New Policy Directions: The Potential Sale of Australian Uranium to India

A report drafted for

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EXECUTIVE SUMMARY

On the 4th of December 2011 the Australian Labor Party voted to repeal the ban on selling uranium to India upon the conclusion of bilateral safeguards. This briefing report used an issues level approach to provide a comprehensive background and evaluation of issues in energy security, non-proliferation, the Australia-India Strategic Partnership and the economy facing Australia in the potential sale of uranium to India. The report is situated within the context of the inquiry initiated by the Senate Standing Committees for Foreign Affairs, Defence and Trade into the Indian Ocean Region. The paper aims to brief policy makers of the context, challenges and opportunities in key areas surrounding the change of policy. The policy shift depicts a changing policy context surrounding uranium and nuclear energy, the recommendations made by the paper highlight avenues to regulate and respond to these changes.

Key Findings

Energy poverty is a global issue, which poses a key threat to the progress of India's humanitarian and economic development, with the challenge of energy security perpetuating poverty and slowing progress. In this context, the decision to sell uranium to India reflects Australia's commitment to international development and recognition of nuclear energy in the reduction of carbon emissions towards energy independence. Another global dimension which informs and shapes Australia's uranium export policy is the international concern of evolving threats to the non-proliferation regime such as terrorism and transnational crime which require strong bilateral and regional cooperation. The international development of opening nuclear trade with India despite its rejection of

the Nuclear Non-Proliferation Treaty signifies a shift to a more inclusive international non-proliferation regime.

The rise of India as a strategic power in the Indian Ocean and foreseeably in the Asian Century offers Australia significant political and strategic opportunities currently and predictively, particularly in maritime security in the Indian Ocean. Energy diplomacy in India's foreign policy and Australia's decision to revoke the ban of uranium exports to India now allow for these opportunities to be fully realised in the Australia-India Strategic Partnership.

India with a rapidly expanding population and economy offers a desirable resource market for Australian industry. While uranium exports have been predicted to be moderate in the immediate future, the potential developments to industry and research through opening sales of uranium to India present mutually beneficial opportunities.

Conclusion

The Australian decision to sell uranium to India is indicative of a broad international and bilateral effort to address the complexities of energy poverty and security, non-proliferation, strategic relations and economic growth. This briefing report provides a comprehensive evaluation of issues surrounding the potential sale of uranium to India, however, this report identifies that there is more work to be done on the topic and its implications. The strategic implications of India in Australia's future as a middle power

are one such area which deserves to be explored more carefully particularly in the context of the Indian Ocean.

Recommendations:

- That Australia continues to engage international and regional organisations on the issues of energy poverty and energy security.
- That Australia-India bilateral cooperation in non-proliferation build on current memoranda of understanding in defence cooperation, customs, combating terrorism and mutual legal assistance in criminal matters.
- That Australia explores the potential of the International Commission on Nuclear Disarmament in creating a forum for non-proliferation and disarmament in the region.
- That Australia build upon Australia-India cooperation on Indian Ocean security concerns such as piracy involving institutions such as the Indian Ocean Rim Association.
- That Australia continues innovative bilateral research and development and practical solutions to mutual concerns.

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INTRODUCTION

In the context of the Asian Century, policy advisors and institutions have highlighted the importance of the Indian Ocean Region and the emergence of India as a strategic regional power in Australian foreign policy. The vote to allow the export of uranium to India on December 4th 2011 at the Australian Labor Party Convention reiterated the importance of India in Australian policy. The purpose of this briefing paper is to inform policy makers on key issues, challenges and opportunities facing Australia in the sale of uranium to India. The examination of uranium exports to India as an Indian Ocean nation and regional strategic, economic and political force represents a shift in national policy consideration from nuclear non-proliferation to broader social, political, strategic and economic concerns surrounding the access and export of Australian uranium. The report provides an examination of Australia's position and potential direction on key issues through the consideration of the context and development of this fundamental shift.

The report is situated within the broader context of the Senate Standing Committee for Foreign Affairs, Defence and Trade inquiry into the Indian Ocean Region. The report addresses several of the inquiry's terms of reference: trade, the Indian Ocean Rim Association, strategic developments in the region and maritime security. As a briefing report the comprehensive yet concise nature of the research and findings resulted in an issues level approach to the topic of the potential sale of uranium to India. The broad setting of the paper provides an overview and evaluation of Australia's position and

possibilities on several key issues surrounding the topic; highlighting areas for future research such as Australia's strategic positioning in the Indian Ocean as a middle power.

The first chapter addresses international concerns over energy poverty and energy security as a key basis for the shift in Australian uranium policy away from the Nuclear Non-Proliferation Treaty (NPT). It has been recognised that energy access for developing nations and the poor are fundamental to achieving the UN millennium development goals. In addressing this, energy security and the scarcity of resources exacerbate this condition and perpetuate poverty and slowing progress across the developing world. This chapter explores the decision to sell uranium in the interest of humanitarian and economic development and Australian international obligations and opportunities.[1]

The second chapter outlines the progress of engaging India in the broader non-proliferation regime and multilateral mechanisms in order to confront modern complexities in security, crime and terrorism. The focus away from the NPT relates the importance of bilateral agreements and cooperation in combatting non-proliferation in transnational crime which, as the paper will demonstrate offers Australia a new direction in its non-proliferation efforts. These chapters locate Australian uranium policy in the changing international development and non-proliferation context.

[1] The Fukushima accident has led to the cancellation of nuclear energy projects around the world and a slump in uranium prices. However, the focus of the report is the policy change and the Australian context surrounding that decision and so exploration of the accident has been excluded from the report.

Chapters three and four examine domestic and bilateral opportunities and challenges which have arisen from the evolution of Australia's uranium export policy. Chapter three explores energy diplomacy and the role of uranium in the Australia-India Strategic Partnership particularly in security cooperation in the Indian Ocean Region, while chapter four examines the economic opportunities for Australia as a stable supplier of uranium and resources for India's emerging economy and consumer energy demands.[2] The impact on industry development and expansion around the sale of uranium is another key aspect explored in chapter four and offers potential for further development between India and Australia.

[2] The issue of nuclear waste caused from the export of Australian uranium is not discussed as the scope of the paper relates to the changing policy environment around the sale of uranium.

CHAPTER 1: ENERGY POVERTY AND ENERGY SECURITY IN THE SALE OF AUSTRALIAN URANIUM TO INDIA

Introduction

Australia's uranium export policy has largely been defined and structured around the Nuclear Non-Proliferation Treaty (NPT) and in the context of nuclear weapons control and capabilities. While this remains an integral factor in Australian nuclear policy; international concerns over energy poverty and energy security formed a significant component in the decision to repeal Australia's uranium export ban to India. This chapter explores the decision to sell Australian uranium to India in the interest of humanitarian and economic development, in conjunction with Australia's international obligations as a member of the G20 and the OECD. Australia's international obligations in the area of energy poverty are firstly identified through the impact of energy poverty on humanitarian development and the organisations and commitments surrounding these impacts. Secondly the pressure Indian energy dependency places on development concerns allows for the examination of nuclear energy as a clean, sustainable and reliable source of electricity generation. Australia's role in Indian energy security and in alleviating energy poverty is lastly examined through Australia's current energy export to India and the acknowledgement of the broader Australia-India energy commitments through the Australia-India Strategic Partnership. Energy poverty and energy security are important elements in the sale of Australian uranium to India and offer potential to both Indian society and Australian international obligations and opportunities.

