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March 2024 Quarterly Report

Highly successful quarter sees Boss make pivotal transition to global uranium producer

Production and cashflow ramp-up underway at Honeymoon; Commissioning proceeding to plan at Alta Mesa with production set to start in May

Highlights

Honeymoon Uranium Project, South Australia

- Successful commissioning at Honeymoon, culminating in Boss producing its first drum of uranium
- Ramp-up to steady-state production rate of 2.45Mlb of U₃O₈ per annum now underway
- Honeymoon is already exceeding feasibility study forecasts, with uranium-rich lixiviant from the wellfields and recoveries of loaded resin in the IX column producing concentrated high-grade eluate in excess of the study estimates
- This shows that the new processing technology adopted by Boss at Honeymoon, which is central to the project's operating and financial success, as well as its strong organic growth outlook, is meeting or exceeding the Company's expectations
- Boss is now executing plans to increase the production rate and mine life at Honeymoon. The current mine plan utilises only 36Mlb of the project's total 71.6Mlb JORC Resource; Boss also has a valid Uranium Mineral Export Permission for 3.3Mlb a year
- Boss will become a multi-mine uranium producer in 1H 2024, with the Honeymoon and Alta Mesa Projects

Alta Mesa, US (Boss 30%)

- Commissioning advancing to plan; First production expected within weeks
- At steady-state operations, Boss' share of production will be 500,000lb a year
- Alta Mesa has significant potential for further resource growth and drying capacity to expand the 1.5Mlb capacity plant

Corporate

- Boss continues to strengthen its senior management team in line with the Company's growing status as a global uranium producer; Highly experienced financial executive Justin Laird was appointed CFO and well-regarded mine production executive Robert Gordon was appointed General Manager Honeymoon
- As at 31 March 2024, Boss held cash and cash equivalents of A\$100M; The Company also holds a strategic inventory of 1.25Mlb of U₃O₈, which has a current spot market value of A\$169M; Boss has no debt

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Boss Energy Limited (ASX: BOE; OTCQX: BQSSF; the “Company”; “Boss”) is pleased to provide its first quarterly report as a fully-fledged uranium producer.

The Company’s new status as a global uranium producer follows a highly successful quarter during which Boss undertook commissioning at its Honeymoon project in South Australia.

This culminated in Boss producing its first drum of uranium shortly after the end of the March quarter.

Boss Managing Director Duncan Craib said: “Production of the first drum of uranium was a major milestone in the growth of Boss and reflects the incredible amount of hard work, technical skill and vision contributed by so many people since our Company acquired the project at the end of 2015.

“As well as being the culmination of this journey, the first drum marks the start of Boss’ next phase, which we believe will be notable for the growth we will generate in our inventory, mine life, production rates and cashflow.

“We are just weeks away from first production at our 30 per cent-owned Alta Mesa uranium project in Texas. The commissioning at Alta is proceeding well and our share of production will be 500,000lb a year once steady-state operations are in place.

“With production at Honeymoon now underway, we have established that the ion-exchange processing route we put in place is extremely effective. In light of this huge success, we are accelerating plans to unlock the vast inventory which sits outside the mine plan at Honeymoon.

“We aim to utilise this additional inventory, much of which is already covered by a Mining Licence, and the additional capacity we have under our existing uranium export permit, to expand the project’s production rate and cashflow.

“This organic growth strategy will enable us to leverage the infrastructure, the inventory and the vast intellectual property we have established at Honeymoon. Growth of this nature delivers superior financial returns rather than merely growing production or resource size for the sake of it.

“As we ramp up production at Honeymoon towards our current target of 2.45Mlbs a year, this organic growth strategy will move into sharp focus.

“This will ensure that Boss increases its exposure to what is a very bullish uranium market, capitalising on what is an exceptional opportunity, while delivering superior financial returns in the process”.

