



PALADIN ENERGY LTD  
(subject to a deed of company arrangement)

ACN 061 681 098

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# Explanatory Statement

22 December 2017

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This Explanatory Statement provides information to shareholders of Paladin Energy Ltd (subject to a deed of company arrangement) (**Paladin**) on a proposed capital restructure of Paladin (**Proposed Restructure**). The Proposed Restructure will be affected through a deed of company arrangement (**DOCA**) entered into by Paladin and the Deed Administrators (among others) on 8 December 2017.

If the DOCA is implemented, approximately 98% of the ordinary shares in Paladin will be transferred to certain creditors of Paladin and other investors in exchange for the extinguishment of the majority of Paladin's existing debts and the raising of US\$115m in new funds. Leave will be sought from the Supreme Court of New South Wales by the Deed Administrators under section 444GA of the Corporations Act to enable the transfer to occur (**s444GA Application**).

Initial directions hearings for the s444GA Application were held at the Supreme Court of New South Wales on Tuesday, 12 December 2017 and Thursday, 21 December 2017.

A further directions hearing has been scheduled for Tuesday, 2 January 2018, where the Deed Administrators will seek a final hearing date and a timetable for preparation of the matter for final hearing.

If you wish to appear at the directions hearing to make submissions on the timetable to be set down by the Court and/or oppose the s444GA Application at the final hearing, you will need to file with the Court, and serve on the Deed Administrators, a notice of appearance in the prescribed Court form and any affidavit evidence on which you intend to rely.

A separate announcement will be made by the Deed Administrators on the ASX with regards to the timetable received from the further directions hearing and the required procedure to be followed by those persons who wish to object to the s444GA Application.

**This is an important document. Shareholders (and their advisors and any other interested parties) should read this Explanatory Statement and accompanying Independent Expert's Report (in Appendix 1) carefully and in their entirety before making a decision regarding whether or not to take any action in respect of the s444GA Application. If you have any questions on the information in this document, you should consult your legal or other professional advisor.**

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# 1 Important Information

## 1.1 Purpose of this document

This document is an Explanatory Statement issued by Paladin in connection with the DOCA.

If the s444GA Application is approved and the DOCA implemented, 98% of the Shares you own in Paladin will be transferred to the Share Recipients or third parties (as otherwise outlined in section 3.7) (via the Trustees) for nil consideration to you in accordance with the terms of the DOCA and you will cease to own 98% of your Shares.

This Explanatory Statement has been provided to you by Paladin, to assist you to understand:

- (a) the s444GA Application to the Court for approval to transfer 98% of your Paladin Shares as part of the DOCA approved at the second meeting of creditors held on 7 December 2017;
- (b) the Proposed Restructure and its effect on you as a Shareholder;
- (c) the steps which you need to take if you wish to appear at the Court hearing on the s444GA Application; and
- (d) further information which may assist you in deciding whether to take action in respect of the s444GA Application.

An Independent Expert's Report prepared by PPB Advisory, which contains an objective valuation of the Shares, is attached to this document at **Appendix 1**. The opinion set out in the Independent Expert's Report is that the Shares have nil value.

Shareholders should carefully read this Explanatory Statement and the Independent Expert's Report in their entirety before making a decision regarding the s444GA Application.

If you are in any doubt as to the action you should take, you are recommended to obtain your own personal financial advice from your stockbroker, bank manager, solicitor, accountant and/or other independent professional adviser.

## 1.2 Effect of the Proposed Restructure on Shareholders

If the Proposed Restructure is implemented, there are a number of negative consequences for Shareholders. Your shareholding will be substantially reduced as approximately 98% of the Shares held by each current Shareholder (rounded down) will be transferred to new holders. Initially, 98% of your Shares will be transferred to the Trustees who will hold the Shares on trust for the Acting Beneficiaries or Share Recipients, and then to the Share Recipients (including EDF or those persons to whom EDF has sold its claims, Bondholders, subscribers in the New Note Issue and underwriters of the New Note Issue) or third parties (see section 3.7 which contains further detail in relation to the trust arrangements and how the Shares will be distributed.)

However, through implementation of the Proposed Restructure, Paladin will avoid liquidation. It is also anticipated that ASX will lift the suspension of Shares following implementation of the Proposed Restructure (subject to satisfaction of any conditions imposed by ASX). This will allow current Shareholders to trade their remaining Shares on the ASX once again, which has not been possible since 13 June 2017.

As announced by Paladin on 21 July 2017, the TSX determined to delist Paladin's shares effective at the close of market on 10 August 2017. The Deed Administrators are in the process of transferring the Canadian sub-register of Shareholders to Australia. Under the Proposed Restructure, Paladin does not intend to apply to re-list on the TSX taking into account the costs and benefits associated with doing so. As a result, Shareholders who hold Shares on the Canadian sub-register will need to trade their Shares through the ASX following the reinstatement of Shares to trading on ASX.

Further information regarding the effect of the Proposed Restructure on Paladin and the advantages and disadvantages for Shareholders are set out in sections 4 and 5 below.

### 1.3 Status of this document

This document is not a prospectus or other disclosure document under Chapter 6D of the Corporations Act or equivalent foreign laws and has not been filed, registered or approved in any foreign jurisdiction.

A copy of this Explanatory Statement (including the Independent Expert's Report) has been given to ASIC for the purposes of obtaining the ASIC relief referred to in section 7.1 below. Neither ASIC nor any of its officers takes any responsibility for its contents.

Paladin is a Designated Foreign Issuer as such term is defined under Canadian Securities Law pursuant to Canadian National Instrument 71-102 Continuous Disclosure and Other Exemptions Relating to Foreign Issuers. Paladin is subject to the regulatory requirements of Australian securities laws and the rules and regulations of the ASX.

### 1.4 Defined terms

Capitalised terms used in this Explanatory Statement have the meaning contained in the Glossary in Schedule 1, unless the context otherwise requires or a term has been defined in the text of this Explanatory Statement.

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## 2 Background to the administration of Paladin

### 2.1 Introduction

Paladin was incorporated under the name "Paladin Resources NL" on 24 September 1993. In February 1994, it completed its initial public offering in Australia and on 29 March 1994 commenced trading on ASX. Paladin shares are also listed on the NSX and German Exchanges.

Paladin is a uranium production company with projects currently in Australia and two mines in Africa including the Langer Heinrich mine in Namibia, being Paladin's flagship project (75% owned by Paladin through its wholly owned subsidiary Paladin Finance). In addition to the Langer Heinrich mine, Paladin also has several other assets – the Kayelekera uranium mine in Malawi, which is currently in care and maintenance, and a number of undeveloped uranium deposits in Canada and the Australian States of Queensland and Western Australia.

Uranium prices have remained depressed following the Fukushima Daiichi power plant disaster in Japan in 2011 and reached a 13 year low in late 2016. The low uranium price has had a material impact on Paladin's cash flows and, as a result, during 2015 and 2016 Paladin was actively pursuing potential solutions to address the pending maturity of its 6.00% convertible bonds due April 2017 (approximately US\$212 million (plus interest) outstanding) (**2017 Bonds**).

Over the course of calendar years 2015 and 2016 Paladin considered several options to address the 2017 Bonds forthcoming maturity, including:

- (a) the potential sale of a further 24% minority stake in Langer Heinrich Mauritius Holdings Limited for US\$175 million to CNNC Overseas Uranium Holdings Limited (**CNNC**); and
- (b) a potential equity raising to repay certain of Paladin's existing debt and to help fund Paladin's operations.

However by Q4 of 2016, as the uranium price continued to decrease the potential sale of the minority stake to CNNC stalled and the market's demand for a material new equity or debt raising to repay debt and fund the operations looked uncertain. Therefore, in Q4 of 2016, Paladin commenced working towards a holistic balance sheet restructure and entered into discussions and negotiations with certain holders of 2017 Bonds and 2020 Bonds, and other

relevant persons with regards to a potential viable restructure proposal of its material debt obligations.

## 2.2 Appointment of Deed Administrators

As announced by Paladin to the ASX on 10 January 2017, an initial restructuring proposal was to be made by way of a bond exchange.

Since that time two critical events have taken place in relation to Paladin:

- (a) CNNC took initial steps to exercise its purported option to acquire Paladin's 75% interest in the Langer Heinrich Mine by having Paladin's interest valued by an independent valuer (**CNNC Option**). CNNC eventually decided not to exercise the CNNC Option however.
- (b) EDF requested additional security to cover the pre-payment amounts paid by EDF under the Uranium Concentrates Long Term Supply Contract it entered into with Paladin on 8 August 2012 (**EDF Long Term Supply Contract**). The additional security offered by Paladin was not accepted by EDF and was valued by an independent expert as insufficient to cover the pre-prepayment amounts. This resulted in the outstanding amount being repayable. Despite Paladin's attempts to negotiate an extension to the payment terms, on 3 July 2017 EDF informed Paladin that it was not prepared to enter into a standstill agreement and required the repayment in full of the outstanding amount. EDF has since terminated the EDF Long Term Supply Contract.

As a result of EDF's refusal to agree to an extension of the payment terms, on 3 July 2017 the directors of the Companies appointed Matthew Woods, Hayden White and Gayle Dickerson of KPMG as joint and several administrators (**Administrators**) of the Companies pursuant to section 436A of the Corporations Act.

Since the Administrators were appointed, a group of Bondholders organised themselves into an ad-hoc committee (**Ad-hoc Committee**) and, together with their advisers, presented the Proposed Restructure to the Administrators and sought to garner the support of the remaining Bondholders.

