

Alan Hamill



## **INQUIRY INTO NUCLEAR PROHIBITION**

### **Preamble**

- 1) I worked in the Electricity Industry in Victoria for 44 years from 1969 to 2013 in the infrastructure construction and electricity supply and distribution areas.
- 2) SA recently concluded from its state Royal Commission that Nuclear Power met all the criteria to be viable except when financed by a small state alone.

It is completely viable on a National scale or in a larger consumer base such as Victoria.

I have used two terms in the submission that I need to explain as I couldn't find a more suitable description:-

Energy Block<sup>1</sup> = describes a large and geographically specific district of intense electricity production.

System Black<sup>2</sup> = describes complete loss of electricity supply to the entire state.

I wish to submit with regard to the first two (2) parts of the Inquiry.

,..... the Committee should —

- (1) investigate the potential for Victoria to contribute to global low carbon dioxide energy production through enabling exploration and production of uranium and thorium;
- (2) identify economic, environmental and social benefits for Victoria, including those related to medicine, scientific research, exploration and mining;

Item (1)

investigate the potential for Victoria to contribute to global low carbon dioxide energy production through enabling exploration and production of uranium and thorium.

Response:-

The Inquiry may have restricted itself in being so specific as to the two minerals that it will look to explore and produce, as there are always developments occurring which may provide superior fuel sources or production techniques.

A new piece of legislation would need to be enacted at each new concept or search if specificity remains.

Item (2)

identify economic, environmental and social benefits for Victoria, including those related to medicine, scientific research, exploration and mining

Response:-

The Victorian Power system was established with its main point of generation as an Energy Block<sup>1</sup> in the Latrobe Valley. The entire network from Gippsland to the furthest points of connection had a voltage degradation element which was compensated for by purchasing and installing electrical equipment that was built with varying scales of voltage ratings. But now with decentralised generation being connected to the grid at all points, including the remote locations, it means that the places that were at the outskirts of the old network are now using equipment incapable of coping with the increased network voltages. Power companies (Distributors) are struggling to keep voltages to households within the mandatory requirements. At most endpoint locations the voltages are unacceptably high.

When most of the electricity was produced for Victorian (and cross border) supplies it was Energy Blocked in the Latrobe Valley. This allowed the system to have a comprehensive ability to cope with unplanned events occurring anywhere on its network and it provided incredible stability against loss of supply to large sections of the network due to current flow to a fault or a larger fault or frequency variations causing a System Black<sup>2</sup>. It also allowed for a systematic and controllable restoration should a System Black<sup>2</sup> occur.

As an analogy, if you consider the Energy Block<sup>1</sup> in the Latrobe Valley as boat anchor, it protected the network elements from drifting or being moved by unwanted forces.

With the decentralization of the network occurring at the moment as the solar and wind connections increase, this decentralization provides the opportunity for smaller unplanned events to have a larger impact on the reliability of the network or create larger fluctuations on the system with a greatly increased risk of a System Black<sup>2</sup>. This also imposes a more complicated and time costly restoration process.

Victoria needs a large baseload generation facility installed again as an Energy Block<sup>1</sup> in the Latrobe Valley or nearby and the only reasonable option to do this, and be able to reduce the greenhouse gases output to practically zero at the same time, is to install modern nuclear power plants onto the grid.

This location in Gippsland would also provide an avenue to have greater interconnectivity with Tasmania and have a mutually (and alternatively) beneficial exchange of energy with more "BassLink DC" connections. It would also allow the operator to supply the depleting Queensland and New South Wales Networks at times of high retail pricing.

A large amount (almost all) of the connecting infrastructure already exists in Gippsland so the cost would be the actual plant only. The existing infrastructure is already rated for new production loading as it was part of the now redundant Hazelwood supply to the grid.

In my opinion there would be a significant cost benefit to Victorians if the Victorian Government actually owned all this generation as ongoing costs would be low once established and reward/cost ratio would be impressive. Victoria could return to the major energy producer and exporter that it used to be.

Victoria is currently discussing the option of flooding its older open cut coal mines as a rehabilitation option. This would enhance tourism with the use of a water filled open cut for a warm water watersports area.

This action would be complementary at little cost to providing a water supply to modern day nuclear power generation stations.

Victoria could also be the lead player if it gets in first in the processing of raw materials for re-use throughout Australia and this would be a very lucrative venture.

Submission ends.