Executive Appointments

During the quarter, Boss appointed Justin Laird as Chief Financial Officer. Mr Laird was previously Manager Business projects at Wesfarmers (ASX: WES) where he held several senior positions over a nine-year career in business development, leading transaction and finance teams, scaling new businesses, and other commercial and strategic roles.

Mr Laird, who is a Chartered Accountant, commenced his career at Ernst and Young and was also Strategic Finance Analyst and Capital Investment Analyst at Vodafone Ireland.

Boss appointed Robert Gordon as General Manager Honeymoon. Mr Gordon has extensive experience operating processing plants and as a project manager in the global resources industry. Most recently Mr Gordon held the position of Process Plant Operations Manager for Newcrest Mining Limited.

He is highly skilled in the areas of metallurgy, including hydrometallurgy such as the process used by Boss at Honeymoon.

Mr Craib said: “Justin and Robert are both highly experienced and so well-regarded in their respective fields.

“They bring skills and knowledge which will be invaluable as we unlock the opportunity we have to grow and capitalise on the highly favourable supply and demand fundamentals emerging in the uranium market.

“Their appointments are part of our commitment to ensuring we have the best possible team with the skills and experience to deliver on our growth strategy and maximise our opportunities”.

Boss secures second binding sales contract with European nuclear utilities

During the quarter, Boss entered into a contractual agreement for the sale of 800,000 pounds of uranium over a 4-year period commencing in 2024 and continuing until the end of 2027.

The agreement is primarily based on market related pricing, subject to a ceiling price and a floor price. Other terms and conditions of the agreement reflect industry standards. This contract provides a secure revenue stream for Boss, providing robust margins and further demonstrating the confidence utilities have in supply from the Honeymoon Uranium Mine in South Australia.

Boss set to become a multi-mine uranium producer in 1H 2024

On 6 December 2023, the Company was pleased to announce that it had entered into a Master Transaction Agreement with enCore Energy Corp (TSX.V:EU; NYSE:EU) (enCore), and enCore's wholly owned subsidiary enCore Energy U.S. Corp., pursuant to which the Company will acquire a 30% stake in enCore's Alta Mesa In-Situ Recovery (“ISR”) Project in South Texas for US\$60m cash.

enCore Energy is a highly credentialed US uranium developer and operator, having recently commissioned the Rosita ISR re-start project in the United States within 20 months from start. The enCore team previously ran the Alta Mesa Project before it was placed on care and maintenance post Fukushima.

The Transaction will create a 30%/70% incorporated joint venture, with enCore as the initial manager, and will establish a strategic relationship between Boss and enCore. This strategic relationship will include:

- Boss receiving an exclusive Australian licence for, and collaborating on the development of, enCore's PFN exploration and production tool technology
- Boss subscribing for US\$10m of equity in enCore at a price of US\$3.90 per share, and lending 200klb of physical uranium on commercial terms to deliver into enCore's sales contracts
- Developing future opportunities to collaborate on joint acquisitions

The Alta Mesa Project is a high-grade uranium ISR project in South Texas, a prolific US district for sandstone-hosted ISR production having produced ~80Mlb historically.¹ South Texas is the most progressive permitting production jurisdiction in the United States and the typical AISC for similar ISR projects in the region are US\$30-35/lb.²

¹ enCore presentation November 2023 <https://encoreuranium.com/wp-content/uploads/2023/11/EU-Corporate-Deck-FINAL-Nov-17-23.pdf>

² Technical Report Summary for the Alta Mesa Uranium Project, Brooks and Jim Hogg Counties, Texas, USA National Instrument 43-101, Technical Report 2023, BRS Engineering, using mid-point of typical production cost of approximately US\$30-35/lb for similar ISR uranium projects. This is not a forecast of what the costs for the Alta Mesa Project will be, and actual costs may be higher or lower than this industry average.

