

Submission Document 5th April 2007

SEQ Water Crisis

Introduction

Some recent decisions made by the Queensland State Government in relation to the SEQ potable water supply have to a large extent defied rational description with relation to risk analysis assessment.

For instance, the Queensland Government current \$7 Billion plan to drought proof SEQ includes two questionable and very expensive projects.

The first is the Traveston Dam on the Mary River. There are problems associated with a completion date of 2013 in alleviating the current drought. There is also the increasing probabilities of low yield when completed that will have little impact on potable water supplies for SEQ in the short term, say the next 8-10 years.

Construction of this dam will have a severe drain and impact on the available financial and physical engineering resources required immediately and over the next five years, resources that will be desperately needed to obtain minimal water resources for parts of SEQ if the drought continues. Construction of this dam could well be set back by a minimum of 5-7 years or even greater without jeopardising the long term water strategy.

Gold Coast mayor Ron Clarke, working from recent risk assessment studies, was right to push for a change in the use of resources to the provision of more sea water desalination. An additional 240 megalitres per day (33% of the present SEQ maintenance requirement) could be built within 4 years using the proposed financial and physical resources earmarked for the dam. There is a very useful low cost site for such a desalination plant on Moreton Island with separation of into from Moreton Bay and brine discharge to the pacific ocean. There is also a large renewable electricity power resource from both wind and wave power at the Northern end of Moreton Island to drive this plant.

Examination of the recent correspondence from the Minister for Mines and Energy reveals a total dismissal of such a development. Elsewhere, it has been reported that \$300 million, however, is to be spent on "clean coal technology by the Queensland taxpayer. Independent assessments of such technology reveals that there is less than 1 chance in a 1000, that clean coal technology will be available within the next few decades. It is more than likely that the development of nuclear power will be necessary to enable this remote possibility to occur.

The second and more problematical project is the attempt by the State Government to supply cooling water to Tarong and Swanbank Power stations.

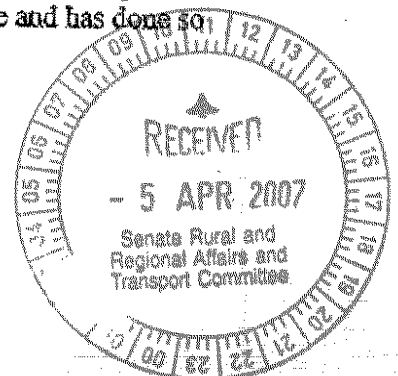
The current economic life of the Swanbank 480 MW Steam Station is 5 years. The current life of the little used high efficiency combined cycle gas fired Swanbank E station which is of low water use, is probably 30 years plus which is sufficient for this station to be converted to air cooling.

The current economic life of the Tarong 1400 MW steam station is said to be 10-12 years. This station draws its water from Boondoomba Dam and pipeline, a supply that is currently failing. A proposal to air cool this station in 1995 when its life was estimated at between 22 and 25 years and when the water supply from Boondoomba was also failing, was rejected by the Queensland Government in favour of a \$160 million so-called emergency pipeline using Wivenhoe potable water.

Tarong North public/private joint venture 485 MW steam power station, built in the late 90's, has a life expected to be 33 years from now. This station was always to draw its cooling water from Wivenhoe through the Wivenhoe and Tarong emergency pipeline and has done so.

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to date even though again a proposal to air cool it was made before construction and was again rejected by Government.

With both the existing old Swanbank and Tarong steam power stations having such short lives and which if replaced, will obviously be replaced by air cooled power stations, there seems little point in expending \$800 million plus on building pipelines to supply recycled and desalinated sea water to these power stations. The resultant cost of this water including the amortized cost of the pipelines could be \$3000/\$4000 plus per Megalitre (some 10 times more than is currently paid by these stations).

If the decision of shutting down the two old stations in 2005 had been made to conserve Wivenhoe water supplies, Tarong North could have been supplied from Boondooruba or progressively converted to air cooling.

With regard to the security of electrical supply to SEQ, since 1995 electrical generating and power supplies to SEQ have been augmented by Milmeran Power and Kogau Creek Power low water use power stations with a further 1000MW supply link from NSW and yet more capacity from Central Queensland power generators.

There is no shortage of electricity capacity for SEQ and these two old steam power stations can be shut down immediately. The increased cost of electricity has been estimated at no more than 3-5%.