1.1 Energy poverty and International Development Movements

Energy poverty, as the lack of access to basic energy services such as electricity and clean cooking facilities, present a considerable challenge to the economic and humanitarian development of India and the developing world. Access to energy is an enabling factor to economic productivity, education, health and standard of living. The World Health Organisation (WHO) estimated that by 2030 household air pollution created through traditional biomass cooking, common among the energy poor, will be the cause of 1.5 million premature deaths per year.[3] Figures released from the OECD/IEA 2011 World Energy Outlook found that in 2009, 289 million people in India were without access to electricity and 836 million people relied on traditional biomass cooking.[4] However, electrification rates in India have improved from the 2005 figures which found 412 million people without access to electricity yet depicts a rise from the number of people reliant on traditional biomass cooking from 668 million in 2005.[5] While this is a marked improvement, with a projected population of 1.6 billion by 2050, India still faces significant electricity distribution challenges.[6]

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[3] OECD/IEA, 'Energy and Development', *Energy Poverty- How to Make Energy Access Universal? A special early excerpt of the World Energy Outlook 2010 for the UN General Assembly on the Millennium Development Goals*, [Web Document], (2010), http://www.iea.org/weo/docs/weo2010/weo2010_poverty.pdf , accessed 20th March 2012

[4] OECD/IEA, 'Current Status of Modern Energy Access', *Energy for All - Financing Access for the Poor: special early excerpt for the World Energy Outlook 2011*, [Web Document], (2011), http://www.iea.org/papers/2011/weo2011_energy_for_all.pdf , accessed 20th March 2012

[5] OECD/IEA, 'Focus on Energy Poverty', World Energy Outlook 2007: China and India insights, [Web Document], (2007), http://www.iea.org/textbase/nppdf/free/2007/weo_2007.pdf , accessed 3rd April 2012

[6] UNDES, United Nations, Department of Economic and Social Affairs, Population Division, Population Estimates and Projection Section, 'Country Profile: India', World Population Prospects the 2010 Revision, [Web Page], (2010),< http://esa.un.org/unpd/wpp/country-profiles/country-profiles_1.htm> , accessed 28th February 2012

The international development movements surrounding energy poverty frame both the decision to allow uranium export to India and the importance of clean and sustainable energy solutions; of which nuclear energy is one. Several key international forums which investigate and promote energy access are the OECD/IEA, the G20 and the UNDP. The UN 2012 'International year of Sustainable Energy for All' in conjunction with the UN conference on Sustainable Development (Rio+20) in June 2012 highlights the need for clean energy access across the developing world.[7] The 2009 Pittsburgh G20, of which Australia is a member, notably committed:

> *40. To increase access to energy, we will promote the deployment of clean, affordable energy resources to the developing world. We commit, on a voluntary basis, to funding programs that achieve this objective, such as the Scaling Up Renewable Energy Program and the Energy for the Poor Initiative, and to increasing and more closely harmonizing our bilateral efforts.*[8]

The severity of energy poverty in India and Australian participation in such bodies as the G20 and the OECD have been fundamental to Australia's reconsideration of uranium export policy. The Pittsburgh G20 commitment above identifies aspects of the international movement; sustainable energy, multilateral programs and the importance of bilateral efforts in combatting energy poverty. That Australian uranium may be used as a clean energy source to aid economic and humanitarian development in India, despite

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[7] Sustainable Energy For All, United Nations Foundation, 'Rio+20: United Nations Conference on Sustainable Development', *Events to build Support and Raise Awareness*, [Web Page], (2012), < http://www.sustainableenergyforall.org/events>, accessed 5th May 2012

[8] G20 Research Group, University of Toronto, 'Strengthening Support for the Most Vulnerable', *G20 Leaders Statement: The Pittsburgh Summit*, [Web Document], (2009), <http://www.g20.utoronto.ca/2009/2009communique0925.html#top> , accessed 12th March 2012

India's refusal to sign the Non-Proliferation Treaty (NPT) reflects the severity of energy poverty to human society.

1.2 Energy Supply and Energy Security: India's Challenge

India's dependence on foreign resources exacerbates issues of energy poverty and energy security in the reliability and affordability of energy; the magnitude of which has shaped the consideration of nuclear energy in the Indian context and the export of uranium. The 2006 New Delhi Planning Commission report 'Integrated Energy Policy' (IEP) identified increased energy supply and distribution as a factor in achieving India's economic and humanitarian development goals in the coming decades.[9] Specifically the country would need to sustain its 8 -10% economic growth for the next 25 years.[10] In order to achieve that, the IEP report predicted that the energy sector would need to increase its total primary energy supply by 3-4 times its 2003-04 baseline and its electricity generation and distribution by 5-6 times by 2031-32 to sustain an 8% economic growth.[11] For maintaining an 8% economic growth the IEP report calculated that commercial energy requirements in 2031-32 could result in 90-93% of oil being imported and up to 45% of coal, the country's primary energy source currently and for the coming decades being sourced outside of India.[12] Thus energy security for India will be characterised by its ability to secure its supply and generation of equitable, efficient and sustainable energy.

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[9] Expert Committee, Government of India Planning Commission New Delhi, 'Overview', *Integrated Energy Policy Report of the Expert Committee*, [Web Document], (2006), < http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf>, accessed 6th March 2012

[10] Expert Committee, Overview, Loc. Cit.

[11] Expert Committee, Overview, Loc. Cit.

[12] Expert Committee, Government of India Planning Commission New Delhi, 'Supply Options', *Integrated*

India, with little high grade fossil fuels yet 26.5% of Reasonably Assured Resources of the world's thorium, a radioactive material with the potential for nuclear energy, may provide India with a clean, reliable and sustainable energy source for the future.[13] Efficiency of reliable energy is an important component for the development of industry. Currently Indian urban centres suffer from numerous black outs and power shortages[14]; making power saving technology and efficient energy production and distribution important for improving energy services in India. Sustainability is another factor which shapes Indian energy security and national responsibility. Clean, long term energy solutions for developing nations are a key pressure on Indian energy decisions. A recommendation of the IEP report was the development of thorium based nuclear power due to India's vast thorium deposits.[15] Research and development on thorium using uranium based reactors is currently being developed in India to alleviate energy security concerns as a clean source of energy.

The main challenge for an energy scarce state is minimising its energy dependence on global markets. This is a pertinent challenge for India with growing economic and consumer demand for energy and the exacerbated need for cleaner long term energy sources to counteract poverty and climate change.

Energy Policy Report of the Expert Committee, [Web Document], (2006), < http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf>, accessed 6th March 2012

[13] Geoscience Australia and ABARE, Australian Bureau of Agriculture and Resource Economics, 'Chapter 6: Uranium and Thorium', *Australian Energy Resource Assessment*, [Web Document], (2010), < https://www.ga.gov.au/image_cache/GA17061.pdf> accessed 13th March 2012

[14] USEIA, US Energy Information Administration, 'Electricity', *India Analysis*, [Web Page], (2011), <http://205.254.135.7/countries/cab.cfm?fips=IN>, accessed 15th March

[15] Expert Committee, Government of India Planning Commission New Delhi, 'Overview', *Integrated Energy Policy Report of the Expert Committee*, [Web Document], (2006), < http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf>, accessed 6th March 2012

1.3 The Role of Australia in Indian Energy Security

The decision to repeal Australia's uranium export ban to India in the context of India's compounding issues of energy poverty and energy security recognises the inherent challenges India faces and the role Australian uranium may play in meeting those energy challenges. Australia's current trade with India is dominated by resources, contributing to India's growing energy needs. In 2010-11 Australia's main exports to India were; coal worth $7095 million Australian dollars, copper ores and concentrates were worth $1349 million and crude petroleum worth $918 million.[16] As a resource exporter Australia is known for its stable investor environment, extensive resource potential, highly developed industry and training in resources and mining. Australia accounts for over 40% of the world's Reasonably Assured Resources (RAR) and Inferred RAR of uranium.[17]

Australia's bilateral efforts with India in energy concerns include the India Australia Strategic Research Fund - a key institution which fosters bilateral cooperation and practical solutions to mutual problems. With the 2009 announcement of the Australia-India Strategic Partnership, Australia pledged $65 million, over five years, to be matched by India, to the Australia-India Strategic Research Fund of which energy security and clean energy technologies is a key concern.[18] Australia also donated $1 million to a joint

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[16] DFAT, Australian Department of Foreign Affairs and Trade, 'Economic and Trade Relationship', *India Country Brief,* [Web Page], (2012), < http://www.dfat.gov.au/geo/india/india_brief.html>, accessed 1st March 2012

[17] Geoscience Australia, 'Uranium Resources', *Minerals – Uranium*, [Web Page], (2012), < http://www.ga.gov.au/minerals/mineral-resources/uranium.html>, accessed on the 1st of March

[18] DFAT, Australian Department of Foreign Affairs and Trade, 'Bilateral Relationship', *India Country Brief,* [Web Page], (2012), < http://www.dfat.gov.au/geo/india/india_brief.html>, accessed 1st March 2012

Australia-India project in solar cooling and mini grids project between India's The Energy and Resources Institute (TERI) and Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO).[19] Similarly Australia's involvement in organisations such as the OECD and the G20 adds an international development dimension to Australian interests in energy security and energy poverty especially in the context of Australia's region encompassing the major energy consumers and future energy consumers for the emerging Asian Century.

Conclusion

Issues of energy poverty and energy security are global challenges of the 21st century, the rise of nations such as India present the obstacle of a rapidly expanding economy and population which India's natural resources cannot accommodate. Energy poverty is thus perpetuated through the difficulty of acquiring and distributing energy production across society. The re-emergence of nuclear energy in this context offers a clean, sustainable and reliable source of energy production which will allow India to develop its native resources of thorium based nuclear power. Australia is well placed as a stable economy with abundant resources, in particular uranium, to supply and supplement India's growing economic and consumer demands for energy.

Recommendations:

[19] DFAT, 'Bilateral Relationship', Loc. Cit.

