Electrical Trades Union

GenCost 2024-25 Draft Report Submission

February 2025

Submission by the Electrical Trades Union (ETU)

About the ETU

The Electrical Trades Union of Australia ('the ETU')[1] is the principal union for electrical and electrotechnology tradespeople and apprentices in Australia, representing more than sixty-five thousand skilled workers around the country. The electrical workers we represent will form the backbone of Australia's clean energy workforce across all sectors and stages of the transition. The ETU acknowledges the significant task ahead of building a new fleet of clean electricity generation assets, and emphasises the need for a just transition that includes workers, First Nations communities, and the broader public in benefit sharing in developing the least-cost technology pathway in the Australian context.

For over 120 years ETU members have built and maintained Australia existing energy infrastructure from the power station to the transmission and distribution network, to the household stove. Our members operate coal fired power stations and battery storage installations across the country, and we draw from our members experience to understand introducing new baseload generation into our increasingly variable grid would affect grid stability, worker safety, and consumer value.

Acknowledgement

In the spirit of reconciliation, the ETU acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present and extend that respect to all First Nations peoples today.

Introduction

The ETU supports the government's ambition to decarbonise the economy and become a global leader in renewable energy. Achieving these objectives constitute nothing short of an Industrial Revolution as our society and economy shifts from coal, oil, and gas to renewable electricity and storage.

The ETU welcomes the 2024-25 GenCost report and appreciates the opportunity to make this short submission in response to the details contained within the report.

Due to the disruption caused by the energy transition, processes such as GenCost are a critical element in the careful and proper planning of the energy transition and ensuring that Australia achieves maximum economic and social benefits from the transformation occurring in our energy sector.

The Liberal National coalition has consistently attacked GenCost and the ISP, and in particular its costings of nuclear.[2]

[1] Being a division of the CEPU, a trade union registered under the Fair Work (Registered Organisations) Act 2009 (Cth).
[2] For example, Dutton, P (2024). Joint Doorstop Interview with Mrs Melissa McIntosh MP, Jamisontown

The CSIRO has operated independently of government to provide frank and fearless advice. And it has consistently sought feedback on its modelling in order to test and refine its assumptions and conclusions. This is the hallmark of a rigorous scientific process.

The ETU notes, furthermore, GenCost publishing its data in to allow any stakeholder in the energy transition to test their assumptions. This is a level of transparency not afforded by the recent report by Frontier modelling of the costs of nuclear, produced for the LNP at the end of 2024.

In this submission, the ETU will provide brief feedback on two aspects of the GenCost modelling:

1. The cost and timelines for building a nuclear industry in Australia
2. The ongoing absence of workforce data in the modelling

The Cost and Timelines of Nuclear

The ETU recognises the effort that has gone into providing a more accurate and granular assessment of the levelised cost of electricity associated with nuclear technology, factoring in a wider range of assumptions than in the previous iterations of the report.

This includes:

- Calculating the cost of nuclear over a longer lifespan.
- Reviewing the capacity factor

Significantly, in factoring in a broader range of assumptions, GenCost's most recent estimate for the cost of a First-of-a-Kind (FOAK) nuclear power station if built in 2040 is $16.6 billion, greater than the $15.4 billion estimated the year before.[3] In other words, the most recent GenCost report again demonstrates that nuclear is the most expensive form of energy generation with renewable power generation coming in significantly cheaper – in keeping international evidence for countries without an existing nuclear industry.

In this submission, the ETU engages with many of these assumptions that underpin the modelling to highlight how the CSIRO has relied on conservative estimates of the costs and timelines associated with developing a nuclear industry in Australia, and that the actual costs and building timelines for the current Liberal party proposal are likely to be significantly greater than those provided in the GenCost report.

[3] [insert the reference and page numbers for both years.]

Refurbishment and the Impact of Extended Lifespans on the Cost of Nuclear

The ETU recognises the value brought to the national debate by including nuclear refurbishment cost estimates in GenCost.

