



September 2021 Quarterly Report

Boss perfectly positioned to capitalise on strengthening uranium market

Boss Energy (ASX: BOE; OTCQB: BQSSF) is pleased to report on what has been an outstanding quarter for the Company, marked by significant progress at its Honeymoon uranium project in South Australia and a rapidly strengthening uranium market.

Since July 2021, the spot price of uranium has risen from US\$32.40/lb to more than US\$50/lb and was US\$47.50/lb as at 27 October 2021. This compares with Boss' forecast all-in cost of US\$31.90/lb¹.

As a result of the price increase, Boss' inventory of 1.25Mlb of U₃O₈ had a spot market value of US\$59.37 million (A\$79.17 million)² at 27 October 2021. Boss paid US\$30.15/lb for this inventory in March 2021 for a total cost of US\$37.68M (A\$49.69M). This represents a book profit of A\$29.48 million.

In addition to this windfall, the inventory is of immense strategic value to Boss on several levels as it increases flexibility in project funding and offtake negotiations with customers in preparation to re-start production.

Following release of the highly successful Enhanced Feasibility Study for Honeymoon in June 2021, Boss has rapidly advanced key workstreams in preparation for a Final Investment Decision.

In an industry which is short of project execution and operational experience, Boss succeeded in securing senior personnel to assist in finalising key aspects of Honeymoon's design and final equipment selection.

In parallel, Boss is accelerating development of its exploration strategy with a staged approach that has significantly expanded the global JORC resource at Honeymoon from 16.57Mlbs to 71.67Mlbs (~433% increase) since project acquisition in December 2015³.

Boss Managing Director Duncan Craib said Boss would continue to extend its advantage as the most advanced emerging uranium producer in Australia.

"We have a plant in care and maintenance, other significant production and storage infrastructure in place, we have formed an Owners' Team to restart Honeymoon and we are moving through the FEED stage rapidly," he said.

¹ Refer ASX announcement dated 21 June 2021. All material assumptions underpinning the forecast financial information (and the production targets on which such forecast financial information is based) continue to apply and have not materially changed.

² Inventory valued at a U₃O₈ spot price of US\$47.50/lb and an exchange rate of A\$1:US\$0.75 as at 27 October 2021.

³ Refer to ASX: BOE announcement dated 25 February 2019. Refer Appendix 1 for Honeymoon JORC 2012 Resource.

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“By continuing to advance Honeymoon on several fronts while growing the uranium inventory, we can ensure we can capitalise on the rapidly turning uranium market at the moment of our choosing.”

Expansion of Owners Team

During the quarter, Boss was pleased to advise that it appointed Jonathan Owen as Project Manager of Honeymoon’s restart. Joining the established process plant Owners’ Team of Trevor Robinson (Process Manager), Merrill Ford (NIMCIX Specialist) and Jeremy Green (Structural Engineer), Mr Owen brings a strong focus on integrating Owners’ Team skills and project EPC execution.

South Australian based Ben Jeuken (GM Wellfield and Resources) and Jason Cherry (Geology Manager) further complement this team to provide more focus on resource and wellfield development.

Boss deemed it important to move quickly to secure key personnel to deliver a detailed project execution plan to ensure wellfield development and construction activities on Honeymoon’s restart.

With much of the expertise in-house, a number of key milestones in preparation of production development are being accomplished, which will be reported on in the months to come.

Engineering process running ahead of schedule

Boss was pleased to report that the critical planning tool of Front-End Engineering Design (FEED) studies are being actively progressed.

The Company is currently completing the process design and finalising site layouts and arrangements with certified data for Honeymoon. FEED is expected to be finished early in the March quarter, 2022, which will allow detailed design to commence immediately after a FID for Honeymoon.

With a focus on long lead equipment, Boss is engaging with preferred vendors on Honeymoon’s critical path items.

Completion and lock of designs of Piping and Instrumentation Diagrams is now 72% complete (69 of 95 diagrams), an increase from the 56 diagrams completed and announced on 6 September 2021.

