

HONEYMOON URANIUM PROJECT

South Australia



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The information in this document relating to the Expansion Study is extracted from the announcements entitled ‘Positive Expansion Study Results Progress The Honeymoon Uranium Project To PFS’ dated 28 September 2016. The information in this document relating to the Mineral Resources is extracted from the announcements entitled ‘Substantial Increase And Upgrade In Honeymoon Uranium Resource’ dated 20 January 2016 , ‘Boss Increases Honeymoon Uranium Project Resource’ dated 8 April 2016, ‘Maiden Resource of 5.2Mlb for Jason’s Deposit’ dated 14 June 2016 and is available to view on www.bossresources.com.au. The information relating to the Exploration Target is extracted from the announcement entitled ‘Honeymoon Project Exploration Update’ and dated 8 December 2015. The information relating to the Exploration Results for the Jasons Deposit is extracted from the Company’s announcements dated 6 December 2016, 8 December 2016, 14 December 2016 and 3 February 2017. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that, in the case of Mineral Resources or Ore Reserves, all the material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person’s findings are presented have not been materially modified from the original market announcements.

The Exploration Target is conceptual in nature as there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource under the JORC Code 2012. The Exploration Target is not being reported as part of any Mineral Resource or Ore Reserve.



CLIMATE CHANGE REQUIRES NUCLEAR ENERGY INVOLVEMENT

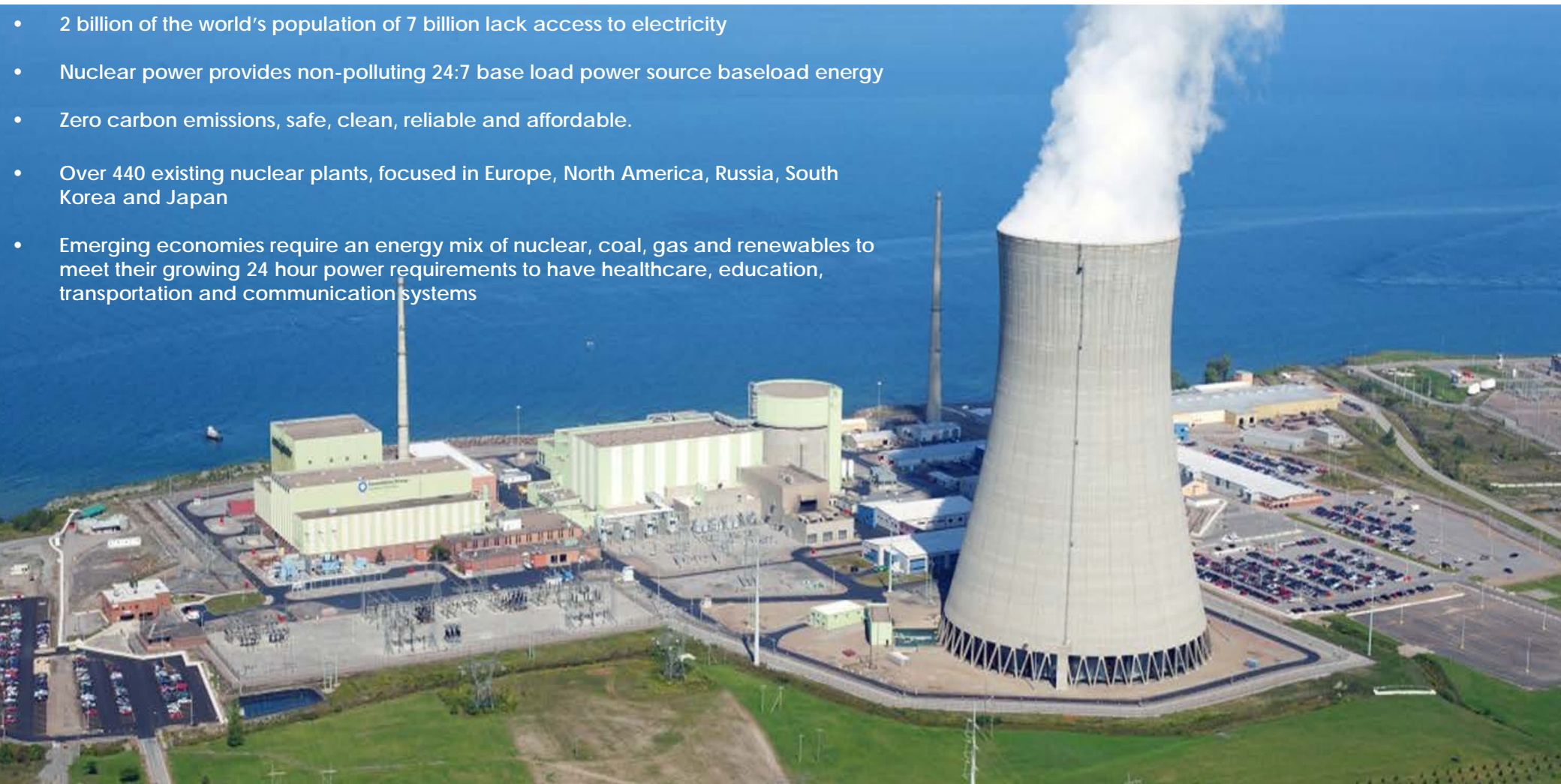
“There’s really only one technology that we know of that supplies carbon-free power at the scale modern civilization requires, and that is **nuclear power**”

