



**ENGINEERS**  
AUSTRALIA

**Committee Secretary**

Joint Standing Committee on Treaties  
PO Box 6021  
Parliament House  
Canberra ACT 2600

26 April 2017

To whom it may concern,

**RE: Joint Standing Committee on Treaties inquiry on Generation IV Nuclear Energy - Accession**

Thank you for the opportunity to provide comments for the Joint Standing Committee's inquiry into Australia's accession to the Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems as extended by the Agreement Extending the Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems.

Engineers Australia is the peak member-based professional association for engineers, with more than 100,000 individual members. Established in 1919, Engineers Australia is constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community.

The Generation IV International Forum (GIF) is an important initiative for the development of nuclear technology. Australia, largely through the capabilities and expertise held by the Australian Nuclear Science and Technology Organisation (ANSTO) as Australia's Implementing Agent, is in a unique position to make a valuable contribution to the GIF goals, by influencing the development of Gen IV systems. Accession to the Framework Agreement will allow Australia to fully participate in activities. This would be of benefit for Australia in five ways:

1. Promote non-proliferation, safety and security issues.
2. Enhance Australia's reputation as the most advanced nuclear technology country in our region, which will help Australia retain its permanent seat on the IAEA Board of Governors.
3. Provide opportunities for Australian industry in advanced technology.
4. Provide opportunities for Australian universities and organisations for partnerships and collaborations with overseas universities and research organisations.
5. Increase Australia's understanding of nuclear developments worldwide.

The current 10 active members of GIF are Canada, China, Euratom, France, Japan, Republic of Korea, Russia, South Africa, Switzerland and the USA. The fact that none of these countries are in our region gives Australia the opportunity to be the leading nuclear technology country in South-East Asia and the Pacific.

ANSTO has world-class facilities, including several accelerators for ion beam analysis and the OPAL multipurpose reactor and its associated neutron beam instruments. Neutron beam instruments are powerful tools for investigating properties of materials. ANSTO has also developed the Synroc system for radioactive waste management.

Gen IV systems excel in efficiency due to higher operating temperatures. The high temperatures also offer the possibility of process heat. Many of the challenges with Gen IV technologies are related to developing materials capable of withstanding the higher temperatures and corrosive coolants like molten salt. ANSTO is particularly strong in materials research and has world-class expertise in this area.

With regard to the Gen IV goals, ANSTO is capable of particularly making a valuable contribution in the following areas:

- Proliferation Resistance and Physical Protection
  - Analysis of nuclear materials, physical protection improvements
- Safety and Reliability
  - Safety analysis, reactor modelling, nuclear safety cases
  - High temperature materials, radiation damage assessment
- Sustainability
  - Effective fuel utilisation, management of nuclear waste

Engineers Australia supports Australia acceding to the *Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems, as extended by the Agreement Extending the Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems* and designating ANSTO as Australia's Implementing Agent.

If you would like to discuss this submission in greater detail, please contact me on (02) 6270 6565 or by email at [JRussell@engineersaustralia.org.au](mailto:JRussell@engineersaustralia.org.au).

Yours faithfully,

**Jonathan Russell**  
National Manager for Public Affairs