Taking another key step in its strategy to re-start production at Honeymoon, Boss appointed Process E&I Pty Ltd for the electrical, instrumentation and control system.

Key EPC contractor appointed

With a global experience in delivering quality engineering solutions, Process E&I will lead the instrumentation controls and electrical engineering and provide back-office EPC services such as Owners’ Team integration, data management and document control.

Process E&I will also meet Honeymoon’s commissioning requirements, both in systems and personnel. This includes tendering, procurement and evaluation services.

Boss was also pleased to announce in the quarter that it made the following personnel appointments as part of FEED:

- Power infrastructure engineer;
- Structural and tankage design engineers;
- In-house structural, mechanical and piping designer; and
- In-house pump and piping engineer.

These appointments will assist in finalising key aspects of the design and final equipment selection leading to FID.

The Company conducted an onsite assessment of existing plant by the EPC contractor and Owners' Team in the final week of September 2021, focussing on the electrical and control aspect of the restart. The substations and process equipment are in great condition, remaining energised throughout the care and maintenance period with no obvious barriers to commissioning.

Ramping up exploration activities

The Company's focus on exploration is aimed at increasing Honeymoon's production profile and extending its mine life. The strategy is two-fold:

1. Targeting the greenfields exploration targets to further advance current identified zones of potential high-grade mineralisation; and
2. Upgrading the satellite JORC resources of the Jason's and Gould's Dam Deposits.

This exploration strategy, with a staged approach, has significantly expanded the global JORC resource at Honeymoon from 16.57Mlbs to 71.67Mlbs (~433% increase) since project acquisition in December 2015.

Honeymoon's FEED engineering design allows for the plant to be expanded when the Company exploits the known satellite deposits and greenfield exploration potential. The objective is to drive a value accretive increase in production from nameplate production capacity 2.45Mlb of U₃O₈, and increased life of mine. This can be achieved by upgrading known JORC Resources outside of the Mining Licence and targeting greenfields exploration areas further from the known resources and thereby growing the project's NPV and free cashflow.

In the coming week, Boss will report on the completion of the two trial seismic reflection surveys, concluding the geophysical component of its 2021 ADI exploration program. Drilling is then scheduled to commence in November 2021 to simultaneously target the most prospective of Honeymoon's exploration areas, using the combination of passive and seismic reflection data along with the 3D suite of geological models created by the Boss team.

Strong Balance Sheet

As at 30 September 2021, the Company held unrestricted cash and cash equivalents of A\$20.11 million, which excludes a fully cash-backed environmental bond of A\$8.84 million. During the quarter, the Company sold its investment of 1,755,820 ordinary shares in Greenvale Mining Limited (ASX: GRV) at an average price of 58.1 cents per share. The total proceeds received from the sale were approximately \$1.02 million.

The Company also holds inventory of 1.25Mlb of U₃O₈, which has a current spot market value of A\$79.17 million, and no long-term debt obligations.

Uranium market analysis

The third quarter of 2021 has been characterised by improving long term nuclear prospects as countries and companies take steps to meet their net zero carbon goals.

- The International Energy Agency's World Energy Outlook 2021, released on October 13, states that progress is still far too slow to put global emissions into sustained decline toward net zero.

The latest report highlights key measures that can help to close the gap between today's pledges and a 1.5 °C trajectory over the next 10 years, including a major expansion of low-emissions generation from nuclear power where acceptable.

