MINERALS COUNCIL OF AUSTRALIA

SUBMISSION TO

THE JOINT STANDING COMMITTEE ON TREATIES

ON THE

AGREEMENT BETWEEN THE GOVERNMENT OF AUSTRALIA AND THE GOVERNMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND ON COOPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY

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6 OCTOBER 2018

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EXECUTIVE SUMMARY

The Minerals Council of Australia (MCA) welcomes the opportunity to make this submission to the Joint Standing Committee on Treaties on the Agreement between the Government of Australia and the Government of the United Kingdom on Cooperation in the Peaceful Uses of Nuclear Energy (Australia-UK Nuclear Cooperation Agreement).

The MCA is the peak industry organisation representing Australia's exploration, mining and minerals processing industry, nationally and internationally in their contribution to sustainable development and society. MCA member companies represent more than 80 per cent of Australia's annual minerals industry production and a higher share of minerals exports.

The MCA is committed to a uranium export policy that manages and actively reduces the risk of nuclear proliferation.

The MCA supports the export of Australian uranium to countries that agree to become parties to bilateral treaties which provide assurances that exported uranium and its derivatives cannot benefit the development of nuclear weapons or be used in other military programs.

The MCA considers the proposed Australia-UK Nuclear Cooperation Agreement provides these assurances.

The maintenance of this market following the UK's exit from the European Union (EU) provides continued opportunities for Australia's uranium exploration, mining and export industries, which in turn provides broader economic advantages to Australia.

The MCA supports exports in accordance with the Australia-UK Nuclear Cooperation Agreement for the following key reasons:

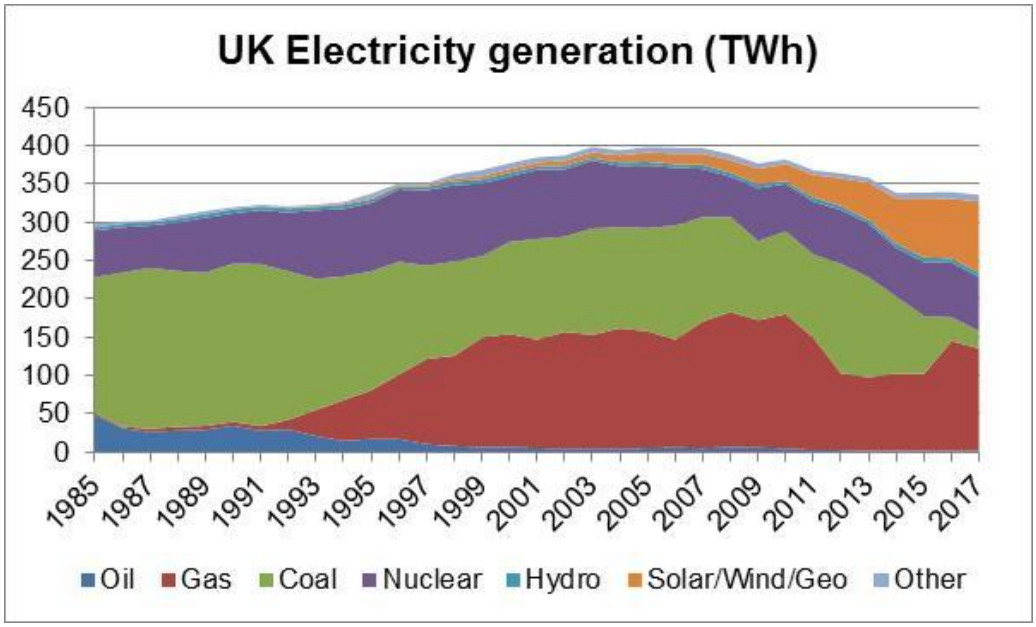
- UK is today a large uranium-consuming, nuclear energy market with new nuclear projects in the pipeline to maintain their status as a key long term uranium market
- Australia is a natural partner to the UK to meet its ongoing demand for uranium through its world class uranium industry and outstanding resource endowment
- The Agreement meets the requirement to assure that exported uranium and its derivatives cannot benefit the development of nuclear weapons or be used in other military programs
- Australia can benefit economically through continued access to this important market for its uranium which can generate jobs and export revenue
- The Agreement will provide a safeguards framework to support Australia's continued ability to export uranium to the UK following the UK's departure from the EU in late March 2019.

Accordingly, the MCA commends the Australia-UK Nuclear Cooperation Agreement to the Joint Standing Committee on Treaties.

