

## 1. About Women in Nuclear (WiN)

[Women in Nuclear Global \(WiN Global\)](#) is a non-profit organisation of women and individuals of other genders working professionally in various areas of nuclear energy and radiation applications. Since our foundation in 1992, we have been strong advocates for environmental sustainability, diversity, and gender equality. In powering a thriving, inclusive future for all, we are committed to promote an evidence-based dialogue with the public to raise awareness about the essential contributions of nuclear technologies to people and society, especially as part of the solution to the climate crisis and as a key element to achieve the United Nations Sustainable Development Goals (SDGs).

WiN Global has over 35,000 members from 110 countries. One of the aims of WiN is to promote understanding and public awareness of the benefits of peaceful nuclear and radiological applications, including nuclear energy, especially amongst women and young people. WiN Global, as a participant of the Atoms for Climate team at COP 27 in 2022, has written two positions papers in support of the global climate change conference. For COP 26 in 2021 a paper titled [Nuclear is part of the Net Zero Solution: Our call for an inclusive, sustainable future for all](#) was released and in 2022 for COP 27 a paper titled [Harnessing the power of nuclear – clean energy, water, transportation and jobs](#) was released; both papers co-authored by WiN Australia members.

[Women in Nuclear Australia Inc. \(WiN Australia\)](#) is the Australian chapter of WiN Global. Membership of WiN Australia includes individuals working professionally in many areas including research, nuclear operations, Defence and security, medicine and health care, waste management, regulatory authorities, mining, nuclear and radiation safety, industry, policy, and communications. WiN Australia values its position as a professional organisation and seeks to inform this debate through expertise and neutrality rather than lobbying.

### 1.1 WiN's Position on Nuclear Energy

The global WiN community sees nuclear energy technology as a key part of the solution in the fight against climate change. In 2015, WiN Global produced a document known as the ["Women in Nuclear Declaration for the Earth Climate"](#). The document acknowledges that:

- the world's population should reach 10 billion people and electricity demand should double by 2050, and
- if the world is to limit global warming to a maximum of 2°C by 2050, over 80% of electricity will need to come from all available low carbon technologies (Intergovernmental Panel on Climate Change, IPCC).

The Declaration calls for immediate steps to reduce carbon emissions that include nuclear energy as an option, as agreed by the IPCC, Organisation for Economic Co-operation and Development (OECD) and many other organisations.

WiN Australia also acknowledges the UN Sustainability Development Goals and understands that sustainable and reliable energy is a key part of meeting these goals. With around a billion people worldwide still without access to electricity, there is still much work to be done. [As poverty, natural disasters, climate change and](#)

*inequality inadvertently affect women and children the most,<sup>1</sup> WiN Australia supports the move away from fossil fuel energy generation towards sources that will improve the lives of the world's poorest and those that will be most impacted by climate change.*

## **2. The benefits of nuclear energy in support of climate change**

Nuclear energy is an important part of the energy mix to meet Australia's growing need for reliable, affordable and clean power. *Nuclear energy is the densest energy solution available and its investment in ongoing scientific research and development means as an energy solution it is technologically advanced.* Small modular reactors and Generation IV reactors provide highly capable, scalable power solutions with an increased focus on accident resistance and a reduced threat to nuclear security.<sup>2</sup> These reactors can service entire cities - through to small remote towns - with reliable and stable power supply; on a reduced footprint in comparison to other energy forms. Therefore, allowing Australia's precious land to be preserved for agriculture, industry, population growth or for wildlife and conservation areas.

Innovation is a key pillar within the nuclear industry. Nuclear energy offers significant opportunities to decarbonise not only the electricity sector but also transport (through hydrogen production), water desalination and industrial heat processes. In the absence of significant hydropower, no other technology has so far demonstrated it can decarbonise electricity let alone other sectors.

