

BOSS
ENERGY LTD

AUSTRALIA'S NEXT URANIUM PRODUCER

DIGGERS & DEALERS

3 AUGUST 2022

ASX: BOE | OTCQX: BQSSF |  @BOSS_ENERGY



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The information in this document relating to the Enhanced Feasibility Study ("EFS") is extracted from the announcement entitled 'Updated Feasibility Study identifies lower costs and increased financial returns' dated 21st June 2021. Boss Energy confirms that all the material assumptions underpinning the production targets, and forecast financial information derived from the production targets, continue to apply and have not materially changed.

As the EFS utilises a portion of Inferred Mineral Resources, the ASX Listing Rules require a cautionary statement to be included in this presentation. The EFS is based on a Mineral Resources Estimate in accordance with JORC guidelines 2012 (ASX: 149% Increase in Measured and Indicated Resources at Honeymoon date 25 February 2019). The Company advises that the EFS uses a portion of Inferred Resources; in the first 3 years (less than 1%), in the first 5 years (5%) and over the 11-year life of mine (19%). The Company confirms that the use of Inferred Resources is not a determining factor to the Honeymoon Project's economic viability. There is a low level of geological confidence associated with Inferred Resources and there is no certainty that further exploration or evaluation work will result in the determination of Indicated Resources or that the production targets reported in this announcement will be realised.

REFERENCE TO PREVIOUS ASX ANNOUNCEMENTS

The mineral resource estimate and exploration target in this announcement were reported by the Company in accordance with listing rule 5.8 and 5.7 (respectively) on 25 February 2019 and 25 March 2019, respectively. The Company confirms it is not aware of any new information or data that materially affects the information included in the previous announcement and that all material assumptions and technical parameters underpinning the estimates in the previous announcement continue to apply and have not materially changed.

In relation to the exploration target, this does not include areas of the existing mineral resource and the potential quantity and grade reported are conceptual only in nature. Insufficient exploration has been conducted to estimate a mineral resource and it is uncertain whether future exploration will lead to the estimation of a mineral resource in the defined areas.

EFFECT OF ROUNDING

A number of figures, amounts, percentages, estimates, calculations of value and fractions in this Presentation are subject to the effect of rounding. Accordingly, the actual calculation of these figures may differ from the figures set out in this Presentation.

PAST PERFORMANCE

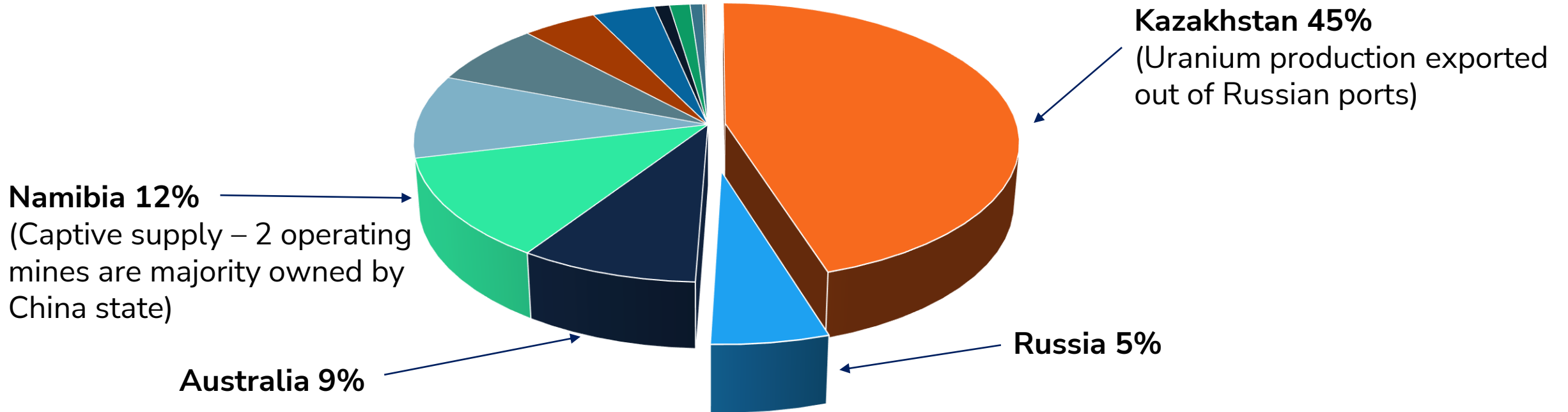
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VULNERABLE URANIUM SUPPLY

Production in 2022 is vulnerable to sanctions, shipping disruptions and supply chain risk

