# Diggers and Dealers Mining Forum



# PALADIN

Clean energy. Clear future.

August 2022

IAN PURDY CHIEF EXECUTIVE OFFICER

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The information in this presentation relating to the Mineral Resources and Ore Reserves for all of the Company's deposits other than Langer Heinrich, Michelin, Jacques Lake and Manyingee was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that this information has not materially changed since it was last reported. Refer to the Mineral Resource Table slides in the Appendix of this presentation.

#### **Competent Persons Statement**

The information contained within this presentation is extracted from the report titled "Equity Raising Investor Presentation March 2022" released on 31 March 2022 which is available to view on paladinenergy.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original announcement and, in the case of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not materially modified from the original market announcement.



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# Our mission: Resourcing a global carbon-free future

Nuclear energy is playing a critical role in the transition to a decarbonised economy.

Today nuclear energy accounts for 47% of carbon-free electricity generation in the US<sup>1</sup>.

The uranium from the Langer Heinrich Mine can reduce  $CO_2$  emissions by ~1.3bn tonnes over the life of the mine<sup>2</sup>.



### Emissions Intensity by Energy Source<sup>3</sup>, g/kWh



Source: 1) U.S. Energy Information Administration (EIA) 2) Minerals Council of Australia emissions data applied to Langer Heinrich Uranium Life of Mine production as detailed in the ASX Announcement "Langer Heinrich Mine Restart Plan Update, Mineral Resource and Ore Reserve Update" dated 4 November 2021. All material assumptions underpinning the production target continue to apply and have not materially changed 3) World Nuclear Association (WNA)

## Our sustainability commitment

Paladin is committed to the core principle of delivering value through sustainable development.

People & **Environmental** Community Health, Safety & Social Investment **Opportunity Stewardship** & Wellbeing **ESG Highlights and FY2022 Performance Our ESG reporting Commitments** Over 1,700 Lost time Injury Free days SASB reporting to be included in FY2023 Sustainability Report No environmental non-compliances or breaches Extend SASB reporting to include GRI framework when the LHM returns to production in 2024 100% local workforce at the LHM Commitment to TCFD principles to include and manage systemic financial risks associated with climate change 40% of Paladin's Board and 30% of staff are female Further developing our Modern Slavery assessment, reporting and governance to address modern slavery risks across our global supply chain Independent Board and Independent Chair

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# Langer Heinrich Mine

(75% Paladin ownership)



## Langer Heinrich – A globally significant uranium mine





Source: 1) ASX Announcement "Langer Heinrich Mine Restart Plan Update, Mineral Resource and Ore Reserve Update" dated 4 November 2021 2) UxC 2Q 2022. Production includes existing and returning production. During Paladin's peak production phase

## Low risk restart





- Over 10 years of historical production delivering >43Mlb of U<sub>3</sub>O<sub>8</sub>
- Operation was placed on Care and Maintenance in 2018 due to low uranium prices
- Restart project has commenced with target production Q1 CY2024
- Restart scope of work focuses on:
  - general repairs and refurbishment required to return the existing process plant to operational readiness
  - delivery of process upgrades to increase throughput capacity and operational availability
- Current work packages include:
  - completion of detailed engineering and design for process upgrades
  - purchase of project materials and equipment
  - the commencement of plant refurbishment and upgrade works
- ADP Group will work alongside the Company's owners' team as an EPCM delivery partner to further de-risk project execution

## Langer Heinrich Mine production profile





## Capital cost



Total capital expenditure for the project has increased to US\$118M (previous guidance of US\$87M) driven by:

- Recent industry-wide cost escalation on labour, equipment, and raw materials
- The bringing forward of key utility infrastructure work packages to ensure the stable and reliable provision of water and power over the 17-year life of operations
- The decision to strengthen the project management team through expanded EPCM services and an expanded project execution team, in response to the challenging global project environment
- Minor modifications in scope
- An increase in project contingency levels

With US\$177M in cash as at 30 June 2022, Paladin is well positioned to deliver first production from Langer Heinrich.