The Alta Mesa Project has 3.41 million pounds at 0.109% U₃O₈ measured and indicated and 16.97 million pounds at 0.120% U₃O₈ inferred N.I. 43-101 compliant resources,³ significant potential for further resource growth, and drying capacity to expand the 1.5Mlb capacity plant after recommencement of production which is expected to occur in 1H 2024.

With the Honeymoon and Alta Mesa Projects, Boss expects to become a multi-mine uranium producer in 1H 2024.

Alongside the Transaction, Boss raised A\$205 million via a single tranche share Placement to fund the Transaction, associated re-start and exploration activities, and working capital required to bring the Alta Mesa Project into production in 1H 2024. The proceeds of the Placement will also fund exploration at Boss' Honeymoon uranium project in South Australia and a study on increasing production at the Honeymoon Project from 2.45Mlb a year to the Federal Government annual export permit of 3.3Mlb.

Boss also offered a Share Purchase Plan (SPP) to eligible shareholders with registered addresses in Australia and New Zealand. Post quarter end, the Company was pleased to announce that the SPP closed significantly oversubscribed and as a result, the SPP offer was expanded in size to A\$15M (from the original target of A\$10M).

On 19 March 2024, enCore announced exceptionally high-grade drilling results were achieved on the Alta Mesa Project. These latest results are important because they significantly exceed the cutoff grade thickness requirements for ISR of uranium in South Texas.

enCore also reported that work to advance the Alta Mesa Uranium Central Processing Plant and Wellfield towards production was advancing on schedule.

Please refer to enCore's announcement dated 18 March 2024 for further information.⁴

More strong drilling results highlight scope for growth in production, mine life and cashflow

On 23 January 2024, Boss announced its latest exploration results from the Jason's deposit support Boss' strategy to leverage the Honeymoon infrastructure and increase exposure to the strong uranium market.

The Jason's deposit is located ~13km north of the Honeymoon mine and contains a JORC Resource 6.2Mt at 790ppm U₃O₈ for 10.7Mlbs contained U₃O₈ (Inferred).

The latest drilling program has returned strong assays including:

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| ○ 3.00m @ 3,221ppm pU ₃ O ₈ | GT 9,663 | (BMR183 from 105.50m) |
| ○ 6.00m @ 1,278ppm pU ₃ O ₈ | GT 7,668 | (BMR176 from 100.50m) |
| ○ 3.25m @ 1,509ppm pU ₃ O ₈ | GT 4,904 | (BMR186 from 104.50m) |
| ➤ plus 2.75m @ 475ppm pU ₃ O ₈ | GT 1,306 | (BMR186 from 85.50m) |
| ○ 4.50m @ 1,010ppm pU ₃ O ₈ | GT 4,545 | (BMR191 from 108.25m) |
| ➤ plus 1.75m @ 670ppm pU ₃ O ₈ | GT 1,173 | (BMR191 from 90.25m) |
| ○ 2.75m @ 1,439ppm pU ₃ O ₈ | GT 3,957 | (BMR185 from 102.50m) |
| ○ 1.25m @ 3,092ppm pU ₃ O ₈ | GT 3,865 | (BMR171 from 108.50m) |
| ○ 4.25m @ 801ppm pU ₃ O ₈ | GT 3,404 | (BMR188 from 106.25m) |
| ○ 2.75m @ 1,128ppm pU ₃ O ₈ | GT 3,102 | (BMR179 from 95.25m) |
| ➤ plus 3.00m @ 679ppm pU ₃ O ₈ | GT 2,037 | (BMR179 from 99.75m) |
| ➤ plus 3.50m @ 551ppm pU ₃ O ₈ | GT 1,929 | (BMR179 from 89.75m) |
| ○ 3.00m @ 889ppm pU ₃ O ₈ | GT 2,667 | (BMR184 from 103.00m) |

³ Refer to the cautionary statement in the enCore presentation as per Footnote 3.

