

# Peninsula Energy (PEN)

Rating: Buy | Risk: High | Price Target: \$0.34

31 January 2024

## Is this the cheapest ASX uranium stock? Trading at 1/10<sup>th</sup> the EV of Boss Energy

### Key Information

Current Price (\$ps)	0.13
12m Target Price (\$ps)	0.34
52 Week Range (\$ps)	0.08 - 0.20
Target Price Upside (%)	163.4%
TSR (%)	163.4%
Reporting Currency	USD
Market Cap (\$m)	161
Sector	Energy
Avg Daily Volume (m)	8.3
ASX 200 Weight (%)	0.01%

### Fundamentals

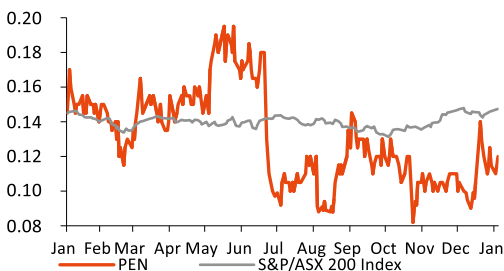
YE 30 Jun (USD)	FY23A	FY24E	FY25E	FY26E
Sales (\$m)	40	14	45	133
NPAT (\$m)	(4)	(1)	(1)	61
EPS (cps)	(0.3)	(0.1)	(0.0)	2.5
EPS Growth (%)	23.3%	77.1%	51.3%	nm
DPS (cps) (AUD)	0.0	0.0	0.0	0.0
Franking (%)	0%	0%	0%	0%

### Ratios

YE 30 Jun	FY23A	FY24E	FY25E	FY26E
P/E (x)	(36.3)	nm	nm	3.4
EV/EBITDA (x)	(21.2)	(58.5)	26.7	1.3
Div Yield (%)	0.0%	0.0%	0.0%	0.0%
Payout Ratio (%)	0.0%	0.0%	0.0%	0.0%

### Price Performance

YE 30 Jun	1 Mth	2 Mth	3 Mth	1 Yr
Relative (%)	21.3%	20.3%	(5.8%)	(13.8%)
Absolute (%)	21.4%	27.5%	6.3%	(12.1%)
Benchmark (%)	0.1%	7.2%	12.1%	1.7%



Price performance indexed to 100

Source: FactSet

### Major Shareholders

Paradise Investment Management	8.8%
--------------------------------	------

### Andrew Hines | Head of Research

+61 3 9268 1178

andrew.hines@shawandpartners.com.au

### Peter Kormendy | Senior Research Analyst

+61 3 9268 1099

Peter.Kormendy@shawandpartners.com.au

### Dorab Postmaster | Analyst

+61 8 9263 5211

Dorab.Postmaster@shawandpartners.com.au

### Event

Peninsula has released its December quarter activities report. Peninsula raised \$60m in the quarter to fund the restart of its Lance Uranium Project in Wyoming, US. Engineering on the revised Lance plant is nearing completion and a construction contractor is expected to be appointed in 1Q24. The company is progressing discussions with debt providers (including the US DoE) which when finalised will fully fund the project to first cash flow. Peninsula is one of the cheapest uranium exposures on the ASX trading at a significant discount to Boss Energy (BOE) for a similar asset.

### Highlights

- Lance is an In-Situ Recovery (ISR) uranium project whereby uranium is leached from the orebody in an acid solution before being recovered in an ion-exchange resin. Stage 1 of the Lance Uranium Project was about to enter first commercial production in July 2023 when UEC cancelled its contract to process the uranium bearing resin from Lance. Peninsula had to adjust its plans to accelerate its stage 2 expansion and incorporate its own resin processing into the processing plant.
- In August Peninsula announced a revised processing plan which includes:
  - First production in Dec-24 and ramping up to 1.8Mlb steady state by 2029.
  - Remaining capex to first production of US\$53.4m, with a further US\$17.4m required to reach full production rates. The peak funding requirement to get to breakeven cash flow is US\$95m.
  - C1 operating costs of US\$21.69/lb and AISC of US\$42.46/lb.
- Peninsula Energy has raised A\$60m via a A\$50m placement and A\$10m SPP at 7.5cps to fund its Lance Uranium Project in Wyoming, US. The placement was approved by shareholders at an EGM on 10 January 2024. The additional shares have an associated 1-for-2 option exercisable at 10cps which will raise an additional A\$40m when exercised.
- Peninsula has indicated that it is working with the US Department of Energy for the project's debt requirements. Given the US Government's support for a domestic uranium industry, and a desire to break the reliance on Russian imported material, we expect the US DoE to be supportive. Once the debt funding is secured, and assuming the options are exercised, Peninsula is fully funded through to positive cash flow.
- Peninsula generated sales revenue of US\$11.9m in the quarter from the sale of 210klb of uranium inventory to an existing customer. Peninsula has confirmed that all customers have agreed to adjusted delivery schedules to align with the current forecast production. The next product delivery is scheduled in 2025 after production has commenced at Lance. The Company does not currently foresee a circumstance where it would be required to obtain yellowcake in the market to satisfy future delivery obligations.
- When we compare Peninsula with Boss Energy (BOE, Hold, PT \$4.75), there are many similarities and yet Peninsula has an enterprise valuation around 1/10<sup>th</sup> that of Boss (US\$120m v US\$1,286m). Both companies have in-situ leach uranium operations in first world jurisdictions, both will produce around 2Mlb/yr, both will be in production within a year, and both have a similar sized resource with substantial exploration upside. The main difference is that Boss is fully funded, is closer to first production and is lower cost (Boss AISC of US\$26/lb). Boss deserves to trade at a premium, but in our view the valuation gap is too wide. We also note that Boss recently acquired a 30% stake in the Alta Mesa ISR uranium project in the US for US\$60m – this implies a resource multiple of US\$10/lb compared to the similar Peninsula at US\$1.7/lb.