The Massachusetts Institute of Technology found that nuclear power prevents cost escalation in a deeply decarbonised electricity grid. Without nuclear, deep decarbonisation's cost and environmental impact increase significantly due to building substantial renewable capacities to maintain reliability. The study recognised the combination of nuclear and renewables as the most affordable solution for case studies considered. While the cost of building new nuclear plants in the west in recent years has been high, the study identified ways to reduce the cost of new nuclear. e.g., governments play a notable role in incentivising cost reductions by providing well-designed energy and environmental policies and appropriate support in the early stages of new nuclear projects.<sup>3</sup>

If Australia is to remain competitive in the manufacturing and technology spheres, we need energy abundance, not energy deficiency. Nuclear, as part of a sustainable system, offers reliability and abundance with low carbon emissions and without the reliance on fossil fuels for backup.

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<sup>1</sup> UN Women, 2020. Climate change, gender equality and human rights in Asia Regional review and promising practices. [https://asiapacific.unwomen.org/-/media/field%20office%20eseasia/docs/publications/2021/02/ap-hrcc-report\\_online-compressed.pdf?la=en&vs=4426](https://asiapacific.unwomen.org/-/media/field%20office%20eseasia/docs/publications/2021/02/ap-hrcc-report_online-compressed.pdf?la=en&vs=4426)

<sup>2</sup> UNECE, 2021, Technology Brief. Nuclear Power. [https://unece.org/sites/default/files/2021-08/Nuclear%20power%20brief\\_EN\\_0.pdf](https://unece.org/sites/default/files/2021-08/Nuclear%20power%20brief_EN_0.pdf)

<sup>3</sup> Massachusetts Institute of Technology, 2018. "The Future of Nuclear Energy in a Carbon-Constrained World", <https://energy.mit.edu/research/future-nuclear-energy-carbon-constrained-world/>

### **3. Why amendments to federal legislation are crucial to allow for Australian feasibility studies and community engagement**

The overarching current restriction to nuclear power generation in Australia is the federal and state prohibitions on nuclear power generation. What has resulted, is nuclear, as a serious power option, is not considered by federally funded scientific and economic research organisations in their understanding of Australian energy options. An example of this is the Australian Technology Investment Roadmap as produced by the Australian Government where all forms of nuclear technologies are not considered in reducing Australia's carbon emissions due to legislative restrictions. *This means there is a significant gap in understanding the feasibility of nuclear power as part of an Australian energy solution.*

The federal and state prohibitions also inhibit robust and honest discussion with the Australian public on nuclear power generation. The nuclear industry is committed to improving public outreach. Lack of effective communication in the early stages of the nuclear industry left gaps that were filled by persistent myths. In countries where nuclear power plants operate, there is good public support.<sup>4</sup> Organisations like Women in Nuclear (WiN) Global were established for community engagement. Originally, WiN was established to provide women in communities information and education around nuclear power providing safe, cheap, and reliable energy to families. Due to current legislation, it is difficult to have an educated discussion with the community on nuclear energy. The demands for reducing carbon emissions and acting on climate change are there from a wide and diverse Australian community. Therefore, it is appropriate that we allow for nuclear to be included in the discussion on reducing carbon emissions. *Changing legislation will allow for public education and robust debate to occur as well as detailed research and planning in an Australian context to commence.*

### **4. Conclusion and recommendations**

The effects of climate change and energy security have a disproportionate effect on the world's most vulnerable people, including vulnerable Australians. Therefore, to understand how nuclear power production fits into the Australian energy landscape, amendments need to be made to Australian legislation to allow detailed research and modelling in an Australian context. Changes will also allow for public education and discussion around nuclear energy to occur. Therefore, WiN Australia make the following recommendations to the committee that:

1. the *Australian Radiation Protection and nuclear Safety Act 1998* be amended to remove the prohibition on the construction or operation of certain nuclear installations; and
2. the *Environment Protection and Biodiversity Conservation Act 1999* be amended to remove the prohibition on the Minister for Environment and Water declaring, approving, or considering actions relating to the construction or operation of certain nuclear installations.

WiN Australia would like to thank the committee for taking time to consider this submission.

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<sup>4</sup> *World Nuclear Association*, Talking Points, The nuclear industry communication handbook 2019