



**MINERALS COUNCIL OF AUSTRALIA**  
**AUSTRALIA-INDIA NUCLEAR COOPERATION AGREEMENT**  
**SUBMISSION TO THE JOINT STANDING COMMITTEE ON TREATIES**

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## ***Introduction***

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 India on Cooperation in the Peaceful Uses of Nuclear Energy (Australia-India 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 85 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-India Nuclear Cooperation Agreement provides these assurances.

The opening of this market provides new commercial opportunities for Australia's uranium exploration, mining and export industries, which in turn provide broader economic advantages to Australia.

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

1. An estimated 400 million people in India do not have access to electricity– this is driving a growing demand for base load energy with nuclear power being a key low emissions component;
2. Australia is a natural partner to help India meet this demand through its world class uranium industry and outstanding resource endowment; and
3. 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.

## ***Energy demand in India***

Energy demand in India is rising and is projected to rise much more in the decades ahead.

India is the fourth-largest energy consumer in the world, trailing only the United States, China, and Russia. In 2012 India had the tenth-largest economy in the world (measured in 2012 U.S. dollars), and the third largest economy in the world adjusted for inflation and purchasing power. Real GDP has grown at over 7 per cent per year since 2000, although it slowed to just over 5 per cent in 2012 according to the Indian Central Statistical Organization.

The US EIA projects India and China to account for the bulk of Asia's energy demand growth through to 2035.

India's energy policy is focused on securing adequate energy resources to meet the growing demands of its economy. India's dependence on imported energy resources and its inconsistent energy sector reform may make it difficult to satisfy rising demand. Despite its growing energy use, India's per capita energy consumption remains much lower than that of developed countries, such as the United States.<sup>1</sup>

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<sup>1</sup> US Energy Information Administration, India's economic growth is driving its energy consumption, April 2013

According to the US EIA, India had 211 gigawatts of installed electric capacity, mostly in coal-fired plants, as at April 2013. Because of insufficient fuel supply and inadequate energy infrastructure, the country suffers from a shortage of electricity generation, leading to rolling blackouts.<sup>2</sup>

In 2010, the International Energy Agency (IEA) released a report showing that more people in India lack access to electricity than in any other nation. Its analysis was that 404 million people don't have access to the energy needed for lighting, mechanical power, transport and telecommunications.<sup>3</sup>

The IEA projects a dramatic expansion in electricity generation in India. It sees electrical capacity rising by over 70 per cent between 2012 and 2020 to around 414 GW, and then well more than doubling again to 1,079 GW by 2040. This is a compounded average annual growth rate (CAAGR) of 5.5 per cent.<sup>4</sup>

The growing demand for electricity in India, underpinned by ongoing energy poverty is the driving force behind nuclear energy development, and the need for uranium to feed that development. India's size and scale requires a diversified energy portfolio and nuclear power will occupy a critical role in that portfolio.

### ***Nuclear Power in India***

India has a rapidly developing indigenous civilian nuclear power program.

According to the World Nuclear Association (WNA), as at 1 October 2014, India had 21 operable reactors with combined 5.3 GW total capacity. A further six reactors were under construction with 4.3 GW total capacity. And in addition, 57 reactors were either planned or proposed with a combined total of 61.3 GW capacity.<sup>5</sup>

The state-owned Nuclear Power Corporation of India Ltd has an ambitious plan to reach 63 GW of nuclear capacity by 2032.<sup>6</sup>

The WNA says India aims to supply 25 per cent of its electricity from nuclear power by 2050 – a more than six-fold increase in nuclear power electricity generation.

India's fuel situation, with shortage of fossil fuels, is driving the nuclear investment for electricity, and 25 per cent nuclear contribution is the ambition for 2050, when 1094 GWe of base-load capacity is expected to be required.<sup>7</sup>

The latest IEA base case projection is showing substantial growth for Indian nuclear power capacity and generation.<sup>8</sup>

	India Electricity generation (TWh)		India Electricity capacity (GW)	
	2012 Actual	2040 New Policies	2012 Actual	2040 New Policies
<b>Total</b>	1166	3787	241	1079
<b>Nuclear</b>	33	269	5	39
<b>Nuclear share</b>	3%	7%	2%	4%

The continued development of India's energy system will enable its economy to continue to urbanise and industrialise, and lift more of its people into sustainable prosperity.

<sup>2</sup> Ibid

<sup>3</sup> International Energy Agency (IEA), Energy Poverty: How to make modern energy access universal, Sept 2010

<sup>4</sup> IEA, World Energy Outlook 2014

<sup>5</sup> World Nuclear Association, World Nuclear Power Reactors & Uranium Requirements, 1 October 2014

<sup>6</sup> The Economic Times, India eyeing 63,000 MW nuclear power capacity by 2032: NPCIL, 11 October 2010

<sup>7</sup> World Nuclear Association, Nuclear Power in India, September 2014

<sup>8</sup> IEA, World Energy outlook 2014

The Economist Economic Intelligence Unit noted that despite substantial reforms in India's energy sector since 1991, India's powering economy means "India's energy supply is constantly playing catch-up to the demands of its burgeoning economy".<sup>9</sup>

Indeed, energy shortages are a serious drag on India's continued potential economic development.