On 21 September 2017 the Federal Court of Australia made orders extending the period within which the Administrators must convene the second meeting of creditors pursuant to section 439A of the Corporations Act, to on or before 31 January 2018. This exchange provided the Administrators additional time to consider and review potential restructure and recapitalisation strategies and to discuss the Proposed Restructure with key relevant stakeholders.

On 30 November 2017, the Administrators issued their report to creditors pursuant to section 439A of the Corporations Act. The Administrators provided their opinion that, having considered the alternatives available to creditors and the fact that the only proposal received at the time of the report was the Proposed Restructure (which remains the only proposal received as at the date of this Explanatory Statement) it is in creditors interests for Paladin to enter into the DOCA. A copy of the Administrators' Report was announced on 1 December 2017 and is available from the ASX (ticker: PDN).

As a result, the Deed Administrators believe that the Proposed Restructure is in the best interest of Paladin, its members and creditors.

As announced on 7 December 2017, Paladin's creditors resolved that Paladin enter into the DOCA. Paladin also announced the receipt of a letter from EDF rejecting the conclusions in the report to creditors that the Proposed Restructure is in the creditors' interests. EDF had also claimed that the Proposed Restructure is unfairly prejudicial to it and has foreshadowed that it may seek to have the DOCA terminated.

On 20 December 2017, EDF advised Paladin that it intended to sell (by way of assignment) all of its claims against Paladin to Deutsche Bank and notified Paladin on 21 December 2017 that the sale had completed.

The Deed Administrators understand that Deutsche Bank has acquired all rights and entitlements currently held by EDF which are described in this Explanatory Statement, including the security that EDF currently holds over certain of Paladin's assets and may seek to sell-down some or all of the purchased claims to other investors. As limited information about the sale of EDF's claims to Deutsche Bank is known as at the date of this Explanatory Statement, the Deed Administrators intend to release further ASX announcements providing additional detail to Shareholders as it becomes available.

If the Proposed Restructure is not implemented, it is expected that Paladin will be unable to continue its operations and its assets will be liquidated. In this scenario, there will be no return to Shareholders.

### 2.3 Summary of current debt arrangements

When Paladin entered voluntary administration, it had debt commitments of approximately US\$676 million.

The details of Paladin's key creditors and amounts owing to them are set out below.

| Creditor             | Details   |
|----------------------|---|
| <b>EDF</b>           | <p>EDF made a large prepayment to Paladin pursuant to the EDF Long Term Supply Contract. In certain circumstances, EDF is entitled to be repaid the amount it has already prepaid.</p> <p>EDF has a claim of approximately US\$288 million in relation to that pre-payment to 31 December 2017.</p> <p>On 21 December 2017, EDF advised Paladin that it had sold (by way of assignment) all of its claims against Paladin to Deutsche Bank. As set out in section 2.2, limited detail regarding the sale is available at this time and further updates will be provided to Shareholders as they become available.</p>   |
| <b>Bondholders</b>   | <p>Paladin has two series of bonds:</p> <ul style="list-style-type: none"> <li>• <b>2017 Bonds:</b> convertible bonds which matured on 30 April 2017 and bear interest at 6% p.a., payable semi-annually in equal instalments in arrears on 30 April and 30 October of each year. Approximately US\$212 million (plus interest) is outstanding under the 2017 Bonds to 31 December 2017; and</li> <li>• <b>2020 Bonds:</b> convertible bonds which mature on 31 March 2020 and bear interest at 7% p.a. payable semi-annually in equal instalments in arrears on 31 March and 30 September of each year. Approximately US\$150 million (plus interest) is outstanding under the 2020 Bonds to 31 December 2017,</li> </ul> <p>(collectively, the <b>Bonds</b>).</p> |
| <b>Deutsche Bank</b> | <p>Prior to the appointment of Deed Administrators, negotiations had been continuing in conjunction with LHU to refinance the group's existing facility with Nedbank Limited (<b>Nedbank Facility</b>) and obtain additional external finance to meet the operational expenses of the Langer Heinrich Mine in Namibia.</p> <p>Once appointed, the Administrators continued those negotiations and on 24 July 2017, Deutsche Bank AG refinanced the Nedbank Facility and agreed to provide additional finance to the Companies and LHU pursuant to a 12 month US\$60 million amended and restated facility agreement with Deutsche Bank AG (<b>DB Facility</b>).</p>   |

|  |  |
|--|--|
|  | <p>The DB Facility will not be compromised under the DOCA. However, Paladin will acquire the debt from Deutsche Bank under the terms of the Proposed Restructure.</p> <p>Also, as noted above, Deutsche Bank has agreed to acquire EDF's claims against Paladin. Limited detail is available at this time and further updates will be provided to Shareholders as they become available.</p> |
|--|--|

### 3 What is the DOCA?

#### 3.1 Overview

The DOCA is a statutory compromise of certain claims of creditors of Paladin that arose on or before 3 July 2017. The DOCA will also be used to implement the Proposed Restructure.

It was resolved at the second meeting of Paladin's creditors held on 7 December 2017, for the DOCA to be executed. The DOCA was executed by all parties on 8 December 2017.

#### 3.2 Terms of the DOCA

The DOCA contemplates a whole of company restructure of Paladin. This Proposed Restructure comprises:

- (a) a debt for equity swap with the existing Bondholders and EDF (or any person to whom EDF has sold its claims, including Deutsche Bank) receiving 70% of all existing Shares pro rata to the value of their claims (**Debt for Equity Swap**), to be effected through the Deed Administrators' power to transfer Shares with leave of the Court under section 444GA of the Corporations Act (**s444GA Transfer**);
- (b) an underwritten issue by Paladin of new notes to the value of US\$115 million (**New Notes**) which New Notes will be secured by all-assets (with exceptions) security to be granted by the Companies and certain other entities in the group (**Security**) pursuant to various security agreements. Subscribers for the New Notes will also be entitled to be transferred a pro-rata allocation of 25% of the currently issued Shares (to be effected pursuant to the s444GA Transfer) (**Equity Allocation**). The New Notes are not convertible and are proposed to be listed on the Singapore Stock Exchange;
- (c) the transfer of 3% of the currently issued Shares to the underwriter(s) of the New Notes (also pursuant to the s444GA Transfer);
- (d) payment by Paladin of approximately US\$60 million cash (raised from the New Notes) to acquire the DB Facility;
- (e) the extinguishment of all "subordinated claims" (as that term is defined in section 563A of the Corporations Act) against Paladin (**Subordinated Claims**);
- (f) the replacement of the board of directors of Paladin (other than the Chairman); and
- (g) payment of certain advisers' fees.

Other than the Subordinated Claims and the claims of EDF (or any person to whom EDF sells its claims, including Deutsche Bank) and the Bondholders, which will be extinguished as set out above, all other claims against Paladin will survive and continue after the Proposed Restructure.

Following implementation of the Proposed Restructure, Shareholders will retain approximately 2% of their current Shares.

The Administrators have also been appointed to Paladin Finance and PEM. Paladin Finance and PEM have separately entered into deeds of company arrangement which require that

Paladin Finance and PEM remain in deed administration until the Proposed Restructure has been completed and the DOCA fully effectuates, at which point, control of Paladin Finance and PEM will be handed back to their respective boards of directors.

### 3.3 Conditions precedent to the DOCA

The implementation of the DOCA (and the Proposed Restructure) is subject to the satisfaction of certain conditions, including:

- (a) subscription funds for the New Notes being received in escrow;
- (b) the Court granting leave to transfer the Shares in accordance with the s444GA Application;
- (c) Paladin obtaining necessary relief and exemptions from the ASX and ASIC;
- (d) all conditions to the reinstatement of Paladin to trading on the ASX being satisfied; and
- (e) the Trustees and Supporting Bondholders receiving any necessary approvals under the *Foreign Acquisitions and Takeovers Act 1975 (Cth)*, which is necessary to give effect to the arrangements outlined in section 3.7 and to allow the Supporting Bondholders to receive the Transfer Shares.

In the event that the conditions precedent to implementation of the DOCA are not satisfied or waived by 31 January 2018 (or such other date as agreed), the Deed Administrators intend to convene a meeting of creditors to consider the future of the Companies.

### 3.4 Effect of the DOCA

On effectuation of the DOCA, the Subordinated Claims and the claims of EDF (or any person to whom EDF has sold its claims, including Deutsche Bank) and the Bondholders against Paladin will be extinguished and the Proposed Restructure will be implemented. The board of Paladin will also be restructured, with new nominees of EDF (or jointly any persons to whom EDF has sold its claims) and the Bondholders (and any other entity entitled to 10% or more of the Shares) to be appointed to the board. It is intended that Rick Crabb will remain Chairman of the board of directors of Paladin. As noted above, it is a condition of effectuation of the DOCA that all conditions to the reinstatement of Paladin to trading on ASX (other than Paladin emerging from deed administration) have been satisfied and accordingly, it is intended that Paladin's shares will recommence trading on ASX following effectuation of the DOCA.

### 3.5 No consideration is payable for the transfer of Shares

You will not receive any consideration for the transfer of your Shares. If leave is given by the Court pursuant to the s444GA Application and the other conditions precedent to implementation of the DOCA are satisfied, 98% of your Shares will be automatically transferred to the Trustees (who will hold the Shares on trust for the Acting Beneficiaries or Share Recipients (as relevant and described in section 3.7)).

### 3.6 What must the court be satisfied of in making an order under s444GA?

The Court may only give leave for the transfer of Shares under s444GA where it is satisfied that doing so would not **unfairly prejudice** Shareholders. The Administrators engaged the Independent Expert to prepare an Independent Expert's Report for the purposes of assisting the Court to determine whether the proposed s444GA Transfer would be unfairly prejudicial to Shareholders. The Independent Expert's Report is attached to this document in **Appendix 1**. Shareholders (and their advisors and any other interested parties) should read the Independent Expert's Report carefully and in its entirety.