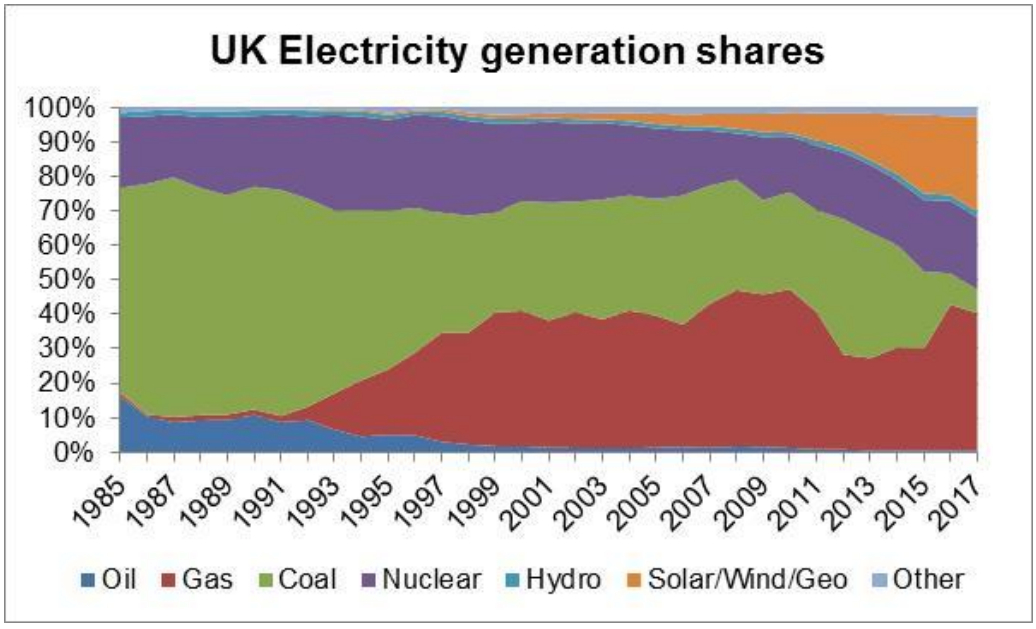
NUCLEAR POWER IN THE UK

Nuclear power is vitally important to the UK.

Its 15 reactors generate around 70 TWh of electricity per annum, which is about 20 per cent of the country's electricity.



Source: BP Statistical Review of World Energy 2017



Source: BP Statistical Review of World Energy 2017

The UK is heavily invested in the nuclear industry. The country has full fuel cycle facilities including major reprocessing plants. It has implemented a very thorough assessment process for new reactor designs and their siting. The first of some 19 GWe of new generation plants is expected to be on line by 2025. The government aims to have 16 GWe of new nuclear capacity operating by 2030, with no restriction on foreign equity. Two of the three major projects involved in new nuclear build have a reactor vendor involved – with 60 per cent and 100 per cent of equity respectively.[1]

[1] World Nuclear Association, *Nuclear Power in the United Kingdom*, September 2018

In addition to these large projects, the UK is also investing heavily in R&D with respect to small modular reactors (SMRs).

In November 2015, the UK government articulated new policy priorities for UK energy, involving a much greater reliance on nuclear power and offshore wind to grapple with 'a legacy of ageing, often unreliable plant' and undue reliance on coal. The energy secretary said:

> Opponents of nuclear misread the science. It is safe and reliable. The challenge, as with other low carbon technologies, is to deliver nuclear power which is low cost as well. Green energy must be cheap energy.
>
> We are dealing with a legacy of under-investment and with Hinkley Point C planning to start generating in the mid-2020s, this is already changing. It is imperative we do not make the mistakes of the past and just build one nuclear power station. There are plans for a new fleet of nuclear power stations, including at Wylfa and Moorside. It also means exploring new opportunities like small modular reactors, which hold the promise of low cost, low carbon energy. [2]

NuScale, a 55 per cent subsidiary of Fluor, aims to deploy its 50 MWe SMR in the UK by the mid-2020s. In 2017, following acceptance of the company's design certification application by the US Nuclear Regulatory Commission (NRC), NuScale released a five-point UK SMR action plan. On release the company re-stated its hope that it will build an SMR in the UK within a decade.

Westinghouse submitted an unsolicited proposal to partner with the UK government to license and deploy its 225 MW light water reactor, an integral Pressurised Water Reactor (PWR). The Westinghouse proposal involved a 'shared design and development model' under which the company would contribute its SMR conceptual design and then partner with the UK government and industry to complete, license and deploy it.