The World Economic Forum's Energy Vision Update 2012 explained the importance of the energy sector in the economy and particularly in developing economies like India.

Economic growth in emerging markets has rapidly increased energy demand globally, especially in the large-population countries of Brazil, India and China as well as in the Middle East. In addition to overall increases in energy demand, many developing economies are seeking ways to maximize their power generation capacity to ensure that power shortages do not hinder growth.<sup>10</sup>

The continued development of India's nuclear power sector will remain a critical enabler for India's continued economic development and increasing prosperity, and this will require responsible access to Australian uranium supply.

### ***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 about 25 per cent of Australia's energy exports (3944 PJ in 2012-13) in thermal terms<sup>11</sup>. With more economically recoverable uranium than any other country, Australia has the potential to become an even more significant provider of energy to a world already reliant on nuclear power to supply 12 per cent of its electricity.

The Australian uranium industry employs about 4,000 people, mostly in remote areas of Australia where there are not abundant employment opportunities.<sup>12</sup> 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 2013-14, the export of 6,701 tonnes of uranium oxide concentrate yielded \$622 million.<sup>13</sup> BREE projections are that Australian exports will grow to 8,900 tonnes worth \$1.2 billion by 2018-19.<sup>14</sup>

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

The Australia-India Nuclear Cooperation Agreement will open up a new and growing market for Australian uranium leading to more jobs, economic growth and export revenue.

Australia's current share of global production is around 12 per cent. However, its share of global resources is around 30 per cent.<sup>15</sup>

The difference between Australia's current share of global production, and share of global resource endowment, provides a great opportunity for expansion; generating jobs, export revenue and economic growth. This Agreement is a positive step towards realising that potential.

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<sup>9</sup> The Economist, Economic Intelligence Unit, Empowering Growth – Perspectives of India's energy future, 2012

<sup>10</sup> World Economic Forum, Energy for Economic Growth, Energy Vision Update 2012

<sup>11</sup> Bureau of Resources and Energy Economics (BREE), 2014 Australian Energy Update, Australian Government

<sup>12</sup> Department of Resources, Energy and Tourism, Australia's Uranium Industry, June 2012, Australian Government

<sup>13</sup> Australian Safeguards and Non-Proliferation Office (ASNO), Annual Report 2013-14, Australian Government

<sup>14</sup> BREE, Resources and Energy Quarterly, September Quarter 2014, Australian Government

<sup>15</sup> World Nuclear Association, Supply of Uranium, Updated 8 October 2014

## ***Environmental benefits of Uranium Mining and Nuclear Power Development***

There is significant potential for nuclear energy to grow based on its contribution to low emission energy generation.

Globally, the IEA's World Energy Outlook suggests that nuclear power generation will grow between 57 per cent on current policies and 89 per cent if additional climate management policies already announced are implemented from 2012 to 2040.<sup>16</sup>

The latest IPCC Synthesis report released on 1 November 2014 reinforces the need for energy systems to develop all low carbon energy sources. In modelling various scenarios, it concludes that the world's energy system needs:

more rapid improvements in energy efficiency and a tripling to nearly a quadrupling of the share of zero- and low-carbon energy supply from renewable energy, nuclear energy and fossil energy with carbon dioxide capture and storage (CCS), or bioenergy with CCS (BECCS) by the year 2050.<sup>17</sup>

It also warns that limiting any low carbon technology options has dramatic negative effects.

The Australia-India Nuclear Cooperation Agreement will enable access to uranium for nuclear fuel for India and thereby give it security of uranium supply in expanding its civilian nuclear power fleet. The expansion of India's civilian nuclear power is consistent with the IPCC's scenario calling for low carbon energy development.

### ***Australia-India Nuclear Cooperation Agreement arrangements for supplying Australian uranium to India***

The following table summarises Australia's uranium export policy<sup>18</sup> and how the Australia-India Nuclear Cooperation Agreement intersects with the policy.

<b>Australia's policy</b>	<b>Agreement arrangements</b>
Australian uranium may only be exported for peaceful non-explosive purposes under Australia's network of bilateral safeguards Agreements, which provide for:	Confirmed and referenced extensively in the Preamble and Articles I, II, VI, VII, IX, XI.
<ul style="list-style-type: none"> <li>• coverage by IAEA safeguards</li> </ul>	Referenced in Articles VI and VII. Article VII confirms "IAEA safeguards shall apply to India's civilian nuclear facilities".
<ul style="list-style-type: none"> <li>• fallback safeguards in the event that IAEA safeguards no longer apply for any reason</li> </ul>	Article VII confirms that in the event IAEA safeguards no longer apply, parties "shall consult and agree on appropriate verification measures".
<ul style="list-style-type: none"> <li>• 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</li> </ul>	Article VI - Grants consent to India to reprocess in facilities dedicated to reprocessing safeguarded nuclear material under IAEA safeguards in accordance with US-India Agreement. Article VI - Enrichment beyond 20 per cent requires prior consent. Article IX – No transfers beyond the territory, jurisdiction or control of the recipient party without supplier party's consent, unless that state has provided assurances of peaceful use and have appropriate IAEA safeguards in place.