## Langer Heinrich Mine uranium marketing update





#### **Cornerstone counterparties**

- A leading Fortune 150 North American power utility
- CNNC, leading Chinese nuclear utility and one of the largest consumers of uranium in the world



### **Current Activities**

- Expanded uranium marketing team with appointment of US-based executive
- Engaging in bilateral discussions with global power utilities and continuing to participate in Request For Proposal processes



### Long-term offtake agreements

- Sales agreement<sup>1</sup> for approximately 5% of production to 2030 with a base escalated pricing mechanism
- Existing Life of Mine Offtake for up to 25% of production with a market pricing mechanism
- Up to 65% of first year's sales are contracted

### **Strategic Focus**

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  - Continue to build the contract portfolio in attractive uranium pricing environment
  - Target high-quality counterparties and a balance of pricing mechanisms

# Uranium Market



## Structural supply deficit with growing demand





- Current primary uranium supply unable to meet current demand.
  Deficit met by secondary supplies and inventory drawdowns
- Projected production from returning mines will not be sufficient to meet the deficit
- Trade Tech have recognised the bifurcation of markets in their base case projections, further widening the deficit
- Average annual deficit is ~40Mlb over the coming decade



## Term contracting volumes on the rise



- 250 • For over a decade utilities have been "under-contracting" and drawing down their inventories 200 • In an environment of rising uranium prices and shrinking 150 secondary supplies out of Russia,

- this is no longer a viable option • Significant increase in term contract activity is emerging in 2022. Decade high level is expected by UxC
- "Catch-up" in contracting volumes is required to balance the market



**Term Contracting Activity**, Mlb U<sub>3</sub>O<sub>8</sub> p.a.

### Strong uranium pricing environment





Uranium Prices, Spot and Long-term, US\$/Ib

Sources: TradeTech 2Q 2022, UxC 2Q2022; Broker forecasts: BofA, BMO, Cannacord, Investec, Macquarie, Morgan Stanley, Research Capital, Shaw & Partners and UBS, June 2022

- Spot and Long-term contract prices have rebounded strongly in the last 12 months
- Outlook is strong, supported by uranium market fundamentals and geopolitical uncertainties

## Recent uranium market activity



### **Geopolitical uncertainties**

- Recent events in Russia, Ukraine and Kazakhstan have emphasised the need for energy independence and supply from producers in low-risk, stable jurisdictions
- Bifurcation of markets has put further pressure on existing supply-demand deficit





### China's commitment to nuclear energy is strengthening

- 150 nuclear reactors scheduled for construction over the next 15 years
- Construction of the first commercial land-based Small Modular Reactor has commenced
- Recent contracts signed with Kazatomprom

### Other global developments



- Small Modular Reactors: developments are underway in North America, Europe and Asia. Floating SMR already operational in Yakutia (Russia)
- Japan: reactor restart schedule is being accelerated amid rising LNG prices
- South Korea: new President is reversing nuclear phase-out program
- EU taxonomy: inclusion of nuclear power as "green" energy

# Financial players have significantly altered uranium spot market dynamics



• Spot market has become more liquid and more transparent with the entrance of Sprott and the re-vamp of the physical uranium trust, which it now manages (SPUT)

- Other financial players are entering (eg ANU Energy physical uranium fund)
- Spot and Long-term uranium prices have increased to US\$50.50/lb (up 56%) and US\$53.00/lb (up 51%) over the last 12 months, respectively<sup>1</sup>

# Exploration



## A quality global suite of exploration assets





Michelin Project

Mount Isa Project

Manyingee & Carley Bore Project



Globally significant, high-grade exploration portfolio



Extensive historical exploration activity has seen over US\$140M previously spent



Diverse portfolio of assets provides optionality



Exploration activity has re-commenced at Michelin with activities focused on development pathways and regional exploration opportunities



Paladin will continue to pursue a disciplined approach to exploration activity whilst assessing global opportunities

<sup>1.</sup> See the "About Paladin" section for more information and Mineral Resource Tables; 2. Measured, Indicated and Inferred Mineral Resources for the Michelin, Mount Isa and Manyingee & Carley Bore Projects on a 100% Project basis as at 30 June 2021