- Ken Caldeira of Stanford University's Department of Global Ecology

NUCLEAR POWER: THE BEST SOLUTION



- 2 billion of the world's population of 7 billion lack access to electricity
- Nuclear power provides non-polluting 24:7 base load power source baseload energy
- Zero carbon emissions, safe, clean, reliable and affordable.
- Over 440 existing nuclear plants, focused in Europe, North America, Russia, South Korea and Japan
- Emerging economies require an energy mix of nuclear, coal, gas and renewables to meet their growing 24 hour power requirements to have healthcare, education, transportation and communication systems



Nine Mile Point Nuclear Station is a nuclear power plant with two nuclear reactors located in the town of Scriba, approximately five miles northeast of Oswego, New York, on the shore of Lake Ontario.

MARKET DEMAND – GLOBAL REACTOR GROWTH



- Global nuclear power generation capacity will increase 70% over the next decade from 374,067MWe to 636,693MWe
- Annual uranium demand will increase from 177mlbs to 280mlbs by 2020, representing a 58% increase
- Additional 390mlbs will be needed for new initial cores

64 UNDER CONSTRUCTION

- *Of which 22 reactors are to be built in China*
- *Generation Capacity: 74,886 MWe*
- *Annual Uranium Demand: 13,000 tonnes U*

441 OPERABLE REACTORS
DECEMBER 2013

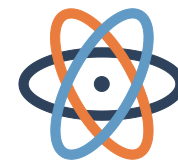
- *Generation Capacity: 374,067 MWe*
- *Annual Uranium Demand: 64,978 tonnes U*

173 PLANNED REACTORS

- *Generation Capacity: 187,740 MWe*
- *Annual Uranium Demand: 32,600 tonnes U*

Hinkley Point C nuclear power station is a project to construct a 3,200 MWe nuclear power station with two EPR reactors in Somerset, England.

REAL OPPORTUNITY FOR BOSS RESOURCES



Growing gap between the uranium consumed by reactors and the uranium produced from world mines, as has been the case for many years.



Long lead times for uranium mine development 5 – 7 years, coupled by recent low uranium prices making it economically challenging to bring on new production.

Daya Bay Nuclear Power Plant is a nuclear power plant located in Daya Bay in Longgang District, Shenzhen, Guangdong, China; and to the north east of Hong Kong.



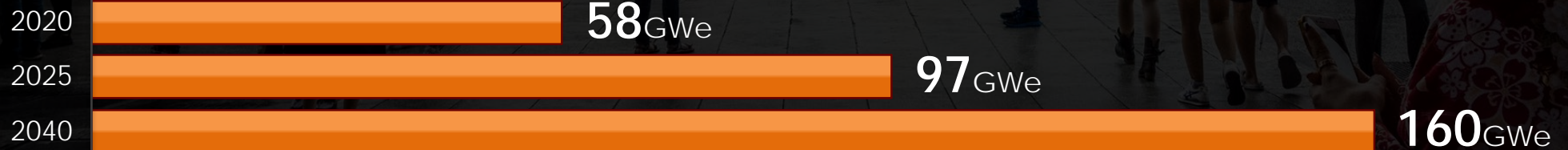
CHINA

Boost nuclear power capacity by more than 70% by 2020

Air Quality Imperative – scuttling of 85 coal-fired power stations and investing US\$ 365B into renewable energy, including nuclear

Breaking ground on 6-8 new units per year (increasing to 10 per year post-2020)

CURRENT NUCLEAR GROWTH PLAN





INDIA

Boost nuclear power capacity by more than 29% by 2019

Official Plan – 15 GWe installed by 2025

Uranium buying spree (long term contracts) – Canada, Kazakhstan, Uzbekistan)

Establishment of “Strategic Uranium Reserve” of between 13 and 39mlbs U3O8

21 **REACTORS OPERATING**
With installed capacity of 6 GWe

6 **UNDER CONSTRUCTION**
Capacity of 6 GWe

4 **PLANNED**
Totalling 24 GWe



JAPAN

20-22%
NUCLEAR POWER
PLANNED

Government approved

20-22%
NUCLEAR POWER
PLANNED
Government approved

26

APPLICATIONS

NRA has received 26 reactor restart applications

5

APPROVED

Five reactors approved for restart

4

RESTARTED

Four reactors have started

HONEYMOON HIGHLIGHTS

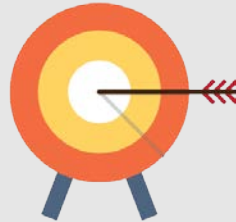


BOSS has a number of advantages over its peers and likely to be in production sooner than many.