- That Australia continues to engage international organisation on issues surrounding energy poverty and energy security, especially in Australia's region.
- That Australia explores the compatibility of the Indian market for uranium and the Australian uranium industry in the context of energy security and energy poverty efforts.

CHAPTER TWO: AUSTRALIA IN THE INTERNATIONAL NUCLEAR NON-PROLIFERATION REGIME:

Introduction

The Nuclear Non Proliferation Treaty (NPT) is perhaps the most central element of the non-proliferation regime. As such it has underpinned Australia's uranium export policy

and the form of Australia's commitment to the international non-proliferation regime. Recent developments in broader nuclear cooperation efforts such as the US-India civil nuclear cooperation agreement have altered traditional barriers and international norms that have shaped Australian nuclear policy since the 1970s. This chapter details the developments in the international nuclear non-proliferation regime from the influence of the NPT to the creation of a more inclusive international regime in order to combat modern issues affecting non-proliferation. The impact of the US-India Civil Nuclear Agreement of 2007 led to a fundamental shift in the international regime: representative of the changing security environment of the 21st century. The development of transnational crime and the potential for nuclear terrorism are key challenges which face the international non-proliferation regime. Australia's commitment to the sale of uranium to India, while reflective of many overarching domestic and international factors is also a comment on Australian non-proliferation efforts in the future.

2.1 The International Non-Proliferation Regime and its Formation

The context and early development of the international nuclear non-proliferation regime, in particular the Nuclear Non Proliferation Treaty (NPT) formed the foundation of Australia's uranium export policy, affirming support for the NPT as the most effective system for nuclear arms control. The mechanisms produced and developed in the beginning of the regime have informed and reiterated the principals of Australia's nuclear policy.[20] Similarly India's rejection of the NPT has been a significant ideological

[20] Marty Harris, 'The Origins of Australian Uranium Export Policy', *Department of Parliamentary Services*, (2011) 1-12, in Parlinfo [online database], accessed 12th March 2012

difference between Australia and India which presented a hurdle to Australia's decision to sell uranium to India from the inception and early foundation of the NPT.[21]

The NPT came into force March 5th 1970. Its purpose was to curb the proliferation of nuclear weapons by limiting their creation to the five states who already established successful nuclear weapons prior to 1968: the United States, United Kingdom, France, USSR and China.[22] Non-nuclear weapons states (NNWS) would forgo nuclear weapon ambitions for the exchange of peaceful nuclear technologies and advancements between all NPT members.[23] All NPT member states would be subjected to nuclear safeguards established and administered by the International Atomic Energy Agency (IAEA); an international organisation associated with the United Nations and founded in 1957 to foster international cooperation in the nuclear field.[24]

Australia's rationale behind its membership to the NPT as a NNWS was to promote the cause of non-proliferation and as a nuclear supplier to better influence the international nuclear fuel cycle.[25] In comparison India rejected the NPT as discriminatory to limit nuclear weapons capabilities based on a time scale. Historical border disputes and tension with China, a NWS under the NPT and Pakistan also formed India's decision to pursue nuclear weapons. The 1974 India nuclear test brought international concern to the

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[21] Harris, Loc. Cit.
[22]Sandy Gordon, 'Implications of the Sale of Uranium to India', *Strategic and Defense Studies Centre Australian National University*, (2008) 3, in Parlinfo [online database], accessed 20th March 2012
[23] UNODA, United Nations Office for Disarmament Affairs, 'Treaty Overview', Treaty on the Non-Proliferation of Nuclear Weapons (NPT), [Web Page], (2010), <http://www.un.org/disarmament/WMD/Nuclear/NPT.shtml>, accessed 3rd March 2012
[24] IAEA, International Atomic Energy Agency, 'The Atoms for Peace Agency', About the IAEA, [Web Page], (2012), < http://www.iaea.org/About/about-iaea.html>, accessed on the 17th April 2012
[25] Harris, Loc. Cit.

potential of miss-use of nuclear trade from nations outside of NPT regulations and IAEA safeguards, whereby nuclear materials were diverted from civilian use to the production of fissionable material.[26] The creation of the Nuclear Suppliers Group (NSG) in 1975 was a reaction to the trade concerns over miss-use and sought to strengthen the export controls for nuclear materials and dual-use technologies, resulting in the ban of nuclear exports to states outside of the NPT.[27] Australian uranium export policy was defined by the developments of the non-proliferation regime and stipulations of NPT membership, additional protocol, IAEA safeguards were reaffirmed by compulsory bilateral safeguards agreements for Australian Nuclear obligated Materials (ANOM).[28] The aim of rule based multilateral cooperation is to encourage non-compliant states with the incentive of access to the international peaceful nuclear market in exchange for adherence to the NPT and NSG. Australia in its export ban to India emulated this same principal.

The NPT and NSG policies have been fundamental in informing and reinforcing Australia's uranium export policy and its conduct as a responsible international exporter of uranium and non-proliferation advocate. The mechanisms and evolution of the regime in the beginning of the NPT formed not only Australia's nuclear policies but attitude to the rules based system of multilateral non-proliferation. It is necessary to explore the context of the NPT and its early development in order to comprehend the impact and

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[26] Ron, Walker, 'Uranium for India: Avoiding the Pitfalls', *The Lowy Institute for International Policy*, (2007) 1-14, in Parlinfo [online database], accessed 20th April 2012
[27] Walker, Loc. Cit.
[28] DFAT, Australian Department of Foreign Affairs and Trade, 'Australia's Uranium Export Policy', *Nuclear Non-Proliferation Trade and Security*, [Web Page], (no date mentioned), < http://www.dfat.gov.au/security/aus_uran_exp_policy.html>, accessed 3rd April 2012

departure of the strict incentive based rules approach caused by the India exemptions, championed through the India-US Civil Nuclear Cooperation Agreement of 2007.

2.2 The India-US Civil Nuclear Cooperation Agreement

The US-India civil nuclear cooperation agreement of 2007 and the India specific exemptions from the IAEA and the NSG which followed represented a shift in the rigid structure of the international non-proliferation regime and its institutional norms. Concluding that India's involvement in the broader non-proliferation regime was more important than its refusal to sign the NPT and remain outside of international nuclear cooperation altogether. However, the concessions made by India have been substantial and made in the same vain as NPT membership would have with the notable exception of India remaining as a nuclear weapons state. These concessions form the technical basis for Australian policy considerations in opening nuclear trade with India.

The technical basis for reconsideration on uranium exports to India was first expressed through the commitments made by the 2005 joint statement between President George Bush and Prime Minister Manmohan Singh. The commitment to separate India's military and civilian plants and apply IAEA safeguards to facilities identified as civilian by the Indian government was the central objective of the joint statement.[29] It would result in placing 14 thermal reactors between 2006 and 2014 under the IAEA safeguards and a commitment to place all future thermal power reactors and civilian breeder reactors under

[29] OECD, 'Implementation of the India-United States Joint Statement of July 18 2005: India's Separation Plan', *Nuclear Law Bulletin*, no. 82, (2008) 33, in Parlinfo [online database], accessed on the 25th April 2012

safeguards.[30] The statement also proposed to harmonise India's export controls legislation with that of the Missile Technology Control Regime (MTCR) and the Nuclear Suppliers Group (NSG) guidelines although not being a member to either.[31] India reaffirmed that it would continue its moratorium on nuclear testing and refrain from the transfer of enrichment and reprocessing technologies to states that did not have them in support of efforts to limit their spread.[32]

The commitments expressed in the 2005 joint statement and the subsequent US-India Nuclear Cooperation Agreement of July 2007 resulted in several key developments in the international nuclear regulatory framework. In July of 2008 a 35 nation IAEA board of governors, of which Australia was one, accepted the proposed India specific IAEA safeguards agreement put forward by the government of India for civilian nuclear facilities.[33] The successful conclusion of the IAEA safeguards agreement resulted in the September 2008 NSG India waiver also known as the 'clean waiver' for civil nuclear cooperation with IAEA safeguarded Indian facilities, removing a key trade barrier.[34] In a media release the NSG India waiver was justified because of India's non-proliferation record, shared democratic values, population size and growing need for a clean long term energy source. The agreement to allow NSG members to open nuclear trade with India,

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[30] Ibid 36
[31] Ibid 34
[32] OECD, (2008) Loc. Cit. 34
[33] Yash Mannully, 'U.S-India Nuclear Cooperation and Non-Proliferation', *Nuclear Law Bulletin*, no. 82, (2008) 22, in Parlinfo [online database], accessed 25th April 2012
[34]Yash Mannully, 'U.S-India Nuclear Cooperation and Non-Proliferation', *Nuclear Law Bulletin*, no. 82, (2008) 23, in Parlinfo [online database], accessed 25th April 2012

presented an economic and strategic opportunity for NSG states in the Indian energy market.