### Recommendation

We retain our BUY recommendation and price target of A\$0.34ps. Catalysts for the share price to reach our price target include further progress on securing a debt facility, construction milestones at Lance being achieved and first production in late 2024.

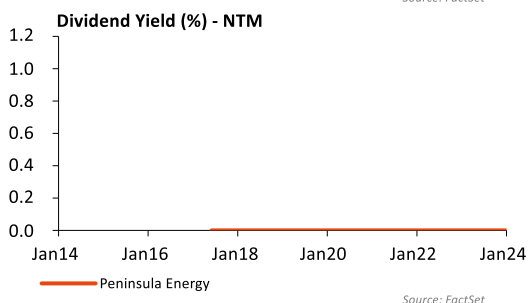
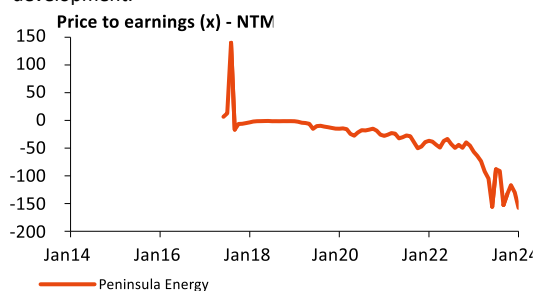
**Peninsula Energy**  
**Energy**  
**Energy**

FactSet: PEN-AU / Bloomberg: PEN AU

Key Items	Data
Recommendation	BUY
Risk	HIGH
Price (\$ps)	0.13
Target Price (\$ps)	0.34
52 Week Range (\$ps)	0.08 - 0.20
Shares on Issue (m)	1,261
Market Cap (\$m)	161
Enterprise Value (\$m)	143
TSR (%)	163.4%

**Company Description**

Peninsula Energy is an ASX listed company that owns the Lance Uranium Project in Wyoming, USA which are in transition from an alkaline to a low pH in-situ recovery operation. The Lance Project requires low upfront capital and can rapidly restart post a Final Investment Decision. PEN is the only ASX company with direct exposure to US Government initiatives which are pro-domestic mine development.