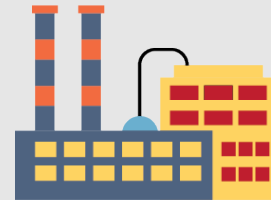
PERMITTED

Fully permitted uranium operation
(1 of only 4 in Australia)



TARGET

Significant exploration target
Huge 80+ km potentially mineralised strike
2,600km² underexplored uranium province
57.8mlb U₃O₈ JORC Resource



INFRASTRUCTURE

\$170m plant and infrastructure in place



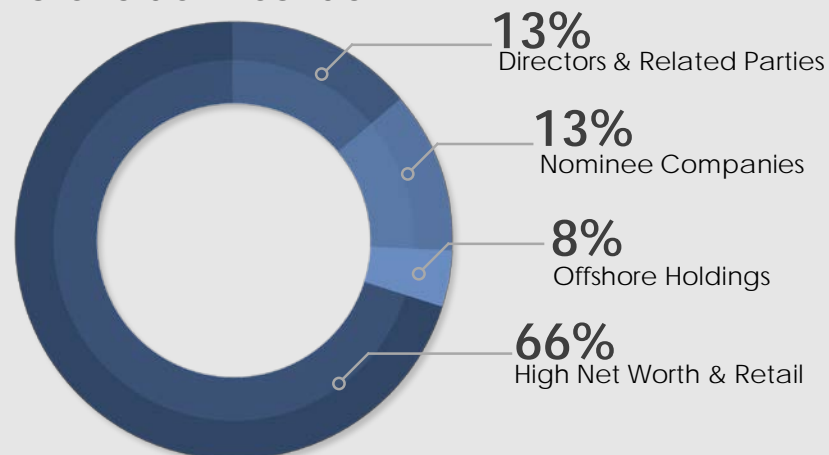
LOW CAPEX

Expansion Study highlights low CAPEX expansion
US\$57M to 2mlbpa and AISC of US\$24/lb
Further expansion to 3.6mlbpa

CORPORATE STRUCTURE



Shareholder Breakdown



Existing Shares (ASX:BOE)	1,007 million
Performance Rights*	60.5 million
Options (various)	40 million
Market Capitalisation (at \$0.07)	~\$70.5 million
Top 100 Shareholders	~75%

Share Price Movement



AUSTRALIAN URANIUM PROJECTS



HONEYMOON URANIUM PROJECT

- One of the highest grade un-mined uranium resources in Australia
- 1 of only 4 fully permitted uranium projects in Australia with export licence
- Located 75Km NW of Broken Hill, South Australia
- Curnamona Basin – a significant underexplored uranium province
- Inherited massive database - over 5,300 drill holes – wealth of information
- Targeting >100mlbs resource
- Mineralisation occurs at 90-120m depth
- Resources amenable to In-Situ Leach recovery
- Low CAPEX and OPEX costs
- Currently on care and maintenance