⁴ enCore Energy Corp. Announcement titled 'enCore Energy Encounters Highest Grade Drill Results at Alta Mesa Uranium Project; Provides Status on South Texas Production Operations' dated 18 March 2024

<https://www.sedarplus.ca/csa-party/records/document.html?id=ce7cfbfb51537487f6e2afdf08ad57e975b307e414c9229afce2926422a4190f>

These results will be used to update the satellite geological models in 1H 2024, which will then feed into a Resource update 2H 2024. This work will form the basis of further step-out and infill drilling leading to potential Resource upgrade in 2025.

Boss Managing Director Duncan Craib said: “We have a twin-pronged strategy at Honeymoon to drive shareholder value by successfully ramping up production while increasing the inventory in preparation for our next round of growth.

“This is aimed at generating strong cashflow while laying the foundations for increases in Honeymoon’s production, which will in turn drive further growth in cashflow while also enabling us to leverage existing infrastructure.

Boss’ exploration strategy has already been highly successful, increasing the JORC Resource at Honeymoon from 16.57Mlbs to 71.67Mlbs (~4.3x increase) since project acquisition in December 2015⁵.

The current life-of-mine plan at Honeymoon is based on just 50% of the existing JORC Resource. A study is soon to commence on increasing the forecast production rate to more than 3Mlb/annum U₃O₈ equivalent (from 2.45Mlb nameplate capacity) or an extension of mine life.

New award of three highly prospective exploration tenements

During the quarter, the Government of South Australia awarded three highly prospective exploration tenements on the Eyre Peninsula in South Australia, two of which are located ~22km west of the township of Cleve and the third ~61km west of Wudinna. The tenements cover a combined area of 1,371km² and are situated within the eastern margin of the Cenozoic Eucla Basin which extends from western South Australia into the southeastern portion of Western Australia.

All three tenements cover portions of the Yanninee Palaeovalley system which extends across the central and northwestern portions of the Eyre Peninsula and are considered prospective for palaeochannel hosted uranium mineralisation. The two tenements west of Cleve are also considered prospective for Proterozoic unconformity style uranium mineralisation.

Combined with the Honeymoon and Kinloch tenements, Boss now has a total uranium exploration tenement package of over 6,000 km² in South Australia, where Boss can utilise its expertise in this deposit style and leverage the infrastructure of the Honeymoon Uranium Mine.

Uranium Market Analysis

In the first quarter of 2024, the uranium market experienced significant developments influenced by both price fluctuations and shifts in production dynamics, largely driven by geopolitical factors and the ongoing global push for carbon-neutral energy sources.

The price of uranium continued to show strength from its 2023 rally, reaching just over \$100 per pound by early 2024, although it stabilized around the \$90 per pound mark later in the quarter, a level which is seen as the new floor given the depleted state of mobile inventories and the ongoing involvement of financial entities in the uranium spot market. This stabilization followed a peak of \$106 per pound in February, a 16-year high, reflecting trader and financial fund purchasing. The discretionary nature of the demand is reflected in the volatility seen during this quarter. However, even small increases in demand are likely to put pressure on price and analysts forecast that the spot price will trend up during the year.

⁵ Refer to ASX: BOE announcement dated 25 February 2019. Refer Appendix 1 for Honeymoon JORC 2012 Resource.

The long-term price trend is more indicative of the primary supply and demand imbalance and has risen from \$68 at the end of 2023 to \$80 per pound at the end of March 2024. Given the high level of uncommitted demand between now and 2040 and the mid-term deficit the term price is expected to continue to rise.

Ux U3O8 Price - 2 Year History (Weekly)



Furthermore, increased demand for uranium is anticipated as nuclear reactor capacity is projected to rise by 18% from 2023 to 2030, necessitating considerable growth in uranium mining and production to meet the new reactor fuel loads.

The demand for reliable clean energy is creating new markets for nuclear generation as a source of supply for data centres. Constellation has signed an agreement to supply Microsoft data centres, Amazon Web Services (AWS) has acquired Talen Energy's data centre campus at a nuclear power station in Pennsylvania and Dominion Energy estimates that Virginia data centres' demand for electricity will jump from 2.8 gigawatts in 2023 to 13 gigawatts by 2038.