## Michelin uranium project<sup>1</sup> (70% Paladin ownership)



#### Restart of exploration activities at the Michelin Project (Labrador, Canada)

 Activity has re-commenced at the Michelin project with a dual-track workstream focused on defining development pathways and improving the understanding of the regional exploration potential

#### **Development pathway**

- Rework of the 2009 concept study incorporating up to date pricing, technology and geological understanding
- Opportunity for a staged development given the extensive nature of tenements and the potential for shallow lying deposits. 80% of tenements under thin glacial cover with limited historical drilling in those areas
- Potential for shallow lying deposits can reduce capital costs and development timeframes

#### **Exploration pathway**

- Uranium exploration will comprise an airborne gravity-gradiometry in 2022 and a drilling program over 2023-2024
- Global-scale Rare Earth Element deposits present in the region with knowledge to be extended via review of existing core samples at Michelin



#### Michelin upside potential

Tenement area shown by black outline; image is  $U^2/Th$  radiometrics; glacial till cover shown in grey; deposits known in areas of outcrop where there is no till cover

# Investment Conclusion

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### Clean energy. Clear future.



Returning the Langer Heinrich Mine to production

- Project approved, fully funded and under way
- Low risk Restart project with well defined scope and strong project execution team
- First production targeted for Q1 CY2024

Cornerstone offtakes secured and strong uranium market

- Offtakes secured with leading global counterparties
- Structural supply deficits and growing demand
- Global marketing team pursuing further offtake opportunities

Balance sheet strength and financial discipline

- US\$177M in net cash
- No corporate debt
- Disciplined approach to growth plans providing future optionality and value

#### Sustainable future

- Resourcing a carbon free future
- Committed to delivering value through sustainable development
- Focus on delivering shareholder value

# About Paladin



### Meet the Board











Mining executive with deep expertise in the minerals and energy sectors derived from global experience having worked extensively in project development and investment banking. A successful track record of leading strategic direction in companies and executing corporate transactions.

#### Peter Main Non-Executive Director

Mining and financial experience spanning more than 30 years. Peter's experience is wide and diverse with the major focus in senior management roles in mining and investment banking. A proven international track record in equity capital markets and sales and trading spanning more than two decades.

#### Peter Watson Non-Executive Director

Chemical engineer with extensive experience in the global resources sector across senior technical, project, and management roles as well as running ASXlisted companies. His experience includes project development, project delivery, asset optimization and mining facilities operations across multiple commodities and global jurisdictions.



#### Melissa Holzberger Non-Executive Director

Commercial and mining lawyer with significant experience in the energy and resources sector, including the uranium industry. She is an experienced company director having served on ASX-listed, public, government and not-for-profit boards spanning a wide range of sectors. She brings legal, risk, compliance, corporate ethics and corporate governance expertise.



#### Joanne Palmer Non-Executive Director

A registered Company Auditor, a Fellow of the Institute of Chartered Accountants in Australia, England and Wales and was previously an Assurance Partner at EY. She brings over 25 years of industry experience providing audit and assurance services on company listings, mergers, acquisitions and takeovers and significant experience in auditing international mining companies.

### Senior Management Team





lan Purdy Chief Executive Officer

Highly-respected executive with over three decades' experience within Australian and international resources companies. He has delivered significant shareholder value through managing and optimizing operations, delivering large projects and executing on business improvements and asset sales. He also has extensive capital markets experience and a proven track record of delivering company funding requirements.





Corporate finance professional with 25 years' experience across the energy and resources sectors in senior management roles. Her experience includes funding execution, commercial management, accounting, finance and treasury in both the ASX listed and private sectors, and includes experience in international jurisdictions.



Legal professional with over 30 years' experience in the management of corporate, labour, mining, commercial, human resources and legal compliance laws in Namibia and South Africa, largely in the mining and oil & gas sectors. Prior to joining Langer Heinrich, he was a partner of a legal firm in Namibia.



#### Jess Oram Senior Vice President Exploration

An experienced exploration geologist with 30 years experience in mineral exploration and management across a variety of commodities and companies. He has significant experience in uranium exploration and has been involved in mineral discovery, resource delineation and expansion and mining feasibility studies.