Water Treatment Plant

INFRASTRUCTURE

\$170M INFRASTRUCTURE ALREADY IN PLACE

Production Well Fields

Admin Buildings

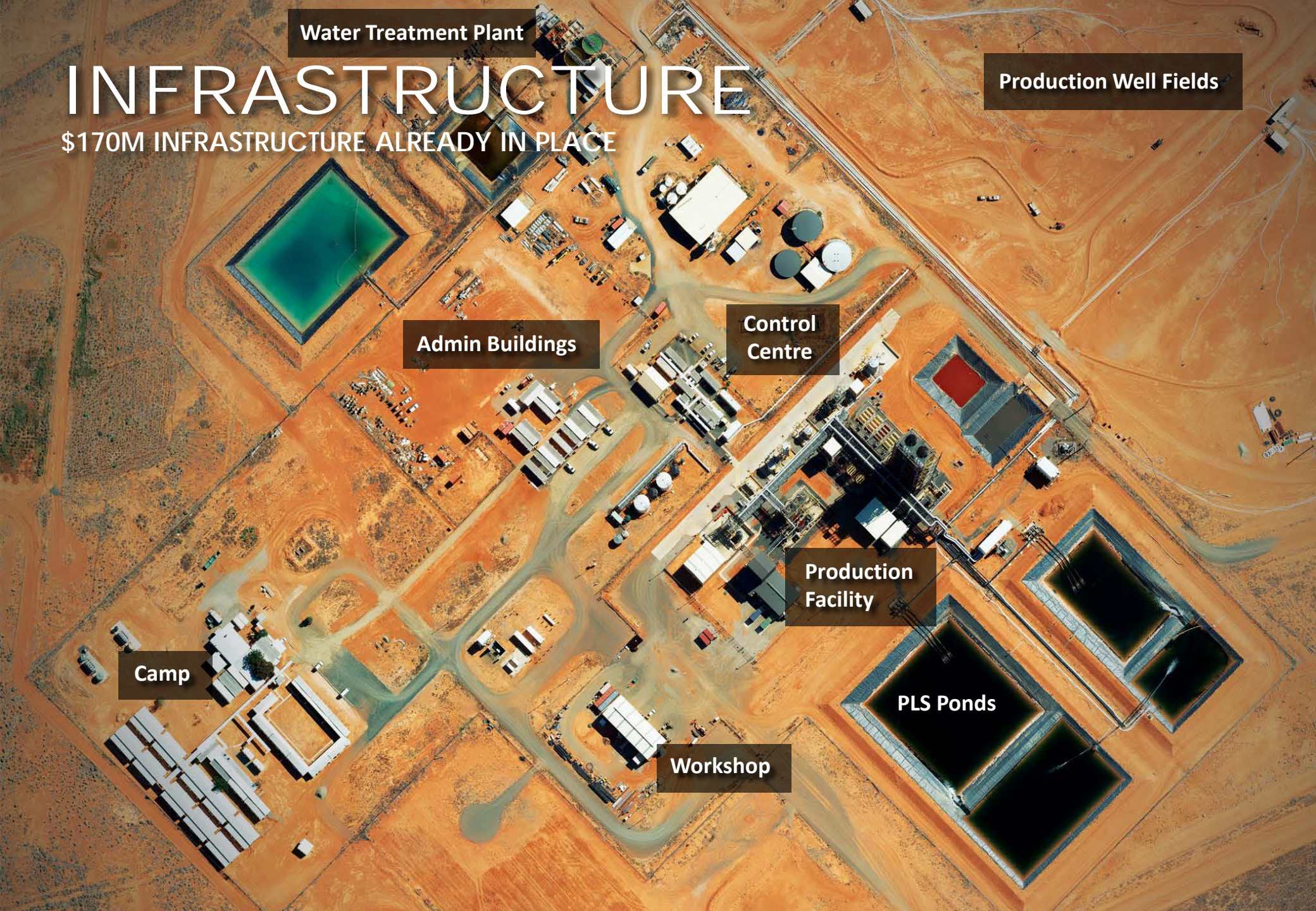
Control
Centre

Production
Facility

Camp

Workshop

PLS Ponds



HONEYMOON RESOURCE



SIGNIFICANT EXISTING HIGH GRADE RESOURCES – HIGHEST GRADE AMONGST ASX-LISTED PEERS

Classification	Million Tonnes	U ₃ O ₈ ppm	Contained U ₃ O ₈ (Mkg)	Contained U ₃ O ₈ (Mlb)
Measured	1.7	1720	2.95	6.5
Indicated	5.9	810	4.80	10.6
Inferred	32.5	569	18.50	40.7
Total	40.1	654	26.24	57.8

EXPANSION STUDY

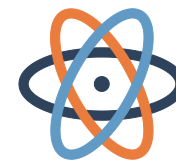


LOWEST CAPEX URANIUM PLAY ON ASX WHILST MAINTAINING LOW OPEX

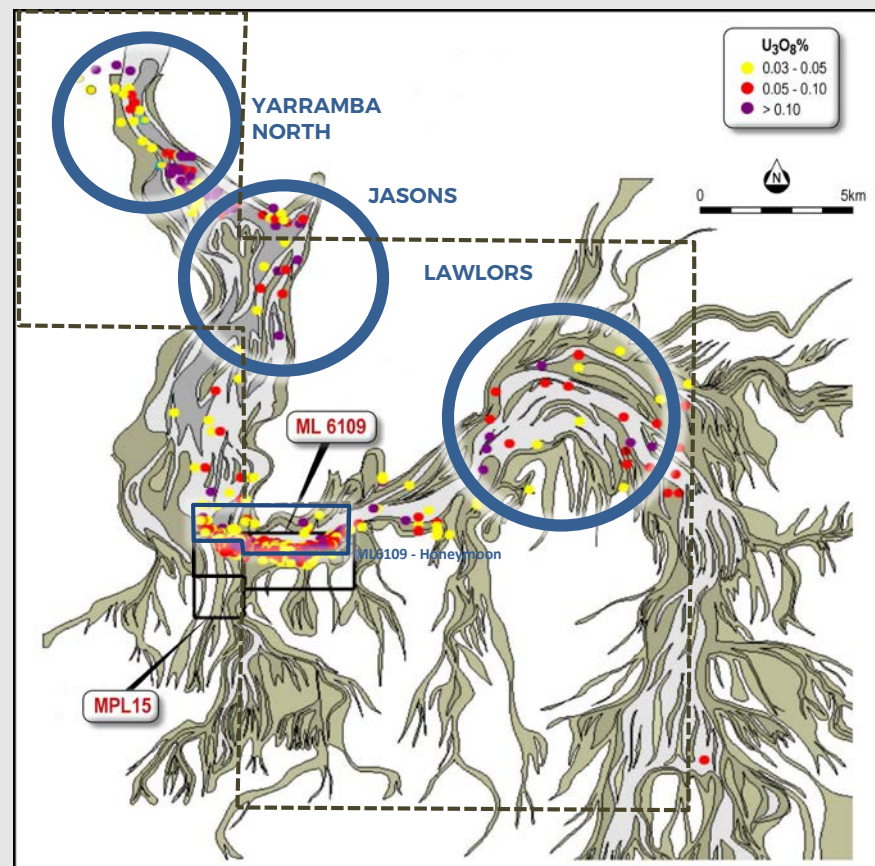
- Completed September 2016 by **GR Engineering** and **ANSTO**
- The Expansion Study was based on **results from past production operations**.
- Bringing in uranium industry experts , cherry picking engineering / technical geology & hydrology personnel
- A hybrid ELUEX process utilizing **\$170m existing infrastructure**
- **Low CAPEX** required - US\$7 million for plant re-start plus US\$57 million for the expansion to 2mlbs / annum
- Steady state **AISC are ~US\$24/lb** U_3O_8
- **Further expansion to 3.6mlbs / annum** U_3O_8 in years 4-5
- Next phase to include exploration on other identified targets deferring need to develop Gould's Dam resource
- See ASX announcement (ASX: BOE 28 September 2016) for further details