Global Uranium Production in 2021



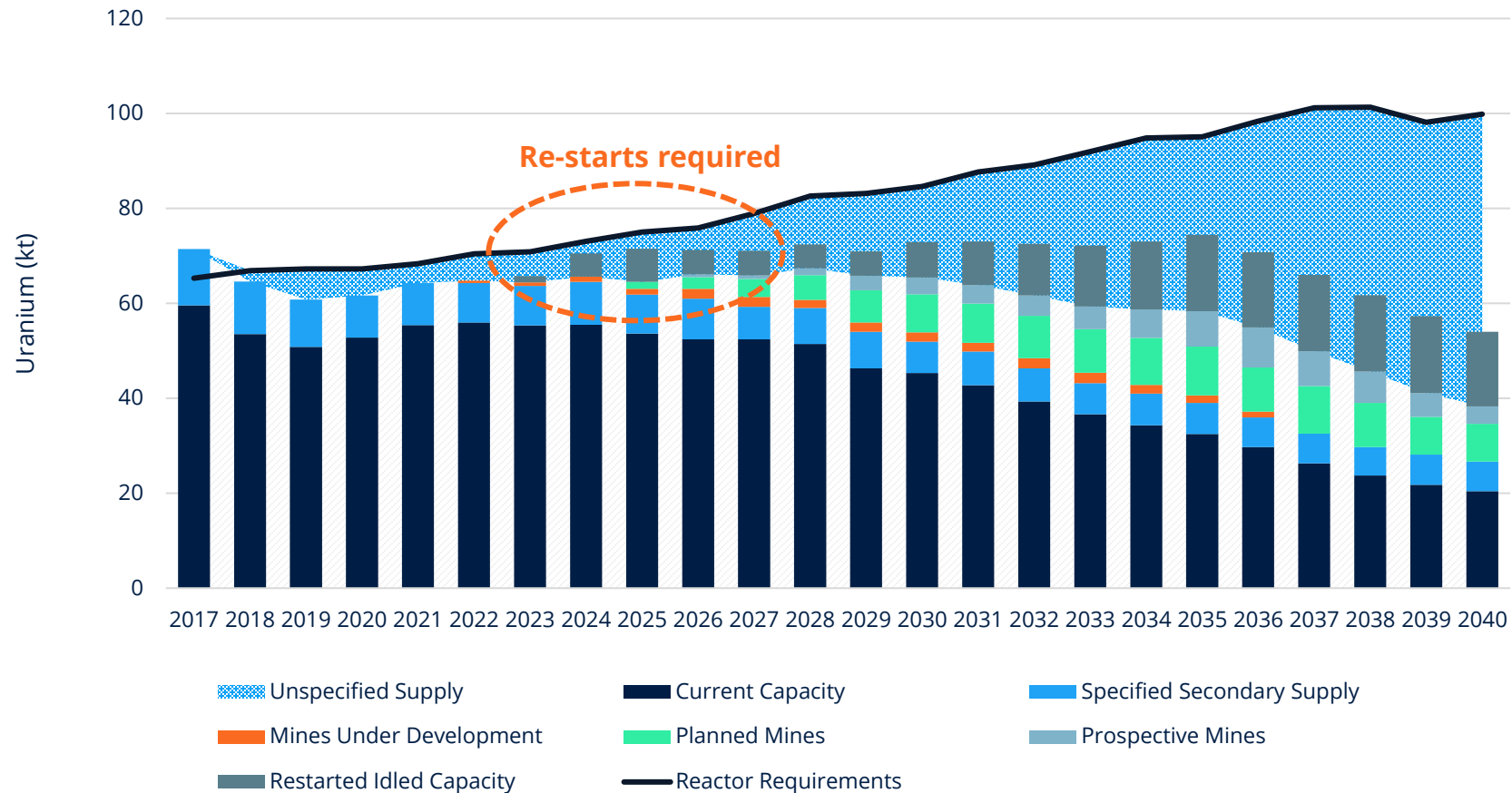
Source: World Nuclear Association



COMPELLING MARKET FUNDAMENTALS

Re-start projects are required to be online by 2023-2024 to fill a looming supply shortage