<sup>16</sup> IEA, World Energy outlook 2014

<sup>17</sup> IPCC Fifth Assessment Synthesis Report, 1 November 2014

<sup>18</sup> Department of Foreign Affairs and Trade, Nuclear Non-Proliferation, Trade and Security, Australian Government

• physical security requirements	Article VIII – Physical protection
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.	India is not a party to the NPT. India has a facility-specific Safeguards Agreement with the IAEA and a waiver from the Nuclear Supplier's Group. <sup>19</sup>
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 VII – items and by products are used only for peaceful and non-explosive purposes.
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.	In July 2014, India ratified an Additional Protocol to its safeguards agreements with the IAEA. <sup>20</sup>

The Australia-India Nuclear Cooperation Agreement can credibly assure that Australian uranium is used only for intended peaceful purposes; most especially - power generation.

The Agreement will complement the other such agreements covering 46 countries.

### ***India's non-proliferation record***

India's non-proliferation record is strong.

In 2008, changes to international guidelines on nuclear supply to India, agreed by the 48 members of the Nuclear Suppliers Group (NSG), established a platform for international cooperation with India in the area of civil nuclear energy.

The 2008 NSG decision was based on a number of important commitments from India as follows:

- separating its civil and military activities;
- accepting IAEA safeguards at its civil facilities;
- putting in place an IAEA additional protocol on safeguards with respect to civil nuclear facilities;
- continuing its moratorium on nuclear testing; and
- working with others towards conclusion of an international treaty to end the production of fissile material for nuclear weapons and to prevent the spread of sensitive materials and technology.<sup>21</sup>

A safeguards agreement for select civilian nuclear facilities was concluded between India and the IAEA in February 2009.<sup>22</sup>

<sup>19</sup> Nuclear Threat Initiative, India, Nuclear

<sup>20</sup> International Panel on Fissile Materials, India ratifies an additional protocol and will safeguard two more nuclear power reactors, July 2014

<sup>21</sup> Minister for Foreign Affairs, Tabling and Statement in Parliament - Australia-India Civil Nuclear Cooperation Agreement, October 2014

<sup>22</sup> Nuclear Threat Initiative, India, Nuclear



In October 2009, India submitted a separation plan to put its 14 civilian nuclear facilities under IAEA safeguards by 2014. The last two facilities, The Narora Atomic Power plant Unit I and II (NAPS), are set to go under IAEA safeguards at the end of this year.<sup>23</sup>

In late July 2010, India and the United States signed a bilateral agreement allowing India to reprocess U.S.-obligated nuclear material at two new reprocessing facilities, to be constructed and placed under IAEA safeguards.<sup>24</sup> This Agreement is referred to in the Australia-India Nuclear Cooperation Agreement and identifies the only two facilities to which Australia has consented reprocessing of AONM.

Following the NSG decision, India signed nuclear cooperation agreements with Russia, France, the United Kingdom, South Korea, Canada, Argentina, Kazakhstan, Mongolia, and Namibia.<sup>25</sup>

Clearly, in the years since 2008 India has met the commitments it made to the NSG. India's additional protocol with the IAEA entered into force in July of this year. It has not undertaken any nuclear tests since 1998, and it is working with Australia and others to try to start negotiations on a Fissile Material Cut-off Treaty in the Conference on Disarmament.<sup>26</sup>

### **Conclusion**

In summary:

- The Australia-India Nuclear Cooperation Agreement will support India's continued economic growth by enabling further affordable, low emissions base-load energy supply;
- Australia, with its large uranium endowment, is a natural partner to meet this demand with responsible and sustainable uranium exploration, development and mining; and
- 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

MCA commends the Australia-India Nuclear Cooperation Agreement to the Committee.

The MCA appreciates the opportunity to provide these comments. Should you require any further explanation of the issues raised in this submission, please do not hesitate to contact me on [Daniel.zavattiero@minerals.org.au](mailto:Daniel.zavattiero@minerals.org.au) or 03 8614 1813.

Yours sincerely

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<sup>23</sup> Ibid

<sup>24</sup> Ibid

<sup>25</sup> Ibid

<sup>26</sup> Minister for Foreign Affairs, Tabling and Statement in Parliament - Australia-India Civil Nuclear Cooperation Agreement, October 2014