The key findings of the Independent Expert are:

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- (a) the equity value of Paladin is in the range of -\$247 million to -\$99 million (using a discounted cash flow methodology and excluding the impact of a potential exercise of the CNNC Option);
  - (b) Paladin's net debt of \$670 million materially exceeds the value of its assets, and accordingly in the Independent Expert's opinion, the Shares have nil value; and
  - (c) if the Companies were placed into liquidation, there would be no return to Shareholders.

### 3.7 What are the trust arrangements and how will Shares be distributed?

In order to address any foreign securities laws or other restrictions that may inhibit a Share Recipient being transferred Shares, the Shares will initially be transferred to Trustees who will hold the Shares on trust for a set of Acting Beneficiaries that do not require any FIRB approval in accordance with the *Foreign Acquisitions and Takeovers Act 1975* (Cth) to hold a beneficial interest in the Shares.

These Acting Beneficiaries will remain the beneficiaries of the relevant trust until the earlier of:

- (a) the relevant Share Recipient confirming in writing (**Confirmation**) that it has obtained FIRB approval in relation to the Shares or determined that it does not require any such approvals in relation to the Shares; or
- (b) 12 months having passed since the s444GA Court Order and the Trustee selling the relevant Shares to one or more third parties.

Where a Trustee does not receive a Confirmation from a Share Recipient within 12 months of the date of the s444GA Court Order, then the relevant Trustee will sell the Share Recipient's Shares and hold the proceeds on trust for the relevant Share Recipient to claim within 6 years of the Record Date, in accordance with the terms of the DOCA.

Where a Trustee receives a Confirmation from a Share Recipient within 12 months of the s444GA Court Order that Share Recipient will become a beneficiary of the relevant trust in place of the Acting Beneficiary. That Share Recipient may, subject to obtaining all other approvals and providing all documents required under the DOCA within 12 months of the s444GA Court Order, direct the Trustee to sell or transfer the Shares per the Share Recipient's instructions (as relevant). If that Share Recipient does not obtain all other approvals and provide all documents required under the DOCA within 12 months of the s444GA Court Order, the Trustee will sell the Shares to one or more third parties and hold the proceeds on trust for the Share Recipient to claim within 6 years of the Record Date.

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## 4 Effect of the Proposed Restructure on Paladin

### 4.1 Current structure

As outlined above, Paladin is an ASX-listed uranium production company with projects in Australia, Canada and Africa including the Langer Heinrich mine in Namibia, being Paladin's flagship project (75% owned by Paladin through its wholly owned subsidiary Paladin Finance).

### 4.2 Why is the Proposed Restructure required?

The Proposed Restructure is being progressed by the Deed Administrators because:

- (a) it presents the only opportunity open to Paladin to deal with its existing debt arrangements, as none of the alternatives investigated by the Administrators provided a solution which would return the Companies to their usual operations and the Deed Administrators received no alternative proposals;
- (b) if the Proposed Restructure is implemented, Paladin will continue to control the business and assets of the Paladin Group, under the changed ownership structure set out in this Explanatory Statement;

- (c) it will allow the suspension of Shares to be lifted (subject to satisfaction of any conditions imposed by ASX), so all Shareholders can trade their Shares on the ASX; and
- (d) implementation of the Proposed Restructure will minimise the risk that the Paladin Group will be unable to continue its mining operations.

Prior to the appointment of the Administrators, Paladin undertook extensive efforts to seek to achieve a solvent restructure of Paladin's debts. A summary of the steps taken are set out in section 2.1 above.

If the Proposed Restructure is not implemented, it is expected that the Paladin Group will be unable to continue its operations and its assets will be liquidated. In this scenario, the Independent Expert has opined in the Independent Expert's Report that the Shares have no value and hence there will be no return to Shareholders.

The Deed Administrators have obtained the Independent Expert's Report (in **Appendix 1**) which is an independent assessment of the value of existing outstanding Shares. The Independent Expert's opinion is that Paladin's shares have nil value.

As noted above, other than the Subordinate Claims and the claims of EDF (or any person to whom EDF has sold its claims, including Deutsche Bank) and Bondholders, which will be extinguished on effectuation of the DOCA, all other claims against Paladin will survive and continue after the Proposed Restructure. As such, the Proposed Restructure has no effect on unsecured trade creditors of the Paladin Group who will continue to be paid in the same manner before and after the Proposed Restructure is implemented. It also has no direct effect on employees of the Paladin Group who, subject to any changes implemented by the new board of Paladin following implementation of the Proposed Restructure (see section 4.5 below), will continue their employment.

#### **4.3 Effect of Proposed Restructure on assets and liability of Paladin**

On implementation of the Proposed Restructure:

- (a) the DOCA will be terminated. New directors will be appointed before termination of the DOCA and the directors will resume control of Paladin on effectuation;
- (b) there will be no effect on the assets of Paladin (other than by reason of the grant of security described in section 3.2(b)) – it will continue to own and operate all of the assets it currently has; and
- (c) the debt of Paladin (excluding trade creditors and employees) will be reduced to the New Notes.

#### **4.4 Substantial Shareholders after the Proposed Restructure**

The table below shows changes to Paladin's substantial shareholders immediately following implementation of the Proposed Restructure. It is based on the information available to Paladin as at the date of this Explanatory Statement and assumes that creditors who are entitled to participate in the New Note Issue will take up their full pro-rata entitlement.

| <b>Shareholder (together with its associates)</b>   | <b>Estimated voting power before implementation</b> | <b>Estimated voting power after implementation</b> |
|---|---|--|
| Deutsche Bank (assuming it does not on-sell any of the claims purchased from EDF)                               | 0%  | 40.7%  |
| Value Partners Hong Kong Limited as investment manager of Value Partners Greater China High Yield Income Fund * | 0%  | 10.7%  |

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|   |                             |      |
|---|-----------------------------|------|
| J.P. Morgan Securities PLC ^                | 0% (for fund holding bonds) | 9.1% |
| BlueBay funds: Global Convertible Bond Fund | 0%                          | 6.9% |
| Leader Investment Corporation               | 0%                          | 5.6% |
| Blackwell Partners LLC – Series A           | 0%                          | 4.7% |
| HOPU Clean Energy (Singapore) Pte Ltd.      | 14.6%                       | 0.3% |
| GIC Private Limited                         | 7.0%                        | 0.1% |

\* Value Partners Hong Kong Limited (**VP HK**) is the investment manager of Value Partners Greater China High Yield Income Fund. VP HK is wholly owned by Value Partners Group Limited, a company listed on the HK stock exchange. Ms TO Hau Yin and Dato' Seri CHEAH Cheng Hye have an interest of >20% in Value Partners Group Limited. We do not have details of the Value Partners Greater China High Yield Income Fund participants, but Value Partners has advised that there aren't any beneficiaries holding more than 5% of the Fund.

^ J.P Morgan Securities PLC is wholly owned by JP Morgan Chase & Co, a company listed on the NY stock exchange.

The actual shareholdings immediately following implementation of the Proposed Restructure cannot be definitively calculated at the date of this Explanatory Statement as they will be affected by matters which include:

- (a) the date on which the Proposed Restructure is implemented;
- (b) acquisitions or disposals of debt (including the Bonds or any other creditor claims) prior to the date on which the Proposed Restructure is implemented;
- (c) the extent of participation in the New Note issue and related underwriting.

Members of the Ad-Hoc Committee are currently associates for the purposes of the Corporations Act. Assuming their association continued past the point of implementation of the Proposed Restructure and all identified Bondholders (not just members of the Ad-Hoc Committee) took up their pro-rata entitlement under the New Note Issue, members of the Ad-Hoc Committee would have an aggregate voting power of approximately 40.94% - 48.54% on implementation (depending on whether or not Deutsche Bank participates in the New Note Issue). However, it is expected that their association will end prior to or at the time of implementation of the Proposed Restructure, as they have only become associates for the purpose of securing implementation of the Proposed Restructure.

It is expected that any recipients of Transfer Shares who become substantial shareholders of Paladin will make appropriate substantial shareholding disclosures as required under the Corporations Act. This includes the beneficial holders sitting behind custodians.

#### 4.5 Board and senior management

It is a term of the DOCA that EDF (or jointly any persons to whom EDF has sold its claims, including Deutsche Bank) and the Bondholders (and any other entity beneficially entitled to 10% or more of the Shares following the Proposed Restructure) nominate new directors to the board of Paladin. It is intended that Rick Crabb will remain as Chairman of the board.

Changes to the composition and size of the board were sought by the Ad-Hoc Committee as part of the Proposed Restructure.

It is also understood that the Ad-Hoc Committee expects certain changes will be made to the senior management of Paladin following implementation of the Proposed Restructure, although the exact nature of these changes are not known as at the date of this Explanatory Statement.

On 21 December 2017, Paladin announced the CEO Alexander Molyneux had notified the Chairman, existing Bondholders and certain other key stakeholders of his intention to resign. Originally retained to assist Paladin establish a sustainable business structure and the deal with Paladin's debt obligations, Mr Molyneux intends to resign once the DOCA is successfully implemented. To ensure a new Board has enough time to search for and recruit a new CEO, and to allow for an appropriate transition, Mr Molyneux has agreed that his resignation will be proffered at the earlier of three months following reinstatement of the Shares to trading on ASX or the confirmation by the Board of a new CEO.

#### 4.6 Other equity on issue

In addition to Shares, Paladin has issued:

- (a) 3,000,000 unlisted employee options with exercise prices between A\$0.20 and A\$0.40 and expiry dates until 23 December 2018; and
- (b) 7,468,000 share appreciation rights with an exercise price of A\$0.20 and expiry dates until 11 November 2024,

each of which are outstanding to the employees and consultants directly engaged in corporate, operations and exploration, and evaluation work.