World Nuclear Association - Reference (Base) Scenario¹

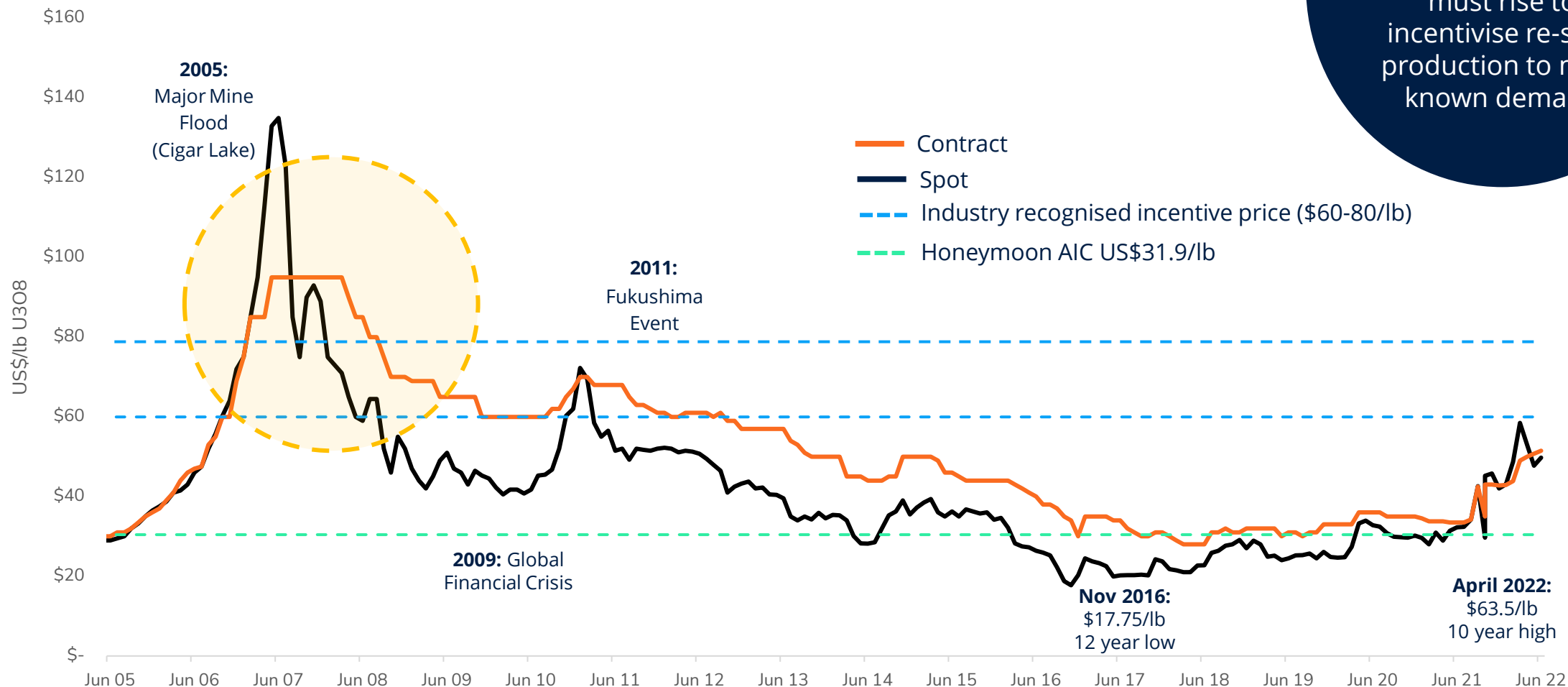


¹ Sourced from World Nuclear Association at <https://world-nuclear.org/our-association/publications/global-trends-reports/nuclear-fuel-report.aspx>



URANIUM PRICE HISTORY

Increased activity in the spot market has led to a rapid increase in spot price



Source: TradeTech, Numerco, UxC, LLC: www.uxc.com

Low uranium prices have curtailed supply. Contract prices must rise to incentivise re-start production to meet known demand

?



THE OPPORTUNITY FOR BOSS – INVESTMENT HIGHLIGHTS

Fully funded to become Australia's next Uranium producer, with a global first mover advantage

- **Technically proven, low-cost re-start operation** in the uranium friendly jurisdiction of South Australia
- **Well positioned to take advantage of the current rising uranium market**, compelling market fundamentals
- **Fast track production <12 months from FID to produce 2.45Mlbs U3O8 p.a. within 3 years**
- **Best in class development and operational team**, with proven track record of delivering results
- **Low operating cost of LOM** average AISC of US\$25.6/lb and Cash Costs of US\$18.50/lb
- **Significant upside beyond initial mine plan**, with ~50% of resource yet to be incorporated
- **Fully permitted** with all Native Title and Environmental Agreements in place, 3.3Mlb U3O8 p.a. Export Permit
- **Well positioned to build a strong multi-asset platform**



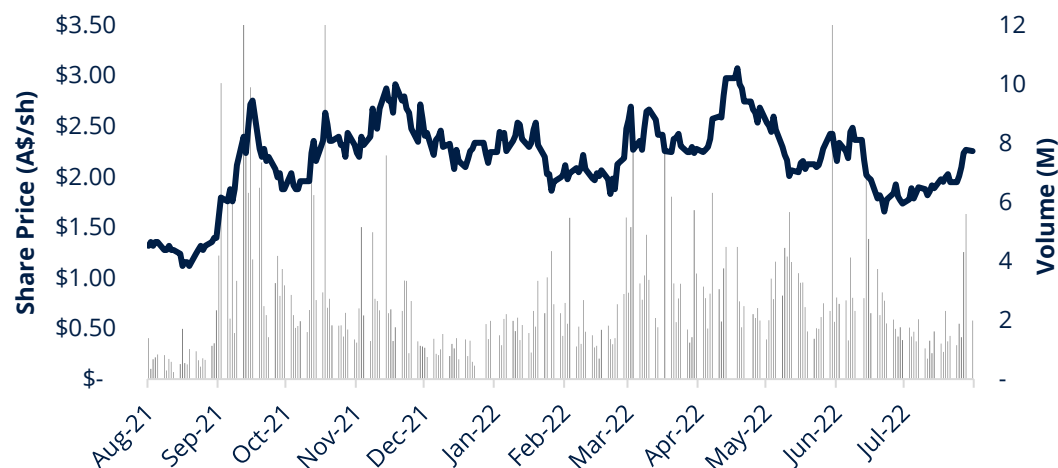
CORPORATE OVERVIEW

Fully funded to become Australia's next Uranium producer, with a global first mover advantage

BOARD OF DIRECTORS

Non-Executive Chairman	Peter O'Connor
Managing Director & CEO	Duncan Craib
Non-executive Director	Jan Honeyman
Non-executive Director	Bryn Jones
Non-executive Director	Wyatt Buck

SHARE PRICE PERFORMANCE



KEY MANAGEMENT & CONSULTANTS

Chief Financial Officer	Andre Potgieter
Strategy & Marketing	Sashi Davies
Project Manager	Jonathon Owen
Processing Manager	Trevor Robinson
GM Wellfield & Resources	Ben Jeuken
Geology Manager	Jason Cherry
NIMCIX Ion Exchange	Dr Merrill Ford

KEY METRICS

	Shares (M)	Value (A\$M)
Ordinary Shares	353*	
Market Capitalisation (A\$2.26/sh*)		797
Physical Uranium		83
Cash (30 Jun 2022)		133
Enterprise Value		581

*Excludes ~1.4m options with various exercise prices

**As at 1 August 2022



HONEYMOON URANIUM PROJECT

AUSTRALIA'S NEXT URANIUM PRODUCER



HONEYMOON MINE SITE

Sunk Infrastructure Cost of \$170M

WATER
TREATMENT
PLANT

PRODUCTION
WELL
FIELDS

ION
EXCHANGE

DRYING
CIRCUIT



RAMP-UP OF KEY CONSTRUCTION & DEVELOPMENT WORKS

Advancing early works activities

- ✓ **All major long-lead tenders have been issued** and are under evaluation
- ✓ **Orders for key critical equipment items have been placed**
- ✓ **SMP contractors mobilised** to site for the piping and electrical works, wellfield drilling to commence in mid-August 2022.
- ✓ **Building contractor has commenced** with the refurbishment and upgrade of the mine camp and administration facilities.
- ✓ **High speed data services have been connected** and site access road upgrades are scheduled to start late August 2022.