Early in 2016 Rolls-Royce said it had submitted a detailed design to the government for a 220 MWe SMR unit, an SMR of fairly conventional design. It then submitted a paper to the Department of Business, Energy and Industrial Strategy, outlining its plan to develop a fleet of 7 GWe of SMRs with a new consortium.

In September 2016 the Energy Technologies Institute (ETI) released a report examining the steps that will need to be taken by government, regulators, reactor vendors and operators in a 'credible integrated schedule' to see construction of a first-of-a-kind reactor starting in 2025 with the reactor itself in operation by 2030. UK deployment of SMRs should allow for their use as combined heat and power (CHP) plants, supplying power to district heating systems.[3]

In September 2018 the UK government awarded grants of up to £300,000 to eight companies to undertake feasibility studies as part of a £44 million research and development programme for advanced modular reactors. A total of £4 million was available to conduct the studies.[4]

[2] Ibid
[3] Energy Technologies Institute, *Preparing for Deployment of a UK Small Modular Reactor by 2030*, Sept 2016.
[4] Utility Week, *BEIS awards funding for advanced modular reactor research*, 7 Sept 2018

URANIUM INDUSTRY DEVELOPMENT IN AUSTRALIA

Uranium for electricity generation is one of Australia's most important and strategic energy and export assets.

Australia has the reserves and the capability to take advantage of both the expected growth in demand for uranium and the expected increase in uranium prices. Australia has about one third of the world's economically recoverable resources of uranium.

Uranium already comprises over 17 per cent of Australia's primary energy exports (3603 PJ in 2015-16) in thermal terms.[5] With more economically recoverable uranium than any other country, Australia has the potential to become a more significant provider of energy to a world already reliant on nuclear power to supply 11 per cent of its electricity.

The Australian uranium industry employs about 3,000 people directly and indirectly, mostly in remote areas of Australia where there are not abundant employment opportunities.[6] There is significant potential for expanding this employment contribution long-term, both from expansion of present mines and the establishment of new ones. There are a substantial number of companies looking to explore for and develop uranium projects in Australia.

In 2016-17, the export of 7,081 tonnes of uranium oxide concentrate was valued at $596 million. The Office of the Chief Economist forecasts that Australian uranium exports will grow to 7,240 tonnes worth $693 million by 2019-20.[7]

Growing global demand for uranium will play an increasingly significant role in Australia's economic and export future.

The Australia-UK Nuclear Cooperation Agreement will maintain access to a strong long term market for Australian uranium leading to more jobs and economic growth in Australia, particularly in regional and remote areas.

Australia's current share of global production is around 10 per cent.[8] However, its share of global resources is approximately 29 per cent.[9]

The difference between Australia's current share of global production, and share of global resource endowment, provides a real opportunity for expansion; generating jobs, export revenue and economic growth. This Agreement supports the realisation of that potential.

Australia currently has three uranium production operating sites – BHP's Olympic Dam and Heathgate Resources' Beverley and Four Mile operation in South Australia, and ERA's Ranger operation in the Northern Territory.

In addition, Boss Resources have the Honeymoon operation in South Australia on care and maintenance. And there are four projects in Western Australia awaiting market conditions to improve before making investment decisions – Vimy Resources Mulga Rock project, Cameco Australia's Kintyre and Yeelirrie projects, and Toro Energy's Wiluna project. All four projects have received state government environmental approval, and all except Yeelirrie have received federal environmental approval.

[5] Department of the Environment and Energy, *Australian Energy Update 2017*, Australian Government, August 2017
[6] Prof Sinclair Davidson and Dr Ashton de Silva, *Realising Australia's uranium potential*, Minerals Council of Australia, October 2015
[7] Office of the Chief Economist, *Resources and Energy Quarterly, June Quarter 2018*, Australian Government, June 2018
[8] World Nuclear Association, *Uranium Production Figures, 2008-2017*, July 2018
[9] World Nuclear Association, *Supply of Uranium*, August 2018

UK URANIUM DEMAND

The UK has a significant existing demand for uranium for its current nuclear power generating fleet of reactors.