EASTERN TENEMENTS

EXPLORATION POTENTIAL



- **Eastern Tenement Resource** of 32.8mlb U_3O_8
- **Additional** regional Exploration Target of 18-47mlb U_3O_8
- **30 strike km** of potential mineralisation
- **Drill ready targets** - historical drilling shows numerous intercepts $>1,000\text{ppm } U_3O_8$
- **Three priority regions** – Yarramba, Jasons and Lawlors
 - early potential for resource definition
- **Drilling commenced** on Jason's Deposit **Q4 2016**
 - current resource **~5mlbs U_3O_8** expected to increase
 - infill drill program to increase resources substantially



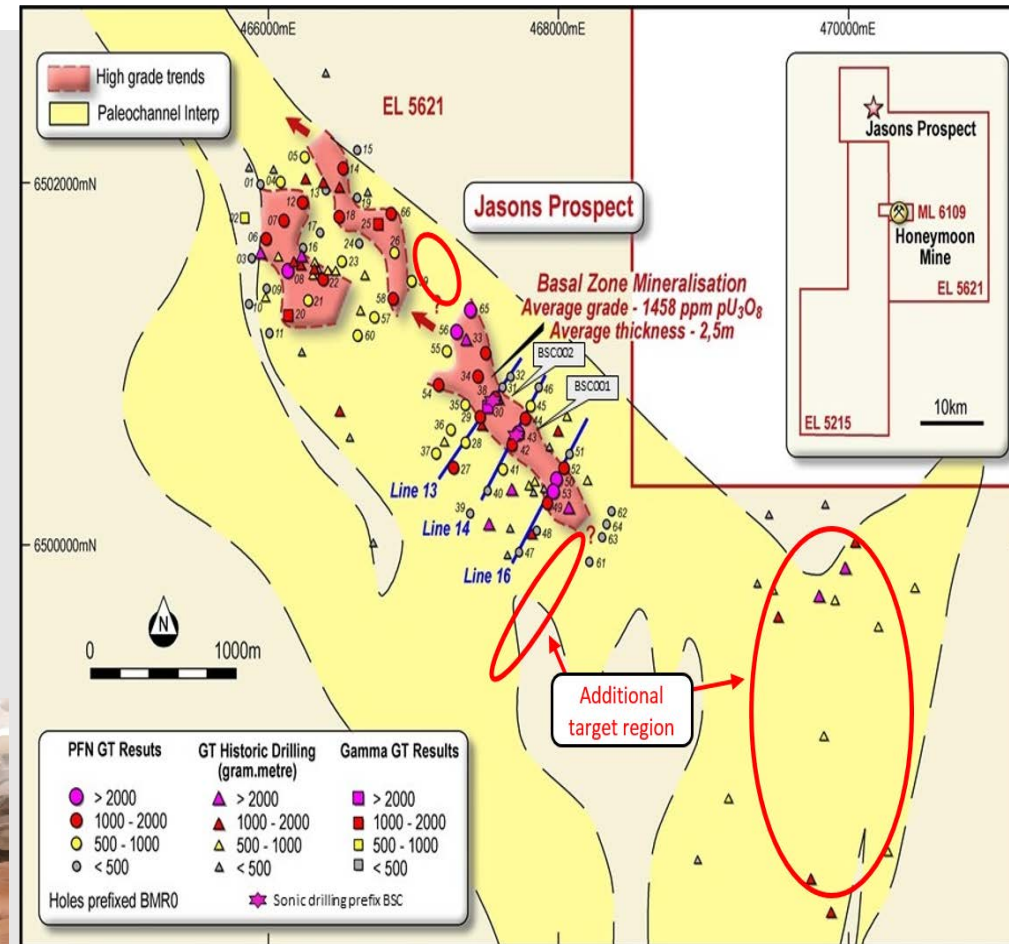
Historical & Recent Drilling Intercepts

JASONS DEPOSIT

FIRST EXPLORATION – SUCCESSFUL



- **72 mud rotary holes for 8,580m** drilled to February 2017
 - High grade trend >1,300m long identified in the southern drill region
 - Average grade of **1,458ppm eU_3O_8**
 - Average thickness of **2.5m**
- **2 sonic holes drilled in southern high-grade zone**
 - Confirms roll-front related mineralisation on redox boundary
 - Mineralisation in coarse to gravelly sands
- **3 x monitoring holes** to be placed to allow for environmental monitoring and permitting

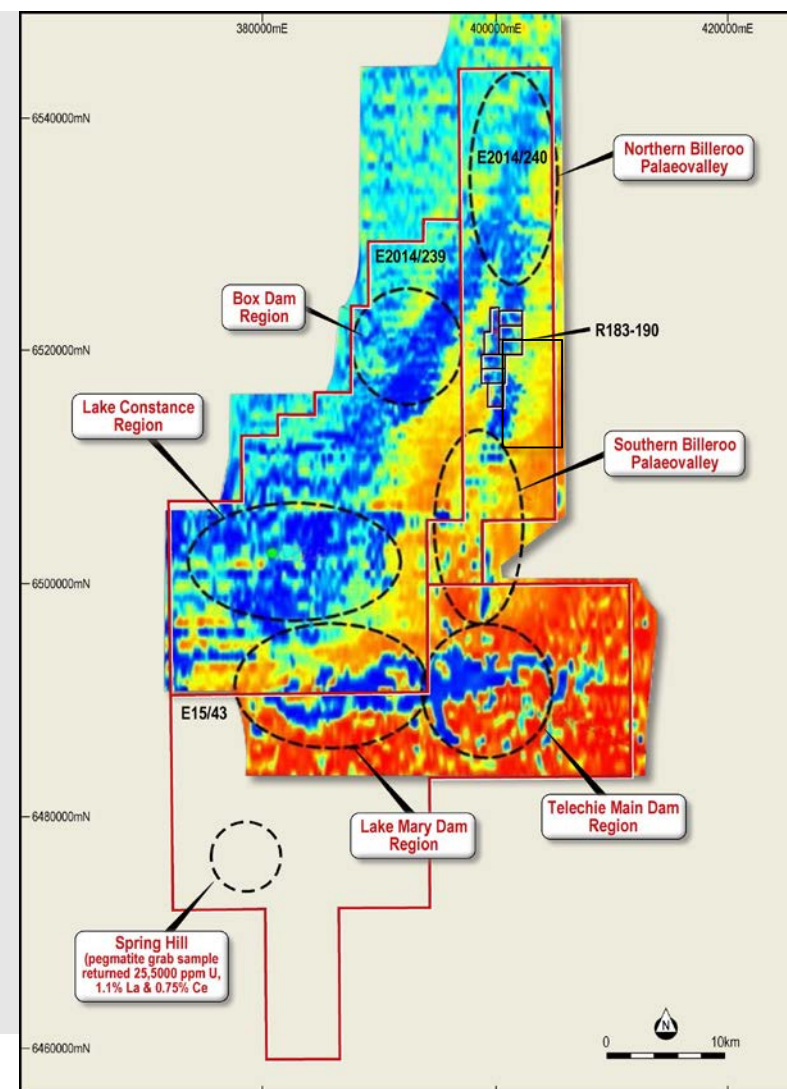


WESTERN TENEMENTS

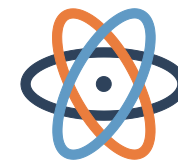


EXPLORATION POTENTIAL