The concessions of the IAEA and the NSG represented a very tangible break from multilateral norms informing global nuclear export policy. The effort to bring India into the broader non-proliferation environment represented that India's strategic position, purchasing power, environmental and development pressures could override its dismissal of NPT membership. The Australian decision to sell uranium to India resonates, in part, this change in the perception around non-proliferation, the security environment and the potential of India within it.

2.3 The Changing Strategic Environment of the Nuclear Non-Proliferation Regime

The developments of the US-India Nuclear Cooperation Agreement and the resulting exemptions of the IAEA and the NSG marked a changing global strategy and concept of non-proliferation. The security environment of the 21st century is characterised by evolving complex international concerns such as terrorism and transnational crime. The network of Dr A, Q Khan in supplying nuclear information and technologies represented the introduction of non-state, transnational actors in nuclear proliferation. The nature of transnational crime and nuclear proliferation presents several key obstacles to the efficiency and capacity of the NPT.[35] Concerning the detection, processing and prosecution of individuals across boarders and between nations requires bilateral

[35]Michael Clark, 'Refashioning Australia's Nuclear Bargain?', *The Non-Proliferation Review*, volume 15, (2008) 321, in Taylor and Francis [online database], accessed 27th March 2012

cooperation in law, evidence collection and prosecution. India being excluded from the broader non-proliferation regime and cooperation efforts presented a hindrance to the potential prevention and early organised detection of transnational threats.

Primary concerns regarding the India exemptions and the aims of the new inclusive non-proliferation regime, argue that these developments undermine the NPT and may cause an arms race between India and Pakistan. These concerns are valid, however, it is important to consider that the concessions made by India are substantial and mimic the contours of the NPT in terms of IAEA safeguards to civilian facilities, additional protocol and the harmonising of India's export controls with the NSG and MTCR.[36] The engagement of India in opening civilian facilities to IAEA safeguards expands the reach and detection of the non-proliferation regime and provides a greater platform for India as a force for international non-proliferation.[37] The sensitive nature of nuclear trade also means that the India exemption is not automatically transferable to other non-NPT states such as Pakistan, whose record on non-proliferation presents far more of a danger than India.[38] The issue of destabilising the region and threating a nuclear arms race is a particular fear associated with the inclusive regime, Rory Medcalf of the Lowy Institute argues that a more open approach to India's nuclear capabilities in the region would foster trust rather than mistrust.[39] Similarly Medcalf and Fiona Cunnigham have

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[36] OECD, 'Implementation of the India-United States Joint Statement of July 18 2005: India's Separation Plan', *Nuclear Law Bulletin*, no. 82, (2008) 33-39, in Parlinfo [online database], accessed on the 25th April

[37] Michael Clark, 'Australia, India and the Uranium Question', *Australian Journal of Political Science*, volume 46, (2011) 495, in Taylor and Francis [online database], accessed 12 March 2012

[38] Richard Lindell, 'India welcomes Stephen Smith and Australian uranium', *Australian Broadcasting Corporation Interview*, [Web Document], (2011), <http://search.proquest.com/docview/909463777>, accessed 17th April 2012

[39] Rory Medcalf, 'Uranium Sales to India Would Spread Trust, Not Nuclear Arms', *The Age*, 2nd December 2011, 15, in Proquest [Online Database], accessed 27th April 2012

suggested, in their joint research that the IAEA presence in some of India's nuclear facilities may offer a useful platform for an effective China-India Security Dialogue.[40] It is this bilateral and potentially regional interaction which Medcalf and Cunnigham consider has the ability to reduce the atmosphere of nuclear competition between India and China.[41]

Conclusion:

The incentive based approach and the limitations of non-nuclear weapons states in the NPT are not tenable to India's global engagement in issues of international and regional non-proliferation. Increasingly complex transnational and terrorist criminal networks require efficient, organised and cooperative global and regional responses. The compounding factor of the potential of nuclear weapons is a prominent component in the global shift in non-proliferation strategy and the India concessions in a new inclusive non-proliferation regime. India as a key emerging and strategic power in a region of nuclear proliferation and security concerns has a strong role to play in global efforts to stem the proliferation of nuclear weapons especially to criminal and terrorist organisations. The potential sale of uranium to India has been a contentious issue in the Australian debate and indeed between Australia and India. However, the decision to sell uranium recognises the challenges of the current security environment and direction in which Australia's non-proliferation efforts will be focused in the future.

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[40] Fiona Cunningham and Rory Medcalf, 'The Dangers of Denial: Nuclear Weapons in China-India Relations', *Lowy Institute of International Policy: Analysis*, (2011), 1-20, in Parlinfo [Online Database] accessed 5th May 2012

[41] Fiona Cunningham and Rory Medcalf, Loc. Cit.

Recommendations:

- That Australia expands its bilateral cooperation in issues of non-proliferation. This would be building on Australia's current Memorandums of Understanding with India on defence cooperation, customs, combating terrorism and mutual legal assistance in criminal matters.[42]

CHAPTER THREE: ENERGY DIPLOMACY, INDIAN OCEAN SECURITY AND THE AUSTRALIA-INDIA STRATEGIC PARTNERSHIP

Introduction

The sale of uranium is a deeply symbolic policy reflective of Australia's commitment to the non-proliferation of nuclear weapons and position as an advocate of the NPT in the broader international community. The rise of India as a major energy consumer has seen the development of energy diplomacy in Indian foreign policy and energy security. This chapter will explore the role of energy diplomacy and uranium sales in the India-

[42] DFAT, Australian Department of Foreign Affairs and Trade, 'Memoranda of Understanding', India Country Brief, [Web Page], (2012), < http://www.dfat.gov.au/geo/india/india_brief.html>, accessed 1st March 2012

Australia Strategic Partnership with particular focus on security in the Indian Ocean Region and Australia's considerations as a middle power in the Asian Century. Examining the importance of energy diplomacy to closer strategic relations with India is imperative in exploring the position of uranium in the potential of the Australia-India Strategic Partnership. The potential of India and the India-Australia Strategic Partnership to Australian interests in the Indian Ocean and in the Asian Century may in fact be significant. These issues are factors for consideration in the importance of uranium and Australia's supply of energy to India in its foreign policy strategy.

3.1 Energy Diplomacy and the Australia-India Context

While nuclear weapons as deterrence are a key feature of India's nuclear picture perhaps a more pertinent issue is energy security and energy poverty. As detailed in chapter one of this report, India will need to increase its energy production and usage many times over in order to facilitate the necessary economic growth and standard of living necessary for humanitarian development.[43] Thus energy diplomacy in sourcing and supply India's growing demand for resources is a vital component of Indian foreign policy. Australia, as an energy abundant nation is in a position to accommodate these needs not only in the sale of uranium but in coal, gas and mining infrastructure.[44] The severity of the economic, social and political challenge India faces in supplying energy, combating energy poverty and achieving energy security through utilising thorium based nuclear energy indicates

[43] Expert Committee, Loc. Cit.
[44] Rory Medcalf and Raja Mohan, 'Time to Forge a Partnership for the Asian Century', *The Australian*, 19th September 2011, 10, in Proquest [Online Database], accessed 1st May 2012

that Australia's reserves of uranium will continue to be a driving political and strategic element in the Australia India strategic relationship.[45]

Australia's uranium export policy has been structured to adhere and build upon the Nuclear Non-Proliferation Treaty: requirements such as IAEA safeguards, the signing of additional protocol with the IAEA and membership to the NPT reiterate the principals and mechanisms of the non-proliferation regime.[46] The measures taken by India in the US-India Civil Nuclear Cooperation Act of 2007 have made inroads to addressing Australian uranium import policy criteria with the notable exception of NPT membership. India has presented a 'special case' in Australian uranium policy considerations, as Defence Minister Stephen Smith has explained India as an Asian power, its energy scarcity and demand, non-proliferation history and shared democratic values have presented key arguments for the export of Australian uranium to India for peaceful civil nuclear purposes.[47] The decision to revoke the export ban on uranium to India depicts the shifting perceptions of nuclear energy and materials, whereby rigid non-proliferation based diplomacy is being challenged by more complex energy diplomacy and its various social, economic and political considerations.

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[45] Richard Leaver and Carl Ungerer, 'A Natural Power Challenges for Australia's Resource Diplomacy in Asia', *Australian Strategic Policy Institute*, (2010) 1-42 in Parlinfo, [Online Database] accessed 15th May 2012

[46] DFAT, 'Australia's Uranium Export Policy' Loc. Cit.