- A group of 10 European Union (EU) countries have asked the European Commission (EC) to recognize nuclear power as a low-carbon energy source that should be part of the region's long-term transition toward climate neutrality. The letter urges the EC to include nuclear energy within the EU green taxonomy. However, when the Commission introduced the taxonomy in April, nuclear power was not included. A report from the EC's research unit released earlier this year indicates the Commission could eventually support nuclear, as it states that greenhouse gas emissions from nuclear plants are "comparable" to those released by hydropower and wind, an assessment shared by the International Energy Agency and the US Department of Energy.
- The UK will reserve a key role for nuclear power in its energy mix, as a backup for renewables, in a plan to phase out natural gas by 2035. Fossil fuels will no longer be used to generate electricity by the middle of the next decade. In an interview with BBC Wales Boris Johnson said the cost of energy can be held down "if we make the big long-term investments that we need to do now in clean power generation. So, whether that's wind—where we're going up to 40 GW by 2030, we can do even more—or nuclear." EDF's two-unit Hinkley Point C Nuclear Station is scheduled for completion in 2026, and the government is considering financing plans for another nuclear power project at Sizewell C. The UK government is also in discussions regarding proposals for a new nuclear power plant at Wylfa on the Welsh island of Anglesey, the British Prime Minister Boris Johnson confirmed.
- President Emmanuel Macron said last week that France would work to become a leader in green hydrogen by 2030 under a road map called "France 2030." The five-year investment plan calls for an investment of €1 billion to create a new-generation of small modular reactors, which are cheaper to build than conventional nuclear plants and provide enhanced safety features
- Japan's new Prime Minister, Fumio Kishida, defended his pro-nuclear energy policies this week, stating that the restart of the nation's nuclear power plants, many of which have been suspended since the 2011 Fukushima accident, is vital.
- Korea Hydro & Nuclear Power Co. Ltd. (KHNP) has completed loading fuel assemblies into unit 1 at South Korea's Shin-Hanul Nuclear Power Plant. After loading 241 fuel assemblies into the reactor, KHNP is conducting reactor physics and systems testing under normal operating temperature and pressure conditions. It expects commercial operation of Unit 1 to begin in 2022, according to an October 13 statement.
- In the US, Dominion Energy has requested approval from Virginia regulators for its plans to extend the federal licenses for its North Anna and Surry Nuclear Power Plants. The nuclear units, with a combined net generating capacity of 3,500 MWe, are responsible for 90 percent of Dominion's carbon free generation in Virginia. Under the Virginia Clean Economy Act and other 2020 legislation authorizing the state's participation in the Regional Greenhouse Gas Initiative, Virginia's electric utilities must source all their nonnuclear energy from renewables by 2050.
- The US Department of Energy (DOE) will provide US\$20 million in funding to demonstrate technology that will produce clean hydrogen energy from nuclear power. The project, led by PNW Hydrogen LLC, will receive \$12 million from DOE's Hydrogen and Fuel Cell Technologies Office and \$8 million from DOE's Office of Nuclear Energy for a total award of \$20 million. The project will

produce clean hydrogen from nuclear power at the Palo Verde Nuclear Generating Station in Phoenix, Arizona. Six tonnes of stored hydrogen will be used to produce approximately 200 MWh electricity during times of high demand and may be also used to make chemicals and other fuels. The project will provide insights about integrating nuclear energy with hydrogen production technologies and inform future clean hydrogen production deployments at scale, according to DOE.

- on September 13, the Illinois Senate approved a comprehensive energy package which includes support for Exelon's two-unit Byron Station as well as the Dresden and Braidwood Stations. On September 15, Governor Pritzker signed into law the sweeping energy bill, which includes US\$694 million in nuclear subsidies paid over a period of five years. Another goal of the new law aims for 100 percent carbon-free energy by 2050. After the Senate vote, Chicago-based Exelon Generation said that the reactors would continue operating.

On the supply side:

- Cameco Corporation announced the restart of production at their Cigar Lake mine in Canada. The mine had been temporarily shut-down in December 2020 due to an increase of COVID-19 cases.
- Kazatomprom announced that it will maintain a 20% reduction of production through 2023 (compared to the planned levels under Subsoil Use Contracts) and keep levels to those expected in 2022. This would remove up to 13m lbs from global primary supply in 2023.
- The DOE announced on June 22 the award of \$61 million (US) to 99 advanced nuclear technology projects.
- TerraPower, announced plans to build a 345 MWe next-gen Sodium reactor at a retiring coal power plant in Wyoming.