The Proposed Restructure will not have any effect on the rights of the holders of those unlisted options or share appreciation rights.

#### 4.7 Intentions for Paladin

Except as set out in this Explanatory Statement, Paladin is not aware of any intentions that the potential new substantial shareholders in Paladin have:

- (a) to change the business of the Paladin Group;
- (b) to inject further capital into the Paladin Group;
- (c) for the transfer of assets between the Paladin Group and any shareholder; or
- (d) to otherwise redeploy the assets of the Paladin Group.

While the Ad-Hoc Committee have not communicated any changes proposed to the employees of the Paladin Group, it is expected that the new Board following implementation of the Proposed Restructure will consider any changes that may be required to employees of the Paladin Group depending on the business needs at that time. As noted in section 4.5 above, it is anticipated that changes will be made to senior management of Paladin following implementation of the Proposed Restructure.

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## 5 Advantages and disadvantages for Shareholders

This section sets out the key advantages and disadvantages of the Proposed Restructure for Shareholders. Shareholders should also consider information provided about taxation consequences in section 7.3 and should read this Explanatory Statement in full.

### 5.1 Advantages of the Proposed Restructure for Shareholders

#### *Removing the suspension from trading on the ASX*

It is anticipated that, on the date the Proposed Restructure is implemented or shortly after, trading in Paladin shares will recommence on the ASX (subject to satisfaction of any conditions imposed by the ASX). This will allow all Shareholders to then trade their remaining Shares on the ASX.

### ***Avoidance of uncertainties associated with liquidation or receivership***

The Proposed Restructure will:

- (a) provide a means by which a restructure of the debt owing by Paladin can be effected with minimal disruption to the business of the Paladin Group; and
- (b) avoid costs, delays and uncertainty that could result from liquidation or receivership of Paladin Group.

### ***Improved financial position***

The interest bearing debt level of the Paladin Group will be reduced from approximately US\$738 million (as at 31 December 2017) to approximately US\$115 million and its cash holdings will increase on implementation of the Proposed Restructure, as a result of:

- (a) the entitlements of those persons to whom EDF has sold its claims, including Deutsche Bank, and the Bondholders' being discharged in exchange for the transfer of Shares from Shareholders; and
- (b) the issue of the New Notes.

Part of the US\$115 million raised from the New Note Issue will be used by Paladin to acquire the US\$60 million DB Facility as part of the Proposed Restructure. While the amount of the loan will remain outstanding, it will become an inter-company loan within the Paladin Group.

These changes are expected to allow the Paladin Group to continue trading on a basis which allows it to meet its financial obligations as they fall due.

In connection with the EDF Long Term Supply Contract, EDF was granted first priority security over a 60.1% interest in the Michelin project. This security has been guaranteed by three of Paladin's Canadian subsidiaries: Paladin Energy Canada Ltd, Paladin Canada Investments (NL) Ltd and Aurora Energy Ltd. As announced by Paladin on 29 November 2017, EDF has issued a demand under these guarantees and these subsidiaries have sought protection under Canadian bankruptcy and insolvency law. Shareholders should note that the compromise of creditors' claims pursuant to the DOCA is not expected to compromise this security. Accordingly, those persons to whom EDF has sold its claims, including Deutsche Bank, may seek to enforce the security following implementation of the Proposed Restructure.

### ***Avoiding insolvency expenses***

The legal, administrative and funding costs associated with the liquidation or receivership of the Paladin Group would be avoided if the Proposed Restructure is implemented.

### ***Possible realisation of value through increase in value and future sales of Shares***

Shareholders may have the opportunity to reduce the loss of value in their Shares and to recoup some losses sustained from the transfer of Shares under the Proposed Restructure, through any subsequent increase in the value of their Shares on a sale. Shareholders may consider that the potential to recover value through the Shares is an advantage when compared to the crystallisation of loss that would occur for some or all Shareholders on a winding up of Paladin.

## **5.2 Disadvantages of the Recapitalisation Proposal for Shareholders**

### ***Minority holding in Paladin***

Some Shareholders are likely to hold low percentages of the Shares in Paladin following implementation of the Proposed Restructure, compared to the estimated holdings of the largest shareholders and compared to their holdings before implementation of the Proposed Restructure.

There are risks associated with being a minority shareholder in a company, such as an inability to control or significantly influence the outcome of decisions at a meeting of shareholders. These

disadvantages are mitigated to some extent by the statutory protections afforded to minority shareholders under the Corporations Act.

Some Shareholders will hold less than a marketable parcel following implementation of the Proposed Restructure. In that situation, brokerage costs to sell the Shares may be significant compared to the value of the Shares.

### ***Possibility that insolvency may provide a better outcome***

The Administrators' Report states that there would be no return to Shareholders on a winding up and a diminished return to unsecured creditors of Paladin. In addition, the Independent Expert has concluded that the Shares have nil value. Notwithstanding this, Shareholders may consider that there is a potential for a better return under a winding up of Paladin than the nil return to Shareholders assessed by the Administrators and the Independent Expert.

Shareholders (and their advisors and any other interested parties) should read the Independent Expert's Report attached to this Explanatory Statement at **Appendix 1** carefully and in its entirety.

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## **6 s444GA Application – what you need to know**

### **6.1 What is the status of the s444GA Application?**

The s444GA Application was filed in the Supreme Court of New South Wales on 12 December 2017 and a directions hearing was held on that date before Justice Black.

The Court has yet to set a date for the final hearing but has scheduled a further directions hearing for Tuesday, 2 January 2018. The final hearing date is expected to be confirmed at the directions hearing.

The Deed Administrators will release an ASX announcement setting out the orders made by the Court at the further directions hearing to be held on Tuesday, 2 January 2018 including the timetable for preparation of the application for hearing, confirming the date and time for the final hearing and the date by which any appearance and affidavit must be filed and served by an interested party who wishes to oppose the s444GA Application.

### **6.2 How can you participate at the Court hearing?**

If you wish to appear at the directions hearing to make submissions on the timetable to be set down by the Court and/or oppose the s444GA Application at the final hearing, you will need to file at the Court and serve on the Deed Administrators a notice of appearance in the prescribed Court form and any affidavit on which you intend to rely.

The timetable that the Deed Administrators expect the Court to set down at the further directions hearing on 2 January 2018 is likely to provide a date by which any appearance and affidavit must be filed and served by an interested party who wishes to oppose the s444GA Application at the final hearing.

The Deed Administrators will release an ASX announcement setting out the timetable once it has been set by the Court.

The Deed Administrators' email address for service is [paladinenergy@kpmg.com.au](mailto:paladinenergy@kpmg.com.au).

### **6.3 What is the Independent Expert's conclusion?**

The Deed Administrators engaged the Independent Expert to provide a valuation of the Shares to assist the Court in determining whether the s444GA Transfer will unfairly prejudice Shareholders. The Independent Expert's Report was also prepared for the purpose of applying to ASIC for technical relief from the takeover provisions of the Corporations Act.

The Independent Expert has concluded that Paladin Shares have nil value. A full copy of the Independent Expert's Report can be found in **Appendix 1**. Shareholders (and their advisors

and any other interested parties) should read the Independent Expert's Report carefully and in its entirety.

#### **6.4 What other information is available to assist you?**

To assist you in deciding whether to appear at the Court hearing, and in addition to this Explanatory Statement and the attached Independent Expert's Report:

- (a) A copy of the Originating Process filed by the Deed Administrators in relation to the s444GA Application is available on the Paladin website: <http://www.paladinenergy.com.au/announcements> and also the Deed Administrators' website: <https://home.kpmg.com/au/en/home/services/advisory/deal-advisory/services/restructuring/creditors-shareholders/paladin.html>; and
- (b) the Administrators' Report provided under section 439A of the Corporations Act dated 30 November 2017 is available on the ASX platform (<http://www.asx.com.au>), Paladin website (<http://www.paladinenergy.com.au/>) and also the Deed Administrators' website (<https://home.kpmg.com/au/en/home/services/advisory/deal-advisory/services/restructuring/creditors-shareholders/paladin.html>).

Alternatively, you may request copies of those documents from us and they can be emailed to you free of charge. You can request copies by calling +61 8 9263 7477 or by emailing [paladinenergy@kpmg.com.au](mailto:paladinenergy@kpmg.com.au).

This document does not constitute financial product advice and has been prepared without reference to the investment objectives, financial situation, taxation position or particular needs of any Paladin shareholder. Each Paladin shareholder's decision whether to take any action in relation to the Proposed Restructure will depend on an assessment of the Paladin Shareholder's individual circumstances. As the financial, legal and taxation consequences of that decision may be different for each Paladin shareholder, Shareholders should seek professional financial, legal and taxation advice before making their decision.

#### **6.5 What is the timetable for the s444GA Application?**

Following the initial directions hearings held on Tuesday, 12 December 2017 and Thursday, 21 December 2017, the only date currently available to the Deed Administrators is that of the further directions hearing to be held on Tuesday, 2 January 2018.

Following the further directions hearing, it is expected that:

- (a) a revised timetable will be made available for the filing and service of evidence (including the date by which any interested party must file a notice of appearance seeking to oppose the s444GA Application); and
- (b) the Court will confirm the final hearing date and time.

At the time of issuing this Explanatory Statement, the Deed Administrators intend to seek the earliest practical date for a final hearing of the s444GA Application on or after 16 January 2018.