[47] Richard Lindell, 'India welcomes Stephen Smith and Australian uranium', Australian Broadcasting Corporation Interview, [Web Page], (2011), http://search.proquest.com/docview/909463777 , accessed 17th April 2012

3.2 Uranium and the Australia India Strategic Partnership

Uranium and energy diplomacy in the Australia-India Strategic Partnership has presented a barrier to political and security engagement between India and Australia in key areas such as security in the Indian Ocean Region. The partnership was announced in 2009 and sought to strengthen Australia-India relations. Energy security and the sustainability of cleaner energy sources has been a feature of the partnership through research and development; in particular as a focus area of the Australia India Strategic Research Fund. However, the ban on Australian uranium exports to India did present a hurdle for closer strategic and security initiatives. The 2011 announcement that Australia would sell uranium to India upon the completion of a bilateral safeguards agreement signalled the beginning of a deeper more proactive Australia- India Strategic partnership.[48] As Defence Minister Stephen Smith explained in an ABC interview after the announcement, an "irritant" had been removed from the relationship and closer ties especially in terms of regional security and strategy in the Indian Ocean could be pursued further.[49]

The India-Australia Joint Declaration on Security Cooperation was signed and announced in conjunction with the Strategic Partnership in 2009 and focused on security cooperation in areas such as "counter-terrorism, defence, disarmament and non-proliferation and maritime security".[50] Uday Bhaskar a retired Indian Commodore in an ABC interview on December 8th 2011, four days after the Labor Party voted to amend its uranium export

[48] Suhasini Haidar, 'Minister for Defense Stephen Smith Interview with Suhasini Haidar', CNN IBN, (2011) 1-5 in Parlinfo, [Online Database], accessed 15th April 2012
[49] Lindell, Loc. Cit.
[50] Australian High Commission India, 'India-Australia Joint Declaration on Security Cooperation', *Australian High Commission India,* [Web Page] (2009) <http://www.india.embassy.gov.au/ndli/pa5009jsb.html>, accessed 27th March 2012

policy, commented that Australia and India hadn't cooperated deeply enough on significant regional security issues because "til recently the nuclear issue I think was proving to be a bit of a hurdle in terms of the bilateral relationship".[51] The 'hurdle' mentioned by Bhaskar has also been argued by Rory Medcalf of the Lowy Institute as the perception of Australia's mistrust towards India, despite Australia's international support for the IAEA and NSG waivers granted to India.[52] As Bhaskar and Medcalf explain, the difference on uranium export prevented Australia and India functioning as a true strategic partnership on regional security issues of mutual importance.

3.3 India-Australia Security in the Indian Ocean

The significance of the Indian Ocean in terms of security and trade are mutual concerns for India and Australia, as both are key naval powers in the region. In a speech given to the Asian Society in Mumbai Minister Smith detailed the strategic importance of the Indian Ocean as one of the "busiest highways for global trade".[53] Minister Smith also reiterated that the proportion of the world's energy supplies travelling through the sea lanes of the Indian Ocean, such as the Malacca Strait, would increase.[54] The Indian Ocean also connects the Gulf States and Asia; in the context of energy security this connection will only increase the strategic importance of naval resources in the Indian Ocean.

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[51] Lindell, Loc. Cit.
[52] Rory Medcalf and Raja Mohan, Loc. Cit.
[53] Stephen Smith, 'Building the Strategic Partnership: Speech given at the Asia Society Mumbai ', *Stephen Smith Minister for Defense*, [Web Page] (2011), http://www.minister.defence.gov.au/2011/12/10/minister-for-defence-australia-and-india-building-the-strategic-partnership/ accessed 11th April 2012
[54] Stephen Smith, Loc. Cit.

India is considered the 'gatekeeper' of the Indian Ocean; the geostrategic setting of India and its influence over the regional security architecture have made engagement with India crucial.[55] The geostrategic advantage of response times to vital straits of water separating Asia from the Gulf States dictates that India as a strategic power in relation to the Indian Ocean will rise. India as a major economic power in the region and in the future has influenced the regional multilateral architecture through its support of the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC), the Indian Naval Symposium, the Milan Progress and the Bay of Bengal Initiative.[56] The IOR-ARC is of particular significance to Australia as the primary body of cooperation at a ministerial level in regional development and economic cooperation. Australia is currently is vice chair and will assume the position of Chair of the IOR-ARC in 2013-2015.[57] The 2012 'Milan 12' exercise off of the Andaman and Nicobar Islands addressed piracy and non-conventional security, it involved 14 Indian Ocean nations, of which Australia was one.[58]

The importance of energy diplomacy in forging a closer Strategic Partnership between India and Australia was prominent in the security commitments which followed the announcement that Australia would allow the export of uranium to India. In a ministerial press release on the 9th of December Minister Stephen Smith established that India and

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[55] Sandy Gordon, 'India's Rise as an Asia-Pacific Power Rhetoric and Reality', *Australian Strategic Policy Institute*, (2012) 1-30, in Parlinfo [Online Database] accessed 10th May 2012
[56] Gordon, (2012) Loc. Cit.
[57] DFAT, Australian Department of Foreign Affairs and Trade, 'Indian Ocean Rim Association for Regional Cooperation (IOR-ARC)', Indian Ocean, [Web Page], (no date mentioned), <http://www.dfat.gov.au/geo/indian_ocean/regional_orgs/ior-arc.html>, accessed 17th March 2012
[58] Gordon, (2012) Op. Cit.15.

Australia would strengthen their formal bilateral maritime exercise, convene a 1.5 Track Defence Strategic Dialogue and organise for Indian Defence Minister Antony to visit Australia in 2012.[59] It was also released that Australia would host the 2014 Indian Naval Symposium in Perth Australia.[60]

3.3a Considerations for Australia in the Indian Ocean Region

There are several key issues to be considered in India's rising influence in the Indian Ocean and Australia's relation strategically and politically in the region. The first issue is the opportunity closer strategic relations with India present in addressing key concerns such as piracy and maritime order in the Indian Ocean. The Indian Ocean carries much of the world's shipping in particular it links Australia's resource trade to India and Asia and it connects Asia to the energy resources of the Gulf States. Choke points of transit in the Malacca and Hormuz Straits require efficient Indian Ocean Region maritime structures.[61] Medcalf and Mohan have suggested that India and Australia, the two largest navies of the Indian Ocean Rim, would be well suited to forming a "rules based maritime order in the Indian Ocean Region".[62]

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[59]Stephen Smith, 'Minister for Defense – Defense Minister Stephen Smith visit to India', *Stephen Smith Minister for Defense*, [Web Page], (2011), <http://www.minister.defence.gov.au/2011/12/09/minister-for-defence-defence-minister-stephen-smith-visit-to-india/> accessed 11th April 2012

[60] Smith, 'Minister for Defense – Defense Minister Stephen Smith visit to India', Loc. Cit.

[61] Gordon, (2012) Op. Cit. 4.

[62] Rory Medcalf and Raja Mohan, Loc. Cit.

The Indian Ocean strategic architecture, as largely designed by India, excludes Pakistan and China in key organisations; China has observer status on the IOR-ARC and Pakistan is a member of the Indian Ocean Naval Symposium.[63] The exclusion of China as a full member of the IOR-ARC especially in the consideration of Chinese Gulf energy trade which travel through the region is a point of tension. Similarly India has rejected outside multilateral structures in the region such as the Proliferation Security Initiative on Weapons of Mass Destruction and the Combined Task Force 151 on anti-piracy measures.[64] It would be in the interests of Australia for there to be a more inclusive concert of powers in the region including the US and more significantly China.[65] It may fall to Australia to work on this approach to achieve an inclusive regime in the Indian Ocean Region. Gary Smith has argued that the International Commission on Nuclear Disarmament founded by Australia and Japan may be a regional forum for India in non-proliferation concerns; it would enhance Australia India strategic relations and build on Australia as a middle power in the Asian Century.[66]

Conclusion

The importance of uranium sales to India and Australia's role in supplying the energy necessary for India's emergence as a power in the Indian Ocean, place a particular focus, pressure and opportunity on the impact of energy diplomacy in Australian foreign policy.

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[63] Sandy Gordon, 'India's Rise as an Asia-Pacific Power Rhetoric and Reality', *Australian Strategic Policy Institute*, (2012) 1-30, in Parlinfo [Online Database] accessed 10th May 2012
[64] Gordon, (2012) Loc. Cit.
[65] Rory Medcalf and Raja Mohan, Loc. Cit.
[66] Gary Smith, 'Australia and the Rise of India', *Australian Journal of International Affairs*, (2010), 566-582, in Taylor and Francis [Online Database] accessed 10th March 2012

The move towards deeper and more proactive approaches to regional security and particularly the focus on the Indian Ocean has been an aspect to develop from the announcement of the sale of uranium to India. Furthermore India as a strategic power, particularly in the Indian Ocean has broader policy implications, challenges and opportunities for Australia.