- Western Tenement Resource of 25mlb U_3O_8
- **Additional** regional Exploration Target of 24-53mlb U_3O_8
- Limited exploration performed to date on vast prospective areas
- 54 strike km of potential mineralisation
- **Goulds Dam / Billeroo system underrated:**
 - 12km strike length
 - Under drilled highly prospective ground
 - **Further resource upgrades** estimated from further drilling
- Other **pegmatite hosted mineralisation** up to 3.5% U_3O_8 identified
- Potential for new styles of mineralisation similar to Beverly / 4 Mile
- Grades of up to 1% U_3O_8 reported from historical drilling



MILESTONES



- ☒ **Project Acquisition**
Lowest cost per lb acquisition in recent history
- ☒ **Resource Upgraded**
Total resource of 57.8mlb U3O8 @ 654ppm – 3.5 times the resource at acquisition in December 2015
- ☒ **Expansion Study**
Low CAPEX and OPEX study completed
2m – 3.6mlb per annum
AISC ~US\$24/lb
Expansion CAPEX US\$57m
- ☒ **Commence drilling Q4 2016**
Target known mineralised areas for low cost additional resource
- ☐ **Expansion PFS completed Q2 2017**
- ☐ **Expansion DFS completed Q4 2017**
- ☐ **Commencement of Expanded Production estimated mid 2019**



New DFS is essentially just an expansion study to derive economies of scale and reduce unit operating costs.

