



Australian Uranium Industry

7th Australia-China Bilateral Dialogue on Resource & Energy Cooperation

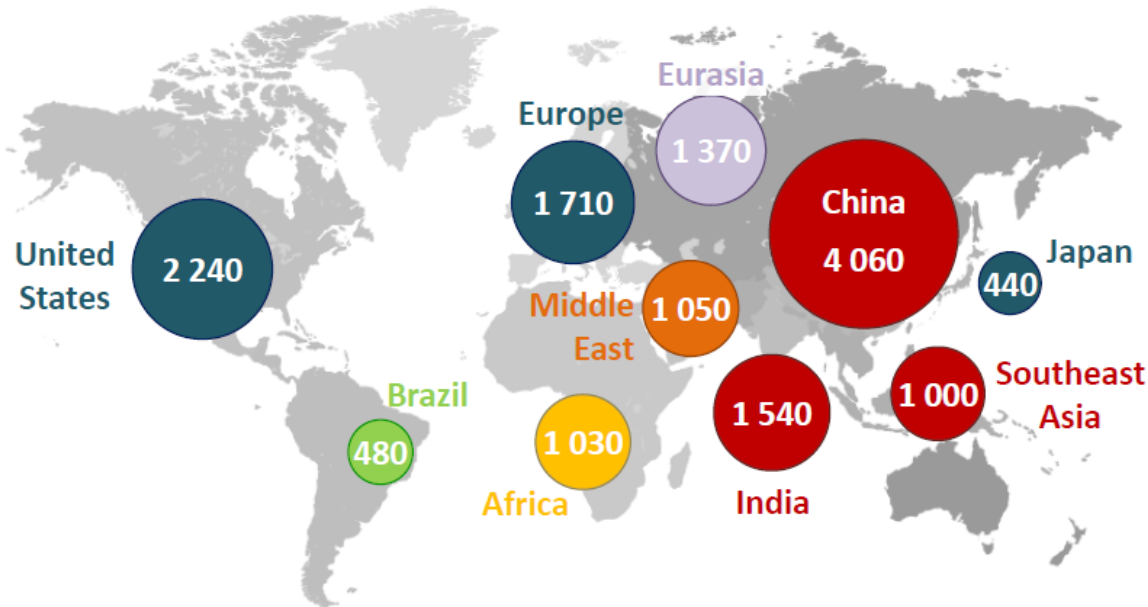
Vanessa Guthrie
Managing Director – Toro Energy

6 February 2015

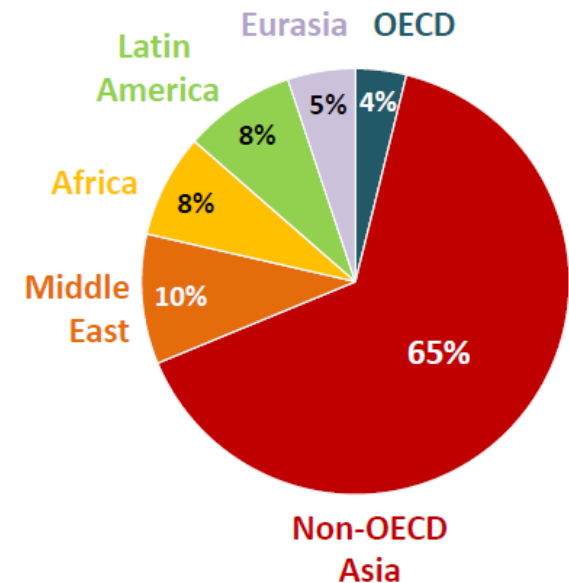
toroenergy.com.au

World Energy Outlook

Primary energy demand, 2035 (Mtoe)

