

## **Climate change – Australia’s response**

By Derek J Taylor

Over the past several months I have communicated with various people, including Professor Stephen Lincoln, Ministerial staff within the Victorian and New South Wales governments, on the subjects of climate change, the energy industry and renewable energy.

I am interested in suggesting ideas for Australia’s response to these issues from multiple points of view. I believe positive changes and responses can be conceived in the areas of :

- Our national output of carbon emissions
- The national economy and regional economies
- The energy industry and agriculture
- Social and environmental aspects
- Our ability to set an example to the world and inspire other countries to take appropriate action

It is heartening to see such companies as “Vestas” of Denmark playing a role in developing wind turbine power generation in Australia. This work should continue and be expanded.

I have also become aware of the proposal to create “Geo-thermal” energy in the North East of South Australia. One would assume the prime source of water for this project would be the Great\_Artesian\_Basin. However I have suggested to certain parties that a pipeline should stretch from the coast of Northern New South Wales inland to the location of the Geo-Thermal project. On or near the coast a desalination plant should be built, powered by the energy supplied by Geo-Thermal. The incoming water supply would be divided between Geo-Thermal and irrigation systems.

Irrigation water supply needs to be boosted to improve the number of rural areas being impacted by drought. If Australia is to grow and produce its own food, providing employment for thousands, we must find a way to improve water supply to drought affected areas. The aim of maintaining water in our river systems also relies on irrigation having an alternative source of water.

Australia must also respond to the issue of global warming and climate by setting an example to other nations. Australia contains approximately 1.35 million square kilometres of arid/desert area. We possess huge tracts of under-utilised land. If we succeed in boosting our water supply and irrigation systems, then an opportunity is created to begin a mass re-vegetation program aimed at growing enough plants/trees to begin absorbing an amount of CO<sub>2</sub> from the atmosphere. The reason I suggest this is simple – carbon related global warming is being fuelled by two factors, emissions output AND de-forestation. We must replace the trees and plants that we cut down.

A project of this magnitude will take considerable resources and time. However, if we aim to grow Australia's population to something like that of Canada, then we must develop new areas to be fit for human habitation. This means greenery, increased water supply and renewable energy.

To meet the challenge of stabilising food prices, which is a prime driver of the nation's inflation rate, we must introduce more aqua-culture (fish farming) and marine-culture to agricultural areas of Australia. The objective of this is two-fold.

Firstly to reduce, over time, the impact of commercial fishing on ocean stocks. We must give these resources a chance to recover and replenish. By increasing the level of on-land aqua-culture (much of which can be done using "Brackish" water) we can meet our demands for sea-foods. The water supply for this could come from the sea, and be partially purified in a desalination plant.

Secondly, this scheme would put more water onto the Australian continent. From aqua-culture areas we could then siphon water, purify it further and utilise it for other purposes. The idea of connecting the irrigation system/desalination plant/pipes to the geo-thermal power generation is to operate the whole system in a "carbon neutral" fashion.

Every year huge amounts of food are grown overseas and imported to Australia. This process creates a significant "carbon footprint". So therefore it makes perfect sense for us to find ways to open up huge areas of land for agriculture, re-vegetation and irrigation. We should also use this process to create opportunities to build new towns and cities (away from existing capital city centres). If we also going to grow crops for "bio-fuels" we shall also need to greatly expand our agricultural capacity.

### **Power generation**

Professor Stephen Lincoln has stated to me in an email that an idea I suggested is a good one.

We currently use coal fired power generation (for example LaTrobe Valley, Victoria). This process consumes large amounts of water and produces a significant CO<sub>2</sub> output. My suggestion to Professor Lincoln was as follows :-

A water desalination plant is to be built at Wonthaggi, south-east of Melbourne. Water should be diverted from here straight to the power plants at Latrobe Valley. Furthermore, the water should be "pre-heated" along the way using thermal plating. If we can use thermal plating to heat water on our roof-tops for our homes, then the same principle could be applied in this situation. By pre-heating the water before it reaches the power station, presumably less coal will be required to heat it to boiling temperature.

Water desalination is energy intensive. To meet this need we must increase our level of non-polluting power generation. One great asset that Australia has is the Snowy Mountains Hydro Electric Scheme (now known simply as "Snowy Hydro").

However, unfortunately for some time now it has been operating at less than 100%, driving up electricity prices (and therefore inflation). A water desalination plant should be built on or near the coast and feed additional water to Snowy Hydro. Think of it as being almost like a supercharger or turbocharger on a car engine. The purpose of feeding additional water into this system is obvious.

Ending comments :

There are several objectives that Australia must meet. If we are to increase our population so dramatically, as some analysts have been predicting, we cannot simply repeat the patterns of the past and pile all these new people into our existing capital cities. The infrastructure and housing stock in those areas is already stretched to capacity. We must build new cities and develop whole new areas. The task of creating huge new supplies of water and renewable energy go hand in hand. We must see this as an opportunity, not an imposition.

To summarise, our tasks are the following :

- Building several water desalination plants around Australia
- Continually expanding the role and capacity of wind turbine power generation
- Building new irrigation systems connected to water desalination
- Opening up new areas for agriculture, including aqua-culture
- Irrigating and re-vegetating vast new areas
- Expanding the role of agriculture for producing “bio-fuel” crops
- Increasing the water supply into the Snowy Mountains Hydro Electric Scheme by any means possible, including desalination
- Creating population centres in new areas away from existing capital cities to support, and be supported by, new water and renewable energy supplies (such as the Geo-Thermal scheme in Far North South Australia for example)
- Increasing the role of rail freight in order to reduce the number of trucks traversing the continent
- Reducing and/or eliminating the role of Local Government in the determination of any of the matters raised in this document
- All GST revenue raised from the energy sector to be channelled into renewable energy projects
- Recycling of all sewage and waste into usable gases, such as methane for power generation

I hope whoever reads this finds some of the ideas and suggestions interesting and useful.

Derek Taylor

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