Submission to the Inquiry into Nuclear Power Generation in Australia

Introduction

Nuclear power generation has been suggested as a potential strategy to address Australia's energy needs and reduce greenhouse gas emissions. However, the challenges associated with nuclear power (including high costs, lengthy timelines, and unique environmental risk) render it unsuitable for Australia's specific circumstances, especially considering the urgent need to reduce emissions over the next decade. This submission outlines key reasons why nuclear power is not a viable solution to achieve Australia's climate and energy objectives, supported by evidence from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Australian government's own reports.

1. Long Development Timelines and High Costs

CSIRO and the Australian Energy Market Operator (AEMO) highlight the protracted timelines for nuclear power development, which typically range from 10 to 15 years, often extending beyond 20 years in countries without existing nuclear infrastructure. Given Australia's need to rapidly cut emissions, the timeline for nuclear is incompatible with Australia's short-term climate goals (CSIRO, 2020; AEMO, 2022). By contrast, renewables such as wind and solar can be deployed much faster, contributing to emission reductions in the near term.

In terms of costs, nuclear remains prohibitively expensive. According to the Department of Industry, Science, Energy, and Resources, the capital costs of nuclear energy are significantly higher than those of solar and wind, which continue to decline in price. CSIRO's GenCost report (2021) emphasizes that renewable energy technologies, particularly solar and wind, are already among the cheapest energy sources available in Australia. Allocating resources to nuclear development could delay Australia's progress toward its climate targets by diverting funding from scalable, cost-effective renewable options.

2. Lack of Expertise and Infrastructure

Australia lacks the technical expertise, regulatory framework, and infrastructure required to support a nuclear industry. Establishing a nuclear sector would demand substantial investment in training, workforce development, and international partnerships, all of which would divert resources away from Australia's growing renewable sector (Department of Industry, Science, Energy, and Resources, 2022).

Furthermore, Australia would need to establish a comprehensive regulatory and safety framework for nuclear power, including new standards for safety, security, and environmental protection. This undertaking would require significant investment in regulatory infrastructure and long-term governance, an inefficient use of resources that could otherwise be directed toward renewable energy, where Australia already has a strong foundation and expertise (Australian Radiation Protection and Nuclear Safety Agency, 2021).

3. Waste Disposal Challenges

A major barrier to nuclear power generation is the long-term disposal of radioactive waste. Australia lacks the necessary geological repositories and experience to safely store and manage nuclear waste. Countries with advanced nuclear sectors, such as the United States and Japan, continue to face challenges in safely storing and managing nuclear waste, raising questions about the feasibility of waste management in Australia.

The Australian Nuclear Science and Technology Organisation (ANSTO) has highlighted that developing safe storage for nuclear waste would involve political, environmental, and logistical challenges, including securing the consent of Indigenous communities. This issue has been raised repeatedly by Indigenous groups and environmental organizations, who have expressed significant concerns about nuclear waste storage on traditional lands (ANSTO, 2023).

4. Risks of Accidents and Security Threats

Nuclear power carries inherent risks related to potential accidents and security threats. The Australian government, referencing international examples like the Fukushima and Chernobyl disasters, notes that while the probability of accidents may be low, the consequences can be catastrophic, impacting public health, ecosystems, and property.

Moreover, nuclear facilities increase security risks, including potential targeting by terrorist groups seeking nuclear materials for weaponization. The substantial investment required to secure nuclear plants against threats, both physical and cyber, further raises the overall cost of nuclear power and presents ongoing safety and security challenges, which renewable options do not entail.

5. Abundant Renewable Energy Resources

Australia is uniquely suited for renewable energy generation, with ample solar, wind, and geothermal resources. CSIRO and AEMO have developed detailed pathways to achieve a 100% renewable energy grid by utilizing solar, wind, and battery storage solutions, along with transmission upgrades (AEMO, 2022). Investments in renewable energy have driven significant growth, with Australia now leading globally in per-capita rooftop solar installations and large-scale renewable projects.

Additionally, Australia’s mining and rare-earth sectors provide an opportunity to develop a domestic supply chain for battery production, which supports energy storage solutions essential to a renewable-based grid. These efforts align with Australia’s goals of reducing dependency on international energy supply chains while creating local employment opportunities (CSIRO, 2021).

6. Public Opposition and Social License Issues

Nuclear energy remains contentious within Australia, with significant public opposition stemming from concerns about safety, environmental impact, and waste disposal. Studies commissioned by the Australian government show that a lack of public support would likely lead to delays and legal challenges. Indigenous communities and environmental organizations have previously raised strong objections to nuclear projects, citing cultural, environmental, and health-related concerns (Australian Institute of Aboriginal and Torres Strait Islander Studies, 2023).

Gaining public support for nuclear power would require substantial time and effort—time that Australia does not have if it is to meet pressing climate targets. Building social acceptance for nuclear energy would divert resources and focus from renewable energy solutions, which already enjoy broad public approval and momentum.

Conclusion

In conclusion, nuclear power is not a feasible option for Australia's clean energy transition. The extended development timelines, high costs, waste disposal challenges, safety and security risks, and lack of social acceptance make it an impractical choice. With abundant renewable energy resources, Australia has the opportunity to lead in sustainable energy without the drawbacks associated with nuclear power. By prioritizing investment in renewables, storage, and energy efficiency, Australia can achieve a cleaner, more resilient energy system that meets its climate goals in a timely manner.

The Governments energy policy should focus on expanding the deployment of renewable energy technologies rather than diverting resources to the Liberal-National Coalition nuclear proposal, which would require extensive timelines and financial investments while providing limited environmental benefits.