APPOINTMENT OF CFO & GROWTH OF OPERATIONS TEAM

Seasoned resource professionals

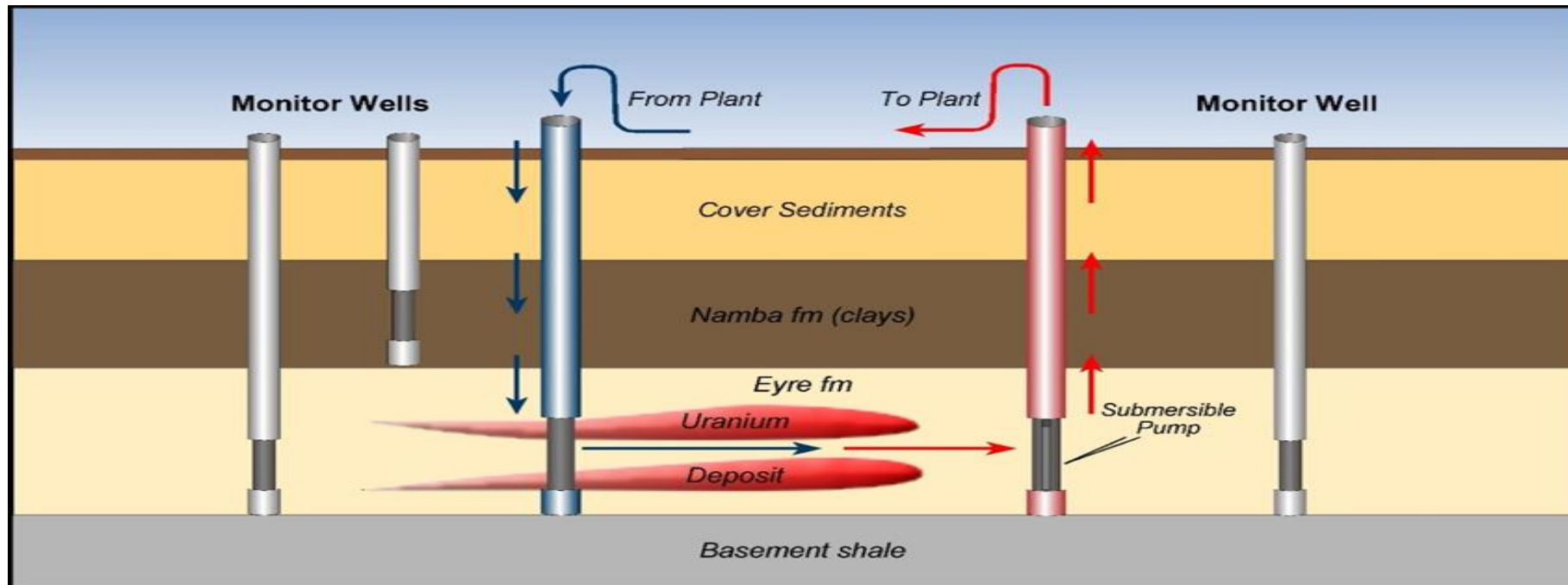
- ✓ **Appointment of CFO and key members to Adelaide-based operational team** (HR, Safety, Geology & Hydrology)
- ✓ **Successful in recruiting the Operational and Project teams based on well-referenced existing networks**



IN-SITU RECOVERY ESG BENEFITS

ISR is a proven cost effective and environmentally encouraged extraction process

- ISR accounts for ~ 60% global uranium mined, and is used in Australia, Kazakhstan, USA
- The ISR process involves the installation of multiple wells in a specific pattern over the orebody
- ISR has **19-28% lower energy requirements** and **produces just 17-32% GHG emissions** vs conventional mining
- **ISR, unlike conventional mining**, results in minimal, temporary ground disturbance within mining areas





JORC RESOURCES ~ 71.6Mlb U₃O₈

- 71.6Mlb U₃O₈ JORC Resource¹ at an average grade of 620ppm U₃O₈
- The Honeymoon Re-start Area (HRA) contains 36Mlb U₃O₈
 - ML 6109 sits on top of the HRA
 - Shallow mineralisation at 90 - 120m depth
- A further 36Mlbs sits outside the HRA on 2 satellite domains
- In addition to the JORC Resource, Honeymoon has a substantial Exploration Target² of 58Mlbs to 190Mlbs at grades up to 1,080ppm U₃O₈

Classification	Ore (Mt)	Grade (ppm U ₃ O ₈)	Contained U ₃ O ₈	
			(kt)	(Mlb)
Measured	3.1	1,100	3.4	7.6
Indicated	18.4	630	12.0	25.5
Inferred	30.9	570	18.0	38.5
Total	52.4	620	32.5	71.6

¹ Refer ASX announcement 25 February 2019

² Refer ASX announcement 25 March 2019. The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource and it is uncertain whether future exploration will result in the definition of a Mineral Resource





FINANCIAL HIGHLIGHTS

Honeymoon's low cost of production delivers robust financial returns, excludes held physical uranium