Unless otherwise stated, all times referred to in this Explanatory Statement are Sydney times. The dates referred to are indicative only and subject to change. Paladin reserves the right to vary the times and dates, subject to the Corporations Act and the approval of any variations by the court, ASIC or ASX, where required.

Any changes to the timetable will be disclosed to the market via the ASX electronic announcements platform, as soon as possible after the change is identified.

#### **6.6 What if I do nothing?**

If you take no action in respect of the s444GA Application, and the conditions to the Proposed Restructure are satisfied, 98% of your shares will be automatically transferred under the s444GA Transfer to the Share Recipients or other third parties as described in 3.7 and you will

cease to own those Shares. For instance, if you currently hold 10,000 Shares and the Proposed Restructure is implemented, you will only own 200 Shares.

## 7 Additional information

### 7.1 ASIC relief

On 17 November 2017, the Administrators applied to ASIC for an exemption from the operation of section 606 of the Corporations Act to allow certain Share Recipients to acquire voting power of more than 20% in Paladin as a result of the s444GA Transfer.

On 4 December 2017, the Administrators lodged a revised application to better detail the trust and distribution mechanics described in part 3.7 above.

At the time of issuing this Explanatory Statement, that application has not been determined by ASIC. The Deed Administrators will issue further ASX announcements in relation to the ASIC application as updates and developments occur.

### 7.2 ASX relief

On 16 November 2017, the Administrators commenced discussions with ASX seeking:

- (a) a waiver of Listing Rule 10.1 to permit any holder of the New Notes to obtain the benefit of the Security to be granted pursuant to the New Note issue; and
- (b) reinstatement of Paladin to official quotation on ASX following implementation of the Proposed Transaction.

On 5 December 2017 a general application for a waiver of Listing Rule 10.1 was made and on 21 December 2017, ASX granted Paladin the requested waiver subject to certain standard conditions for a waiver of this kind, including a condition that the Security must include a term that if an event of default occurs the holders of the New Notes cannot acquire any legal or beneficial interest in Paladin's assets, or otherwise deal in Paladin's assets, without Paladin first having complied with any applicable Listing Rules.

At the time of issuing this Explanatory Statement, Paladin has not yet received confirmation from ASX regarding its request for reinstatement to official quotation on ASX following implementation of the Proposed Transaction. The Deed Administrators will issue further ASX announcements in relation to these matters as updates and developments occur.

### 7.3 Tax consequences

This section of this Explanatory Statement is provided for general information of Shareholders who are Australian resident taxpayers holding their shares on capital account, not as trading stock, and who are not subject to the Taxation of Financial Arrangements rules in Division 230 of the *Income Tax Assessment Act 1997* (Cth) for the purposes of calculating any gains or losses arising from financial arrangements. It does not take account of the circumstances of any individual Shareholder. You should seek your own tax advice on the consequences for you of the Proposed Restructure being implemented.

The transfer of Shares on implementation of the Proposed Restructure will give rise to a capital gains tax event for the Shareholders. The Australian Shareholders who hold their Shares on capital account will incur a capital loss to the extent the reduced cost base in the Shares transferred exceeds the market value of the Shares.

The reduced cost base in the Shares includes:

- (a) the acquisition cost of the Shares;
- (b) incidental acquisition costs incurred to acquire and hold the Shares;
- (c) expenditure incurred to increase or preserve the value of the Shares; and

- (d) capital expenditure incurred to establish, preserve or defend their title to the Shares.

Given the transfer will occur by way of a court order, and not a contract, the time of the CGT Event for the Shareholders will be when the 444AGA Transfer takes effect upon implementation of the Proposed Restructure.

Non-Australian resident shareholders should not get the benefit of the capital loss on the basis that their Shares should not constitute taxable Australian property.

#### 7.4 Material interests of the directors of Paladin

As at the date of this Explanatory Statement, Mr Rick Crabb (the sole director of Paladin) has the interests in Paladin securities set out below:

| Director      | Shares before implementation | Share rights or other securities convertible into shares | Shares after implementation |
|---------------|------------------------------|--|-----------------------------|
| Mr Rick Crabb | 5,981,528                    | Nil  | 119,630                     |

If the s444GA Application is approved and the Proposed Restructure implemented, Mr Crabb will have 98% of his Shares transferred to the Share Recipients for no consideration, consistent with all other Shareholders.

The Deed Administrators are not aware of any other material interests of Mr Crabb in the Proposed Restructure. As noted above, it is a term of the DOCA that the board of Paladin, with the exception of Rick Crabb who it is intended will remain Chairman of the board, will be appointed by EDF (or any person to whom EDF sells its claims, including Deutsche Bank) and the Bondholders (and any other entity beneficially entitled to 10% or more of the Shares following the Proposed Restructure).

#### 7.5 Material interests of the Deed Administrators

See Annexure B of the Section 439A Report.

#### 7.6 Further information

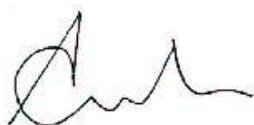
If you have further questions, it is recommended that you:

- contact your stockbroker, bank manager, solicitor, accountant and/or other professional adviser;
- visit our website at <https://home.kpmg.com/au/en/home/services/advisory/deal-advisory/services/restructuring/creditors-shareholders/paladin.html>; or
- call the information line on +61 8 9263 7477.

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## 8 Signature of Paladin

This Explanatory Statement has been signed by Paladin.



Matthew Woods

in his capacity as joint and several deed administrator of Paladin Energy Limited (subject to deed of company arrangement).

## Schedule 1 – Glossary

For the purpose of this document, capitalised terms used in this document have the meaning given below, unless the context requires otherwise. Words in the singular include the plural and vice versa.

| Term                          | Definition  |
|-------------------------------|---|
| <b>2017 Bonds</b>             | The convertible bonds issued by Paladin which matured on 30 April 2017 and bear interest at 6% p.a., payable semi-annually in equal instalments in arrears on 30 April and 30 October of each year in relation to which approximately US\$212m (plus interest) remains outstanding. |
| <b>2020 Bonds</b>             | The convertible bonds issued by Paladin which mature on 31 March 2020 and bear interest at 7% p.a. payable semi-annually in equal instalments in arrears on 31 March and 30 September of each year in relation to which approximately US\$150m (plus interest) remains outstanding. |
| <b>Acting Beneficiaries</b>   | Ryan Shaw, Richard Forbes and John Mouwad (as relevant).  |
| <b>Ad-Hoc Committee</b>       | The group of Bondholders who formed themselves into an 'Ad-Hoc Committee' and presented the Administrators with the terms of the Proposed Restructure.  |
| <b>Administrators</b>         | Matthew Woods, Hayden White and Gayle Dickerson, each of KPMG appointed on 3 July 2017.   |
| <b>Administrators' Report</b> | The report prepared by the Administrators and provided to Paladin's creditors under section 439A of the Corporations Act dated 30 November 2017   |
| <b>ASIC</b>                   | Australian Securities and Investments Commission.   |
| <b>ASX</b>                    | Australian Securities Exchange.   |
| <b>Bonds</b>                  | The 2017 Bonds and 2020 Bonds.  |
| <b>Bondholders</b>            | Persons holding Bonds from time to time.  |
| <b>CGT Event</b>              | The list of CGT Events in Division 104 of the <i>Income Tax Assessment Act 1997</i> (Cth)   |
| <b>CNNC</b>                   | Has the meaning given in section 2.1 of this Explanatory Statement.   |
| <b>CNNC Option</b>            | Has the meaning given in section 2.2(a) of this Explanatory Statement.  |
| <b>Companies</b>              | Each of Paladin, Paladin Finance and PEM.   |
| <b>Corporations Act</b>       | <i>Corporations Act 2001</i> (Cth).   |
| <b>Court</b>                  | Supreme Court of New South Wales.   |
| <b>Deed Administrators</b>    | Matthew Woods, Hayden White and Gayle Dickerson, each of KPMG, as administrators of the DOCA.   |
| <b>Deutsche Bank</b>          | Deutsche Bank AG (London Branch)  |
| <b>DOCA</b>                   | The deed of company arrangement entered into between Paladin, the Deed Administrators, the Trustees and Perpetual Corporate Trust Limited (ACN 000 341 533).  |

| Term                                 | Definition   |
|--------------------------------------|--|
| <b>EDF</b>                           | Électricité de France S.A.   |
| <b>EDF Long Term Supply Contract</b> | Has the meaning given in section 2.2(b) of this Explanatory Statement.   |
| <b>Explanatory Statement</b>         | This document.   |
| <b>FIRB Approval</b>                 | the necessary approvals under the <i>Foreign Acquisitions and Takeovers Act 1975</i> (Cth).  |
| <b>Independent Expert</b>            | PPB Corporate Finance Pty Ltd.   |
| <b>Independent Expert's Report</b>   | Means the report prepared by PPB Advisory and included in Appendix 1 of this document.   |
| <b>LHU</b>                           | Langer Heinrich Uranium (Pty) Ltd.   |
| <b>LHM</b>                           | Langer Heinrich Mauritius Holdings Limited.  |
| <b>Listing Rules</b>                 | The official listing rules of ASX.   |
| <b>New Notes</b>                     | Has the meaning given in section 3.2(b) of this Explanatory Statement.   |
| <b>New Note Issue</b>                | Means the issue of the New Notes.  |
| <b>NSX</b>                           | Means Namibian Stock Exchange.   |
| <b>Paladin</b>                       | Paladin Energy Ltd (subject to a deed of company arrangement) ACN 061 681 098.   |
| <b>Paladin Finance</b>               | Paladin Finance Pty Ltd (subject to deed of company arrangement) ACN 117 234 278.  |
| <b>Paladin Group</b>                 | Paladin and each of its subsidiaries.  |
| <b>PEM</b>                           | Paladin Energy Minerals NL (subject to deed of company arrangement) ACN 073 700 393.   |
| <b>Proposed Restructure</b>          | The Restructure of Paladin in accordance with the terms of the DOCA.   |
| <b>Record Date</b>                   | Has the meaning given in the DOCA.   |
| <b>s444GA Application</b>            | An application to the Court under section 444GA of the Corporations Act for leave to be granted to the Deed Administrators to transfer 98% of all Shares in Paladin to the Trustees on behalf of the Acting Beneficiaries or Share Recipients (as relevant). |
| <b>s444GA Court Order</b>            | An order of the Court granting the leave sought in the s444GA Application.   |
| <b>s444GA Transfer</b>               | Has the meaning given in section 3.2(a) of this Explanatory Statement.   |
| <b>Shares</b>                        | Ordinary shares in the capital of Paladin.   |
| <b>Shareholders</b>                  | Holders of Shares as at the date of this Explanatory Statement.  |