The Coalition has attempted to discredit the CSIRO's cost estimates by claiming that nuclear achieves cost savings through a longer economic life. GenCost has examined the potential cost savings that may be achieved by extending the lifespan of nuclear, concluding that "there are no unique cost advantages arising from nuclear technology's long operational life" as compared with other forms of baseload generation, and that while there are some cost savings achieved by extending the life of the power station, these savings are marginal.[4]

GenCost reaches this conclusion by examining the cost of refurbishment to extend the lifespan of a nuclear power station. The analysis corresponds to the experience of our members working in ageing coal-fired power stations. These members report that ageing power stations become increasingly expensive to maintain as they reach their end of life and may even require complete overhauls of significant parts of the power station to remain open and reliable.

A failure to undertake this maintenance not only shortens the life of the power station, it also decreases their reliability, increases unscheduled outages and potentially threatens overall grid stability.[5]

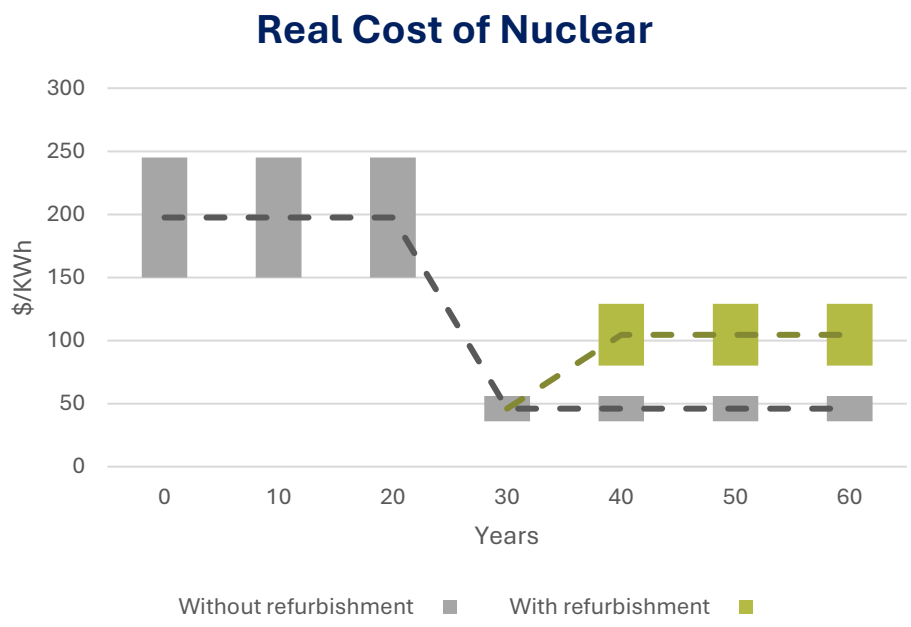


Figure 1 - The cost of nuclear falls as initial capital costs are recovered, and rise again once refurbishment is required

Capacity Factor

The CSIRO has revisited the capacity factor of nuclear reactors, in response to the Coalition's claims that nuclear could achieve an average capacity factor of above 90%. GenCost found that

[4] CSIRO (2024). GenCost 2024-25 Consultation draft. (pp. ix).
[5] AEMO (2024). Quarterly Energy Dynamics (QED) – Q4 2024. (pp. 26).

this claim was unsubstantiated and that a more accurate capacity factor for nuclear – taking into account how it would be integrated into the Australian grid and taking into account necessary outages for maintenance – would be found by looking at existing baseload generation in Australia:

> In Australia we have more than 100 years of experience with operating baseload generation, not nuclear but coal… GenCost bases its capacity factor assumptions for all baseload technologies – coal, gas, and nuclear – on the Australian evidence, applying a maximum of 89% and minimum of 53%.[6]

The average capacity factor from a black coal-fired power station in Australia has been 59%. Moving forward, this is likely to fall as renewable energy continues to become cheaper and more competitive, driving out more expensive forms of generation.