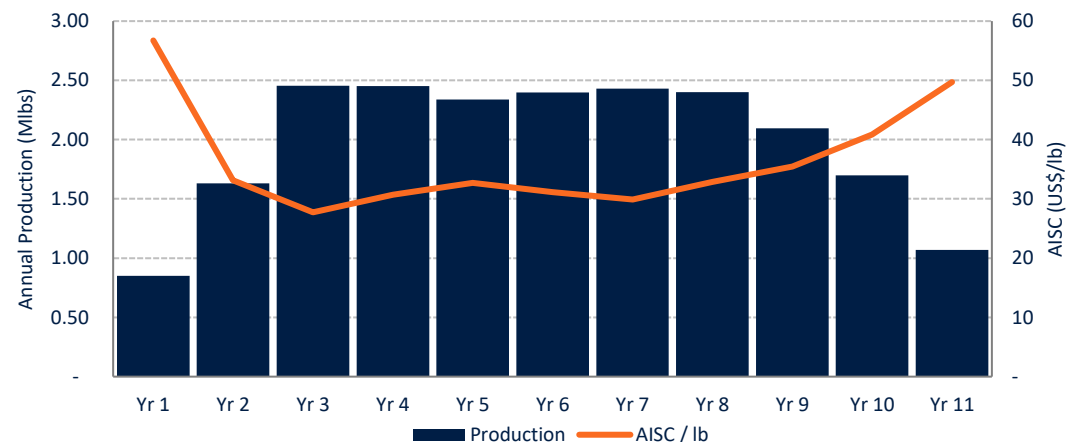
**US\$1.28B
REVENUE**

**US\$25.62/lb
AISC**

**62%
EBITDA Margin**

**Low US\$80M
Capital Cost**

PRODUCTION SUMMARY



KEY STUDY OUTCOMES

FINANCIALS

Physical Summary

Life of Mine	Years	11
U ₃ O ₈ Production	Mlb	21.81

Financial Summary

NPV _{8%} , Pre-tax (US\$60/lb)	A\$M	412
NPV _{8%} , Pre-tax (US\$80/lb)	A\$M	729
IRR _{Ungeared} , Pre-tax	%	47.1%
Revenue	US\$M	1,279
Free Cash Flow (Pre-tax)	US\$M	580
EBITDA Margin	%	62%

Operating Costs

Cash Cost	US\$/lb U ₃ O ₈	18.5
All In Sustaining Cost	US\$/lb U ₃ O ₈	25.6
All In Cost	US\$/lb U ₃ O ₈	31.9