FEASIBILITY PLANNING SCHEDULE

Project Activities	Q ₃ 2016	Q ₄ 2016	Q ₁ 2017	End 2017
Option Study	<div></div>			
Initial Exploration	<div></div>	<div></div>		
Resource Upgrade - Jasons			<div></div>	
PFS Expansion	<div></div>	<div></div>	<div></div>	
DFS Expansion	<div></div>	<div></div>	<div></div>	<div></div>

COMPETITIVE ADVANTAGE



A fully built and permitted operation is a great advantage.



TEAM

Executives with **uranium pedigree**, project management, development, financing, and operational experience



ASSETS

Honeymoon Uranium asset in South Australia

Underestimated uranium province

Significant strike extension potential



APPROVALS

Necessary permits in place

Only non-producing project in Australia licensed to be brought into production

Heritage Native Title mining agreements approved



LOW COST

Expansion Study highlights low CAPEX expansion (US\$57m)

2mlbpa and AISC of US\$24/lb

EXPERIENCED DIRECTORS & MANAGEMENT



- **Mark Hohnen Chairman**
Mr Hohnen has extensive international business experience in a wide range of industries. He is currently a Board member of Swakop Uranium and was the founding Executive Chairman of Kalahari Minerals Plc.
- **Duncan Craib Chief Executive Officer**
Mr Craib has been appointed to lead the next stage of development for the Project. Mr Craib is ex-Finance Director to Swakop Uranium (Pty) Ltd and ex-CFO to Kalahari Minerals Plc. Mr Craib has been heavily involved in the US\$2.5 billion development and construction of the near commissioning Husab uranium mine in Namibia.
- **Keith Bowes Project Manager**
Mr Bowes is a process engineer with 20 years' experience in metallurgy, project management and operations. He has worked in Africa, South America and Australia for the major mining houses on projects and plants covering a wide range of commodities and processes. He has been involved in a number of technology developments and has successfully incorporated these into various projects and operating plants.
- **Neil Inwood Geology Manager**
Mr Inwood has 22 years' international multi-commodity project and consulting experience and has consulted on uranium projects in Australia, Africa, the USA and South America. Mr Inwood is a Fellow of the Australian Institute of Mining and Metallurgy.
- **Evan Cranston Corporate Director**
Mr Cranston is a corporate lawyer with experience in publicly listed entities including capital raisings, offerings, and liaison with market analysts and investors.
- **Marat Abzalov Director - Geology**
Dr Abzalov has a PhD in Geology. Marat has recently completed an invited study of ISL styles of mineralization, including those in Australia. He is also an ex-Exploration manager for Rio Tinto Eurasia, with extensive experience in Kazakhstan uranium projects.
- **Peter Williams Director**
Mr Williams is an explorationist/geophysicist with over 30 years experience. He has extensive experience in West Africa, Australia, Fennoscandia, and Canada.
- **Grant Davey Director**
Mr Davey is a mining engineer with 20 years of senior management and operational experience in the construction and operation of Uranium, gold, platinum and coal mines in Africa, Australia, South America and Russia.

AUSTRALIAN PEER COMPARISON

ASX LISTED STOCKS - BOSS is highly leveraged to uranium price increases.



Company	Initial Capex (US\$)	Mining Permit	Resource mlb	Grade ppm	Mining Type	Market Cap ¹ (AUD\$)	EV ¹ (AUD\$)	EV / Resource	C1 Costs (US\$/lb)
Peninsula Resources (ASX:PEN)	\$33.0m ² (stage 1)	✓	54	476	ISL	135.7	\$161.1	\$3.0	\$29.2
Berkeley Resources (ASX:BKY)	\$95.7m ³	✓	89	514	Hard rock Open pit	293.9	\$252.6m	\$2.8	\$13.3
Boss Resources (ASX:BOE)	Constructed Expansion \$57m	✓	58	654	ISL	69.5	\$67.8m ⁴	\$1.2	\$16.0
Toro Energy (ASX:TOE)	\$193.5m ⁵	✗	84	482	Bulk surface Open pit	110.4	\$114.5m	\$1.4	\$31.0
Vimy (Energy & Minerals) (ASX:VMY)	\$287.6m ⁶	✗	77	520	Surface Open pit	76.0	\$67.8m	\$0.9	\$31.3

