

# The Big Picture With Dick Clarke

We welcome back Dick Clarke's 'conscience cracking' comments in the BRIEF. Having recently gained his Masters in Sustainable Futures, he is officially the world's first (and only) MSF!

Dick's passion for a sustainable future, for us all, has seen him seriously seek the information and ask the questions.

So for all of us finally waking up to the notion that maybe we need to find out more and perhaps be a bit more proactive, Dick clearly delivers the information and political decisions we should be debating.

A debate on nuclear power needs information on all the options – like how we can thrive while using a lot less energy. Dick Clarke presents the facts and the options.

## Why we don't need big power stations at all

When Earth activist Tim Flannery publicly supports the use of nuclear power, you realise that the potent uranium mining lobbying may be winning the energy war debate. But the public is yet to be exposed to the complexities of the issue, with simple solutions that would let us enjoy a better lifestyle on less energy tossed aside in the yellowcake rush. The nuclear industry is often justified by predictions of big increases in energy demand, coupled with a supposed reduction in greenhouse emissions. The reality is not that simple, and nuclear energy does not have the answers we need to be sustainable. The first step is to reduce energy demand by up to 80% without abandoning a comfortable lifestyle – and we can do that right now.

We currently produce way too much greenhouse gas, which must be reduced by up to 70% by 2050 to avoid runaway global warming. Buildings account for about 40% of that problem, and therefore can also be 40% of the solution. Reduction in demand, twinned with a steady increase in power generation from non-greenhouse renewable energy sources, offers the needed solution. Both these strategies are immediately available, using existing technologies. What is missing is the political will to make them happen. A third long term solution lies in emerging technologies, which will take us into the next century, but we cannot wait for these to save us now – and we do not need to.

The first step in reducing greenhouse emissions, and establishing the principle that nuclear power is unnecessary anywhere, is to reduce the amount of

energy required to achieve a given result. For instance, an incandescent light globe uses 5% of its energy to actually make light, the rest is wasted heat. The same amount of light can be made by a fluorescent bulb with only 5% wastage. This is a picture of basic efficiency, and whole buildings can be designed just as efficiently.

For every building to reflect these 'good design' principles, change must occur in every part of the marketing, design and construction process. The end user must be educated to understand that a well designed building is not only better environmentally, it is also a lot nicer to live in, and costs less to run. Any extra construction cost is reflected in the capital growth of the building. Some big players in the building industry have fought against higher building standards on the false argument of affordability, yet actual experience shows that an educated market wants it, and will pay for it.



# A Dry Argument in the Men's Room

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The design and construction industry still needs a lot of training and motivation to break out of the 'same old, same old' mentality. Training courses, compulsory professional development programs, and accreditation of all designers are part of this strategy. Applying minimum standards of resource performance – energy, water, or materials consumption – must also be applied. NSW has BASIX, which applies minimum performance requirements before planning approval is granted, but it does not achieve its goals, since being hobbled by large building industry lobbyists. Other states use the Building Code of Australia, but this only controls thermal comfort. There is no regulation of commercial building performance, although the Green Building Council is showing what can be done by market leaders, with Green Star buildings. Overall, Australian buildings are generally well short of the mark.

A carbon tax would create economic drivers to motivate developers to demand better buildings of their designers and builders, and to then market the benefits to consumers or tenants. Other tax breaks for improved performance have been discussed, but are more cumbersome, and probably less effective. Steeper water usage rates will have a similar effect on encouraging water efficient buildings.

All of these change agents must be applied together – pushing too hard at any one point will simply tear the fabric of the industry, and slow down effective change. With these forces at work in loose unison, we will see all new houses needing no artificial heating or cooling (easy, and done every day by dozens of designers and builders), make all or most of their own energy, and use a tiny fraction of typical water demand. All this, while their occupants enjoy natural comfort, healthier lifestyles, reduced running costs, and the feeling of being responsible for their own resources. This enables the whole community to move away from centralised major greenhouse-intensive energy infrastructure, to a decentralized mix of energy sources. It also encourages demand for small and medium localised renewable energy technologies, giving our brightest emerging industry an opportunity to become a global leader.