#### Alex Rybak Senior Vice President Marketing & Business Development

Mergers & Acquisitions, Business Development and Strategy professional with over 20 years of in-house and investment banking experience across a broad range of sectors including energy and resources. He has extensive international experience and has worked in a range of private, public and government-owned enterprises.

# Mineral Resources and Ore Reserves – Langer Heinrich



#### Summary Mineral Resources<sup>1</sup>

Location	Classification	Millions of Tonnes (Mt)	Grade U <sub>3</sub> O <sub>8</sub> (ppm)	Contained U <sub>3</sub> O <sub>8</sub> (Mlb)	Grade V <sub>2</sub> O <sub>5</sub> (ppm)	Contained $V_2O_5$ (Mlb)
In situ -open pit	Measured	79.1	450	78.6	145	25.5
In situ -open pit	Indicated	23.5	375	19.5	120	6.3
In situ -open pit	Inferred	11.0	345	8.4	115	2.7
Total In situ	All	113.6	425	106.5	140	34.5
MG <sup>2</sup> stockpiles	Measured	6.3	510	7.1	165	2.3
LG <sup>3</sup> stockpiles	Measured	20.2	325	14.5	105	4.7
Total	All	140.1	415	128.1	135	41.5

#### Summary Ore Reserves<sup>1</sup>

Location	Classification	Millions of Tonnes (Mt)	Grade U <sub>3</sub> O <sub>8</sub> (ppm)	Contained U <sub>3</sub> O <sub>8</sub> (Mlb)
In situ -open pit	Proved	48.3	488	52.0
In situ -open pit	Probable	10.0	464	10.2
Stockpiles	Proved	26.5	369	21.6
Total	All	84.8	448	83.8

#### **Mineral Resources**

Notes: 200ppm U3O8 cut-off applied to in-situ Mineral Resources – 250ppm U3O8 cut-off applied to stockpiles at the time of mining. Mineral Resources reported on a 100% ownership basis, of which Paladin has a 75% interest. The Measured and Indicated U3O8 Mineral Resources are inclusive of those Mineral Resources modified to produce the Ore Reserves (as reported above). Depleted for mining. Tonnage information has been rounded and as a result the figures may not add up to the totals quoted. 1. Refer ASX Announcement "Langer Heinrich Mine Restart Plan Update, Mineral Resource and Ore Reserve Update" dated 4 November 2021. 2. "MG" refers to medium grade. 3. "LG" refers to low grade

#### **Ore Reserves**

Notes: Ore Reserves are reported on a dry basis. Proved Ore Reserves are inclusive of ore stockpiles. 250ppm cut-off applied. Tonnage figures have been rounded and may not add up to the totals quoted. Ore Reserves reported on a 100% ownership basis, of which Paladin has a 75% interest. Vanadium does not report to Ore Reserves. 1. Refer ASX Announcement "Langer Heinrich Mine Restart Plan Update, Mineral Resource and Ore Reserve Update" dated 4 November 2021

# Mineral Resources table – Canadian exploration portfolio



Mineral Resources		Mt	Grade ppm U <sub>3</sub> O <sub>8</sub>	Mlb $U_3O_8$ (100% basis)	Paladin Ownership (%)
Canada					
Measured	Michelin <sup>1</sup>	17.6	965	37.6	70
	Rainbow <sup>2</sup>	0.2	920	0.4	70
Indicated	Gear <sup>2</sup>	0.4	770	0.6	70
	Inda <sup>2</sup>	1.2	690	1.8	70
	Jacques Lake <sup>1</sup>	13.0	630	18.0	70
	Michelin <sup>1</sup>	20.6	980	44.6	70
	Nash <sup>2</sup>	0.7	830	1.2	70
	Rainbow <sup>2</sup>	0.8	860	1.4	70
Inferred	Gear <sup>2</sup>	0.3	920	0.6	70
	Inda <sup>2</sup>	3.3	670	4.8	70
	Jacques Lake <sup>1</sup>	3.6	550	4.4	70
	Michelin <sup>1</sup>	4.5	985	9.9	70
	Nash <sup>2</sup>	0.5	720	0.8	70
	Rainbow <sup>2</sup>	0.9	810	1.6	70
Total Canada		67.7	860	127.7	70