Lead Times to Build Nuclear

The CSIRO has previously found that nuclear could not be built before 2040 and would likely take longer- highlighting the need for substantial legislative reform in order to legalise the industry and to the lack of a domestic nuclear industry.[7]

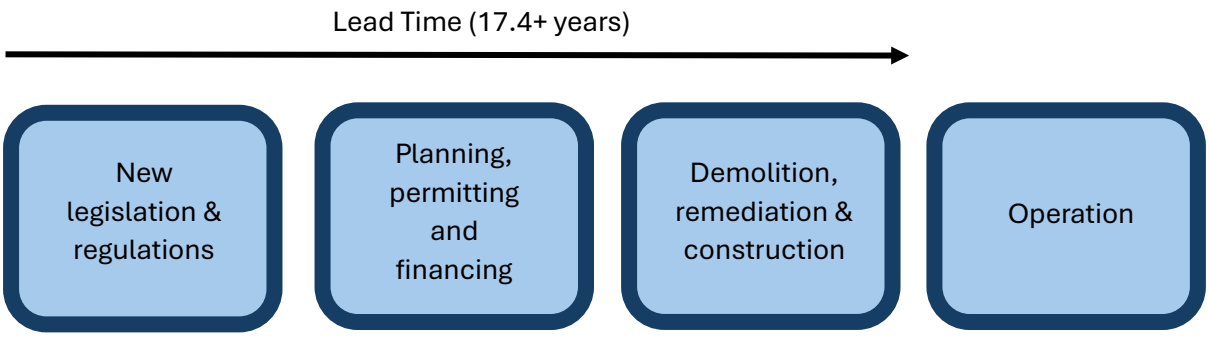
The ETU welcomes the reinvestigation of these timelines by GenCost using a more thorough and expansive set of assumptions.

As we note below, the CSIRO's finding that it would take at least 15 years to build one nuclear power station in Australia is likely to provide a conservative assessment when applies to the LNP's own plan, as it fails to include the need to decommission existing coal-fired power stations following closure in order to provide the necessary sites to build nuclear power stations under the Coalition's plan.

The Need for Decommissioning Existing Coal Fired Power Stations in the LNP's Nuclear 'Plan'

Replacing coal-fired power stations with nuclear reactors would be a long and complicated process which includes not only the shutdown of the power station but also its decommissioning. This additional process involves removing equipment and demolishing facilities as well as remediation, including cleaning up contaminants and hazardous material. These processes must all be completed before the long construction process can begin.

[6] CSIRO (2024). GenCost 2024-25 Consultation draft. (pp. ix).
[7] CSIRO (2024). GenCost 2023-24. (pp. 35-36).



For example, the Munmorah Power Station in New South Wales started shutting down in 2012, but was not completely demolished until six years later. The remediation process is still unfinished with the surrounding land and water declared in May 2024 by the NSW Environment Protection Authority to be "significantly contaminated" from the former power station, preventing it from being "redeployed for another use".[8]

With almost all of the sites identified for a nuclear power station under the LNP process still either active or at the start of the decommissioning process, the lead times for building will be significantly longer than the estimates provided for a Greenfields site.

Impact of Workers' Rights and Democracy on Nuclear Timelines and Costing

GenCost sheds light on how we can understand the mixed experiences of countries around the world who have developed new nuclear industries in recent decades. They find that the higher the level of democracy present in a country, the longer it takes to develop a nuclear industry. This is because autocratic governments can save time on planning and regulatory processes by refusing to consult with communities, obtain social license, negotiate with stakeholders, or implement proper work health and safety precautions for workers. As GenCost notes:

> There is some statistical evidence for the impact of the degree of democracy on nuclear lead times. Pakistan, China and the UAE have had the fastest construction times in the last decade with average construction times of 6 to 8 years, but their democracy index scores are low. Finland, South Korea, the United States (US) and India all had construction times 10 years or longer with high democracy scores. The two Western democracies in this list, Finland and the US had construction times of 17 and 21 years respectively which is significantly longer than the Asian democracies.[9]

If developing a nuclear industry in Australia were attempted, the process would be marked by the same delays and deadline extensions we have seen in countries whose level of democracy is similar to our own. A comparable example for the Australian experience would be Poland, another open democratic country. In 2005, the Polish Government resolved to "immediately" build nuclear reactors with a view to have one online around 2020. It is now not projected to be completed until 2033, 28 years later.[10]

[8] NSW Environment Protection Authority. Next steps for contaminated land at Lake Munmorah
[9] CSIRO (2024). GenCost 2024-25 Consultation draft. (pp x).
[10] World Nuclear Association. Nuclear Power in Poland

Barakah Plant

The Barakah Plant in the United Arab Emirates is often used by the Coalition and others to claim that Australia could establish a nuclear industry faster than the CSIRO and AEMO's estimates. However, the UAE underwent a completely different process to build Barakah owing to the fact that they are an autocratic government that imposes its plans on the Emirati public with no accountability or safety and benefit sharing arrangements.

