# Double Glaze Matters

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## New Gas Projects

Scott Morrison has decided we need to stimulate the economy at the end of the virus. This is probably a good idea. So he asked the head of the gas industry to suggest something.

The answer was a $6 Billion dollar gas pipe line from WA to the east coast. This is definitely a bad idea. It will lock us into using gas for many years to come.

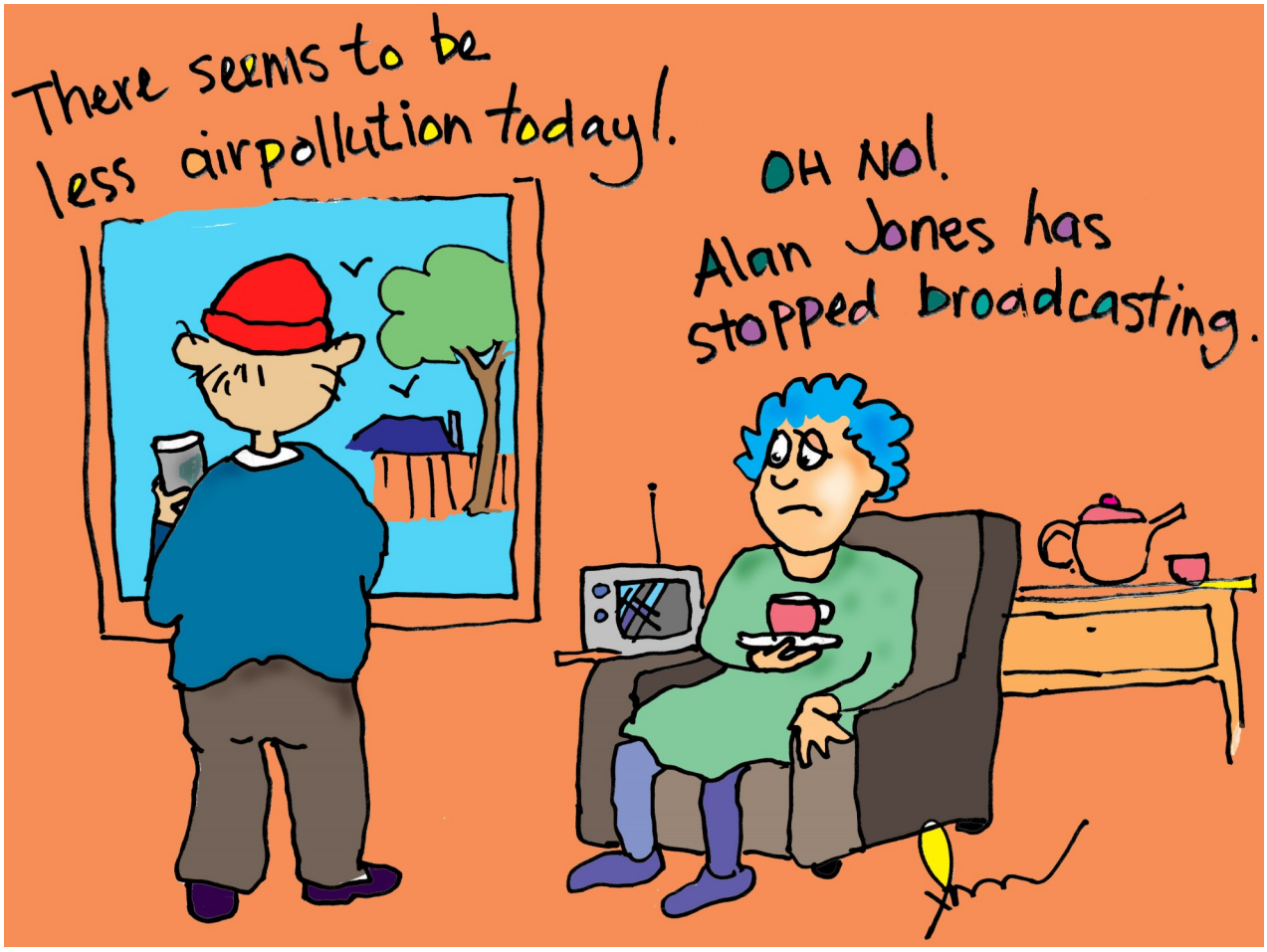
If you think we would be better spending the money on renewable energy projects, rather than Gas, visit the GetUp site and write to your MP here.

It may not change anything, but it will make you feel better!

### Araluen Solar Panels

**Energy This Month = 1.5 Mwh = $250**

**Total Energy =85 Mwh = $12,850**




***Franciscus Henri's contribution***

# New Big Batteries

One of the big unsolved issues in renewable energy generation is storage. Up to now it wasn't really an issue. Solar and wind each made up a reasonably small part of the energy generation. If one or other was unavailable, it didn't make a big hole in the power generation and could be covered by other generators.

As they play a bigger part in generation the issue becomes more critical. If you lose 10% of your generation, you are not too worried. Losing 50% is a problem.

Within this area, there are two subcomponents, short term storage and long term storage. Short term storage (less than 30 minutes) has basically been solved by Li /ion batteries. We have all heard about the Tesla battery in South Australia which Elon Musk installed in under 100 days.

This battery has been hugely successful, paying for itself within 2 years. Now, virtually every wind farm and PV solar farm being built has a battery storage component. Previously wind farms would estimate they could generate 1 MW of power for the next 30 minutes. However they were only willing to "bid" .8 MW into the market since if they couldn't deliver what they promised it became expensive.

Now if they have a battery they can bid the full 1MW. If the wind dies they provide power from the battery. If the wind increases, they can store the spare power to bid it in the following 30 minutes. Typically the battery is sized to provide approximately 30% of the power generated from the solar panels for an hour.

The other problem is long term storage—more than 24 hours.

There is  a battery technology appearing that meets this sort of performance. They have installed a 1 Mw/150 Mwh battery. See here. Effectively it is a 1 Mw battery that will take 150 hours (6 days!) to discharge. Of course you could achieve the same using Li Ion batteries, but you would need 150 1 Mw/1Mwh batteries to do it. This is really expensive!

The article doesn't go into a lot of detail, but it is a Flow Battery. In a Li/Ion battery, to double the storage time you must duplicate the whole battery. In a Flow Battery you simply double the amount of electrolyte in the battery—you don't need to duplicate the positive and negative electrodes. Assuming the electrolyte is cheap, you can have the battery last as long as you like!

Unfortunately I couldn't find the cost of the battery although they stated there aim was to eventually make it as the same cost as a Li ion battery, but lasting 150 times as long.

This raises the issue of whether Snowy II is a good idea. It comes into production in 2025 and takes some 30 years to pay for itself.  By comparison the Tesla battery was built in 100 days and paid for itself in 2 years. Battery technology is developing so fast Snowy II is likely to be a stranded asset. And placing the battery at the generation site is much smarter – you don't pay to transport the power to store it

Also, Snowy II isn't really that big. It can only meet 6% of Australia's total power generation