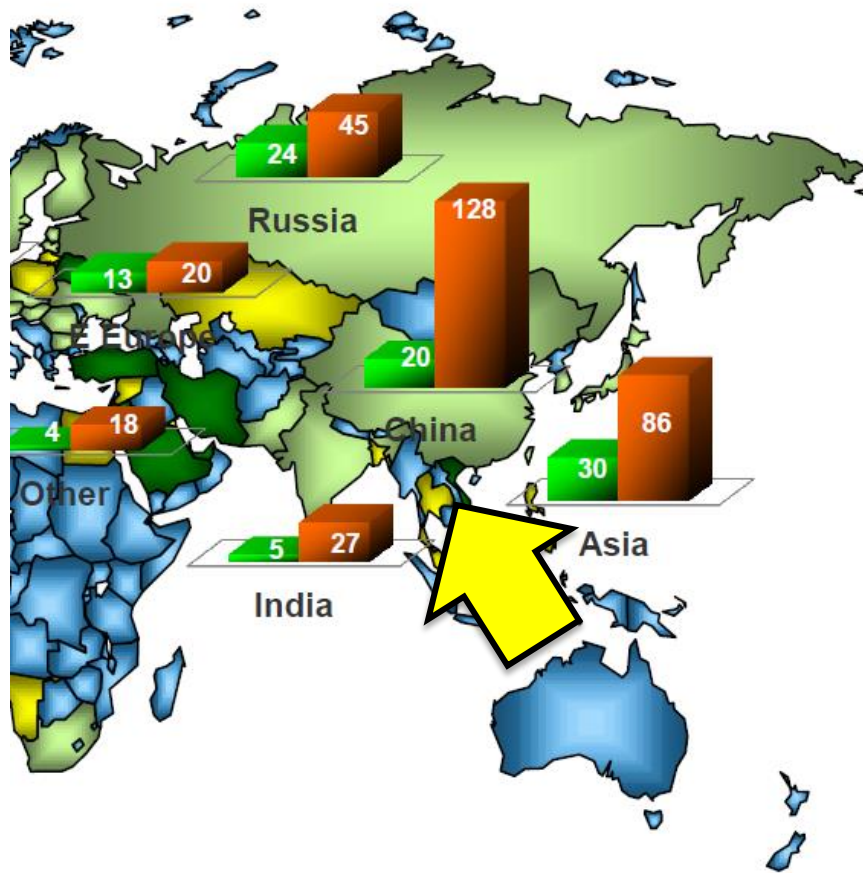


Share of global growth 2012-2035



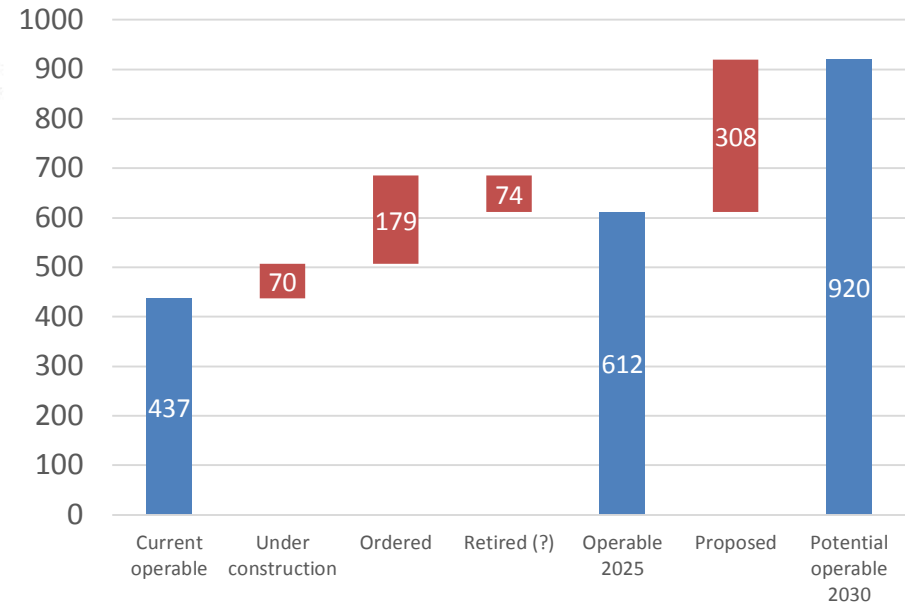
China is the main driver of growing energy demand in the current decade, with India taking over in the 2020's as the continuing source of growth