Furthermore, the ITUC finds that the UAE is one of the worst countries in the world for working people.[11] As noted by the ACTU:

> Migrant workers form approximately 90 percent of the UAE's workforce and face widespread abuses tantamount to modern slavery. The UAE operates the kafala system of labour sponsorship, which bonds migrant workers to their employer and gives companies and private citizens almost total control over migrant workers' employment and immigration status. Under the kafala system, any attempt at leaving an employer is punishable by law: escaped workers are imprisoned, deported, and face significant financial costs, including paying back their employer's sponsorship fees without receiving their salaries. Wage theft and exorbitant recruitment fees are widespread.[12]

The timelines achieved by the Korea Electric Power Corporation (KEPCO), which was contracted by the UAE to develop the Barakah plant, were only able to be achieved because they relied on migrant workers from North Korea,[13] Philippines, Bangladesh, Pakistan, and India employed with limited or almost no rights.[14] This allowed the contactor to disregard worker safety, resulting in the deaths of three of these workers.

Migrant workers at Barakah were paid just 200USD per month, which must also be taken into account when assessing the comparative cost of building nuclear in Australia.[15]

Even then, the project took 12 years and experienced delays. The Coalition are promising a nuclear reactor in 11 years by citing Barakah, without outlining how they would attempt to achieve these results given higher levels of unionisation and greater legal rights with regards to worker safety and hours of work. It is unclear how they could achieve these timelines without critically undermining worker and community safety.

Workforce Development, Skills and Training

The ETU continues to be concerned with the limitations of GenCost and other energy planning processes stemming from their assessment of the impacts of skills, training and workforce development.

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[11] International Trade Union Confederation (2023). Global Rights Index 2023
[12] ACTU (2024), Australian Council of Trade Unions (ACTU) Submission to Department of Foreign Affairs and Trade (DFAT) Stakeholder Consultation Process, https://www.dfat.gov.au/sites/default/files/australian-council-of-trade-unions-uae-cepa-fta-submission.pdf, see also: Human Rights Watch. World Report 2024 – United Arab Emirates Chapter.
[13] Gambrell, J (2017). Thousands of North Korean laborers in US-allied Gulf nations. Associated Press
[14] Hyo-sik, L (2017). KEPCO hit by safety lapses at UAE nuke plant site. The Korea Times
[15] Optimistic Storm. UAE Nuclear – Poster Plant

The recent Jobs and Skills Australia (JSA) *Clean Energy Capacity Study* forecasts that Australia will need an additional 32,000 electricians by 2030, with a further 85,000 needed by 2050. On the current trajectory, skills shortages will impede the energy transition.

Currently there is very little investment in skills and training in the power generation sector broadly that would align with building the future workforce needed for a successful energy transition. Traditional fossil fuel generation is heading rapidly towards plant closures and investment in the next generation of tradespeople has long taken a back seat, with some exceptions.

Renewable energy generation projects rarely employ workers in Certificate III trade training programs. Limited effort is being made to train a future Australian workforce with project proponents often failing to employ a single apprentice. A case in point being the Hunter Power Project (HPP). The HPP currently has more than 200 employees in blue collar roles and is ramping up. This includes a team of approximately 40 electrical workers – growing to over 100 during some phases of the project.

The construction company building this project on behalf of Snowy Hydro has told the workforce they will put on just three apprentices for each of the electrician, boilermaker, and mechanical fitter qualifications - just nine apprentices at a ratio of just 7% for electricians that will fall to 3% as the project ramps up.

The ETU's experience is that some project proponents are attempting to recruit overseas workers to fill critical roles, however the ETU notes that the current and projected shortage of electricians is and will be global. With much of the globe having more ambitious energy transition policy that is embedded with robust procurement obligations associated with skills, training, wages and conditions, Australia will simply be unable to compete.

The ETU remains of the view that GenCost needs to factor in workforce modelling as an important additional factor in its overall modelling processes, if it is to provide an accurate projection of project timelines and cost.

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