**Financial Year End: 30 June**

Investment Summary (USD)	FY22A	FY23A	FY24E	FY25E	FY26E
EPS (Reported) (cps)	(0.4)	(0.3)	(0.1)	(0.0)	2.5
EPS (Underlying) (cps)	(0.4)	(0.3)	(0.1)	(0.0)	2.5
EPS (Underlying) Growth (%)	(64.3%)	23.3%	77.1%	51.3%	nm
PE (Underlying) (x)	(26.2)	(36.3)	nm	nm	3.4
EV / EBIT (x)	(16.2)	(21.2)	(58.5)	(67.4)	1.5
EV / EBITDA (x)	(16.2)	(21.2)	(58.5)	26.7	1.3
DPS (cps) (AUD)	0.0	0.0	0.0	0.0	0.0
Dividend Yield (%)	0.0%	0.0%	0.0%	0.0%	0.0%
Franking (%)	0%	0%	0%	0%	0%
Payout Ratio (%)	0.0%	0.0%	0.0%	0.0%	0.0%
Free Cash Flow Yield (%)	1.0%	(5.7%)	(21.3%)	(28.8%)	13.6%
Profit and Loss (USD) (m)	FY22A	FY23A	FY24E	FY25E	FY26E
Sales	18	40	14	45	133
Sales Growth (%)	87.2%	120.8%	(65.9%)	223.5%	198.0%
Other Operating Income	1	0	0	0	0
EBITDA	(6)	(4)	(2)	4	75
EBITDA Margin (%)	(31.9%)	(11.0%)	(11.7%)	7.9%	56.5%
Depreciation & Amortisation	0	0	0	(5)	(13)
EBIT	(5.8)	(4.4)	(1.6)	(1.4)	62.1
EBIT Margin (%)	(31.9%)	(11.0%)	(11.7%)	(3.1%)	46.9%
Net Interest	0	0	0	1	(1)
Pretax Profit	(6)	(4)	(1)	(1)	61
Minorities	0	0	0	0	0
NPAT Underlying	(6)	(4)	(1)	(1)	61
Significant Items	(1)	0	0	0	0
NPAT Reported	(5)	(4)	(1)	(1)	61
Cashflow (USD) (m)	FY22A	FY23A	FY24E	FY25E	FY26E
EBIT	(6)	(4)	(2)	(1)	62
Tax Paid	0	0	1	0	0
Net Interest	0	0	0	1	(1)
Change in Working Capital	0	0	(5)	(6)	(29)
Depreciation & Amortisation	0	0	0	5	13
Other	8	9	0	0	0
Operating Cashflow	2	5	(5)	(2)	45
Capex	(1)	(12)	(25)	(52)	(17)
Acquisitions and Investments	0	0	0	0	0
Disposal of Fixed Assets/Investments	0	0	0	0	0
Other	0	(0)	0	0	0
Investing Cashflow	(1)	(12)	(25)	(52)	(17)
Free Cashflow	1	(7)	(30)	(55)	28
Equity Raised / Bought Back	0	21	39	28	0
Dividends Paid	0	0	0	0	0
Change in Debt	0	0	0	35	0
Other	(0)	0	0	0	0
Financing Cashflow	(0)	21	39	63	0
Exchange Rate Effect	(0)	0	0	0	0
Net Change in Cash	1	14	9	8	28
Balance Sheet (USD) (m)	FY22A	FY23A	FY24E	FY25E	FY26E
Cash	8	21	31	39	67
Accounts Receivable	1	1	1	4	11
Inventory	15	12	14	20	44
Other Current Assets	6	0	0	0	0
PPE	19	24	46	88	90
Total Assets	51	62	95	154	215
Accounts Payable	1	4	1	3	4
Short Term Debt	0	0	0	0	0
Long Term Debt	0	0	0	35	35
Total Liabilities	15	19	17	54	55
Total Shareholder Equity	73	91	129	156	217
Ratios	FY22A	FY23A	FY24E	FY25E	FY26E
ROE (%)	(5.3%)	(4.2%)	(1.1%)	(0.5%)	32.6%
Gearing (%)	(11.3%)	(30.3%)	(31.0%)	(2.7%)	(17.2%)
Net Debt / EBITDA (x)	1.3	4.8	19.1	(1.2)	(0.4)
Price to Book (x)	1.4	1.6	1.3	1.3	0.9

### Lance Uranium Project

Lance is an In-Situ Recovery (ISR) uranium project whereby uranium is leached from the orebody in an acid solution before being recovered in an ion-exchange resin.

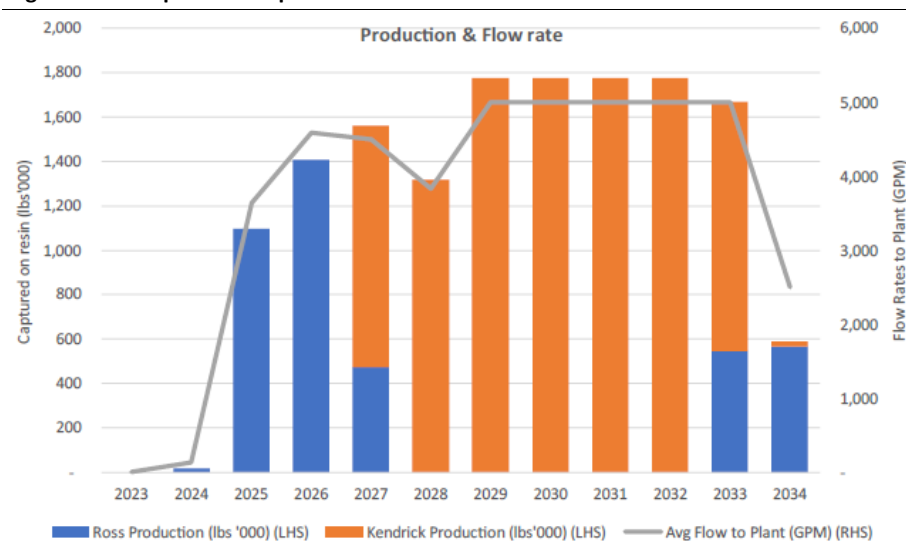
Peninsula revised its plan for Lance in August 2022 after the cancellation of a resin processing contract with Uranium Energy Corp (UEC:NYSE not covered). The original plan had a staged expansion of Lance with initial production of the uranium bearing resins being processed by UEC at the Irigaray Central Processing Plant to produce a finished yellowcake product.