| Term                                | Definition  |
|-------------------------------------|---|
| <b>Shareholder Information Line</b> | The information line set up for the purpose of answering enquiries from Shareholders in relation to the Proposed Restructure, the details of which are set out on the inside cover of this document.  |
| <b>Share Recipients</b>             | Each of EDF (and any person to whom EDF sells its claims, including Deutsche Bank), the Bondholders, and participants and underwriters of the New Note Issue.   |
| <b>Subordinated Claims</b>          | Has the meaning given in section 3.2(e)   |
| <b>Supporting Bondholders</b>       | Those Bondholders who are supportive of the Proposed Restructure and have entered into a restructuring support deed.  |
| <b>Transfer Shares</b>              | The Shares to be transferred for the benefit of the Acting Beneficiaries or Share Recipients (as relevant), on implementation of the Proposed Restructure.  |
| <b>Trustees</b>                     | Matthew Woods and Hayden White of KPMG and John Zeckendorf, in their capacity as trustees, appointed to hold the Transfer Shares on trust for the Acting Beneficiaries or Share Recipients (as relevant and described in 3.7) until such time as they may be legally transferred their respective proportions of the Transfer Shares. |
| <b>TSX</b>                          | Toronto Stock Exchange.   |

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**Paladin Energy Limited  
(subject to deed of company  
arrangement)**

**Independent Expert's Report  
and Financial Services Guide**

22 December 2017

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## PART 1: FINANCIAL SERVICES GUIDE

### PPB Corporate Finance Pty Ltd

PPB Corporate Finance Pty Ltd (ABN 13 130 176 911) ('PPB') is the licensed corporate finance business of PPB Advisory. PPB is a wholly owned subsidiary of PPB Pty Ltd, trading as PPB Advisory (ABN 67 972 164 718). PPB Advisory provides strategic and financial advisory services to a wide range of clients. PPB's contact details are as set out on our letterhead.

### Engagement

PPB was engaged by the Administrators ('Administrators') of Paladin Energy Limited (subject to deed of company arrangement) ('Paladin' or 'PEL' or 'the Company') to prepare this Independent Expert's Report ('IER' or 'Report'). This IER will be:

- used to assist the Court to assess the prospective application by the Administrators pursuant to Section 444GA of the Corporations Act 2001 (*cth*) ('Act') ('S444GA Application') in particular, whether the transfer of Paladin shares pursuant to the deed of company arrangement dated 8 December 2017 ('DOCA') will unfairly prejudice shareholders of PEL ('Shareholders')
- used for the application to Australian Securities and Investments Commission ('ASIC') for technical relief from Section 606 of the Act ('S606')
- included with the explanatory statement ('Explanatory Statement') to be made available to Shareholders so as to provide them with the valuation of Paladin's equity and inform Shareholders of the restructure, so they can make an informed decision in relation to the S444GA Application.

### Financial Services Guide

This Financial Services Guide ('FSG') has been prepared in accordance with the Act. It provides important information to help retail investors make decisions regarding the general financial product advice included in the IER, the services we offer, information about PPB, the dispute resolution process and our remuneration.

PPB holds an Australian Financial Services Licence (No. 344626) ('Licence'). PPB is required to issue to you, as a retail client, a FSG in connection with our IER.

### PPB is licensed to provide financial services

The Licence authorises PPB to provide reports for the purposes of acting for and on behalf of clients in relation to proposed or actual mergers, acquisitions, takeovers, corporate restructures or share issues, to carry on a financial services business and to provide general financial product advice for securities and certain derivatives (limited to old law securities, options contracts and warrants) to retail and wholesale clients.

You have not engaged PPB directly, but have received this IER because it accompanies the Explanatory Statement sent by the Deed Administrators ('Deed Administrators') to the Court, ASIC and Shareholders. This IER includes details of our engagement and identifies the party who has engaged us.

This IER is provided by PPB as an Australian Financial Services Licensee, authorised to provide the financial product advice contained in the IER.

### General financial product advice

This IER provides general financial product advice only, and does not provide any personal financial product advice, because it has been prepared without taking into account your particular personal circumstances, objectives (either financial or otherwise), financial position or needs.

Some individuals may place a different emphasis on various aspects of potential investments and individuals should seek independent advice.

### Remuneration

PPB will receive a fee of approximately AUD250,000 (plus GST and disbursements) based on commercial rates. PPB will not receive any fee contingent upon the outcome of the DOCA and accordingly, does not have any pecuniary or other interests that could reasonably be regarded as being capable of affecting its ability to give an unbiased opinion in relation to the DOCA.

Employees of PPB and PPB Advisory receive a salary. Employees may be eligible for bonuses based on overall productivity and contribution to the operation of PPB or PPB Advisory but any bonuses are not directly connected with individual assignments and, in particular, are not directly related to the engagement for which this IER has been prepared.

PPB does not pay commissions or provide any other benefits to any parties or person for referring customers in connection with the reports that PPB is licensed to provide.

### Independence

PPB is not aware of any actual or potential matter or circumstance that would preclude it from preparing this IER on the grounds of independence under regulatory or professional requirements. In particular, PPB has had regard to the provisions of applicable pronouncements and other guidance statements relating to professional independence issued by Australian professional accounting bodies and ASIC.

### Complaints resolution

PPB is required to have a system for handling complaints from persons to whom we provide financial product advice. All complaints must be in writing, addressed to The Complaints Officer, PPB Corporate Finance Pty Ltd, GPO Box 5151, Sydney NSW 2001.

On receipt of a written complaint PPB will record the complaint, acknowledge receipt of the complaint and seek to resolve the complaint as soon as practical. If PPB cannot reach a satisfactory resolution you can raise your concerns with the Financial Ombudsman Service Limited ('FOS').

FOS is an independent body established to provide advice and assistance in helping resolve complaints relating to the financial services industry. PPB is a member of FOS. FOS may be contacted directly via the details set out below.

Financial Ombudsman Service Limited  
 GPO Box 3  
 Melbourne VIC 3001  
 Toll free: 1300 78 08 08  
 Email: [info@fos.org.au](mailto:info@fos.org.au)  
 Web: [www.fos.org.au](http://www.fos.org.au)

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## PART 2: INDEPENDENT EXPERT'S REPORT

22 December 2017

The Deed Administrators  
Paladin Energy Limited (subject to deed of company arrangement)  
c/- King & Wood Mallesons  
Level 61  
Grovonor Phillip Tower  
1 Farrer Place  
Sydney NSW 2000

Dear Deed Administrators

### Independent Expert's Report and Financial Services Guide

#### 1. Introduction

PPB Corporate Finance Pty Ltd ('PPB') was appointed by the Administrators ('Administrators') of Paladin Energy Limited (subject to deed of company arrangement) ('Paladin', 'PEL' or 'the Company') to prepare an independent expert's report ('IER' or 'Report') for:

- the Supreme Court of New South Wales ('Court') in an application by the Administrators pursuant to Section 444GA of the Corporations Act 2001 (*cth*) ('Act') ('S444GA Application') to implement a Deed of Company Arrangement dated 8 December 2017 ('DOCA') in respect of PEL
- Australian Securities and Investments Commission ('ASIC') for relief from Section 606 of the Act ('S606'). ASIC may grant relief under S655A of the Act.
- the existing ordinary shareholders of PEL ('Shareholders'), to provide them with a valuation of PEL and inform Shareholders of the restructure, so they can make an informed decision in relation to the S444GA Application.

The Deed Administrators ('Deed Administrators') have also been appointed to Paladin Finance Pty Ltd (subject to deed of company arrangement) ('PFPL') and Paladin Energy Minerals NL (subject to deed of company arrangement) ('PEM').

The DOCA is described below.

#### 2. The Deed of Company Arrangement

On 3 July 2017, the directors of PEL appointed Matthew Woods, Hayden White and Gayle Dickerson as the joint and several administrators of PEL pursuant to S436A of the Act.

The Administrators have been in negotiations with the major creditors of the Company in relation to restructuring the Company.

At 30 September 2017, PEL had debt commitments of approximately \$384.51 million<sup>1</sup> under two series of bonds governed by English law and listed on the Singapore Stock Exchange ('Bonds') as well as a \$283.48 million of liabilities ('EDF Prepayment Amount') to the major creditor, Electricite de France SA ('EDF').

