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To whom it may concern

RE: GenCost consultation

Please find below my concerns regarding CSIRO's GenCost publication, specifically criticism on the costs of nuclear and coal-fired technology.

Nuclear
Why does the CSIRO, while investigating the costs of electricity generation technologies for the Australian market, include nuclear power in its GenCost report? Does any other organisation consider the costs and capability of illegal products for use in Australia?

Even if the CSIRO has been asked to investigate the costs of nuclear power, why has the CSIRO ignored most of the new nuclear projects and programs occurring globally that are using mature designs, and instead focused on small modular reactors which are still under development?

Recommendation: either review the costs of nuclear generation that is currently in operation and being built around the world, or exclude nuclear from the report altogether.

Coal
CSIRO uses a hypothetical power station project as the basis for its cost assumptions, but this project is not a suitable candidate for Australian conditions, and the fuel costs appear to be sourced from the IEA, instead of locally.

The hypothetical CSIRO 700 MW coal-fired power station costs a touch under $4 billion. This power station is greenfield, with $0.6 billion tied up in the procurement, approval and development of the site. It then needs 100 km of new rail line to a coal mine, another $0.2 billion.

So before construction has started, the projects incurs over $0.8 billion in costs. Retrofit or upgrade of an existing power station is an option not considered by the CSIRO. By excluding these land, development and rail costs, the equipment and construction reduces to $3.1 billion.

More costs are loaded into the design itself. Using materials and techniques able to achieve higher temperatures and pressures costs more but results in higher efficiency – more electricity generated and less waste created for every tonne of coal burned. This matters when your power station is in Japan and every tonne of coal arrives by ship, but in Australia where most coal-fired power stations are built on top of their own coal mine with a lifetime of fuel reserves, efficiency matters far less and allows the option of much cheaper designs. The CSIRO chooses the world's most expensive coal power technology – advanced ultra super-critical – not used in Australia.

These expensive high pressure and high temperature designs also require high quality fuel, equivalent to Australia's export thermal coal. Most of our local power stations burn lower quality coal that is not exported anyway, and as a result are significantly cheaper to run.

To estimate the higher technology costs loaded into the CSIRO's assumptions we can compare against a relatively recent super-critical unit – Queensland's 750 MW Kogan Ck power station. Brought online in 2007 for $1.2 billion, the bill converts to around $1.8 billion today. Even if you unkindly double the original cost to $2.4 billion, the older technology matching the local coal is still $0.7 billion cheaper to build than the CSIRO's version.

The above discusses capital costs. Operating costs are largely related to fuel, which poses a challenge because the CSIRO does not quantify their fuel assumptions. Instead the CSIRO leave us with a 'low price' of 4.3 $/GJ, apparently based on the coal price in Japan and data from the IEA. By comparison even AEMO provides fuel costs of just 1.57 $/GJ at Kogan Ck, nearly a third of the CSIRO's figure. I invite the CSIRO to name which of the existing VIC, NSW and QLD coal-fired power stations purchase coal destined for export markets.

To recap, the CSIRO's coal-fired power station would be built on a brand new site, with a new 100 km rail line using the most expensive coal-burning technology available, costing almost 80% more to build, and 300% more to run than a realistic alternative. This is akin to saying housing is expensive but limiting your search to Darling Harbour.

Recommendation: the CSIRO must use a representative power station for its cost assumptions. If the CSIRO wants to compare the costs of a greenfield advanced ultra super-critical unit, then it must also show the cost of a more realistic brownfield project.

Ben Beattie