Nuclear: increasing international demand



Global Reactor Growth through 2030

Source: WNA website, August 2014

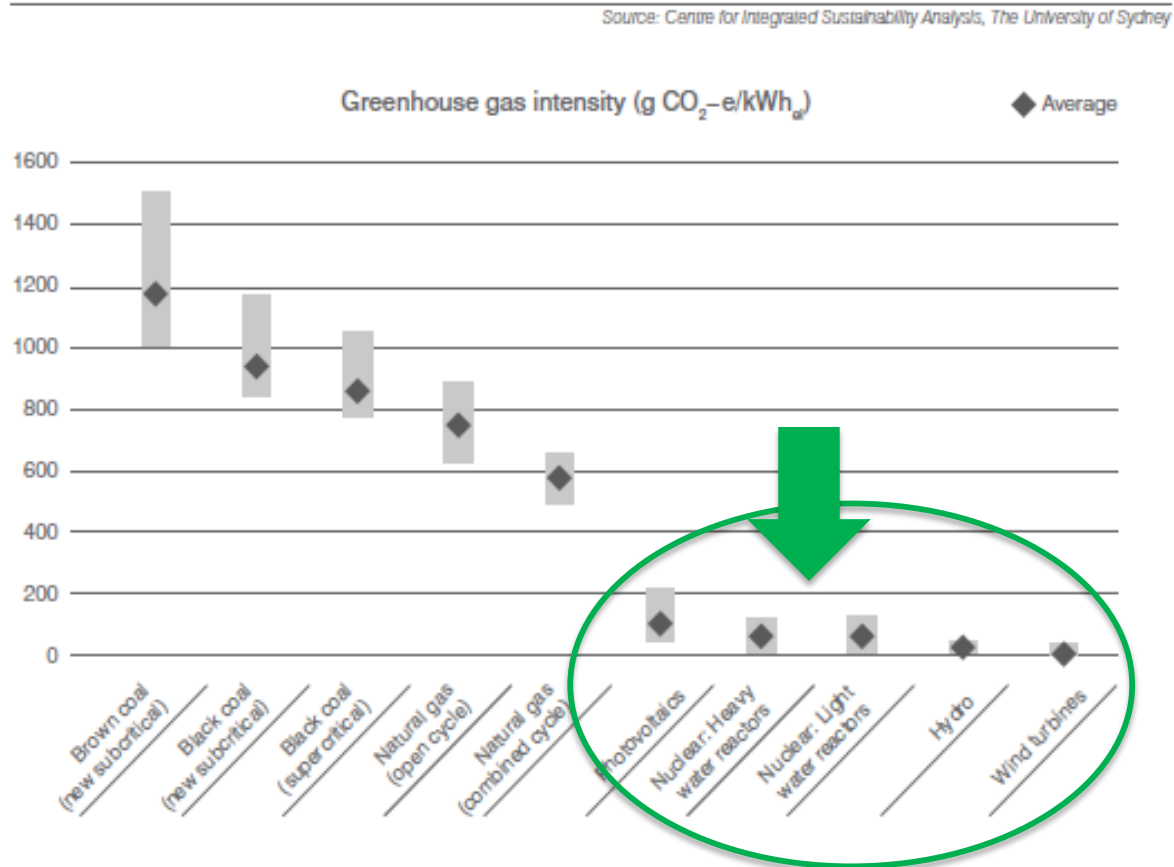


Australian Trade Agreements include:
Japan, China, Russia, Middle East, India

- 437 operable reactors today require ~78kt of U₃O₈
- 70 reactors under construction
- Reactor demand for raw materials is set to double in the next 15 years

Nuclear Power & Climate Change

- Source of low emissions energy
- Life cycle emissions in the same range as renewables
- Competitive average levelised costs per unit power output (\$/MWh)
- Recognition by US-China Joint Announcement on Climate Change
- Nuclear power generation projected to grow by 90% by 2050



Life cycle emissions from power generation

Australian uranium facts



1st in resources

- 32 per cent of global uranium resources

2nd largest primary energy source

- 22 per cent total primary energy production in 2012/13

3rd in global production

- 11 per cent of global supply in 2013.