According to the International Atomic Energy Agency (IAEA), UK reactor-related uranium requirements were 1,480 tonnes U in 2013 and 1,510 tonnes U in 2014.[10]

In 2016, UK was the seventh largest uranium consumer in the world at 1,730 tonnes U behind the US (18,160 tonnes U), France (9,210 tonnes U), Russia (6,260 tonnes U), China (5,340 tonnes U), South Korea (5,010 tonnes U) and Ukraine (2,250 tonnes U).[11]

New nuclear has commenced construction in the UK and with significant further projects planned in the next decade, the IAEA estimates reactor-related uranium requirements could rise to 1,600 tonnes U by 2025, 1,860 tonnes U by 2030, and 1,950 tonnes U for by 2035.[12]

The UK will remain an important and long term market for uranium to supply civilian nuclear power plants in the decades ahead.

[10] Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA), *Uranium 2016: Resources, Production and Demand*, OECD 2016, NEA No. 7301
[11] Statistica, The Statistics Portal, *Leading countries based on uranium consumption worldwide in 2016*, Statistica 2018, viewed 1 Oct 2018
[12] NEA and IAEA, Op. Cit.

AUSTRALIA – UK NUCLEAR COOPERATION AGREEMENT OBLIGATIONS

The following table summarises Australia's uranium export policy.[13] The table shows how the Australia-UK Nuclear Cooperation Agreement complies with the policy.

Australia's policy	Agreement arrangements
Australian uranium may only be exported for peaceful non-explosive purposes under Australia's network of bilateral safeguards Agreements, which provide for:	Article V
• Coverage by IAEA safeguards	Article VI
• Fallback safeguards in the event that IAEA safeguards no longer apply for any reason	Article VII
• Prior Australian consent for any transfer of Australian-Obligated Nuclear Material (AONM) to a third party, for any enrichment beyond 20 per cent of uranium-235 and for reprocessing of AONM	Article XI
• physical security requirements	Article VIII
Australia retains the right to be selective as to the countries with which it is prepared to conclude safeguards arrangements.	The Agreement does not affect, influence or impact Australia's rights to make agreements with any other countries
Non-nuclear weapon state customer countries must at a minimum be a party to the Non-Proliferation Treaty (NPT) and have concluded a full scope safeguards Agreement with the IAEA.	NA
Nuclear weapon state customer countries must provide an assurance that AONM will not be diverted to non-peaceful or explosive uses and accept coverage of AONM by IAEA safeguards.	Article V
Commercial contracts for the export of Australian uranium should include a clause noting that the contract is subject to the relevant bilateral safeguards arrangement.	Not applicable to Treaties
The Australian Government has further tightened Australia's export policy by making an Additional Protocol with the IAEA (providing for strengthened safeguards) a pre-condition for the supply of Australian obligated uranium to all states.	Recognised in Preamble top of Page 2

The Australia-UK Nuclear Cooperation Agreement can credibly assure that Australian uranium will be used for intended peaceful purposes only.

The Agreement will be one of 25 bilateral nuclear cooperation Agreements in force covering 43 countries.

[13] Department of Foreign Affairs and Trade, *Australia's uranium export policy*, Australian Government, viewed 25 September 2018

UK PROLIFERATION RECORD AND NUCLEAR REGULATION

According to the Arms Control Association, the UK's proliferation record is as follows:

> The UK is not known to have deliberately or significantly contributed to the spread of biological, chemical, or nuclear weapons to other states. The UK is, officially, an active promoter of non-proliferation and is a leading member in the Nuclear Suppliers Group, the Australia Group, the Missile Technology Control Regime, and the Zangger Committee as well as the Proliferation Security Initiative. The UK has been involved in both Iranian and Libyan non-proliferation processes and continues to support the creation of an effective and verifiable chemical, biological, radiological, and nuclear-free zone in the Middle East.[14]

US based Nuclear Threat Initiative confirms the UK is a member of all the major WMD non-proliferation treaties and international export control regimes.[15]

With respect to nuclear safety, security and safeguards, the UK has extensive and well developed regulatory oversight of its civilian nuclear activities:

- Nuclear safety regulation is carried out by the Office for Nuclear Regulation (ONR)
- Nuclear security regulation is carried out by the Office for Civil Nuclear Security (OCNS)
- Nuclear safeguards functions are carried out by the UK Safeguards Office (UKSO).[16]

The OCNS is the security regulator for the UK's civil nuclear industry, including both on site and the security of sensitive nuclear material in transit. The UKSO oversees the application of international safeguards measures in the UK.[17]

[14] Arms Control Association, *Arms Control and Proliferation Profile: The United Kingdom*, March 2017
[15] Nuclear Threat Initiative, *United Kingdom*, October 2016
[16] World Nuclear Association, *Nuclear Power in the United Kingdom*, September 2018
[17] Ibid