Peninsula is now accelerating the construction of its own resin processing plant at Lance and is moving directly to a larger project. Key features of the project include:

- First production in Dec-24 and ramping up to 1.8Mlb steady state by 2029.
- Remaining capex to first production of US\$53.4m, with a further US\$17.4m required to reach full production rates. The peak funding requirement to get to breakeven cash flow is US\$95m.
- C1 operating costs of US\$21.69/lb with AISC at US\$42.46/lb.

The revised plan has a faster initial ramp-up (higher production in 2025 and 2026) but a lower steady state peak (1.8Mlb v 2.0Mlb). There is also a planned step down in production in 2028 as the operation shifts from Ross to Kendrick although we would not be surprised to see this revised up as the plan continues to be refined.

Figure 1: Lance production profile



Source: Peninsula ASX release 31-Aug-23

Figure 2: Key financial outcomes

Key Ross & Kendrick Financial Outcomes	US\$
LoM CAPEX	285.8M
Remaining CAPEX to First Production <sup>(1)</sup>	53.4M
Ramp-up stage CAPEX (first production to 5,000 GPM flow)	17.4M
LoM Wellfield Replacement & Sustaining CAPEX	215.0M
LoM Project Revenue from Sale of Lance Production (real)	988M
Weighted Average Sales Price used in the LoM	67.07/lb
Average Price Received for Uncontracted Production	72.62/lb
LoM Operating Cashflow (before tax)	258.2M
NPV <sub>8</sub>	116.2M
IRR	26%
All in Sustaining Costs (AISC)	42.46/lb
All in Costs (AIC)	50.27/lb

1) Excludes sunk CAPEX spent between January and June 2023

Source: Peninsula ASX release 31-Aug-23

Additional capex at the processing plant for the resin processing plant is US\$19.3m. There will also need to be US\$25.4m spent on wellfield development ahead of first production with a further US\$15.9m spent to bring the facility to full production. Approximately US\$70m will be required to reach cash break-even.

Figure 3: Capital Expenditure

Ross & Kendrick Project Level CAPEX Requirements	(US\$m)
<b>LoM CAPEX</b>	<b>285.8</b>
<b>Remaining CAPEX to 1<sup>st</sup> Production</b>	<b>53.4</b>
- Process Plant	19.3
- Wellfield	25.4
- General	5.1
- Contingency	3.6
<b>Ramp-up Stage CAPEX (1<sup>st</sup> Production to flow capacity)</b>	<b>17.4</b>
- Wellfield	15.9
- General	0.8
- Contingency	0.8
<b>LoM Wellfield Replacement &amp; Sustaining CAPEX (including contingency)</b>	<b>215.0</b>

Source: Peninsula ASX release 31-Aug-23

In addition to the capital costs, there will also be initial operating losses to fund, corporate overheads and working capital. Peninsula estimates a total funding requirement of US\$142m, of which US\$47m is covered from cash and initial revenues, leaving a US\$95m (~A\$150m) funding requirement from debt and equity.

Figure 4: Sources and uses of funds

<b>Sources (US\$m)</b>	<b>142.4</b>
Cash Balance as of 30 June 2023	21.4
Revenue on Sales (net of purchases)	26.0
Net additional Funding Needed	95.0
<b>Uses (US\$m)</b>	<b>142.4</b>
Plant CAPEX	25.2
Wellfield CAPEX	41.2
Site OPEX and Overheads	44.3
CAPEX and OPEX Contingency plus escalation	9.4
Corporate Costs, Non-site Exploration, Working Capital	22.3

Source: Peninsula ASX release 31-Aug-23

Peninsula Energy has raised A\$60m via a A\$50m placement and A\$10m SPP at 7.5cps. The additional shares have an associated 1-for-2 option exercisable at 10cps which will raise an additional A\$40m when exercised. The company is also seeking ~A\$50m in debt funding which will provide the balance of the A\$150m required for the company to reach positive cash-flow from Lance.

Peninsula has indicated that it is working with the US Department of Energy for the project's debt requirements. Given the US Government's support for a domestic uranium industry, and a desire to break the reliance on Russian imported material, we expect the US DoE to be supportive.

Once the debt funding is secured, and assuming the options are exercised, Peninsula is fully funded through to positive cash flow.