What is missing is the political will to get the necessary framework in place. It is missing at both state and federal government levels, and time is running out. But it must be noted that on top of its myriad safety problems, nuclear does not offer a greenhouse-free solution in the necessary time.

## Where can we get clean power in time to do the work?

Whatever the real motives behind the government's so-called nuclear debate, we have a lot to understand if we are to make informed and intelligent decisions. A critical issue is to know where else we can get low-greenhouse energy, if we are to avoid climate catastrophe and reduce our emissions by 70% by 2050.

Ten problems exist with nuclear power, any one of which is sufficient for a permanent veto:

1. Power plant 10-15 year construction time is too long to assist climate change, and its energy and greenhouse cost is too high.
2. Nuclear power is not 'greenhouse-free'.
3. No safe waste disposal method has been proved.
4. Reactor decommissioning has no reliable method, and costs approximately half a billion dollars.
5. Weapons proliferation depends on plutonium, most of which comes from spent fuel rods.
6. Risk of terrorists striking reactors cannot be discounted.
7. Risk of accidental melt-down is ever present, regardless of safety procedures.
8. 'Limited liability' legislation is likely to protect nuclear corporations.





the expansion of renewable energy as the means to reduce our carbon emissions. It also holds the key to revitalising Australia's role as a technology leader, rather than as a nation that digs up and sells its dirt, Nauru style.

Diesendorf shows that a mix of reduced fossil fuel and increased existing renewable energy technologies are able to provide all our energy until 2040, with over 60% reduction in greenhouse emissions:

- Natural gas 30%
- Bio-electricity 28%
- Wind power 20%
- Coal 9%
- Hydro-electricity 7%
- Solar 5%
- Oil 1%

The intervening 34 years till 2040 allow for the discovery and further development of technologies to take us to 2100.

He notes that these renewables are currently cheaper than the Intergovernmental Panel on Climate Change's projected cost of coal-fired electricity with geosequestration. This untested procedure of burying liquefied CO2 has the potential to remove greenhouse gas from the atmosphere, but uses huge amounts of energy in the process, thus being partially self-defeating, with no guarantee of the deadly gas staying underground. The Australian government is giving the profit-rich coal industry large grants to research the process, at the same time as winding back grants and subsidies to renewable technologies.

Diesendorf's projection depends upon reductions in the demand side for power. It is possible and practicable to reduce energy demand in residential and commercial buildings by 40-80%, and other sectors can also make radical savings. Savings like that make the need for nuclear power vanish. That must be our global position of leadership for a sustainable future.

9. Government subsidies are needed for commercial viability.

10. Commercial uranium is limited to about 40 years' supply.

In a nation of 20 million, there are no cost benefit studies yet published showing nuclear power is viable for Australia. Given that no government ever sets up an enquiry without having already determined the answer it wants, what is the government's real agenda?

In a rising oil market, there is a bit of a panic on to get the ore out of the ground while there's still profit in it. Some energy sources come more or less ready to use: gas, oil, coal and renewables. Coal and nuclear need a lot more energy to get to their own energy to the user, because they use oil for mining and transportation. Uranium ore also needs significant enrichment, which takes even more oil and coal. The world is on the brink of peak oil production, with the price likely to double within a few years. Investors in the uranium mining industry (including superannuation funds) know that once oil hits a certain price, the uranium may as well stay in the ground, making their investment worthless.

The other end of the nuclear process is also being seriously entertained: storing the world's nuclear waste - the end product of the mining and enrichment business, often called 'resource leasing'. It means that as soon as we mine the uranium ore, we are responsible for its entire 240,000 year life.

Dr Mark Diesendorf is among the world's leading writers on energy issues, and is not alone in strongly supporting

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