4,200 jobs

- Uranium industry employment, much in remote areas

5,710 tonnes

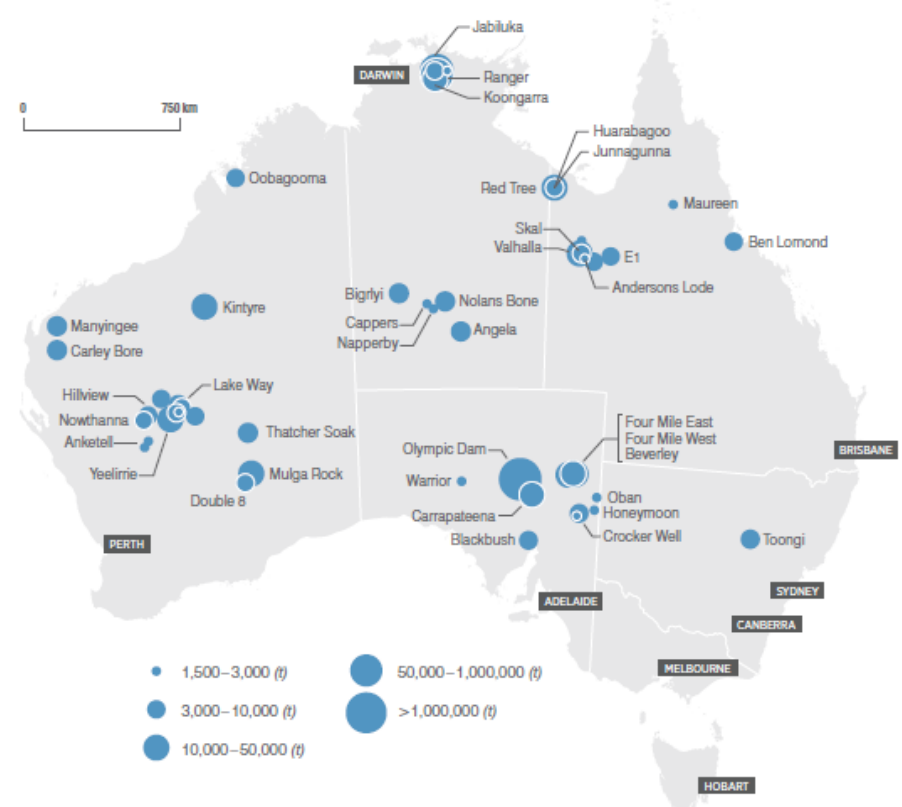
- production of uranium in 2013-14

8,900 tonnes

- forecast uranium production in 2018-19

\$622 million up to \$1.1 billion

- Australian uranium export earnings in 2013/14
- forecast value of Australia's uranium exports in 2018/19