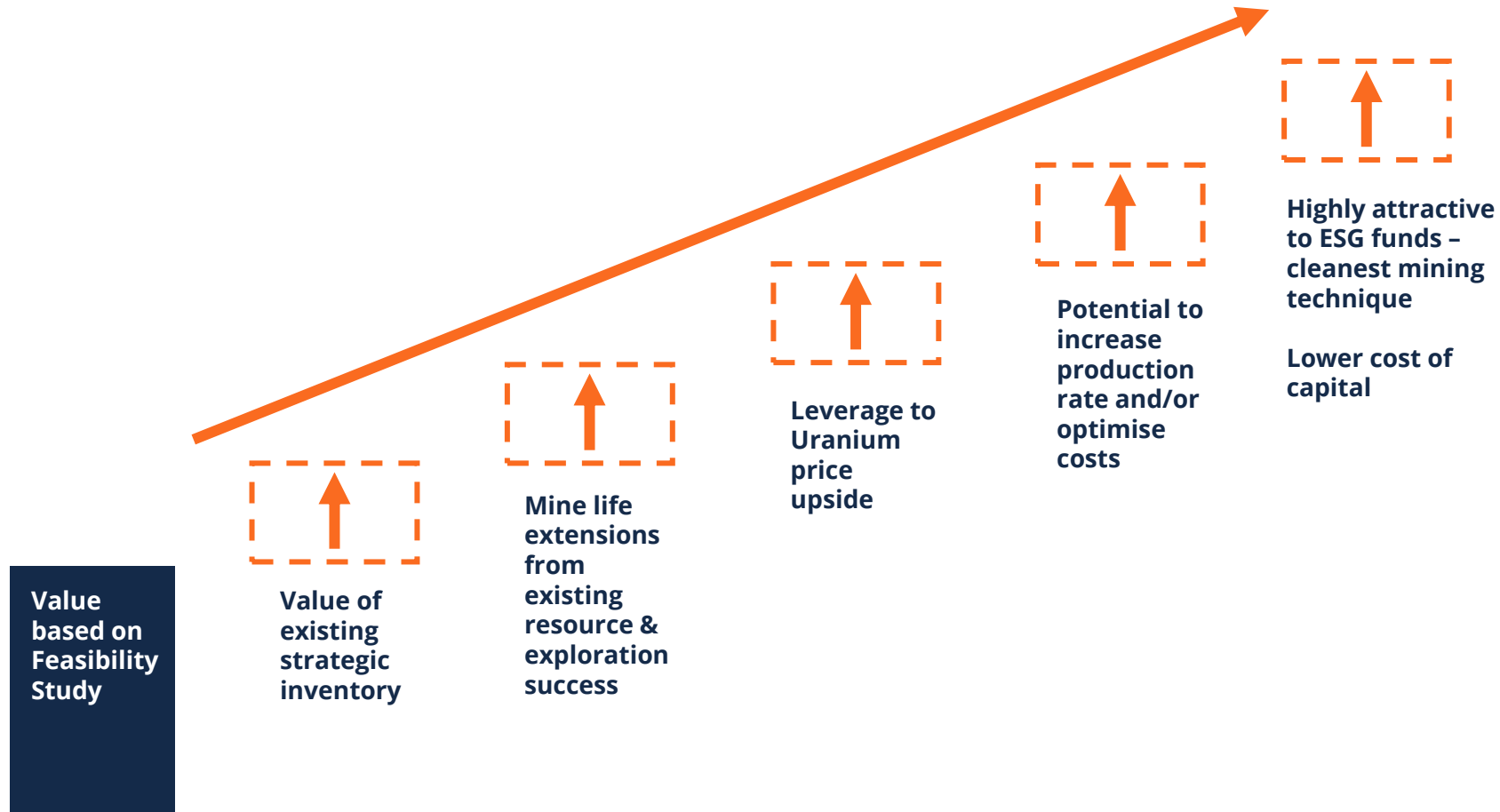
Capital Costs

Re-start	US\$M	60.2
Additional IX Columns	US\$M	19.8
Total	US\$M	80.0



SIGNIFICANT UPSIDE POTENTIAL

Substantial scope to add significant value and mine life beyond initial EFS mine plan



Not to scale and illustrative only



Boss Energy's ESG Focus








Instilling ESG values not only creates economic value, but long-term value for society by addressing its needs and challenges

- **Business Ethics** & Corporate Governance
- **Climate change** and decarbonisation
- **Health and Safety**
- Community **Relationships**
- **Environmental Protection** & Contamination
- **Radiation Protection**



FIRST MOVER ADVANTAGES

Well positioned to deliver on project outcomes to meet growing market demand

-  **Completed FEED** – in line with Feasibility Study expectations
-  **Secure long-lead time items** – all major long-lead tenders have been issued and are under evaluation
-  **Restart development** – early works activities advancing
-  **Continue engagement with Utilities for long-term contracts** – on the right terms to lock in robust margins.
Boss is not reliant on offtake for development funding
-  **Well capitalised balance sheet** – use of equity to fund development derisks project and retains maximum financial flexibility through commissioning and for future growth initiatives
-  **Production** – expected production circa 18 months from commencement of development
-  **Continue exploration focus** – substantial scope to extend LOM and/or increase production profile

A nighttime photograph of a dense urban skyline, likely Hong Kong, with numerous skyscrapers illuminated by city lights. A large, semi-transparent blue circle is overlaid on the right side of the image. Inside this circle, the word "APPENDIX" is written in a bold, white, sans-serif font. Below the circle, there is a faint, stylized graphic of an atom or a molecular structure with three elliptical orbits and a central nucleus.

APPENDIX



BOSS ENERGY - BOARD OF DIRECTORS

Highly credentialed team with a proven track record in the uranium industry



Peter O'Connor

Non-Executive Chairman

Mr O'Connor has extensive global experience in the funds management industry and has worked with public and private companies in developed and emerging economies. He was co-founder, director and deputy chairman of IMS Selection Management Ltd, which had \$10 billion under management or advice from 1998-2008. Following this, he was deputy chairman of FundQuest UK Ltd, with \$10 billion under management.

Mr O'Connor was a Non-Executive Director of ASX 100 company Northern Star Resources Ltd (ASX: NST) from 2012 to 2021, during which NST grew its market cap significantly to >\$10 billion. He is also a Non-Executive Director of Blue Ocean Monitoring Limited.



Duncan Craib

Managing Director & CEO

Mr Craib (CA) has held senior executive roles with international mining operations in Australia, United Kingdom, Namibia, and China. For the past 14 years Mr Craib's career has been dedicated to the uranium industry.

Prior to commencing with Boss Energy, Mr Craib served as Finance Director to Swakop Uranium Ltd and was heavily involved in the US\$2.5 billion development and construction of its world class Husab uranium mine in Namibia. Its principal shareholder CGN, is the largest nuclear power operator in China and largest nuclear power constructor world-wide. Husab was commissioned in 2016, upon which Mr Craib was recruited to join Boss Energy.



Jan Honeyman

Non-Executive Director

Ms Honeyman has attained the highest-level global experience within the Human Resources area, most recently with global miner First Quantum Minerals Ltd where she was the Director of HR for 16 years. This role involved leading the HR function across the First Quantum group of companies with over 20,000 employees world-wide. This position involved business acquisition strategy from a human resource perspective, workforce and talent management, providing leadership for, and management of, over 100 HR professionals across 11 countries and also included working with the Board Compensation Committee on Executive Compensation.

Prior to this, Ms Honeyman was the Global Director, Talent Management with KBR Energy & Chemicals in Houston, USA at KBR and was a Global Director HR, Infrastructure PL for KBR (a division of Halliburton).



Bryn Jones

Non-Executive Director

Adelaide-based Mr Jones (MMinEng) is an industrial chemist and a Fellow of the Australian Institute of Mining and Metallurgy (AusIMM), with more than 20 years of experience in the Australian uranium industry. He has worked in all aspects of the mining cycle, particularly in uranium in-situ recovery (ISR) and mine development and production.

Mr Jones spent nearly 10 years in roles with ISR uranium producer Heathgate Resources, the owner and operator of the Beverley Uranium Mine in South Australia, Australia's only other producing ISR uranium mine. Mr Jones was previously the Chief Operating Officer of Laramide Resources (ASX/TSX: LAM). Laramide has a portfolio of uranium US-based assets, and Australian project interests.



Wyatt Buck

Non-Executive Director

Mr Buck's Uranium experience began with Cameco Corporation, where he was employed for 15 years between 1991-2006 in various roles, culminating as GM of the McArthur River Uranium Mine and Key Lake Mill, the largest Uranium mining operation in the world.