### Dagger uranium Project

Peninsula has acquired 4,140 acres of prospective uranium exploration tenements which have been consolidated into the Dagger Uranium Project.

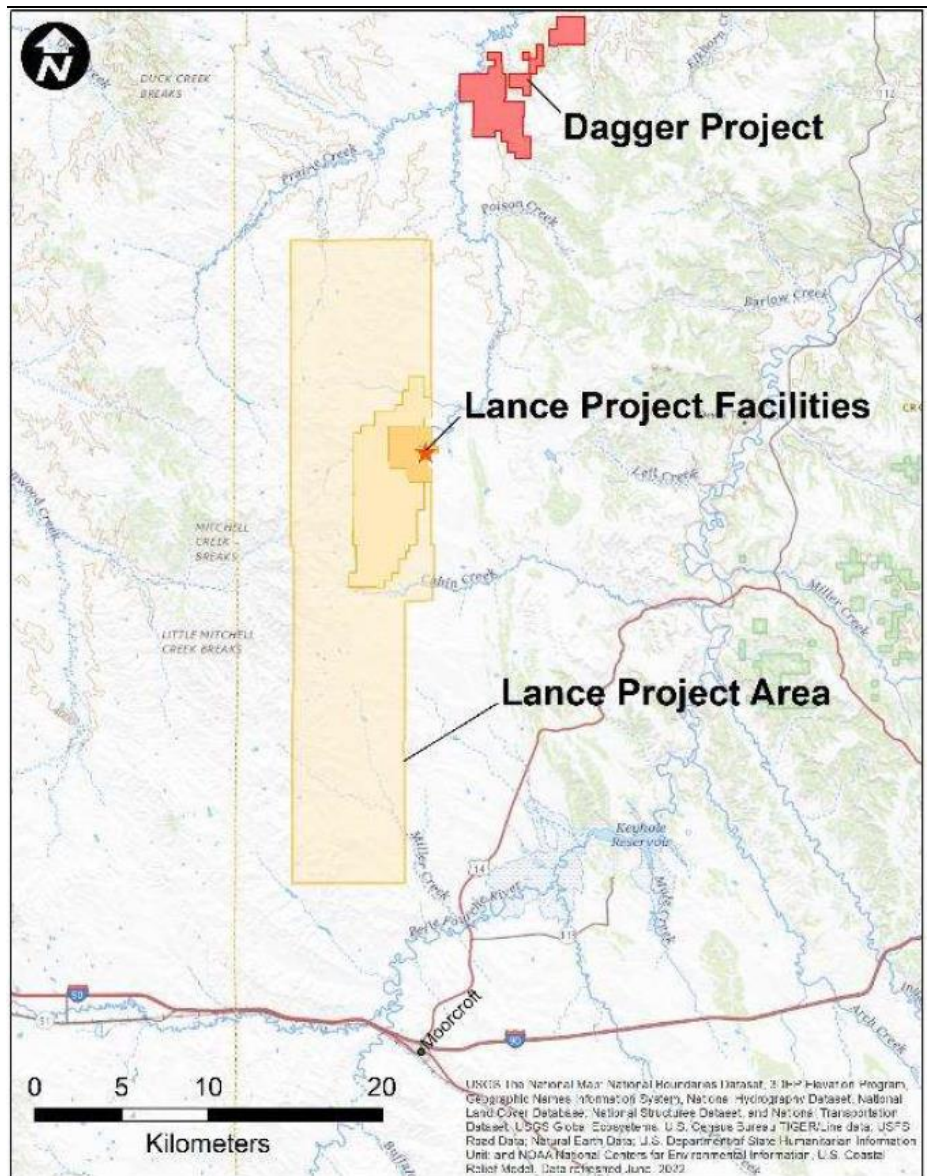
Peninsula established the Dagger Project through a series of mineral rights and data acquisition transactions spanning an eight-year period. The latest acquisition of mineral rights was completed with a private party and finalized recently. The combined State and Federal Mineral rights cover an area with historically identified uranium mineralization contiguous to past uranium mining sites.

Dagger Project is located in Crook County, Wyoming within the North Black Hills district in the Northeast corner of the State, approximately 20 km Northeast of the Company's Ross Processing Plant at Lance. The project is directly accessible from Lance via existing public roadways.

Dagger provides the Company with a relatively high-grade uranium resource, location diversity within a top mining jurisdiction and further opportunities to increase the scale and quality of Peninsula's mineral resource holdings. Dagger also provides the opportunity to develop a satellite production operation in close proximity to Lance.

Peninsula is planning a drilling program in FY24 to facilitate a potential resource upgrade.