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<sup>1</sup> PEL reports in US dollars. All references to \$ or dollars in this report are US dollars unless otherwise stated

The Bonds represent the majority of the claims against PEL. The bondholders have organised an adhoc committee that is represented by 333 Capital and Gilbert + Tobin ('Bondholders') and have proposed the DOCA that will comprise the following transactions:

- there will be a compromise of the Bonds held by the Bondholders and EDF's Uranium Concentrate Long Term Supply Contract ('LTSC') liability for the EDF Prepayment Amount
- the Bondholders and EDF (or any person to whom EDF has sold its claims, including Deutsche Bank) will receive a pro rata share of 70% of the issued shares of PEL
- the Bondholders and EDF (or any person to whom EDF has sold its claims, including Deutsche Bank) will have the right to subscribe for a pro rata share of \$115 million in new secured bonds ('New Bonds') whereby the participants will also receive a pro rata share of 25% of the shares in PEL
- the remaining 5% of the issued shares in PEL will be held as follows:
  - 3% by the underwriters of the New Bonds
  - 2% retained by the Shareholders.

On 7 December 2017, the DOCA was approved at the second meeting of PEL creditors. The share transfers to achieve the above debt for equity swaps will be implemented pending leave being granted under the S444GA Application.

Further details in relation to the DOCA are provided in Section 1 of the IER that is attached and the Explanatory Statement that has been prepared for Shareholders by the Deed Administrators.

### 3. Requirements for the IER

The implementation of the DOCA is conditional, among other things, upon ASIC granting relief from S606 under S655A and the Court approving the S444GA Application to transfer the majority of PEL shares to the major creditors.

The Court will only approve the S444GA Application if it is satisfied that the transfers of shares under the DOCA will not "*unfairly prejudice the interests of members of the company*".

PPB has been engaged by the Administrators, to prepare an IER with our opinion as to the value of the equity in PEL.

For the purpose of providing our opinion, we understand that the proposed share transfer will not unfairly prejudice Shareholders if the ordinary shares of PEL have no value.

Our IER will be used for the S444GA Application in relation to the DOCA to:

- assist the Court in determining whether the proposed transfer of PEL shares to major creditors will unfairly prejudice Shareholders for the purpose of the S444GA Application
- apply to ASIC for technical relief, under S655A, from the takeover provisions under S606 of the Act
- send to Shareholders.

Accordingly, our IER has been prepared in accordance with ASIC's Regulatory Guide ('RG') 111 *Content of expert's reports* ('RG 111') and RG 112 *Independence of experts* ('RG 112').

This IER should be considered in conjunction with, and not independently of, the information set out in the Explanatory Statement prepared by the Deed Administrators and sent to Shareholders prior to the Court hearing expected to occur before mid-January 2018.

### 4. Basis of evaluation

PPB has assessed the value of the shares in PEL be assessed on a:

- going concern basis as per RG 111
- distressed basis to determine the application for relief from S606 of the Act.

For the purpose of assessing the Administrators' S444GA Application and for relief from the operation of S606, we have assessed the value of the shares in PEL on the following two bases:

1. On a "fundamental going concern valuation of the assets, assuming non-distressed seller and buyer, in an arm's length transaction, assuming immediate ongoing funding was available to continue operations".
2. Using the going concern valuation as a starting point, and applying any applicable discounts and adjustments having regard to the relevant factual circumstances, funding requirements and risks of PEL, assuming the DOCA is not implemented.

We have also considered the implications of CNNC Overseas Uranium Holding Limited ('COUH'), the 25% shareholder of Langer Heinrich Mauritius Holdings Limited ('LHMHL'), exercising its potential call option under the shareholders agreement with PFPL.

Further details of the basis of evaluation are set out in Section 2.3 of our Report.

## 5. Reliance on technical experts

To assist in the assessment of the value of shares of PEL, we appointed CSA Global Pty Ltd ('CSA') to provide an opinion on technical matters including the value of the mineral resources, exploration projects and the uranium database ('Mineral Assets') of PEL. CSA provided an independent technical assessment and valuation opinion on the market value (on a going concern basis) of the Mineral Assets as at 30 September 2017 ('CSA Report').

The CSA Report has been prepared in accordance with the relevant Valmin and ASIC's regulatory guides. We have reviewed the CSA Report in detail and have discussed the conclusions reached with the authors and management of PEL. We consider that the independent technical assessment and valuation is appropriate for the purposes of our IER.

CSA is a privately-owned mining consulting company that provides multi-disciplinary services across a broad spectrum of clients in the mining industry globally. CSA has significant experience in providing services across all stages of the mining cycle, including project generation, resource estimation, project evaluation, development studies, operations assistance, corporate advice, valuations and technical documentation.

We have relied on the analysis undertaken by CSA in forming our opinion on the value of the shares of PEL and in making references to the Mineral Assets in this Report. A copy of the CSA Report dated 22 December 2017 ('CSA Report') is included in Appendix I.

## 6. Summary of opinion

PPB has valued PEL's equity on two bases:

1. Going concern – assumes that PEL will continue to operate for the foreseeable future and will be able to realise its assets and discharge its post administration liabilities in the normal course of business.
2. Distressed – assumes the current situation faced by PEL, whereby it does not have sufficient funds in place to pursue its normal operations into the foreseeable future.

In each case we conclude that PEL's shares have no value. As the shares have no value there will be no return to Shareholders.

Under the going concern basis, we have assumed that the current financial difficulties of PEL do not exist and there is sufficient funding available for the Company to pursue its normal business operations. We are of the opinion that these assumptions are not appropriate and therefore the going concern scenario likely overstates the realisable value of the business and the assets in the absence of the DOCA. The going concern valuation has been undertaken in accordance with ASIC's regulatory guides as discussed in Section 2.2 of our Report.

The more relevant assessment of value, for the purpose of assisting the Court to determine whether the S444GA Application will unfairly prejudice the Shareholders, is the distressed basis.

Our opinion should be read in conjunction with the remainder of this letter and our Report, that is attached.

## 7. Going concern valuation

On a going concern basis, we have assessed that the shares of PEL have no value.

We have assessed the value of 100% of the issued shares in PEL, on a control basis, by:

1. determining the value of the entities in the PEL group of companies, on a going concern basis, using the following 'sum of the parts' methodology:
  - the operating mines and mines on 'care and maintenance', ie Langer Heinrich Mine ('LHM') and Kayelekera Mine ('KM') respectively, using the Discounted Cash Flow ('DCF') method
  - the Mineral Assets, relying on the relevant valuations performed by CSA
  - the share interest in Summit Resources Limited ('Summit'), using the Net Assets ('NA') method
  - other assets and liabilities, using the NA method.
2. deducting the secured borrowings, net of any cash
3. deducting the Deed Administrators' assessment of the specified claims lodged by Bondholders of \$384.51 million and the EDF Prepayment Amount of \$283.48 million (for the purpose of securing their voting interests at the second creditors' meeting)
4. deducting administration and associated legal costs of between \$4.6 million and \$7.7 million.

We have also considered the implications of COUH exercising its potential call option under the shareholders' agreement with LHMHL ('LHMHL Shareholders' Agreement').

In valuing 100% of the issued shares of PEL, we have considered whether there would be any synergies and benefits that would be available to potential purchasers for the business and have concluded, based on the assets and the nature and decentralised structure of the Company, that there would not be any. We have not included any 'special value' or the value of any synergies that would be specific to a particular purchaser.

In Section 8 of our Report, we set out our valuation of PEL on a going concern basis.

Our valuation on a going concern basis is summarised in Table 1:

**Table 1: Summary - Valuation of equity (going concern)**

|  | Low<br>\$'000    | High<br>\$'000  |
|--|------------------|-----------------|
| Equity value (controlling interest basis) for LHM and KM                                     | 345,396          | 466,184         |
| Mineral Assets   | 38,210           | 62,751          |
| 82.08% equity value (controlling interest basis) for Summit                                  | 30,843           | 30,843          |
| Total other assets and liabilities   | 15,421           | 15,421          |
| Net debt <sup>2</sup>  | (669,832)        | (669,832)       |
| Administration and associated legal costs  | (7,680)          | (4,590)         |
| <b>100% equity value (controlling interest basis) for PEL (excluding COUH Option impact)</b> | <b>(246,642)</b> | <b>(99,224)</b> |
| 5.00% discount - COUH Option exercise  | (16,191)         |                 |
| Potential tax - COUH Option exercise   | (16,399)         |                 |
| <b>100% equity value (controlling interest basis) for PEL (including COUH Option impact)</b> | <b>(279,232)</b> | <b>(99,224)</b> |

Source: PPB analysis

Our analysis indicates that the shares of PEL have no value.

<sup>2</sup> Cash and equivalents (excluding LHM, LHMHL and Summit) of \$21.79 million, DB Facility component within PEL of \$15. million, 2017 Bonds of \$223.82 million, 2020 Bonds of \$160.69 million, 75% of unearned uranium revenue within LHM of \$8.64 million and EDF Prepayment Amount of \$283.48 million

After deducting the specified claims, trade and other creditors and trading costs from the assets of PEL, the implied value of equity ranges between negative \$279.2 million and negative \$99.2 million.

We have deducted the Deed Administrators' assessment of the specified claims lodged by the Bondholders and EDF, that were determined for the purposes of the second creditors meeting, as they represent the best estimate of PEL's liabilities in respect of claims as a consequence of the administration. To the extent that actual claims are either higher or lower than the claims, then the implied value of equity would either be lower or higher, respectively.

Based on the specified claims of \$668 million at 30 September 2017, the equity value of LHM and KM would need to be at least \$607 million for the equity value to be greater than nil.

COUH could potentially have an option to acquire PFPL's 75% interest in LHMHL, if PFPL was considered to be a defaulting party under the LHMHL Shareholders Agreement. Assuming that there was legally an option and COUH did exercise its option, the value of the shares in PEL would decrease by approximately \$32.59 million (comprising tax payable and the 5% discount applicable to the acquisition of the LHMHL shares held by PFPL per the LHMHL Shareholders' Agreement).

