

Comments submitted to SA's Nuclear Fuel Cycle Royal Commission on

*"Estimating Costs and Benefits of Nuclear Activities":*

Public Session presentation by  
Ernst & Young (EY); Ex ROAM Consulting, QLD, on their

**Computational General Equilibrium Modelling Assessment**

in the NFCRC Board Rm on 6 October 2015

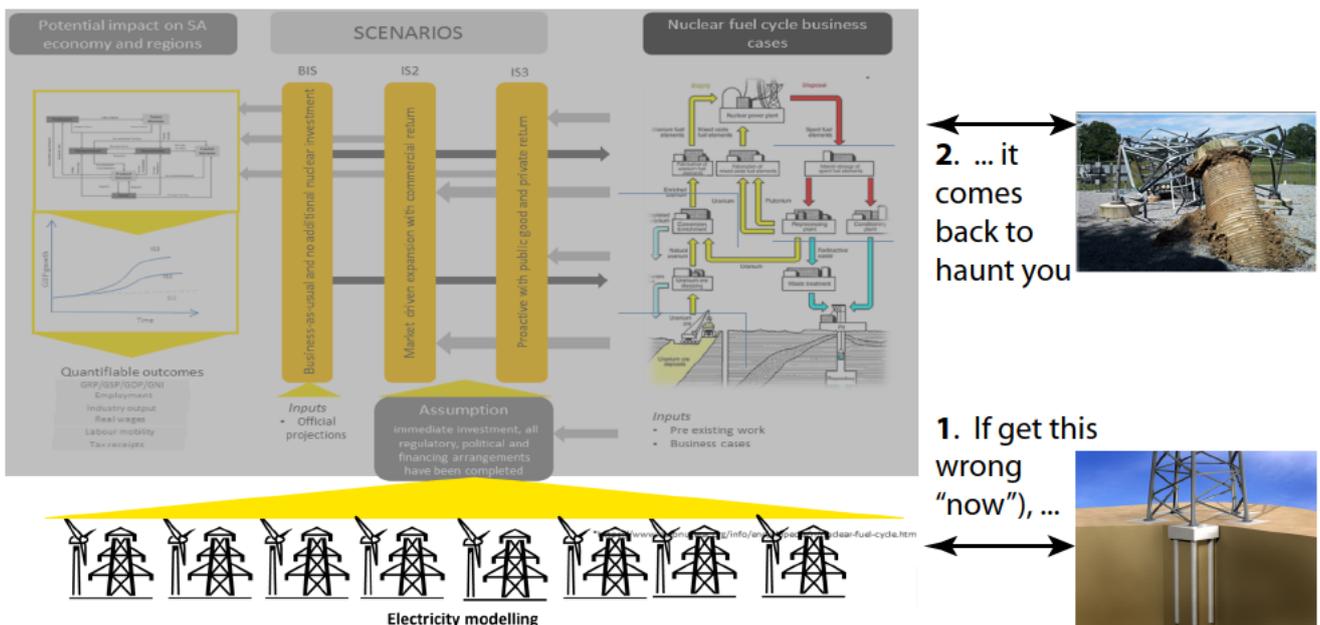
Comments on 20 October 2015 by Hydricity Systems Australia  
c/o robert.dickinson@hydricity.com.au 0439 814 708

It is Hydricity Systems Australia's perception that there is quite simply no-where near enough quantitative information in this presentation to give the public confidence in the cost benefit analysis being undertaken by these consultants.

This is crucial because "everything" rides on the of this models ... no ?

That is, for the public's purposes, comparisons of future value relative to current prospective investment are founded on estimates future power prices.

Consider the crux of ROAM Consulting's analysis, from page 4 of their presentation, adapted below:



And yet despite the importance of this aspect of this consultant's modelling, there is no mention of the dependency that already exists of wind-power-supply intermittency on power price variation within SA. Further, the only "text" offered to date is :

- from page P-506 of the transcripts: key-phrase is “Australian electricity prices“. This alludes to an intention to account for the augmentation of interconnector capacity between SA and the rest of the NEM, yet there is no mention of where, and who and how this would be paid for, let alone how it might be approved by the Regulator (AER), considering that the cost of this augmentation can be trivially easily eliminated simply by co-locating clean large scale power generation with eastern state demand centres and/or existing network nodes.
- from page P-507 “... you will have some confidence of what it will mean for the economy”. But if ROAM’s price model doesn’t account for the effect of wind-power-supply intermittency on power price variation within SA, how can we, the public, have any confidence in anything above the electricity modeling foundation in the above graphic ?
- from page P-507 “[ROAM’s] electricity model plays an important role in terms of the competitiveness of [... the] Australian energy market.” Yet ROAM’s electricity model does not (yet) account for the crucial aspect of intermittent oversupply from wind power on prices in SA, something that will be exacerbated by the addition of a fixed capacity power generator.
- from page P-507: “This model (the ROAM model) [uses linear cost optimization with respect to fuel cost]. Hmm ... but in SA there is already a very large proportion of zero-fuel-cost production from wind and solar, so surely a linear cost optimization with respect to fuel cost model would yield 100% renewable power generation ... no ? That is, the ROAM model might indeed still (after all these years) be applicable to Australia’s eastern states where there is still no effect of wind power on prices. But the SA public clearly needs more information to build confidence in the application of this model to the SA context, where a new tri-variate price / demand / supply relationship is already emerging.
- from page P-508 “[For] a given demand, the electricity model produces the optimum combination of technologies” ... This cannot possibly be an “optimum” in the SA context, because it does not account for SA’s emerging tri-variate price / demand / supply relationship. That is, the ROAM model appears to be still, after all these years, an exclusively 20th century price-demand model that does not adequately account for effect of zero-fuel-cost generation on prices.
- from page P508 “[ROAM is using two models to get the optimum solution]”. But if the public can’t develop confidence in one of those models [the ROAM electricity model], then how can the public possibly develop confidence in an overall Generalized Equilibrium model that’s been iteratively “tweaked” to align with the ROAM model ?

## Potentially missing information re: ROAM Consulting's (EY's) Electricity modelling:

The following data is ultimately required for transparency / building public confidence in the outcomes of the NFCRC process.

The interim presentation by ROAM Consulting (EY) of 6 Oct 2015 makes no reference for the prospective dissemination of this information.

The public can and should expect that this information will nevertheless be published as part of the final ROAM Consulting (EY) public reporting process:

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For each year (say 2015, 2020, 2025, 2030)
{
  For each scenario (BIS, IS2, IS3 )
  {
    display ( Total SA Region Annual Market Value ($'s x 106));

    For each generator-class

    (wind, solar, fixed-capacity, demand following generator:
    e.g. gas and/or clean hydrogen fuelled turbines)

    {

      For each dispatchable demand class

      (e.g. power-to-fuel, batteries, desalination ...)

      {
        display ( Annual Market Value ($'s x 106));
      }
      end
    }
    end
  }
  end
}
end

```

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End of comments by Hydricity Systems Australia