**Figure 5: Dagger project location**



Source: Peninsula ASX release 23-Oct-23

### Peninsula v Boss Energy

We think the Peninsula v Boss comparison is interesting and highlights a wide valuation disparity for similar assets. On our modelling, the Peninsula share price is factoring in a uranium price of US\$58/lb whereas Boss is factoring in US\$122/lb.

There are a number of similarities between Boss and Peninsula including:

- Both are In-situ Recovery operations (ISR),
- Both will produce about 2Mlb/y of uranium,
- Both will be in production within a year,
- Both are in 1<sup>st</sup> world jurisdictions (South Australia, Wyoming),
- Both have a similar sized resource with exploration upside.

Boss has advantages over Peninsula including:

- Boss is fully funded to first production,
- Boss is closer to first production,
- Boss is located in Australia making it easier for ASX investors to access,
- Boss is lower cost (AISC of US\$26/lb v US\$42/lb for PEN).

However, Peninsula also has some advantages over Boss including:

- Peninsula is in the US so has access to strong US government support for its domestic nuclear industry and uranium supply,
- Peninsula could be a beneficiary of potential US uranium import ban from Russia,
- Peninsula is higher cost, but that means more leverage to a rising uranium price,

Figure 6: Uranium Sector valuation comparisons

Company	Paladin	Boss	Lotus	Peninsula	Bannerman	Silex	Deep Yellow	Nexgen
Ticker	PDN	BOE	LOT	PEN	BMN	SLX	DYL	NXE
Exchange	ASX	ASX	ASX	ASX	ASX	ASX	ASX	ASX/TSE
Main Asset	Langer-Heinrich	Honeymoon	Kayelekera	Lance	Etango	PLEF	Tumas	Rook I
Jurisdiction	Namibia	South Aust.	Malawi	Wyoming, US	Namibia	US	Namibia	Canada
Share Price (LC)	1.25	5.47	0.36	0.12	3.60	4.99	1.41	7.81
Recommendation	BUY	Hold	BUY	BUY	BUY	BUY	Not Rated	Not Rated
Price Target (A\$ps)	1.50	4.75	0.72	0.34	7.04	7.60		
Upside/downside (%)	20%	-13%	103%	192%	96%	52%		
Market Cap (US\$m)	2,461	1,475	405	146	363	777	688	2,824
Cash & equivalents (US\$m)	126	144	10	57	27	88	26	265
EV (US\$m)	2,335	1,331	395	90	336	689	661	2,559
Implied U3O8 price (US\$/lb) - full valuation	77	122	54	58	62	61		
Implied U3O8 price (US\$/lb) - main project only	187	147	85	83	94	96		
Resource (net Mlbs)	416	78	154	54	207	75	204	337
Grade (ppm)	686	620	648	480	197		398	31000
EV / Resource (US\$/lb)	5.6	17.1	2.6	1.7	1.6	9.2	3.2	7.6
Attrib Prod'n target (Mlb/yr)	4.5	2.45	2.4	2	3.5	2.5	3.6	28.8
AISC (US\$/lb)	33	26	38	42	38	<30	39	10.6
EV / production forecast (US\$/lb)	519	543	165	45	96	275	184	89
DFS valuation (US\$m)		309		116	209		393	4,275
Premium to DFS (%)		331%		-23%	61%		68%	-40%
Shaw valuation main project (US\$m)	1,423	761	607	289	593	723		
Shaw total valuation (US\$m)	3,176	1,294	679	397	717	1,338		
Premium to Shaw main project val'n (%)	64%	75%	-35%	-69%	-43%	-5%		
Premium to Shaw total valuation (%)	-26%	3%	-42%	-77%	-53%	-49%		

Source: Company Reports, Factset, Shaw and Partners

### Key risks

- As a small mining company broadly exposed to a single commodity and a single asset we consider an investment in Peninsula Energy to be high risk. The key risks include:
- The U3O8 market is relatively opaque and difficult to forecast. The actual uranium price may differ substantially from our forecasts.
- Operations for PEN have not yet started and there is a risk that they may be unable to bring Lance Projects to production in line with expectations. Costs may be higher and operations may not be as expected.
- Resource risks - PEN's 2022 Ross and Kendrick DFS assumes an overall resource recovery of 66% and a resource conversion of 61% to convert the Ross and Kendrick Area Inferred resources to Indicated or greater quality.
- PEN will need to recapitalise to fund the commencement of operations. There is a risk that capital markets are not willing to fund the project.
- Forecasting future operating costs has considerable uncertainty. Our forecasts may prove to be too optimistic. If each company's costs are higher than we expect then our cash flow forecasts will be too high.
- Smaller companies carry more significant 'key personnel' risk than larger organisations. If senior management depart it could delay projects or exacerbate operational risks.
- Safe and reliable production from operations once projects are operational. The inability to maintain safe and reliable operations may result in a sustained, unplanned interruption to production and impact the company's licence to operate and financial performance. Production facilities are subject to operating hazards associated with major accident events, cyber-attack, inclement weather and disruption to supply chain, that may result in a loss of uranium (radioactive material) containment, harm to personnel, environmental damage, diminished production, additional costs, and impacts to reputation or brand.