Mr Buck held senior operational roles with Paladin Energy Ltd (ASX: PDN) as General Manager and Managing Director of the Langer Heinrich Uranium Project in Namibia. From 2009 to 2011, Mr Buck was Executive GM Operations at Paladin with direct operational responsibility for its Langer Heinrich and Kayelekera Uranium projects. From 2011, Mr Buck acted as Operations Director with First Quantum Minerals (TSX: FM), overseeing mining operations in Finland, Spain, Turkey, Australia and Mauritania.



BOSS ENERGY – OPERATING TEAM

Highly credentialed team with a proven track record in the uranium industry

Sashi Davies

Strategic & Marketing

Ms Davies has more than 35 distinguished years of experience in the international uranium sector. She has extensive marketing expertise and an in-depth uranium knowledge base, having developed long-lasting relationships with international utilities and off-takers. Most recently, she was GM and Director of CGN Global Uranium Ltd and Head of Marketing for Extract Resources Ltd.

In April 2020, Ms Davies was appointed to the World Nuclear Fuel Markets (WNFM) Board of Governors. The WNFM was established in 1974 to promote international commerce in nuclear fuel materials. WNFM membership comprises about 76 companies representing around 21 countries, and is dedicated to facilitating trade of nuclear materials and increasing the availability of accurate, timely and useful price information to the industry.

Jon Owen

Project Manager

Mr Owen has extensive global experience in project management and development, including 10 years with First Quantum Minerals as a Project Manager on the African Sentinel Copper/Nickel development and more recently in handing over the Cobre Panama Copper/Gold processing plant.

Working in all aspects of the project lifecycle from feasibility to handover for 25+ years, Mr Owen brings a strong focus on self-perform project execution and efficient EPCM utilisation, with >12 years at Outotec managing in the project and engineering offices in Australia and Africa.

Andre Potgieter

Chief Financial Officer

Mr Potgieter is a highly experienced finance professional with more than 25 years' involvement in mining operations and construction projects, including both EPCM-executed and self-perform projects.

He has held senior roles in the mining industry with leading global companies such as First Quantum Minerals Ltd (FQM) and Freeport-McMoRan Inc. In these positions, he has managed multi-billion-dollar budgets while providing financial guidance and support from initial feasibility through to capital reviews, mobilisation, construction, commissioning, and project close out. Most recently, Mr Potgieter had been FQM's Business Development Manager, identifying and analysing all new investment opportunities and making appropriate recommendations.

Ben Jeuken

GM Wellfield and Resources

Ben Jeuken, has been appointed General Manager – Wellfield and Resource. Based in South Australia, Mr Jeuken is well known and highly regarded by industry peers in the practical management of groundwater for mining projects specifically In-Situ Recovery (ISR) uranium mining. His considerable experience includes technical engagements on neighbouring ISR uranium producer Heathgate Resources, the owner and operator of the Beverley and Beverley North Uranium Mines located 260km to the west of Honeymoon, and consulting to the International Atomic Energy Agency in developing uranium mining groundwater remediation guidelines.

Merrill Ford

NIMCIX Ion Exchange

Dr Merrill Ford is an independent metallurgical consultant. He educated as a chemical engineer in South Africa, in mineral process design at Imperial College, London and gained his Ph.D. from the University of Witwatersrand. He spent several years in the field of uranium extraction metallurgy, the design of NIMCIX columns for IX systems, the development of resin-in-pulp technology for gold and uranium and the modelling of uranium leaching.

He joined ANSTO in March 2003 as Manager Special Projects, and from July 2008 until April 2016 he was Manager Metallurgy for Paladin Energy, becoming an independent consultant in 2016. As an independent consultant to the uranium industry Merrill has provided input to feasibility and operational studies for a number of uranium clients, including Cameco, Paladin, Energy Metals, and Swakop Uranium.

Jason Cherry

Geology Manager

Based in South Australia, Mr Cherry, an experienced uranium exploration geologist of 17 years, has worked on various mining styles of uranium mineralisation, with several years on Honeymoon where he was intricately involved in discovering new uranium resources including the satellite deposits Jasons and Goulds Dam. Mr Cherry subsequently applied his mineral exploration and management experience with uranium companies Vimy Resources and Toro Energy.



KEY MILESTONES ACHIEVED

Track record of achieving key milestones

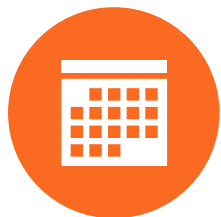
Milestone	Date	Status
Acquisition of Honeymoon Uranium Project - global Resources of 16.6Mlb U₃O₈	Dec 2015	✓
Scoping study confirming low capital requirements and operating costs for Honeymoon re-start	Sept 2016	✓
PFS - 2Mlb p.a. U₃O₈ production , significant potential for economic upside with further resource expansion and/or LOM extension	May 2017	✓
Field Leach Trial - improved leach chemistry results in historic high tenors (>80mg/L U ₃ O ₈) exceeded plant design. Ion Exchange process successfully proved with excellent performance of selected resins on Honeymoon conditions	Nov 2017	✓
Boss acquired the remaining 20% of Honeymoon project - 100% ownership	Mar 2018	✓
Mineral Resource upgrade - global Resources of 71.6 Mlb U₃O₈ , increasing Honeymoon's re-start area to 36Mlb contained U ₃ O ₈	Feb 2019	✓
Australian Government renews Honeymoon's Export Permit for 3.3Mlb p.a. U₃O₈ , planned operations fully permitted	Apr 2019	✓
Feasibility Study confirming Honeymoon as Australia's next Uranium Producer with global first mover advantage. 12 month timeframe from Final Investment Decision to production	Jan 2020	✓
\$15M Capital Raising at \$0.067/sh - to fund ongoing technical process optimisation studies and exploration activities	Oct 2020	✓
Comprehensive geological review of historic database while site activities were restricted due to COVID-19	2020	✓
\$60M Capital Raising at \$0.14/sh - acquisition of 1.25Mlb U ₃ O ₈ strategic inventory to strengthen off-take and project funding negotiations	Mar 2021	✓
Enhanced Feasibility Study - incorporating NIMCIX Ion Exchange columns, vastly reduced execution risk	Jun 2021	✓
\$125M Capital Raising - to fully fund development of the Honeymoon project	Mar 2022	✓
Front End Engineering Design - confirms cost estimates remain accurate	Mar 2022	✓
Final Investment Decision - with production set for December quarter, 2023	June 2022	✓



