retain the ban on nuclear energy

Thank-you for taking my viewpoints into consideration when contemplating this important issue.

It is heartwarming to know there is serious consideration being given to replacing the climate destroying fossil fuel power methods, but going back to old failed methods is not the best answer for this sunny windy country.

Australia is much too hot for safe nuclear power

We are in a time of climate crisis. Extreme weather events are inevitable and increasing. We know there will be more heatwaves and droughts and some will be more intense. As nuclear power plants consume a lot of water for cooling, the Australian climate is simply not conducive for safe nuclear power. Nuclear power plants are vulnerable to water stress, the warming of rivers, and rising temperatures, which weaken the cooling of power plants and equipment. Nuclear reactors in an increasing number of countries[1] are being shut down during heatwaves, or see their activity drastically slowed. Overheating can present a major safety risk. We can't be spraying water on the walls of our nuclear power plants to cool the insides during a heatwave when we are also deep into a drought. As the lakes and rivers that typically supply cooling water become hotter thanks to climate change — and as droughts dry up some water bodies — nuclear power plants aren't viable. We cannot thermally pollute our seas either. Hotter seas kill the plankton, the seagrasses and the mangroves. Sea Level rise and higher intensity storms mean situating vulnerable nuclear power plants on the coast is becoming less attractive.

We need power that is stable to function during heatwaves. Coal, gas and nuclear are notorious for failing that requirement.

Nuclear is much too expensive

To protect the climate, we must abate the most carbon at the least cost and in the least time. We must quickly replace our climate destroying fossil fuel plants with clean electricity. To produce stable affordable electricity we must recognise that the economic factors relating to nuclear rule it out as an option.

Not only is nuclear power greatly more expensive compared with other forms of power, it is essentially uninsurable. Nuclear power plants depend on large government subsidies to be built, and never has nuclear energy been profitable. On top of the initial capital costs, the cost of maintaining and decommissioning the plant, there's the endless safe storage of the radioactive waste. Safe disposal facilities don't come cheap and nowhere in the country are they wanted.

It is feasible that if we finally got a carbon price, nuclear powered electricity could be better able to compete, but the insurance risks would need to be borne by the public as none of Australia's major insurance agencies are willing to provide cover for nuclear disasters. Indeed, if nuclear power operators were to adequately insure against the risk of nuclear accidents, the insurance premiums would make nuclear power completely uneconomic.

As the CSIRO's GenCost 2021-22 report points out, solar and wind are the lowest cost way of producing electricity in Australia even when factoring in storage. In addition, whilst renewables are getting cheaper all the time, the costs of building and operating nuclear power plants is increasing.

We would still need to import the fuel rods

[1] Cold countries like France, the USA and Denmark are among those shutting down reactors due to hot weather.

There are currently only a few countries that are allowed to process the yellowcake into nuclear fuel rods and Australia is likely to continue to be excluded. This would mean we would need to export our raw uranium and then import it once processed into fuel rods at an exorbitant price hike. Just because we have a resource doesn't mean it will be economic to utilise it.

Nuclear energy is too slow

Stabilising the climate is an urgent emergency. Given the urgency of climate change, we need effective solutions now. It takes only a few years to set up a major wind or solar project, whilst nuclear power is slow. Setting up new plants takes about a decade, but some time blowouts have been extraordinary.

Also we are still waiting for long ago promised new technologies. We can't afford to wait any longer. Hypothetical new nuclear power technologies have been promised to be the next big thing for the last forty years, but in spite of massive public subsidies, that prospect has never panned out. That is also true for Small Modular Reactors (SMRs).

Uranium is finite and will run out

While nuclear power is certainly a cleaner option than some other forms of energy generation such as gas and coal, it isn't a renewable energy source. Once all the uranium has been mined, there's no way to generate more – unlike solar or wind, which can be harnessed indefinitely. We need to put all our ducks on the long road, not the dead-end road.

The nuclear fuel cycle produces greenhouse gases

While minimal greenhouse gases are created in the operation of a nuclear reactor, the mining, processing and transport of uranium and the generation of nuclear waste all produce large amounts of carbon dioxide.

Nuclear power is unhealthy

Uranium mining causes lung cancer in large numbers of miners because uranium mines contain natural radon gas, some of whose decay products are carcinogenic. Uranium miners die of lung cancer at six times the expected rate. Clean, renewable energy does not have this risk because (a) it does not require the continuous mining of any material, only one-time mining to produce the energy generators; and (b) the mining does not carry the same lung cancer risk that uranium mining does.

The nuclear industry already has an immense radioactive waste legacy

The storage and disposal of nuclear waste pose a serious risk. Waste from nuclear power plants is highly radioactive and very difficult to dispose of safely. It can take up to 100,000 years for it to become safer. There is currently no agreed international solution for the long-term storage of high-level nuclear waste. Already there are hundreds of radioactive waste sites in other countries that must be maintained and funded for at least 200,000

years.. The more nuclear waste that accumulates, the greater the risk of radioactive leaks, which can damage water supply, crops, animals, and humans.

Nowhere in Australia is a nuclear waste dump wanted and it is unconscionable to inflict such a burden on unborn future generations along with our climate legacy.

Nuclear brings a scary weapons proliferation risk

We need to ensure our country is powered in a safe manner, yet nuclear weapons proliferation concerns are a barrier and risk to the increasing development of nuclear energy. Australia may not be granted the right to process our yellowcake and so not be deemed a risk to have issues with enriching the uranium to create weapons grade uranium and harvest plutonium from uranium fuel rods for use in nuclear weapons, but supporting the industry necessitates supporting the possibility it can happen elsewhere. The building and spreading of Small Modular Reactors (SMRs) may increase this risk further.

Meltdown risk is unacceptable

To date, 1.5% of all nuclear power plants ever built have melted down to some degree. Meltdowns have been either catastrophic (Chernobyl, Russia in 1986; three reactors at Fukushima Dai-ichi, Japan in 2011) or damaging (Three-Mile Island, Pennsylvania in 1979; Saint-Laurent France in 1980). The nuclear industry has proposed new reactor designs that they suggest are safer. However, these designs are generally untested, and there is no guarantee that the reactors will be designed, built and operated correctly or that a natural disaster or act of terrorism, such as an airplane flown into a reactor, will not cause the reactor to fail, resulting in a major disaster.

Conclusion: leave the uranium in the ground

Australia has abundant safe and cheap renewable resources like solar and wind. As we face an increasingly urgent need to take action on climate change, we must focus on solutions that are scalable, cost-effective, and safe. According to the Climate Council, Australia is one of the sunniest and windiest countries on earth, with enough renewable energy to power resources to power our country 500 times over. Compared to nuclear power plants, we can build large-scale wind and solar farms in Australia cheap and fast.

Frankly, pursuing nuclear power is just a waste of time and resources in Australia's race against climate change. We need to focus on renewable energy if we're going to make a dent in our emissions.

Let's not get distracted by the nuclear debate. There is a very real risk that the delay and distraction posed by dithering with old failed technologies like nuclear will mean a failure to advance a just energy transition.