Overall, recent developments highlight the critical role of nuclear power in the global transition towards sustainable energy, underscored by strategic investments in nuclear technology and a robust demand for uranium amid geopolitical and economic pressures.

Security of supply is paramount and the Honeymoon mine is in the right place at the right time to supply uranium from the uranium-friendly state of South Australia to a market which is characterised by growing geopolitical instability.

Strong Balance Sheet

As at 31 March 2024, the Company held unrestricted cash and cash equivalents of A\$100M, which excludes a fully cash-backed environmental bond of A\$8.9M. Cash balances are being managed with a term deposit program to take advantage of the higher interest rate environment.

The Company has no debt and \$298 million of liquid assets (being cash, equity investments and physical uranium) as at 31 March 2024. This is equal to almost 70 per cent of the funds Boss has raised since it acquired Honeymoon in December 2015. This reflects Boss' focus on creating value for shareholders which has helped Boss grow its market capitalisation from \$37M in December 2015 to almost \$2B today.

Boss paid US\$30.15/lb for its strategic inventory of 1.25Mlbs of U₃O₈ in March 2021 at a total cost of US\$37.68M (A\$49.69M). As at 31 March, 2024 the inventory was valued at US\$110M (A\$169M) with the spot price of US\$88/lb.

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 31 March 2024, consist of executive director, company secretary and chief financial officer salaries and wages (including superannuation) and payment of non-executive director fees.

During the quarter ended 31 March 2024, the Company spent approximately \$19.2M on project and exploration activities relating to its Honeymoon Project. These activities included:

- Technical studies costs
- Construction equipment
- Wellfield drilling and development costs
- Engineering and construction expenses

In addition to these activities the Company continued to incur costs relating to the ongoing 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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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 Energy, which could cause actual results to differ materially from such statements. Boss Energy 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.

Appendix One:

Schedule of Mining Tenements

The following information is provided pursuant to Listing Rule 5.3.3 for the quarter ended 31 March 2024.

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%
Prairie Dam	South Australia	EL6962	75%
Chalker Dam	South Australia	EL6963	75%
Oakvale	South Australia	EL6964	75%
Gairloch	South Australia	EL6965	75%
Venus Bay*	South Australia	ELA2024_00008	100%
Darke Peak*	South Australia	ELA2024_00018	100%
Rudall*	South Australia	ELA2024_00019	100%

As reported, the Company was awarded three new exploration tenements* in South Australia and there were no mining tenement divestments during the quarter. EL6512, 6511, 6020, 6510 and 6081 are subject to an earn-in agreement with First Quantum Minerals in respect to the base and precious metal rights. Refer ASX release dated 10 February 2022 for further information.

Honeymoon Project Mineral Resource

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

The global Honeymoon Mineral Resource stands at 71.6 Mlb (52.4Mt) with an average grade of 620ppm U₃O₈, using a cut-off grade of 250ppm.

The current Honeymoon restart feasibility studies utilise only a portion of Honeymoon's JORC resource, excluding 36Mlb of JORC resource outside the HRA, which could expand the mine life, and Boss' defined exploration target could potentially extend the mine life beyond the initial 11 years and increase the production profile. Honeymoon's Federal EPIP Act approvals allow export of more than 3Mlbs/annum U₃O₈ equivalent.

In addition to the global Mineral Resource, the Honeymoon Uranium Project also has an Exploration Target range of 28 Mt to 133 Mt of mineralisation at a grade of 340 ppm to 1,080 ppm U₃O₈ for a contained 58 Mlbs to 190 Mlbs U₃O₈ (26,300 to 86,160 tonnes of contained U₃O₈), using a cut-off of 250ppm⁶. Note the potential quantity and grade of the Exploration Target range 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.

⁶ Refer to ASX: BOE announcement dated 25 March 2019