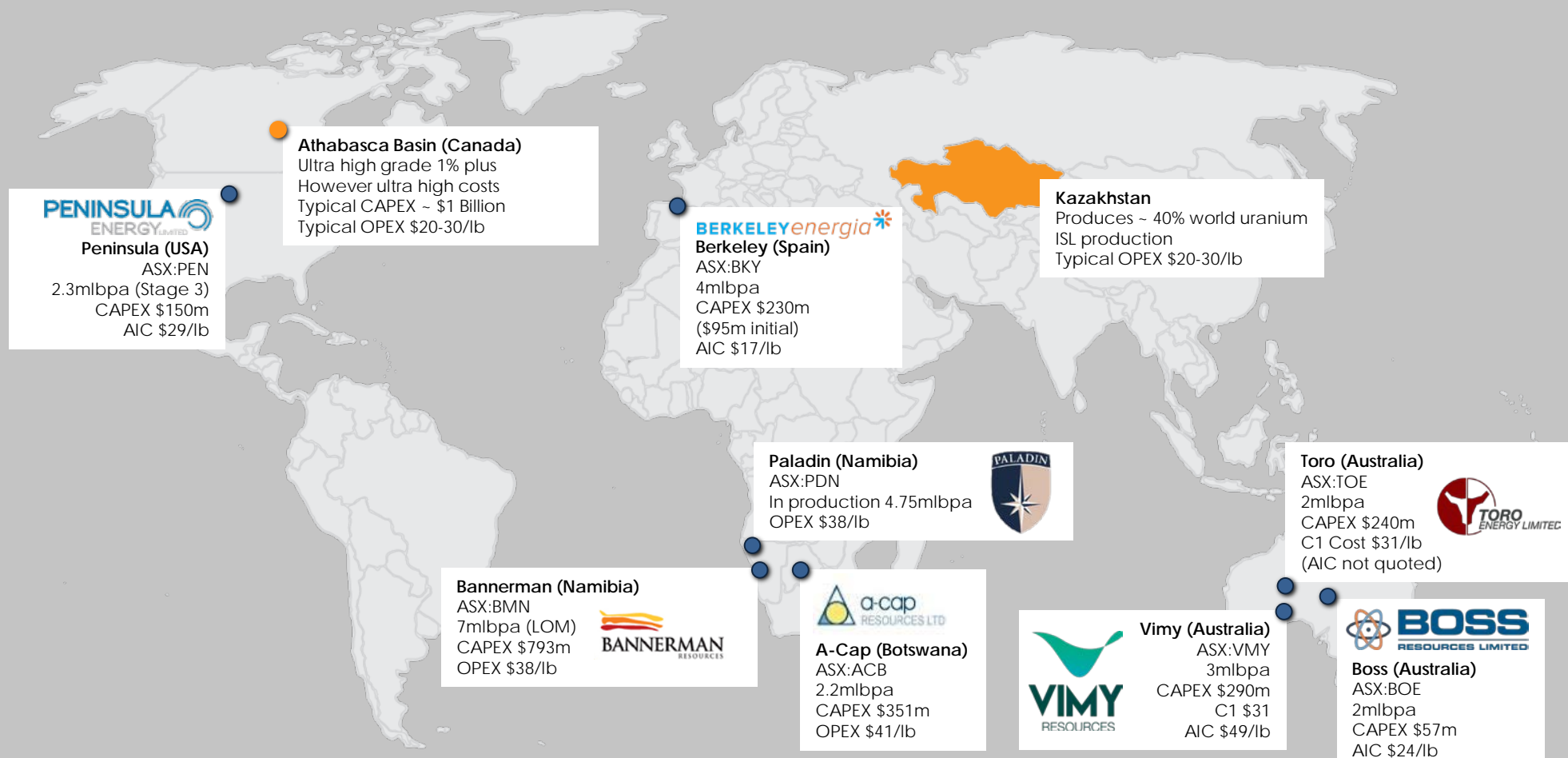
Notes: (1) IRESS – 01/02/2017, Quarterly Activity/Cashflow Reports 31/12/2016
 (2) ASX:PEN Announcement 12/07/2016 – Company Presentation July 2016
 (3) ASX:BKY Announcement 04/11/2016 – Investor Presentation
 (4) Includes proceeds (less costs) from January \$6.8m capital raise

(5) ASX:TOE Announcement 05/12/2016 – Cost benefits from Beneficiation and Process Design
 (6) ASX:VMY Announcement 17/11/2015 – Results Pre-Feasibility Study – Mulga Rock Project (A\$1 : US\$0.7019)

Assumed exchange A\$1:US\$0.75 – excluding VMY CAPEX calculation

URANIUM PEERS

COST ANALYSIS – ASX Uranium Companies





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