Fact Check: The Coalition's Nuclear Power Plans

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Introduction.

The Liberal Coalition opposition has announced plans, should it attain government, to slow down the rollout of renewable energy and in its place build nuclear plants at seven sites across the country. (For a summary see here.) To assist the debate, energy expert, Professor Ian Lowe, examines the feasibility of this plan in the short but accessible brief below).

1. **Is it legal?**

   No! The Howard government passed into law in 1998 a prohibition of building and operating nuclear power stations. NSW, Victoria and Queensland all have State laws that would prohibit some or all of the steps needed for nuclear power to operate.

2. **Is it practical to build seven reactors by 2037?**

   No! UMPNER reported to the Howard government in 2006 that it would take at least ten years, probably fifteen, to build ONE nuclear power station. The average time for the nuclear power stations built this century in Western Europe and USA is 15 years. Those countries all have a regulatory framework for nuclear power and experience building nuclear power stations.

3. **Is nuclear power zero-emissions?**

   No! It is, like solar and wind, low-emissions compared with burning coal or gas, but it is not zero-emissions. A large reactor like the ones proposed requires 12,000 tonnes of steel and 230,000 tonnes of concrete. Producing those essential resources would release more than 40,000 tonnes of carbon dioxide. Large amounts or energy would also be needed to mine and process enough ore to provide the 180 tonnes of uranium to fuel the reactor each year. Enrichment to bring the fraction of uranium-235 up to the level needed would release a further 3500 tonnes of carbon dioxide.

4. **Is it true that all the other G20 countries are using nuclear power or moving toward it?**

   No! There are six G20 countries that don't have nuclear power stations: Germany, Italy, Australia, Indonesia, Turkey and Saudi Arabia. The only one "moving toward it" is Turkey, which is building one nuclear power station.

5. **Is nuclear power cost-effective?**

   No! The most recent world average prices for different forms of power are 3.7 cents per kilowatt-hour for solar, 4.1 for wind and 16 for nuclear. Solar and wind need storage to be what the electricity industry calls firm capacity. CSIRO and the Australian Energy Market Operator (AEMO) do an annual exercise called GenCost. Their 2024 figures were 10-13 cents/kWh for solar and wind with firming, 17-22 for large nuclear and an estimate of 39-63 for "small modular reactors".

6. **Has nuclear power brought prices down all around the world?**

   No! It isn't used "all around the world"; 32 countries have nuclear power, including six countries with one power station and four with two, so more than 160 countries don't use it at all. The nuclear contribution to world electricity peaked at about 20% in the 1980s and has declined steadily to about 9% now.

7. **Isn't the world moving to nuclear power?**

   No! Last year the world installed 660 GigaWatts of new renewables and a net 4.3 GW of nuclear. Nuclear power stations are being closed down in the northern hemisphere because they can't compete with solar and wind.

8. **Would the proposed nuclear power stations replace coal?**

   No! The proposed seven nuclear power stations would have a peak capacity of 5.6 GW. About 25 GW of coal-fired power will close by 2037.

9. **Doesn't the GenCost study inflate the likely cost of nuclear power?**

   No! The study uncritically used the nuclear power industry's figures for the capital cost of power stations. Every project this century in Western Europe and the USA has cost between two and three times the budgeted price.

10. **Didn't the Frontier Economics report say nuclear power would cut prices by 44%?**

    No! The Frontier Economics report said nothing at all about power prices! It calculated the cost of building enough nuclear power to meet about half of an unrealistically low demand figure, using unrealistic figures for the cost of nuclear power, as well as unrealistic figures for the life of nuclear power stations and the percentage of time they would operate. The report then claimed that would reduce the cost of phasing out coal.

11. **Won't nuclear power stations operate 90% of the time for 50 years or more?**

    No! Or, at least, it is very improbable. No nuclear power station has ever lasted 50 years - the usual figure is about 30 - and the "capacity factor", the fraction of possible time they operate, is 69% in the UK.

12. **Don't the new generation of reactors or small modular reactors make a difference?**

No! Fifteen years ago, when Prof. Barry Brook and I wrote a "flip book" giving the cases for and against nuclear power in Australia, he was optimistic about Generation Four reactors and small modular reactors. They are still at the design stage. The Academy of Technology and Engineering last year produced a report about SMRs, concluding that it will probably be 2040 before we could write a cheque and buy one. The idea that they could be operating in SA in ten years time is pure fantasy.

13. Does the price quoted for nuclear power stations include decommissioning costs?

No! The UK has set up a Nuclear Decommissioning Agency. Its projected cost for the decommissioning of ten closed reactors is A$250 billion.

14. Do we have a plan for managing the radioactive waste?

No! We still don't have a plan for storing low-level radioactive waste, with about 5000 cubic metres of waste needing to be managed and an extra 40 cubic metres produced each year. The Intermediate Level Waste from the Lucas Heights research reactor is in temporary storage at that site, with no plan for permanent management. We have no capacity to handle the high-level waste that would be produced by nuclear power stations.

15. Are the problems so insurmountable that the plan is totally unrealistic?

YES!