### Core drivers and catalyst

- PEN's flagship Lance Projects in Wyoming, USA, requires low upfront capital and can rapidly restart. PEN is the only ASX company with direct exposure to US Government initiatives which are pro-domestic mine development. We have a A\$0.27ps price target which is based on a 1.3x multiple of our base case valuation.
- PEN's flagship Lance Projects in Wyoming, USA, requires low upfront capital and can rapidly restart. PEN is the only ASX company with direct exposure to US Government initiatives which are pro-domestic mine development.
- PEN has an existing contract book and product inventory, with a binding purchase agreement netting a cash margin of US\$7.8m in CY2021 (450klbs) and >US\$9m in CY22 (450klbs). The company has long-term sales contracts extending to 2033, up to 5.25Mlbs at US\$56-58/lb U3O8 with major utilities across Europe and the US.
- The company is switching operations from high to low pH in order to increase product yields. The results of an 18-month field demonstration indicated that the targeted low-pH chemistry and field patterns are effective in dissolving and recovering uranium.
- The company released a Definitive Feasibility Study in Aug22 which details a Lance Projects NPV8 (pre-tax) of US\$125m and 43% IRR at an average U3O8 price of US\$62/lb. Other components include. In August 2023 the company released a revised plan to move directly to the previous stage 2 operation. Key parameters include: a life of mine (LOM) of 10 years with a plateau production of 1.8Mlbs/yr, upfront capital expenditure of ~US\$70m, and an estimated All-in-Sustaining-Cost (AISC) of US\$42/lb U3O8 over LOM.
- In our view there are two key advantages to PEN's project being located in Wyoming, USA: the Powder River Basin in Wyoming is in an established uranium and mining jurisdiction (uranium mining for ~70 years and coal mining for ~150 years), and the company has direct exposure to the US Government uranium purchase program and the US Nuclear Fuel Working Group.

## Rating Classification

<b>Buy</b>	Expected to outperform the overall market
<b>Hold</b>	Expected to perform in line with the overall market
<b>Sell</b>	Expected to underperform the overall market
<b>Not Rated</b>	Shaw has issued a factual note on the company but does not have a recommendation

## Risk Rating

<b>High</b>	Higher risk than the overall market – investors should be aware this stock may be speculative
<b>Medium</b>	Risk broadly in line with the overall market
<b>Low</b>	Lower risk than the overall market

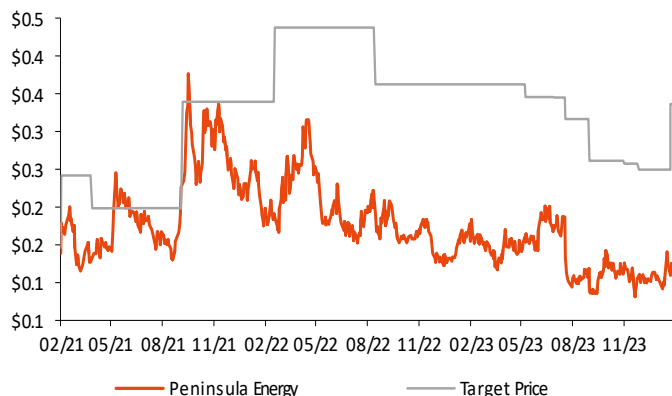
**RISK STATEMENT:** Where a company is designated as ‘High’ risk, this means that the analyst has determined that the risk profile for this company is significantly higher than for the market as a whole, and so may not suit all investors. Clients should make an assessment as to whether this stock and its potential price volatility is compatible with their financial objectives. Clients should discuss this stock with their Shaw adviser before making any investment decision.

### Distribution of Investment Ratings

Rating	Count	Recommendation Universe
Buy	65	92%
Hold	6	8%
Sell	0	0%

### History of Investment Rating and Target Price - Peninsula Energy

Date	Closing Price (\$)	Target Price (\$)	Rating
22-Jan-24	0.11	0.34	Buy
27-Nov-23	0.11	0.25	Buy
1-Nov-23	0.13	0.27	Buy
31-Aug-23	0.09	0.27	Buy
19-Jul-23	0.13	0.31	Buy
27-Jun-23	0.17	0.34	Buy
9-May-23	0.15	0.34	Buy
15-Aug-22	0.18	0.34	Buy
17-Feb-22	0.17	0.40	Buy
5-Sep-21	0.20	0.30	Buy
2-Jun-21	0.18	0.17	Buy
29-Mar-21	0.12	0.17	Buy
2-Feb-21	0.16	0.21	Buy





## Disclaimer

Shaw and Partners Limited ABN 24 003 221 583 ("Shaw") is a Participant of ASX Limited, Cboe Australia Pty Limited and holder of Australian Financial Services Licence number 236048.