Recommendations:

- That Australia maintains and encourages high level cooperation in the Indian Ocean region working towards a more inclusive Indian Ocean regional architecture.
- That Australia work with India to combat maritime issues of piracy through the Indian Ocean Rim Association, potentially developing rules based maritime code within the Indian Ocean.
- That Australia explore the potential of the International Commission of Nuclear Disarmament in regional non-proliferation engaging India.

CHAPTER FOUR: THE AUSTRALIA INDIA ECONOMIC RELATIONSHIP

Introduction:

The trade relationship between India and Australian in 2010-2011 reached $21 billion in two way goods and services trade and India was Australia's fourth largest export market.[67] India's emerging economy and consumer market for resources and energy, in which Australia is well positioned, offers opportunities in many different sectors. On the 12th May 2011 Australia and India announced the beginning of negotiations for a Comprehensive Economic Cooperation Agreement (CECA) which aimed to double the value of the trading relationship to $40 billion over five years.[68] This chapter will explore several key opportunities for trade, investment and industry that Australia's export of uranium to India may afford. The examination of Australia's uranium industry and its

[67] DFAT, Australian Department of Foreign Affairs and Trade, 'Economic and Trade Relationship'. Loc. Cit.
[68] Peter Veness, 'Australia India Start Free Trade Talks', *The Sydney Morning Herald*, 12th May 2011, in Proquest [Online Database], accessed 11th May 2012

capacity to supply India's demand for energy with a stable, highly skilled workforce and low sovereign investment risks exemplify the opportunities that Australian resources provide. It is important to explore expectations of the direct sale of uranium to India, in particular the low to medium demand predicted by some for Australian uranium in the Indian market in the immediate future; as India attempts to switch from coal based power to nuclear energy.[69] However, the immediate benefits to surrounding industries and investments such as mining services, biotechnology and medical research provide opportunities for growth.

4.1 The Australian Uranium Industry

Australia has the world's majority of uranium at over 40% of Reasonably Assured Resources (RAR) and is the third largest producer after Canada and Kazakhstan.[70] As a country with abundant resources and stable economy Australia has the potential and ability to meet India's growing energy demands in nuclear energy production. Australian uranium mining is experiencing a period of expansion not only in opening new mines but in further exploration of uranium resources. Currently Australia has three operational uranium mines the Olympic Dam and Beverly Mine in South Australia and the Ranger Mine in the Northern Territory.[71] Honeycomb, Beverley North and Four Mile Mines in SA have approval to start production in the 'near future'.[72] Expansion of existing uranium mines is also a key growth feature of the industry, notably, BHP Billiton's expansion of

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[69] Gordon, (2012), Loc. Cit.
[70] Geoscience Australia, 'Uranium Resources', Loc. Cit.
[71] Geoscience Australia, 'Uranium', *Minerals – Uranium*, [Web Page], (2012), < http://www.ga.gov.au/minerals/mineral-resources/uranium.html>, accessed on the 1st of March
[72] Geoscience Australia, 'Uranium'. Loc. Cit.

the world's largest uranium deposit; the Olympic Dam Mine in SA. The expansion of the Olympic Dam mine is the largest planned in Australia and aims to increase output from 4kt of uranium oxide to 19kt uranium oxide a year.[73] The Wall Street Journal reported that the project could cost up to US $30 Billion dollars.[74]

Geoscience Australia's current 'Uranium Systems Program' is one national component in the overarching 'Onshore Energy Security Program' advising the Australian Government on Australia's uranium resource potential. The program also advises and informs the minerals industry in exploration risk through its compilation of datasets and geological surveys of mineral deposits.[75] As a country of low sovereign risk to investors with legal and regulatory frameworks surrounding industry investment, Australia is a stable and reliable source of uranium for India's burgeoning economy and society.[76]

4.2 Forecasts for the Sale of Uranium

The Australia India Business Council (AIBC) submission to the Comprehensive Economic Cooperation Agreement (CECA) suggested that energy was a key sector for growth in trade between the two nations. The AIBC paper outlined the Indian market for clean and renewable energy and India's nuclear energy goals, to increase nuclear power

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[73]Geoscience Australia and ABARE, Op. Cit. 195

[74] Stephen Bell, 'BHP Steps up its Olympic Ambitions', The Wall Street Journal, [Web Page] (2012), <http://blogs.wsj.com/dealjournalaustralia/2012/04/24/bhp-steps-up-its-olympic-ambitions/> accessed the 30th April 2012

[75] Geoscience Australia, 'Uranium Systems Project', [Web Page], (2011), <http://www.ga.gov.au/minerals/projects/current-projects/uranium-systems.html> accessed 1st of March 2012

[76]Kate Penney and Jane Melanie and Clare Stark and Terry Sheales, 'Opportunities and Challenges Facing the Australian Resource Sector', *The Australian Journal of Agricultural and Resource Economics*, (2012) 155-156 in Proquest, [Online Database], accessed 17th April 2012

generation from currently less than 5% to 25% by 2050.[77] With a population of 1.2 billion people and set to reach 1.6 billion by 2050 the growth in demand and population size will present considerable challenges in supplying and balancing growing energy demand, energy security and environmental concerns.

The sale of uranium is expected to create more jobs and encourage foreign investment, in particular to the mining and exploration industry. However, it is argued that Australian uranium exports to India would be of a relatively modest size; Michael Clark suggests approximately 8000 tonnes annually for the immediate future.[78] Sandy Gordon of the Australian Strategic Policy Institute (ASPI) has argued that India's goal to divert energy from coal to nuclear power is still a challenge that India hasn't significantly faced or counteracted on the domestic level.[79] This could mean that India's development of high production nuclear power generation may be further delayed and thus also high volumes of Australian uranium trade. Similarly it is important to remember that Australia is not the only source of uranium as India has agreements with suppliers such as the US, Russia, Canada, Kazakhstan, France and other nations.[80] India, however, offers immense potential for the Australian uranium industry, set to be the world's most populous country with a growing consumer class and rising energy demands.

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[77] AIBC, 'Australia India Comprehensive Economic Cooperation Agreement (AICECA) Negotiations', *AIBC Submission to the AICECA*, (2011), 6, in DFAT AICECA Submissions [Online Database], accessed 12 April 2012
[78] Clark, (2012), Op. Cit. 498
[79] Gordon (2012) Op. Cit. 10
[80] Clark, (2012), Op. Cit. 498

4.3 Building on the Australia India Strategic Partnership: Mining and Biotechnology and the impact of the sale of Uranium to India

Mining and biotechnology are key sectors that are set to develop under the CECA. The sale of uranium has the potential to expand these industries and Australia's engagement with India. The mining sector and surrounding mining services industries are expected to grow as a result of Indian capital. Biotechnology and medical research is an area of compatible markets and strengths between India and Australia. Bilateral research and development potential between India and Australia in areas such as nuclear medicine, diagnosis and treatment may provide another avenue for increased trade and investment.

4.3a The Mining Sector Opportunities for South Australia

Mining is a high intensive, high capital and technologically advanced industry involving a wide variety of industries, capabilities and disciplines. The expansion of mining and exploration offers the creation of jobs in a range of related sectors around the practice of mining. Several opportunities in the mining industry have developed due to industry expansion and Indian investment. In South Australia, Deepak an Indian Fertilisers and Petrochemicals Corporation are considering the feasibility of a technical ammonium nitrate plant at Port Bonython, ammonium nitrate is commonly used in mining yet not manufactured in South Australia.[81] A project such as this would create a relevant industry and jobs in supplying the mining industry.

[81] DMITRE, 'South Australia-India Economic Directions and Development Paper', *Government of South Australia*, (2012) 22, in Proquest [Online Database], accessed 23rd April 2012

Resources Services and Technology (RST) capabilities are the surrounding specialisations necessary for mining safety, innovation and success such as specialist equipment and technologies. South Australia has noted several companies in this field who provide essential services for the mining industry such as Maptek's mine modelling software and Scantech's process control solutions for bulk materials.[82] Other surrounding industries are research and development, Information Communications Technology (ICT), administration and business services and transport and logistics.[83] The sale of uranium to India, though potentially modest for some time, has the ability to provide jobs in the mining sector and surrounding mining services. The immediate benefit of uranium and nuclear based trade between India and Australia are the expansions to industries and capabilities. These industries provide highly specialised equipment and services and promote Australia as a knowledge and skill based mining economy not only to India but internationally.