1.25Mlb U₃O₈ STRATEGIC PHYSICAL INVENTORY

Boss' investment in strategic uranium inventory complements the Honeymoon Project

Boss paid US\$30.15/lb for inventory in March 2021. At 1 August 2022, spot price of \$44.25/lb equates US\$23.1M book profit.



OPTIMISE RESTART TIMING

- Provides restart optionality
- Exercise patience in a rising price environment - platform to maximise shareholder value
- Enhanced visibility to uranium price movements



OFFTAKE FLEXIBILITY

- Boss presents as an attractive counterparty
- Retain off-take contract execution flexibility
- Potential to sell into offtake(s) either before Honeymoon's restart, during commissioning or into the future
- Remain fully leveraged to future price increases



STRENGTHEN BALANCE SHEET

- Strengthens the balance sheet - leverage to the uranium price
- Delivers optionality - ability to use inventory as collateral to support Honeymoon's future funding requirements
- Provide initial funding towards Honeymoon's re-start capital requirements



ALIGNED WITH HONEYMOON

- De-risks contract delivery during commissioning phase
- Uranium inventory equates to 6 months of steady state production
- Purchase price lower than Honeymoon's average all-in cost (AIC) of production ~US\$32/lb



MARKETING ADVANTAGES

- Significant benefits for uranium marketing
- Strengthening the marketing infrastructure and in-house management expertise for the purchase and trading of uranium
- Ability to layer contracts over time - first mover advantage amongst ASX peers



SIGNIFICANT UPSIDE POTENTIAL

Substantial scope to add significant value and mine life beyond initial EFS mine plan

Current mine plan represents a base case to fast-track production, utilizing only ~50% of JORC resources

OPPORTUNITY	DESCRIPTION
LOM Extension	<ul style="list-style-type: none">• The EFS is based on 36Mlb of Honeymoon's total JORC Resources of 71.6Mlb $U_3O_8$¹• Potential to incorporate existing Resources at Gould's Dam and Jason's into a LOM extension<ul style="list-style-type: none">- Gould's Dam contains ~25Mlb U_3O_8 (22.1Mt at 514ppm)¹- Jason's contains ~11Mlb U_3O_8 (6.2Mt at 790ppm)¹- Both projects are within pumping distance of Honeymoon's processing infrastructure• Additional ongoing exploration efforts have significant potential to deliver a near-mine discovery
Expanded Production Capacity	<ul style="list-style-type: none">• Honeymoon is fully permitted to produce and export up to 3.3Mlb p.a.²<ul style="list-style-type: none">- Updated EFS Ion Exchange plant design allows for future expansion in existing plant footprint- Potential increase of ~35% to annual production rate- Expanded production capacity would be expected to deliver a reduced unit cost of production- Possible improved offtake terms for larger volumes
Reagents	<ul style="list-style-type: none">• Continued improvements in reagent technologies create ongoing opportunities for Honeymoon<ul style="list-style-type: none">- New improved, lost-cost IX resins- Alternative and low-cost oxidants for the leach solution- Potential to refine reagent dosing regimes through ongoing metallurgical test work and process control optimisation
Uranium Price Upside	<ul style="list-style-type: none">- Significant leverage to Uranium price upside

¹ Refer ASX announcement 25 February 2019. Refer Slide 18 for full JORC Resource for Honeymoon

² Refer ASX announcement 8 April 2019



COMPELLING URANIUM MARKET FUNDAMENTALS

Multiple macroeconomic factors converging in support of a sustainable near term price recovery



The uranium recovery is underway

After an extended period of low prices term price are rising



Net zero carbon emissions

Stimulating global growth



Energy Independence

Government policies becoming more favourable to continuing nuclear power in Europe, USA and Asia



Lack of alternatives

To provide clean, reliable, base load power



>US\$80/lb incentive price

Required for majority of new mines to be viable



Inventories have fallen rapidly

SPUT has removed over 37Mlbs, COVID production impacts, strategic purchases and demand growth impacts



Primary production is declining, political uncertainty threatens deliveries

>45Mlb U₃O₈ p.a. removed since 2016. Russian supply risk affects 50% of world production



Demand for uranium is rising

Strong nuclear power growth; China 150 new plants in next 15 years. Political /economic shutdowns cancelled or under review



Utility & fuel buyer engagement is growing

A lead indicator for broader demand. ESG compliance critical as utility supply chain comes under scrutiny



Strong outlook for uranium market
market bifurcation combined with strong fundamentals increase the demand for uranium from uranium friendly and politically stable regions

An aerial photograph of an industrial facility, likely an oil or gas processing plant, situated in a vast, arid, reddish-brown desert landscape. The facility includes several large white storage tanks, a complex network of pipes and roads, and a cluster of white modular buildings. A large, bright blue circle is overlaid on the right side of the image, containing white text. In the bottom left corner, the text 'BOSS ENERGY' is visible in white.

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