Recent analysis indicates that the decision to carry on using Wivenhoe potable water for power station cooling has brought on Level 5 water restrictions in SEQ probably 12 months earlier than would have been necessary if the stations had closed and that the job losses in SEQ which had already reached two to three thousand due to level 4 restrictions will rise substantially in the very short term of level 5 being introduced. The majority of these job losses to date have been in minimum wage and low skill jobs whose holders are having and will find it difficult to obtain further employment.

Job loss matrices showing the job losses due to the various water restriction levels indicate that these will ramp up very quickly at Level 5 to 20000 plus within 3 to 6 months again mainly in the low wage and part time work areas such as service and tourism. An extra 12 months possibly at level 4 might well have been the saviour for many of these SEQ jobs.

Water Costs

Queensland Government has an established water policy that has at its core the requirement that water consumers in Queensland pay the full cost of supply. However, the current arrangements for price of water supplies to the power stations currently drawing water from Wivenhoe have never been disclosed. The probability of these supplies being at highly subsidised rates is currently with the Australian Energy Regulator. Figures provided by the NEM as to quantity and price of exported power to NSW and beyond, especially from the joint venture power station Tarong North, fed solely from Wivenhoe, are strongly supportive of a market distortion.

If the costs of providing recycled water to the power stations, with a capital element estimated at some \$800 million over and above the capital cost of supplying this recycled water as potable supplies, are indeed a true representative of actual costs incurred for actual the life of the power stations, water costs will be huge and an unsustainable critical element in the cost of delivered power.

I would ask the committee to examine this aspect most carefully.

The committee might well come to the conclusion that federal grants for this element of the scheme, recycled water supplies to power stations, are incompatible with good and responsible government.

5.4.07

19 Peterson St
Woolloongabba
Brisbane Qld 4102
Thursday 5th April 2007

The Committee Secretary
Senate Rural and Regional Affairs and Transport Committee
Inquiry into Additional Water Supplies for South East Queensland/Traveston Crossing Dam.
P O Box 6100
Parliament House
Canberra ACT 2600

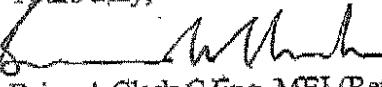
Dear Sir,

Submission to the above Inquiry

Please find enclosed my submission together with a copy of letter from the Queensland Minister for Mines and Energy for the committee's information.

I would be happy to appear personally before the inquiry which I understand will be sitting in Brisbane on the 18th April 2007 if that is required.

Yours truly,



Brian A Clark C.Eng. MEI (Ret'd)



**Queensland
Government**

Office of the
Minister for Mines and Energy

Our Ref: ME/06/01036

21 MAR 2007

Mr B A Clark
19 Peterson Street
WOOLLOONGABBA QLD 4102

Dear Mr Clark

I refer to your letter of 29 November 2006, addressed to the Honourable Anna Bligh MP, Deputy Premier, Treasurer and Minister for Infrastructure, concerning the Queensland Government's proposal to supply recycled water to Swanbank and Tarong power stations. Following the State election in September 2006, the Honourable Geoff Wilson MP was appointed as Minister for Mines and Energy and your letter was forwarded to this Office. The Minister has asked me to reply on his behalf.

In relation to your comments that Queensland exports its drinking water to New South Wales (NSW) in the form of low cost electricity, it is important to note that the power stations using Wivenhoe Dam water use only around six percent of the supplies from that dam. Of the power they produce, only about 10 percent is exported, and it is estimated less than three percent of power from the Swanbank power station is exported. In addition, the South East Queensland power stations, which rely on Wivenhoe Dam water for electricity generation, represented only around 12 percent of total electricity sent out by all Queensland generators in 2005-06, with most of this 12 percent required to meet the electricity load in South East Queensland.

Tarong Power Station ceased drawing water from Wivenhoe Dam (the main source of drinking water for South East Queensland) on 1 March 2006 and reduced its generation capacity during off-peak periods from 1 January 2007 to ensure that it has sufficient supply of water from its alternative supply, Boondooma Dam, until it is connected to the Western Corridor Recycled Water Scheme (WCRWS) in mid-2008. From 30 March 2007, Tarong Energy will further reduce its generation by another 45 percent, to conserve water in Boondooma Dam. Since January, Tarong Power Station has conserved about 500 megalitres of water through reduced generation and further reductions from the end of March is expected to conserve about 22,000 megalitres over 15 months.