4.3b Biotechnology and Medical Research and Development

Biotechnology is another sector highlighted by the AIBC submission to the CECA. The biotechnology and medical industries of India and Australia offer compatibility in areas of mutual progress; India has an emerging biotech industry with the most extensive FDA-approved manufacturing facilities outside of the US.[84] Reciprocally Australia has an innovative and highly skilled biotechnology, medical research and development industry. The success of the cochlea implant in India is a recent example of Australia as an

[82] Ibid 23
[83] DMITRE, Loc. Cit.
[84] AusBiotech, 'India an Emerging Partner for Australia's Biotech Sector', Media release from AusBiotech, (2009) in Proquest [Online Database] accessed 27 April 2012

innovative force in health technologies.[85] The Australia-India Strategic Biotechnology Research Fund aims to provide funding for bilateral research in mutual problems and solutions such as biomedical devices, vaccine and diagnostics. Increased connections between Indian biotechnology companies and Australian universities in research and development, such as between Deakin University and India's Biocon Company demonstrate an already deep scientific relationship between industry, international development and trade.[86] The sale of uranium to India and the opening of nuclear trade between India and Australia may offer opportunities to expand these research areas to nuclear medicine, radiopharmaceuticals, detection and treatment of aggressive cancers.

The Grand Challenge Fund, a faction of the Australia India Strategic Research Fund aims for ambitious bilateral research and development into practical solutions on mutual issues; one of the current focuses of the challenge is health. Australia's 'R&D Magazine' noted that research is being conducted through the Elisa and Walter Hall Institute on BH3 mimetic; weakening aggressive breast cancer cells in conjunction with chemotherapy, potentially making radiation of particularly aggressive cancer cells more affective.[87] Such research has the potential to treat one of the deadliest forms of breast cancer affecting women across the world, based in chemotherapy in conjunction with radiation therapy. International cooperation on such projects fits with Australia and India's current collaborations and builds upon them. The role of nuclear medicine and technologies in

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[85] DFAT, Australian Department of Foreign Affairs and Trade, 'Trade Success' *India Country Brief,* [Web Page], (2012), < http://www.dfat.gov.au/geo/india/india_brief.html>, accessed 1st March 2012

[86] Australian High Commission India, 'Science and Technology', Australian High Commission India, [Web Page] (no date mentioned) <http://www.india.embassy.gov.au/ndli/study7.html>, accessed 27th March 2012

[87] Australian, R and D, 'Softening up for the Kill', *Australian R and D Magazine*, (2011) 15, in Proquest, [Online Database] accessed 29th March 2012

the treatment and diagnosis of illness is an important feature of modern health and an area Australia and India may extend bilateral cooperation in.

Conclusion:

Despite assertions that the initial sale of uranium to India is likely to be moderate the potential of the Indian uranium market offers greater investment, trade and development between Australia and India in the future. However, industries around the mining process offer more immediate benefits from Indian capital such as in exploration. Biotechnology, medical research and development also offer mutual industry opportunities. The sale of uranium to India and the opening of nuclear trade may come to define the Australia India economic relationship and its success in innovation and development.

Recommendations:

- That Australia continues to support and develop the industries surrounding mining in terms of research and training.
- That Australia continues research and development into the biotechnology sector and explores the potential of nuclear medicine cooperation with India as it relates to common health obstacle.

CONCLUSION

The purpose of the report is to provide policy makers with a comprehensive outline and evaluation of key issues facing Australia in the export of uranium to India. As an emerging regional and strategic power India's position in the Indian Ocean is a key factor in Australian foreign policy. The report is set within wider framework of the Senate Standing Committee for Foreign Affairs Defence and Trade inquiry into the Indian Ocean Region. The report identified issues in the areas of energy security and energy poverty, non-proliferation, political relations and economics. These issues depict how changes in the international, regional and bilateral context have framed the decision to sell uranium to India the policy's future direction.

The research found that emerging challenges of energy poverty and security, transnational crime and terrorism have influenced the international context around the sale of uranium to India. Energy poverty affects hundreds of millions of people in India; perpetuating poverty and preventing humanitarian and economic development. Energy security exacerbates these problems by further straining energy resources and threatening the security and reliability of supply. Nuclear power as a zero carbon emitting energy has the ability to provide clean, sustainable, long term energy for India's development goals. Australia with the majority of the world's uranium is able to meet India's demand for clean energy.

Another finding of the paper is the threat of transnational crime and terrorism in the evolution of a more inclusive non-proliferation regime. The need to engage India bilaterally and multilaterally in the evolving complexities of the modern security environment is imperative to the international cooperation against transnational and non-state proliferators.

The paper explored the Australia-India Strategic Partnership, the role of energy diplomacy and the barrier Australia's uranium export policy posed to closer India-Australia relations. The findings detailed the importance of this relationship in particular regards to the Indian Ocean Region and India as a rising power. Maritime security against piracy has significance to Australia as much of Australia's shipping trade is transported on the Indian Ocean. The regional architecture, which is heavily influenced by India, means that Australia-India relationship will to an extent define Australia's position and influence in the Indian Ocean Region.

The economic findings suggest that uranium export will allow for increased investment and trade between India and Australia. Due to pre-existing uranium contracts and the difficulty in converting coal based power to nuclear power; the forecasts for the sale of Australian uranium to India have been moderate for the immediate future. However, research indicated that the benefits for surrounding mining service industries are likely to provide faster growth. The opening of nuclear trade may also allow for a widening of Australia-India bilateral research and development initiatives especially in the health sector. Biotechnology is one industry considered to be of immense growth potential and

bilateral cooperation. Similarly nuclear based medical research may provide another area of increased trade, research and development potential.

The report recommends that Australia continue to consult international organisations on energy poverty and security and continue to build bilateral cooperation with India regarding non-proliferation and the changing non-proliferation regime. Perhaps one of the most important considerations recommended from the report is the cooperation with India in the regional architecture of the Indian Ocean and the strengthening of the Australia-India Strategic Partnership. Finally, that Australia encourage the development of industries which support the mining sector and explore the broader possibilities of nuclear trade on adjacent sectors such as medical and biotechnology research and development.

This report acts as a comprehensive overview of key aspects for consideration involving the sale of uranium to India. However, this report is the beginning of a more extensive research and analysis effort into the topic. The findings demonstrate that further research should be done on the topic of uranium to India. Avenues for analysis may be: Australia as a middle power in non-proliferation efforts and strategic positioning in the Indian Ocean Region in Asian Century.

BIBLIOGRAPHY

AIBC, 'Australia India Comprehensive Economic Cooperation Agreement (AICECA) Negotiations', *AIBC Submission to the AICECA*, (2011), 1-11, in DFAT AICECA Submissions [Online Database], accessed 12 April 2012

AUS BIOTECH, 'India an Emerging Partner for Australia's Biotech Sector', Media release from AusBiotech, (2009) in Proquest [Online Database] accessed 27 April 2012

AUSTRALIAN HIGH COMMISSION INDIA, 'India-Australia Joint Declaration on Security Cooperation', Australian High Commission India, [Web Page] (2009) < http://www.india.embassy.gov.au/ndli/pa5009jsb.html>, accessed 27th March 2012

AUSTRALIAN HIGH COMMISSION INDIA, 'Science and Technology', Australian High Commission India, [Web Page] (no date mentioned) <http://www.india.embassy.gov.au/ndli/study7.html>, accessed 27th March 2012

AUSTRALIAN R AND D, 'Softening up for the Kill', *Australian R and D Magazine*, (2011) 15, in Proquest, [Online Database] accessed 29th March 2012

BELL, STEPHEN, 'BHP Steps up its Olympic Ambitions', The Wall Street Journal, [Web Page] (2012), <http://blogs.wsj.com/dealjournalaustralia/2012/04/24/bhp-steps-up-its-olympic-ambitions/> accessed the 30th April 2012

CLARK, MICHAEL, 'Australia, India and the Uranium Question', *Australian Journal of Political Science*, volume 46, (2011) 489-502, in Taylor and Francis [online database], accessed 12 March 2012

CLARK, MICHAEL, 'Refashioning Australia's Nuclear Bargain?', *The Non-Proliferation Review*, volume 15, (2008) 311-334, in Taylor and Francis [online database], accessed 27th March 2012

CUNNINGHAM, FIONA and MEDCALF, RORY, 'The Dangers of Denial: Nuclear Weapons in China-India Relations', *Lowy Institute of International Policy: Analysis*, (2011), 1-20, in Parlinfo [Online Database] accessed 5th May 2012

DFAT, Australian Department of Foreign Affairs and Trade, 'Australia's Uranium Export Policy', *Nuclear Non-Proliferation Trade and Security*, [Web Page], (no date mentioned),
< http://www.dfat.gov.au/security/aus_uran_exp_policy.html>, accessed 3rd April 2012

DFAT, Australian Department of Foreign Affairs and Trade, 'Bilateral Relationship', *India Country Brief,* [Web Page], (2012),
< http://www.dfat.gov.au/geo/india/india_brief.html>, accessed 1st March 2012