Market

On October 18th JSC National Atomic Company Kazatomprom announced that its Board of Directors had passed a resolution to participate in a physical uranium fund, ANU Energy OEIC Ltd., established on the Astana International Financial Centre (AIFC). The Fund will hold physical uranium as a long-term investment with its initial purchases financed through the founders' round investment totalling US\$50 million, sourced from Kazatomprom at 48.5%, National Investment Corporation of the National Bank of Kazakhstan (NIC) at 48.5%, and Genchi Global Limited (the Fund Manager) at 3%.

Once the Fund is operating, a second stage of development is expected to be carried out through an additional public or private offering, with the timing and details to be determined by market conditions. At the second stage, the Fund is expected to raise capital of up to US\$500 million from institutional and/or private investors, with the proceeds to be used for additional uranium purchases. At current prices this would imply the potential for sequestering almost an additional 12m lbs U3O8 which would put added pressure on uranium pricing

While the continued purchasing by SPUT and the Kazak fund will have a positive impact on the market by sequestering significant quantities of uranium and strengthening both the spot price and utility expectations of price levels, we can expect to see continued volatility until more utility buyers enter the market. The spot price trend is upwards and as mobile inventory decreases the 'lows' will be at increasingly higher price levels.

Utility buyers have been busy extending existing contracts and modifying existing contracts to satisfy some near-term demand at advantageous terms in return for granting suppliers higher prices in the longer

term. There is concern amongst utilities about the rising price and some of the more strategic utilities are in discussion with management to be able to act if prices continue to rise. There is also some scepticism about whether the price will continue to rise, or even fall back, if SPUT stop buying, and these utilities are taking a wait and see approach. We are starting to see more evidence utility buying in for mid to longer term supply in Q4. The new Kazak fund may well be the catalyst for increased utility participation in the term market.

Appendix 5B disclosures

In line with its obligations under ASX Listing Rule 5.3.5, Boss notes that the only payments to related parties of the Company, as disclosed in the Appendix 5B (quarterly Cashflow Report) for the period ended 30 September 2021, pertain to payments for executive salaries, annual bonuses, superannuation and non-executive director fees.

During the quarter ended 30 September 2021, the Company spent approximately \$686,000 on project and exploration activities relating to its Honeymoon Project. These activities included ongoing technical studies relating to process design and finalising site layouts and arrangements with certified data for Honeymoon, and continued exploration activities including the completion of the two trial seismic reflection surveys. In addition to these activities the Company continued to incur costs relating to the ongoing care and maintenance activities required at Honeymoon. The expenditure represents direct costs associated with these activities as well as capitalised wages which can be directly attributable to Honeymoon.

This ASX announcement was approved and authorised by the Board of Boss Energy Limited.

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Appendix One:

Schedule of Mining Tenements

The following information is provided pursuant to Listing Rule 5.3.3 for the quarter ended 30 September 2021.

Tenement Name	Location	Licence Number	Interest
Yarramba	South Australia	EL6510	100%
South Eagle	South Australia	EL6081	100%
Gould's Dam	South Australia	EL6512	100%
Katchiwilleroo	South Australia	EL6511	100%
Ethiudna	South Australia	EL6020	100%
Gould's Dam	South Australia	RL83-85	100%
Honeymoon Mine	South Australia	ML6109	100%

There were no mining tenement acquisitions or divestments during the quarter.

Honeymoon's Mineral Resource (lower cut-off of 250 ppm U₃O₈)

Classification	Tonnage (Million Tonnes)	Average Grade (ppm U ₃ O ₈)	Contained Metal (Mkg, U ₃ O ₈)	Contained Metal (Mlb, U ₃ O ₈)
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

Reference to previous ASX announcements

In relation to the results of the Enhanced Feasibility Study announced on 21 June 2021, the Company confirms that all material assumptions underpinning the production target and forecast financial information included in that announcement continue to apply and have not materially changed.

The mineral resource estimates in this announcement were reported by the Company in accordance with listing rule 5.8 on 25 February 2019. 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.

Forward-Looking Statements

This announcement includes forward-looking statements. These forward-looking statements are based on the Company's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Boss, which could cause actual results to differ materially from such statements. Boss makes no undertaking to subsequently update or revise the forward-looking statements made in this announcement, to reflect the circumstances or events after the date of this announcement.