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The Queensland electricity supply system is connected through the National Electricity Market (NEM) which incorporates all states and territories except the Northern Territory and Western Australia, through the Queensland - NSW Interconnector (QNI). The QNI enables sharing of capacity between the NEM jurisdictions and provides an economic benefit through reduced idle capital investment.

A key benefit of the NEM is that the lowest cost generators are brought into service first and more expensive generators, less frequently. Customers benefit through lower electricity wholesale prices and less price volatility in the market.

Queensland not only exports electricity (1,078 megawatts southward limit), but also has the capacity to import 750 megawatts of electricity from NSW through the QNI. The QNI has brought about significant economic benefits to Queensland and allows Queensland-based generators to compete intrastate and interstate with other generators participating in the NEM.

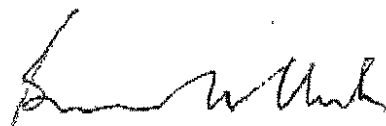
I also note your concerns that some of the costs of the WCRWS may be passed on to Brisbane domestic consumers. I am advised that water pricing and cost allocation decisions for the WCRWS have yet to be made.

With regard to Tarong Power Station converting to dry cooling, studies undertaken by Tarong Energy have indicated that it was not economically viable. Financial aspects are also just one consideration. Converting the wet cooled power stations to dry cooling, even if technically and economically practical, is unlikely to be completed in a timeframe that would assist with the current water shortages in South East Queensland. It would also require substantial outages from the Tarong Power Station, which in turn would have significant implications to security of electricity supply to South East Queensland.

While converting Tarong Power Station to dry-cooling is no longer an option under consideration, I am pleased to advise that Queensland's newest power station, the new 750 megawatt Kogan Creek power station due to be commissioned in September 2007, was designed to use the latest in dry-cooling technology.

With regards to renewable energy options such as wind and wave power generation off Moreton Island to provide power for a desalination plant, there are a number of impediments. Wind energy has especially limited prospects in Queensland compared to other states due to lower quality wind resources (i.e. lower wind speeds). Suitable locations are limited, as the best sites for cost-effective wind energy are those that generate average wind speeds of eight metres per second or greater, and very few of these are situated in Queensland. Renewable energy sources, such as wind generation, are also relatively more expensive than alternatives such as fossil fuel sources. Whilst projects are being progressed, the public acceptance of the noise and amenity impacts of wind projects is an emerging issue for planning authorities. Community protests in Victoria and South Australia have caused projects and planning to be re-examined and recent council deliberations on a wind project at Crows Nest near Toowoomba attracted divided views from the community.

In terms of tidal or wave power, there have been few commercially successful tidal energy products globally, and none yet in Australia. The amount of electricity produced depends on the range of the tide, and to make it worthwhile the tidal range must be more than four metres.



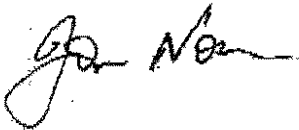
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Tidal energy generation has been identified as having potential for electricity production mainly in the northern parts of Australia where there are large tidal ranges. The issue of intermittency (as with wind power) is a major inhibitor to the development of this technology. While tidal barrages could be built to address intermittency issues, they pose a number of environmental challenges, as changing the movement of water in the surrounding area could result in sea depth changes and increased sedimentation, subsequently impacting on local marine ecosystems and causing shoreline flooding. As very few such barrages have been built globally, further understanding is required to assess the full impacts of tidal power systems on the local environment. Tidal barrages, along with tidal fences, are also currently cost-prohibitive.

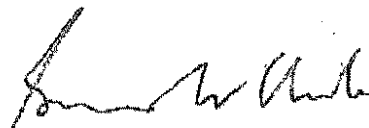
These technical and cost impediments coupled with environmental sensitivities (most of Moreton Island is a national park), poses significant challenges to developing a desalination plant on Moreton Island powered with renewable energy within the immediate term.

The Minister thanks you for bringing this matter to his attention and trusts this information is of assistance. Should you have any further enquiries, please contact Mr Daniel Hockey of the Department of Mines and Energy on telephone 3224 6199 or via e-mail at daniel.hockey@energy.qld.gov.au.

Yours sincerely



JON NORRIS
Senior Policy Advisor


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