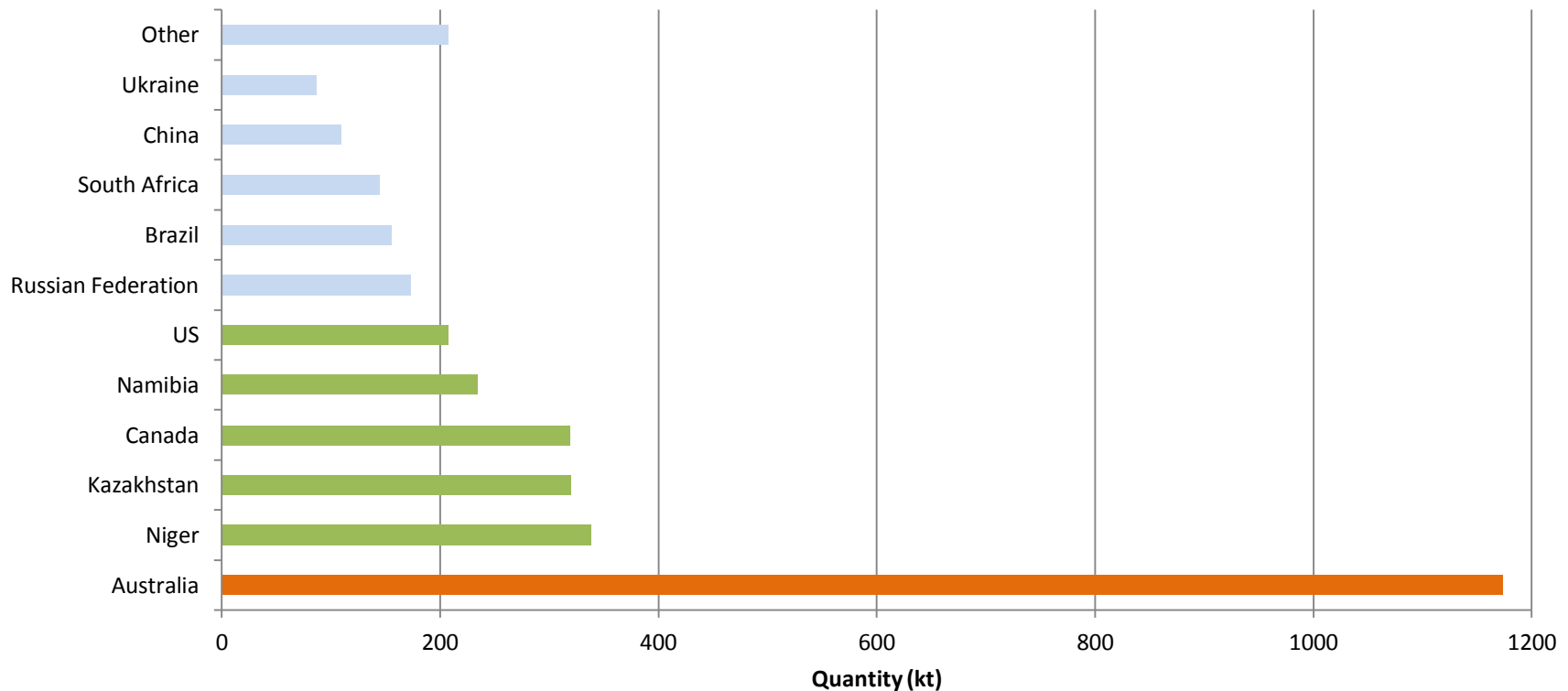
Australian uranium resources

Australia's resource base



- Australia's capacity to supply remains largest with 32% of world's resources
- Majority of resources remain undeveloped

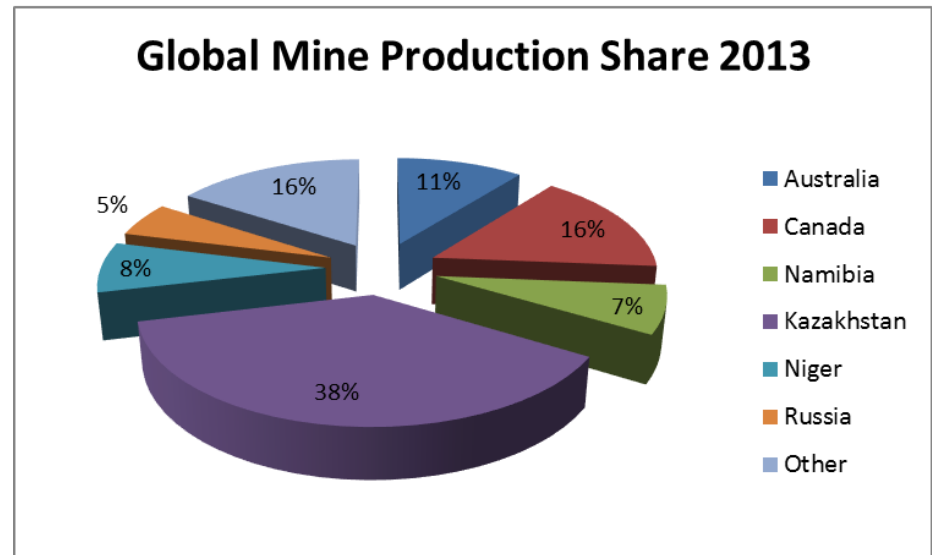
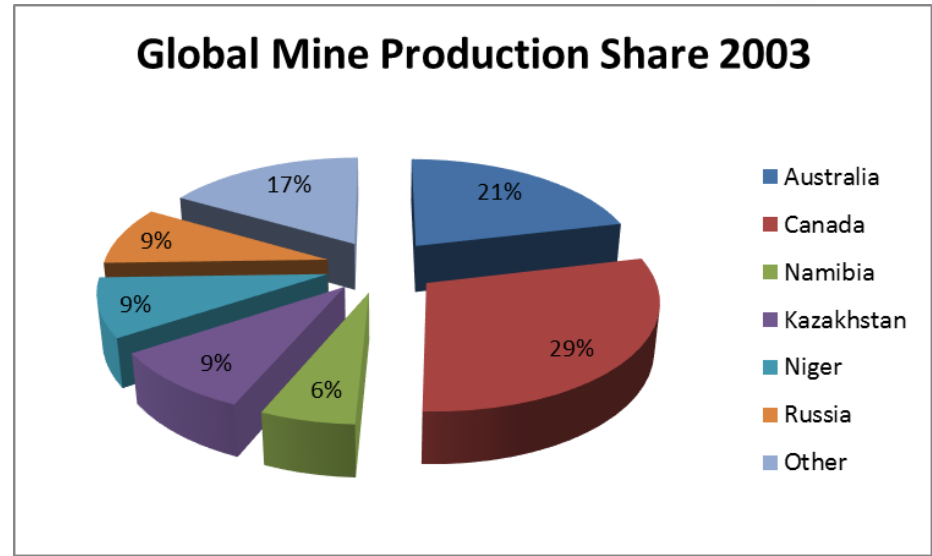
Global uranium resources