Note: Values may not add due to rounding. <sup>1.</sup> Refer ASX Announcement dated 31 January 2018 "Correction to 30 June 2017 Annual Report" pp13-15 (reporting standard JORC 2012) <sup>2.</sup> Refer SEDAR lodgment (TSX:FRG) dated 8 September 2009 "Fronteer Reports Positive Preliminary Economic Assessment for Michelin Uranium Project" (reporting standard JORC 2004)

## Mineral Resources table – Australian exploration portfolio



Mineral Resources		Mt	Grade ppm $U_3O_8$	Mlb $U_3O_8$ (100% basis)	Paladin Ownership (%)
Australia					
Measured	Valhalla <sup>1</sup>	16.0	820	28.9	100
Indicated	Andersons <sup>2</sup>	1.4	1,450	4.6	100
	Bikini <sup>3</sup>	5.8	495	6.3	100
	Duke Batman <sup>4</sup>	0.5	1,370	1.6	100
	Odin⁵	8.2	555	10.0	100
	Skal <sup>6</sup>	14.3	640	20.2	100
	Valhalla <sup>1</sup>	18.6	840	34.5	100
	Carley Bore <sup>7</sup>	5.4	420	5.0	100
	Manyingee <sup>8</sup>	8.4	850	15.7	100
Inferred	Andersons <sup>2</sup>	0.1	1,640	0.4	100
	Bikini <sup>3</sup>	6.7	490	7.3	100
	Duke Batman <sup>4</sup>	0.3	1,100	0.7	100
	Honey Pot <sup>9</sup>	2.6	700	4.0	100
	Mirrioola <sup>10</sup>	2.0	560	2.5	100
	Odin⁵	5.8	590	7.6	100
	Skal <sup>6</sup>	1.4	520	1.6	100
	Valhalla <sup>1</sup>	9.1	640	12.8	100
	Watta <sup>11</sup>	5.6	400	5.0	100
	Warwai <sup>11</sup>	0.4	360	0.3	100
	Carley Bore <sup>7</sup>	17.4	280	10.6	100
	Manyingee <sup>8</sup>	5.4	850	10.2	100
Total Australia		135.4	635	189.8	100

Note: Values may not add due to rounding. <sup>1</sup> Refer Announcement (ASX:SMM) dated 19 October 2010 "Resource Upgrade for the Valhalla Uranium Deposit" (reporting standard JORC 2004) <sup>2</sup> Refer ASX Announcement dated 16 April 2012 "Quarterly Activities Report for period ending 31 March 2011" (reporting standard JORC 2004) <sup>4</sup> Refer ASX Announcement dated 15 April 2011 "Quarterly Activities Report for period ending 31 March 2011 (reporting standard JORC 2004) <sup>4</sup> Refer ASX Announcement dated 31 August 2011 "30 June 2011 Annual Report" p29 (reporting standard JORC 2004) <sup>5</sup> Refer ASX Announcement dated 17 January 2012 "Quarterly Activities Report for period ending 31 December 2011" (reporting standard JORC 2004) <sup>5</sup> Refer ASX Announcement dated 17 January 2012 "Quarterly Activities Report for period ending 31 December 2011" (reporting standard JORC 2004) <sup>5</sup> Refer ASX Announcement dated 17 January 2012 "Quarterly Activities Report for period ending 30 June 2012" (reporting standard JORC 2004) <sup>7</sup> Refer ASX Announcement (ASX:EMX) dated 12 February 2014 "Energia Delivers Significant Uranium Resource Upgrade" (reporting standard JORC 2004) <sup>9</sup> Refer ASX Announcement dated 10 December 2008 "Maiden Uranium Resource at Valhalla North Project" (reporting standard JORC 2004) <sup>10</sup> Refer ASX Announcement dated 15 March 2012 "Half Yearly Financial Report 31 December 2011" (reporting standard JORC 2004) <sup>11</sup> Watta - ASX Announcement Summit Resources Ltd dated 29 January 2013 "Half Year Financial Report – 31 December 2012, (reporting standard JORC 2004); Warwai - ASX Announcement Summit Resources Ltd dated 29 January 2013 "Half Year Financial Report – 31 December 2012 (reporting standard JORC 2004)



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