3 less as a percentage of GDP than road based transport systems. This represents up to 4% saving in GDP.

To guarantee that people will discover the benefits of using public transport and the health and cost benefits that result from a far greater use of cycling and walking, funds need to be provided to improve public transport far better facilities to encourage more people to cycle or walk in their local area.. Indeed there needs to be far better land use planning for the integration of public transport, cycling and walking.

To realise this vital goal, consideration and implementation of tax changes will have to be put in place.

The congestion tax of $8 per day that applies to any vehicle entering central London was put in place in 2003. This immediately reduced traffic congestion by 24% (Plan B p126.) The taxes could be used to improve public transport.

An environmental tax to fund public transport could replace payroll tax, which itself seems to be a disincentive to greater employment.
We could restructure the tax system, as Brown suggests in "Plan B" p.199 by "lowering income taxes and raising taxes on environmentally destructive activities, such as fossil fuel burning, to incorporate the ecological costs." For as Edward Carr in his article "The Sea" in The Economist (23rd May 1999) suggests" If you want to protect the environment, stop subsidising its destruction." And at the same time bring in enormous energy efficiency measures.

The majority of car trips are less than five kilometres; short car trips are the most environmentally damaging and inefficient and in areas with reasonably flat topography, ideally suited for cycling. So how do we make cycling more viable and attractive?
How do we persuade our unfit, "battery reared" children to become "free range", healthy, bike riding children with a far better sense of place in their local community?

After many years of lobbying, it is now permissible for cyclists to share the footpaths with pedestrians and certainly in Brisbane there are an increasing number of linking bike tracks through our parks.

There are a few requirements before cycling becomes the rule, as in Holland where up to 40% of trips are by bicycle. Many more of those wonderful bike lockers need to be installed at railway stations and bus interchange areas, in areas where there is a reasonably flat feeder area. Eight bike lockers fit into the space occupied by one car parking space. The lockers are not promoted since, according to Queensland Rail: "The demand for bike lockers outstrips the supply."
Today 'cool' teenagers do have pretty 'wicked' BMX or mountain bikes. So to encourage them to bike it to and from school, there need to be secure storage areas for bikes, locked during school hours. Such school facilities would have the added bonus of ensuring more students would attend school for the entire day.

Finally, to persuade youngsters that it's really cool to bike it to school, parents too have to hop on their bikes instead of climbing into their tonne of steel every time they leave the house..
A final point for those who are still rusted on to the car's greatest feature, the independent transport mobility it provides; What happens when you reach an age when you are no longer able to drive your car due to failing sight or other medical condition? You then lose your independent transport mobility.

That is unless you really get serious about energy efficiency and trade in your car for an adult tricycle, to provide elderly citizens and those with disabilities with inexpensive, independent and healthy transport mobility.

However at present most cities are still car bound, so until the tax shift takes place to bring in the general adoption of cars powered by the fuel cell which is twice as efficient as the internal combustion engine, which is clean as it only emits water vapour, a more energy efficient choice of car would be a Toyata Prius or a Honda Insight. These cars with hybrid petrol/electric motors cut fossil fuel use by 50%. That's certainly not as efficient as the hydrogen fuel cell but the hybrid powered car is a good half way step.

Waste minimisation is the ultimate in energy efficiency, that is minimising the waste of available human and material resources.
As an example, the "walking bus" achieves this where a group of young children walk to and from school accompanied by a group of shepherding adults, perhaps a group of parents or those who now have more spare time, a group of local retirees. These retirees become grandparently figures for children who today come from more fragmented families than in the past.

To minimise the waste in our cities, thought should be given to introduce “volume based charging” for the collection of household waste. The “Seattle System” used in the city of Seattle, awards those citizens who compost their green waste, support local community waste minimisation centres that accept a wide range of items either for reuse or recycling and who choose to purchase as many reusable products as possible in preference to single-use disposables. Such people who practice greater energy efficiency in their purchases and behaviour would be charged for a 60 litre garbage bin rather than a 240 litre bin.