Australia's production share



- Global supplier for 50+ years
- World production increased 66% in the 10 years ended 2012
- Australia's market share halved to 11% of global supply
- Kazakhstan= fastest growing share
- Niger & Namibia retained share through growth



2013	Tonnes UOC	% of total
Asia	2523	36
Europe	2473	35
North America	1986	29

Supply of Australian Uranium by Region

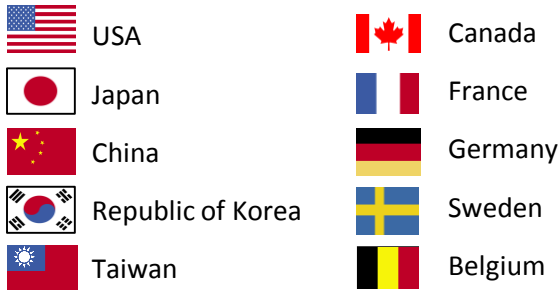
Australia's economic return



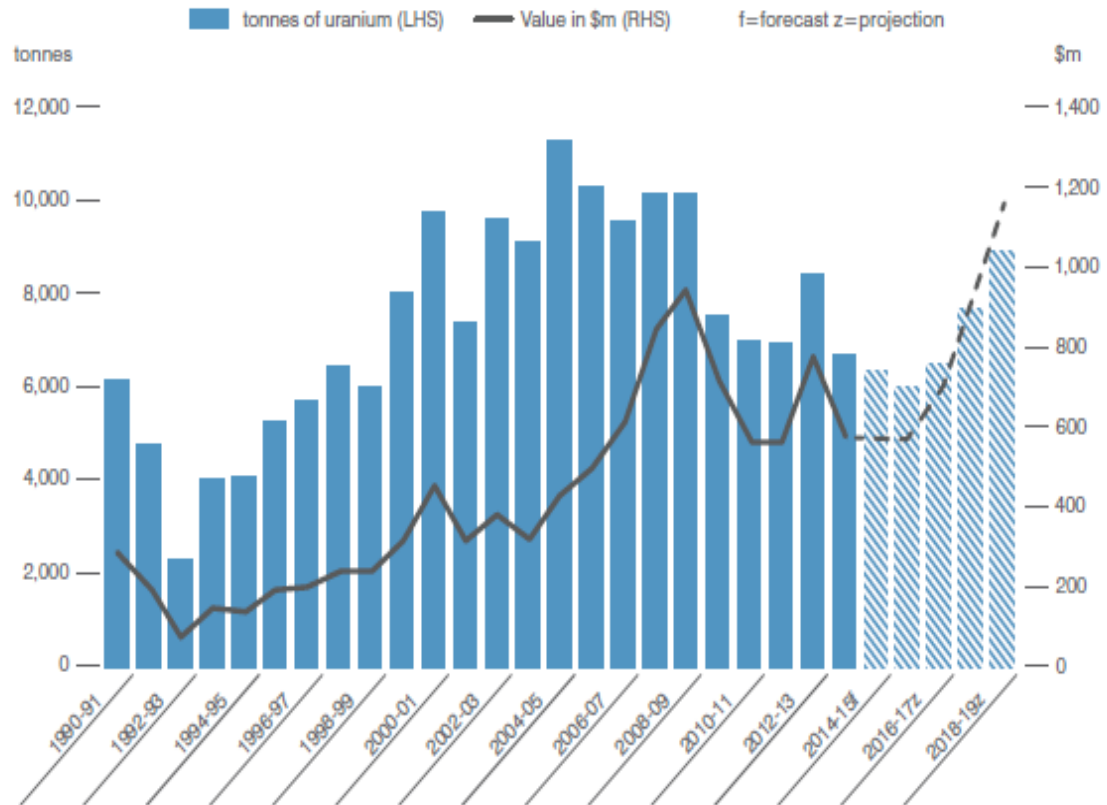
- \$6.5B in export earnings over last decade