**ANALYST CERTIFICATION:** The Research Analyst who prepared this report hereby certifies that the views expressed in this document accurately reflect the analyst's personal views about the Company and its financial products. Neither Shaw nor its Research Analysts received any direct financial or non-financial benefits from the company for the production of this document. However, Shaw Research Analysts may receive assistance from the company in preparing their research which can include attending site visits and/or meetings hosted by the company. In some instances the costs of such site visits or meetings may be met in part or in whole by the company if Shaw considers it is reasonable given the specific circumstances relating to the site visit or meeting. As at the date of this report, the Research Analyst does not hold, either directly or through a controlled entity, securities in the Company that is the subject of this report, or where they do hold securities those interests are not material. Shaw restricts Research Analysts from trading in securities outside of the ASX/S&P100 for which they write research. Other Shaw employees may hold interests in the company, but none of those interests are material.

**DISCLAIMER:** This report is published by Shaw to its clients by way of general, as opposed to personal, advice. This means it has been prepared for multiple distribution without consideration of your investment objectives, financial situation and needs ("Personal Circumstances"). Accordingly, the advice given is not a recommendation that a particular course of action is suitable for you and the advice is therefore not to be acted on as investment advice. You must assess whether or not the advice is appropriate for your Personal Circumstances before making any investment decisions. You can either make this assessment yourself, or if you require a personal recommendation, you can seek the assistance of your Shaw client adviser. This report is provided to you on the condition that it not be copied, either in whole or in part, distributed to or disclosed to any other person. If you are not the intended recipient, you should destroy the report and advise Shaw that you have done so. This report is published by Shaw in good faith based on the facts known to it at the time of its preparation and does not purport to contain all relevant information with respect to the financial products to which it relates. The research report is current as at the date of publication until it is replaced, updated or withdrawn. Although the report is based on information obtained from sources believed to be reliable, Shaw does not make any representation or warranty that it is accurate, complete or up to date and Shaw accepts no obligation to correct or update the information or opinions in it. If you rely on this report, you do so at your own risk. Any projections are indicative estimates only and may not be realised in the future. Such projections are contingent on matters outside the control of Shaw (including but not limited to market volatility, economic conditions and company-specific fundamentals) and therefore may not be realised in the future. Past performance is not a reliable indicator of future performance. Except to the extent that liability under any law cannot be excluded, Shaw disclaims liability for all loss or damage arising as a result of any opinion, advice, recommendation, representation or information expressly or impliedly published in or in relation to this report notwithstanding any error or omission including negligence.

Depending on the timing and size of your investment, your portfolio composition may differ to the model. Performance figures are derived from the inception date of the model and its investment transactions from that date, therefore the performance for your portfolio may be different. If you have any questions in connection with differences between your portfolio and the model, you should speak with your adviser.

**DISCLOSURE:** Shaw will charge commission in relation to client transactions in financial products and Shaw client advisers will receive a share of that commission. Shaw, its authorised representatives, its associates and their respective officers and employees may have earned previously or may in the future earn fees and commission from dealing in the Company's financial products. Shaw acted for the company in a corporate capacity within the past 12 months for which it received a fee.

Sydney   Head Office	Melbourne	Brisbane	Adelaide	Canberra	Perth	Noosa
Level 7, Chifley Tower	Level 36	Level 28	Level 25	Level 9	Level 20	Suite 11a Q Place
2 Chifley Square	120 Collins Street	111 Eagle Street	91 King William Street	5 Constitution Avenue	108 St Georges Terrace	2 Quamby Place
Sydney NSW 2000	Melbourne VIC 3000	Brisbane QLD 4000	Adelaide SA 5000	Canberra ACT 2601	Perth WA 6000	Noosa Heads QLD 4567
Telephone: +61 2 9238 1238	Telephone: +61 3 9268 1000	Telephone: +61 7 3036 2500	Telephone: +61 8 7109 6000	Telephone: +61 2 6113 5300	Telephone: +61 8 9263 5200	Telephone: +61 7 3036 2570
Toll Free: 1800 636 625	Toll Free: 1800 150 009	Toll Free: 1800 463 972	Toll Free: 1800 636 625	Toll Free: 1800 636 625	Toll Free: 1800 198 003	Toll Free: 1800 271 201