An extremely simple example that improves energy efficiency is to differentiate between “sales” packaging i.e. the tube of toothpaste and “toothpaste” packaging, that is the cardboard box around the tube of toothpaste.
Government measures in Germany have led to Colgate Palmolive toothpaste in Germany being sold without a cardboard carton. The product is cheaper, the manufacturer transports more tubes in a carton to the shop and the shop owner fits more tubes of toothpaste on a shelf.

Consideration needs to be given to the energy requirements of different forms of packaging (figure1 and tables 2 and 3)
One example that stands out in terms of gross energy inefficiency is the waxed milk carton. The high quality waxed paper board is fully imported from Europe, manufactured into a single-use “recyclable?” milk carton and recycled in only one location in Australia. The energy consumed in the transport of this high quality paper board must be incredible.

Table 4 provides outdated figures of the percentage of refillable beverage containers used in some Europe countries. Table 5 gives the front-end costs of packaging 1000 litres of soft drink in different packaging materials including single-use and multi-use glass.

If we’re serious about energy efficiency, up to date figures on this issue should be examined.
I believe one of the greatest energy efficiency measures that could be brought back into Australian cities, would be a return to refillable glass bottles and glass jars.
Ideally there would be some standardisation in the shape and size of the most commonly used jars, say 100 gram, 250g, 750g and 1 kilogram as well as a standardisation in the shape of beer bottles for beers brewed in cities as well as soft drinks and milk.

Such commonly used containers used in our capital cities would be mandated as refillables with Compulsory Deposit Legislation for Containers Designed to Last.

A glass bottle can last in perfect condition for one million years and yet today when water is a finite resource and energy efficiency is important, it is only used once.
In Finland 98% of soft drink bottles are refillables and in some European countries the figure for refillables are also quite respectable.
In efficiency terms a glass bottle has to be refilled at least ten times but with a possible life expectancy of one million years, reusing a glass bottle many more than ten times is very easy to achieve.

In large cities the primary sorting and crating of bottles and jars could be carried out before they are sent to a centralised bottle washing facility.
Similarly, standardised beverage cartons could be manufactured of a more durable nature so that they could be knocked down to a flat form to be then returned for reuse.

Bottle sorting is very labour –intensive but if we’re concerned with the energy efficiencies of waste minimisation we could examine this concept as it pertains to Kingfisher Centre, the world’s most comprehensive school/community waste minimisation centre.
For the past two decades Kingfisher Centre has provided work experience placements for teenagers with moderate to severe intellectual and physical disabilities as well as older past Special Schools’ students who volunteer at the Centre. The other component of the Centre’s labour-intensive volunteer workforce is a group of retirees who perform the more complex, labour-intensive tasks at the Centre.
The retirees volunteer three mornings a week from four thirty a.m.during school term time and because Kingfisher Centre accepts recyclables from local householders and local business 24/ 7/ 365 our volunteers run the Centre over the schools holidays.

Very simply our labour-intensive volunteer workforce sort the widest range of reusable or recyclables that are dropped off by the local household or business community.

It is an example of the belief expounded by Johnathon Poritt in “Seeing Green”-The active participation of people in the work of their society, rather than their displacement from it, strikes me as the sign of a sane and sustainable society,’

Professor Ian Lowe suggest a 1% cut in consumption is equivalent to a 25% rate of recycling. The more materials are sorted, the more value is added to the materials but more importantly, the more value is added to those who are performing and sorting, particularly when the local public see what those with disabilities and retirees can and are doing to benefit their local community.

The optimum forms of waste minimisation minimises the waste of materials and those involved in waste minimisation activities.
In effect one is thus enabling those on pensions, be they on disability or aged pension to earn their pension as it were, by actively participating in an initiative that has value to our community.
All are using their energy productively, so that social and health as well as environmental benefits accrue to those who participate in their community. And it is for this reason in particular that japan has been particularly interested in this unique initiative for the past decade.

I have a five minute video, courtesy of Channel Ten’s “Totally Wild” and I would be happy to speak to any aspects of my submission.

I Apologise for not having time to have my submission typed properly but time is very short and Queensland State School resources are very stretched.

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