DFAT, Australian Department of Foreign Affairs and Trade, 'Economic and Trade Relationship', *India Country Brief,* [Web Page], (2012), < http://www.dfat.gov.au/geo/india/india_brief.html>, accessed 1st March 2012

DFAT, Australian Department of Foreign Affairs and Trade, 'Indian Ocean Rim Association for Regional Cooperation (IOR-ARC)', Indian Ocean, [Web Page], (no date mentioned), <http://www.dfat.gov.au/geo/indian_ocean/regional_orgs/ior-arc.html>, accessed 17th March 2012

DFAT, Australian Department of Foreign Affairs and Trade, 'Memoranda of Understanding', *India Country Brief,* [Web Page], (2012), < http://www.dfat.gov.au/geo/india/india_brief.html>, accessed 1st March 2012

DFAT, Australian Department of Foreign Affairs and Trade, 'Trade Success' *India Country Brief,* [Web Page], (2012), < http://www.dfat.gov.au/geo/india/india_brief.html>, accessed 1st March 2012

DMITRE, 'South Australia-India Economic Directions and Development Paper', *Government of South Australia*, (2012) 1-32, in Proquest [Online Database], accessed 23rd April 2012

EXPERT COMMITTEE, Government of India Planning Commission New Delhi, 'Overview', *Integrated Energy Policy Report of the Expert Committee*, [Web Document], (2006), < http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf>, accessed 6th March 2012

EXPERT COMMITTEE, Government of India Planning Commission New Delhi, 'Supply Options', *Integrated Energy Policy Report of the Expert Committee*, [Web Document], (2006), < http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf>, accessed 6th March 2012

G20 RESEARCH GROUP, University of Toronto, 'Strengthening Support for the Most Vulnerable', *G20 Leaders Statement: The Pittsburgh Summit*, [Web Document], (2009), <http://www.g20.utoronto.ca/2009/2009communique0925.html#top> , accessed 12th March 2012

GEOSCIENCE AUSTRALIA and ABARE, Australian Bureau of Agriculture and Resource Economics, 'Chapter 6: Uranium and Thorium', *Australian Energy Resource Assessment*, [Web Document], (2010), < https://www.ga.gov.au/image_cache/GA17061.pdf>, accessed 13th March 2012

GEOSCIENCE AUSTRALIA, 'Uranium Resources', *Minerals – Uranium*, [Web Page], (2012), < http://www.ga.gov.au/minerals/mineral-resources/uranium.html>, accessed on the 1st of March 2012

GEOSCIENCE AUSTRALIA, 'Uranium', *Minerals – Uranium*, [Web Page], (2012), < http://www.ga.gov.au/minerals/mineral-resources/uranium.html>, accessed on the 1st of March 2012

GEOSCIENCE AUSTRALIA, 'Uranium Systems Project', [Web Page], (2011), <http://www.ga.gov.au/minerals/projects/current-projects/uranium-systems.html> accessed 1st of March 2012

GORDON, SANDY, 'Implications of the Sale of Uranium to India', *Strategic and Defence Studies Centre Australian National University*, (2008) 1-14, in Parlinfo [online database], accessed 20th March 2012

GORDON, SANDY, 'India's Rise as an Asia-Pacific Power Rhetoric and Reality', *Australian Strategic Policy Institute*, (2012) 1-30, in Parlinfo [Online Database] accessed 10th May 2012

HAIDAR, SUHASINI, 'Minister for Defence Stephen Smith Interview with Suhasini Haidar, CNN IBN, (2011) 1-5 in Parlinfo, [Online Database], accessed 15th April 2012

HARRIS, MARTY, 'The Origins of Australian Uranium Export Policy', *Department of Parliamentary Services*, (2011) 1-12, in Parlinfo [online database], accessed 12th March 2012

IAEA, International Atomic Energy Agency, 'The Atoms for Peace Agency', About the IAEA, [Web Page], (2012), < http://www.iaea.org/About/about-iaea.html>, accessed on the 17th April 2012

LEAVER, RICHARD and UNGERER, CARL, 'A Natural Power Challenges for Australia's Resource Diplomacy in Asia', *Australian Strategic Policy Institute*, (2010) 1-42 in Parlinfo, [Online Database] accessed 15th May 2012

LINDELL, RICHARD, 'India welcomes Stephen Smith and Australian uranium', *Australian Broadcasting Corporation Interview*, [Web Document], (2011), <http://search.proquest.com/docview/909463777>, accessed 17th April 2012

MANNULLY, YASH, 'U.S-India Nuclear Cooperation and Non-Proliferation', *Nuclear Law Bulletin*, volume 82, (2008) 8-26, in Parlinfo [online database], accessed 25th April 2012

MEDCALF, RORY and MOHAN, RAJA, 'Time to Forge a Partnership for the Asian Century', *The Australian*, 19th September 2011, 10, in Proquest [Online Database], accessed 1st May 2012

MEDCALF, RORY, 'Uranium Sales to India Would Spread Trust, Not Nuclear Arms', *The Age*, 2nd December 2011, 15, in Proquest [Online Database], accessed 27th April 2012

OECD, 'Implementation of the India-United States Joint Statement of July 18 2005: India's Separation Plan', *Nuclear Law Bulletin*, no. 82, (2008) 33-39, in Parlinfo [online database], accessed 25th April 2012

OECD/IEA, 'Current Status of Modern Energy Access', *Energy for All - Financing Access for the Poor: special early excerpt for the World Energy Outlook 2011*, [Web Document], (2011), <http://www.iea.org/papers/2011/weo2011_energy_for_all.pdf>, accessed 20th March 2012

OECD/IEA, 'Energy and Development', *Energy Poverty- How to Make Energy Access Universal? A special early excerpt of the World Energy Outlook 2010 for the UN General Assembly on the Millennium Development Goals*, [Web Document], (2010), <http://www.iea.org/weo/docs/weo2010/weo2010_poverty.pdf>, accessed 20th March 2012

OECD/IEA, 'Focus on Energy Poverty', World Energy Outlook 2007: China and India insights, [Web Document], (2007), <http://www.iea.org/textbase/nppdf/free/2007/weo_2007.pdf>, accessed 3rd April 2012

PENNY, KATE and MELANIE, JANE and STARK CLARE and SHEALES, TERRY, 'Opportunities and Challenges Facing the Australian Resource Sector', *The Australian Journal of Agricultural and Resource Economics*, (2012) 152-170 in Proquest, [Online Database], accessed 17th April 2012

SMITH, GARY, 'Australia and the Rise of India', *Australian Journal of International Affairs*, (2010), 566-582, in Taylor and Francis [Online Database] accessed 10th March 2012

SMITH, STEPHEN, 'Building the Strategic Partnership: Speech given at the Asia Society Mumbai ', Stephen Smith Minister for Defence, [Web Page], (2011), http://www.minister.defence.gov.au/2011/12/10/minister-for-defence-australia-and-india-building-the-strategic-partnership/ accessed 11th April 2012

SMITH, STEPHEN, 'Minister for Defence – Defence Minister Stephen Smith visit to India', Stephen Smith Minister for Defence, [Web Page], (2011), <http://www.minister.defence.gov.au/2011/12/09/minister-for-defence-defence-minister-stephen-smith-visit-to-india/> accessed 11th April 2012

SUSTAINABLE ENERGY FOR ALL, United Nations Foundation, 'Rio+20: United Nations Conference on Sustainable Development', *Events to build Support and Raise Awareness*, [Web Page], (2012), < http://www.sustainableenergyforall.org/events>, accessed 5th May 2012

UNDES, United Nations, Department of Economic and Social Affairs, Population Division, Population Estimates and Projection Section, 'Country Profile: India', *World Population Prospects the 2010 Revision*, [Web Page], (2010),<

http://esa.un.org/unpd/wpp/country-profiles/country-profiles_1.htm>, accessed 28th February 2012

UNODA, United Nations Office for Disarmament Affairs, 'Treaty Overview', Treaty on the Non-Proliferation of Nuclear Weapons (NPT), [Web Page], (2010), <http://www.un.org/disarmament/WMD/Nuclear/NPT.shtml>, accessed 3rd March 2012

USEIA, US Energy Information Administration, 'Electricity', *India Analysis*, [Web Page], (2011), <http://205.254.135.7/countries/cab.cfm?fips=IN>, accessed 15th March

VENESS, PETER, 'Australia India Start Free Trade Talks', *The Sydney Morning Herald*, 12th May 2011, in Proquest [Online Database], accessed 11th May 2012

WALKER, RON, 'Uranium for India: Avoiding the Pitfalls', The Lowy Institute for International Policy, (2007) 1-14, in Parlinfo [online database], accessed 20th April 2012