In 2013/14:

- 6701t U3O8 export for A\$622M
- 11% of global supply
- 4200 employees
- Current supply to 10 countries



Source: Bureau of Resources and Energy Economics

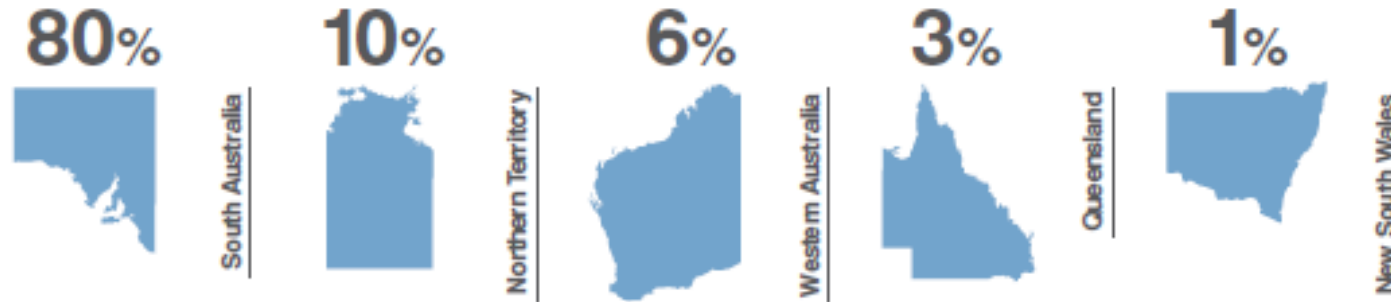


BREE forecasts in 2018/19:

- 8900t U3O8 export for A\$1.1B
- Potential supply to India, UAE

Australian uranium exports: volume and value

Australia's regulatory environment











Percentage of Australia's uranium resources by state

South Australia	Northern Territory	Western Australia	Queensland	New South Wales
No ban on mining and exploration	No ban on mining and exploration	Ban on exploration & mining lifted 2008	Ban on mining lifted 2012	Ban lifted on exploration in 2013 Ban on mining remains
Historic mining since 1954 Current mining since 1988 New ISR deposits (Beverley, Four Mile) Expansion on hold (Olympic Dam)	Historic mining since 1954 Current mining since 1980 Permitting application 2015 (Ranger)	First project approval granted 2012 (Wiluna)	Applications for mine development invited by government	6 companies invited by government to apply for exploration licences

Uranium Companies in Australia



	Company	Listing	Market cap (AUD)	Australian assets under development
	Energy Resources Australia	ASX	\$678M	Ranger Uranium Mine
	BHP Billiton	ASX/NYSE	\$94.5B	Olympic Dam Mine
	Heathgate Resources (General Atomics)	-	-	Beverley Mine; Four Mile Mine (75%)
	Cameco	TSX/NYSE	C\$7.68B	Kintyre Project, Yeelirrie Project
	Toro Energy	ASX	\$140M	Wiluna Project
	Vimy Resources	ASX	\$84M	Mulga Rocks Project
	Laramide Resources	ASX/TSX	C\$30M	Westmoreland Project
	Paladin Energy	ASX/TSX	\$550M	Manyingee resource

Source: Company websites

Australian uranium development projects



Project	Owner	State	Status	Earliest production
Ranger 3 Deeps	ERA	NT	Permitting ongoing	2015+
Wiluna	Toro Energy	WA	2 mines and processing plant location permitted Final technical studies	2017
Mulga Rocks	Vimy Resources	WA	Permitting ongoing	2017+
Westmoreland	Laramide	Qld	Permitting ongoing	2018+
Kintyre	Cameco	WA	Permitted, care and maintenance	2018+
Manyingee	Paladin	WA	On hold	2020
Yeelirrie	Cameco	WA	Permitting	2020+
Olympic Dam expansion	BHPB	SA	By-product uranium production Investigating less capital intensive design	N/A

Australian Uranium: the value proposition



- Australia's capacity to supply remains largest with 32% of world's resources
- Strong, stable predictable regulatory environment
- Strong regulation and proven track record
- Geographically well placed
- Potential for investment and resource development over long time frames
- Reliable and trusted trading partner



Contact



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