## 8. Distressed valuation

On a distressed basis, we have also assessed that shares of PEL have no value.

The distressed basis takes into account the current challenges faced by the business, whereby it does not have sufficient funding to pursue its normal day to day operations into the foreseeable future.

Given the current circumstances, a distressed sale is the more realistic scenario for the valuation of the business of PEL. The distressed valuation assumes that the secured creditors would support the sale of the business, on a going concern basis, but only for a limited period where sufficient funds are available to continue operations during the sale campaign. We have estimated the limited period of a potential sale campaign to be six months based on the Company's cash flows.

We have assumed that the business would be sold by a liquidator as a going concern rather than as separate assets. We also consider that the seller would likely be an 'anxious' seller in the context of the definition of fair value (refer to Section 2.5 of our Report).

We have applied the following additional adjustments to our going concern valuation to reflect a distressed valuation ('Distressed Sale'):

- A discount of 20% in respect of the valuation of LHM and KM to account for the existing distressed circumstances, whereby a potential acquirer would seek a higher rate of return to reflect the increased risk associated with a liquidator not providing commercial representations or warranties that would typically be available to a purchaser in a non-distressed sale. In addition, a liquidator is unlikely to be able to offer any earn-out adjustments to the purchaser, based on the performance of the business post sale. Such adjustments are common in non-distressed transactions.
- A discount of 10% in respect of the valuation of the Mineral Assets to reflect the limited options available to a liquidator to maintain the tenements (which are non-cash generating assets) should a sale not complete within the limited time frame.
- A discount of 20% in the valuation of the shares held in Summit to reflect the relative illiquidity of Summit and the likely requirement to gradually sell the large parcel of shares over a period of up to 6 months if a block sale was not possible.

The impact of the above adjustments would decrease the value of PEL's equity as summarised below:

**Table 2: Summary – Valuation of equity (distressed basis)**

|   | Low<br>\$'000    | High<br>\$'000   |
|---|------------------|------------------|
| <b>100% equity value (controlling interest basis) for PEL as a going concern (including COUH option impact)</b> | <b>(279,232)</b> | <b>(99,224)</b>  |
| 20% discount to LHM and KM  | (87,032)         | (111,189)        |
| 10% discount to Mineral Assets  | (3,920)          | (6,270)          |
| 20% distressed discount to shares in Summit   | (6,169)          | (6,169)          |
| <b>100% equity value (controlling interest basis) for PEL on a distressed basis</b>                             | <b>(376,352)</b> | <b>(222,852)</b> |

Source: PPB analysis

As reflected in the table above, the shares of PEL have no value.

#### **Accelerated forced sale scenario**

In our view, there is also an alternative distressed valuation scenario to consider whereby Deutsche Bank AG ('DB') could call an event of default following the transition of PEL, PFPL and PEM to liquidation. In this situation DB could appoint receivers with limited funds to run a sale process. The likely result would be an accelerated forced sale that would provide an even less favorable outcome compared to the Distressed Sale as contemplated in Table 2 above.

We consider in this scenario that the appointed liquidator may only have funds to run a sale process over a period of three months. The inability (due to a lack of time and funds) to run an effective sales process that would allow potential purchasers sufficient time for proper due diligence and negotiations would have a negative impact on the achievable sale price.

In our view, under such circumstances, it would not be unreasonable to expect discounts of between 30% and 50% on the fair value of LHM and KM. There would also be additional costs for the appointment of receivers, lawyers and other advisors. These additional costs, involved in concluding sales of multiple assets across multiple countries could be in the range of \$10.0 million to \$14.0 million.

### **9. Forward-looking statements and forecast financial information**

Certain statements in this IER may constitute forward-looking statements. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performances and achievements of PEL to be materially different from any forecast results, performances or achievements expressed or implied by such forward-looking statements.

Such factors include, among other things:

- general economic conditions
- future movements and changes in interest rates and taxes
- impact of terrorism and other related acts on broader economic conditions
- emergence of competing technologies
- changes in laws, regulations or governmental policies or the interpretation of those laws
- other factors as referenced in this IER.

## 10. Other matters

PPB has prepared the FSG in accordance with the Act. The FSG is set out in Part 1 of this document.

This Report has been prepared solely for:

- the purposes of the S444GA Application and to assist the Court in its consideration of the application as to whether or not the proposed transfer will unfairly prejudice Shareholders
- for submission to ASIC in seeking technical relief from the takeover provisions of the Act
- inclusion with the Explanatory Statement to be sent to Shareholders.

We do not assume any responsibility or liability to any other party as a result of reliance on our report for any other purpose.

Further details of the relevant legal requirements and the basis of assessment in forming our opinion are set out in the IER.

This IER is provided to the Court, ASIC and Shareholders for the above purposes only, and should not be used or relied upon for any other purpose, nor should it be disclosed to or discussed with any other party without our prior written consent (except relevant statutory authorities or your professional advisors, acting in that capacity, provided that they accept that we assume no responsibility or liability whatsoever to them in respect of the contents).

No part of our IER, or any reference to our IER may be included in any document, other than the Explanatory Statement that is to be sent to Shareholders, ASIC and the Court, without the prior written consent of PPB. We do not assume any responsibility for the Explanatory Statement to which our IER is attached. PPB has consented to the inclusion of our IER in the form and context in which it appears in the Explanatory Statement.

We have sought and received consent from CSA for our reliance on, inclusion of and reference to, the CSA Report in our IER. A copy of the CSA Report is included in Appendix I.

This IER is subject to the limitations and disclosures set out in Section 11 of the Report.

All references to dollars (\$) in this report are in US dollars ('USD') unless otherwise stated.

Our engagement has been conducted in accordance with the expert witness code of conduct under the Uniform Civil Procedure Rules 2005 NSW.

Our valuation has also been performed in accordance with the Accounting Professional & Ethical Standards Board Limited professional standard APES 225 *Valuation services* ('APES 225') whereby, under APES 225, this engagement is considered to be a Valuation Engagement.

Our opinion is based on the information available to us as at the date of this Report. A summary of the information we have used and relied on is included in Appendix B of this Report. We are not responsible for updating our report for any events or any change in circumstances after the date of our report, that we are not aware of.

This letter should be read in the context of our full report that is attached.

Yours faithfully

**PPB Corporate Finance Pty Ltd**



**Fiona Hansen, CA**  
Authorised Representative  
AR Number 246371



**Campbell Jaski, FAusIMM (CP)**  
Director

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*All references to \$ in this report are United States dollars unless stated otherwise.*

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# 1. Summary of the DOCA

## 1.1. Background to the DOCA

On 3 July 2017, the directors of PEL appointed Administrators pursuant to S436A of the Act.

The Administrators have been in negotiations with the major creditors of the Company, being the bondholders, in relation to restructuring the Company.

The Administrators have also been appointed to PFPL and PEM.

At 30 September 2017, PEL had debt commitments of approximately \$384.51 million (excluding interest) under two series of bonds ('2017 Bonds' and '2020 Bonds') governed by English law and listed on the Singapore Stock Exchange ('Bonds') as well as \$283.48 million in respect of the EDF Prepayment Amount.

The 2017 Bonds are convertible bonds that were issued to various parties under a trust deed dated 30 April 2012. The Bank of New York Mellon is the trustee, through its London branch. The 2017 Bonds matured on 17 April 2017 and had coupon rate of 6% per annum, payable semi-annually in equal installments in arrears on 30 April and 30 October each year. Approximately \$223.82 million (including interest) is outstanding on the 2017 Bonds as at 30 September 2017.

2020 Bonds are convertible bonds that were issued to various parties under a trust deed dated 31 March 2015. The Bank of New York Mellon is the trustee, through its London branch. The 2020 Bonds mature on 31 March 2020 and have a coupon rate of 7% per annum, payable semi-annually in equal installments in arrears on 31 March and 30 September each year. Approximately \$160.69 million (including interest) is outstanding on the 2020 Bonds as at 30 September 2017.

The Bonds represent the majority of the claims against PEL. The Bondholders are being represented by 333 Capital and Gilbert + Tobin. The Bondholders and PEL have been in potential restructuring negotiations for a significant amount of time, both before and after the appointment of the Administrators.

An initial restructure proposal, by way of a bond exchange between PEL and the Australian Securities Exchange, was announced on 10 January 2017. Over the following months, PEL made several further announcements on the progress of the negotiations and the delays.

PEL's attempts to restructure its balance sheet outside of administration failed. The Administrators were then appointed on 3 July 2017.

## 1.2. The DOCA

The Bondholders have formulated the DOCA that comprises the following transactions:

- there will be a compromise of the Bonds held by the Bondholders and EDF's LTSC liability for the EDF Prepayment Amount
- the Bondholders and EDF (or any person to whom EDF has sold its claims, including Deutsche Bank) will receive a pro rata share of 70% of the issued shares of PEL
- the Bondholders and EDF (or any person to whom EDF has sold its claims, including Deutsche Bank) will have the right to subscribe for the New Bonds and parties that subscribe for the New Bonds will receive a pro rata share of 25% of the shares in PEL
- the remaining 5% of the issued shares in PEL will be held as follows:
  - 3% by the underwriters of the New Bonds
  - 2% retained by the Shareholders.

On 7 December 2017, the DOCA was approved at the second meeting of PEL creditors. The share transfers to achieve the above debt for equity swaps will be implemented pending leave being granted under the S444GA Application.

Table 3 summarises the impact on shareholdings before and after the DOCA, assuming that creditors who are entitled to participate in the issue of New Bonds take up their full entitlement.

**Table 3: Impact on major shareholdings before and after the DOCA**

| Shareholders (together with associates)   | Fully diluted shares before the DOCA | Fully diluted shares after the DOCA |
|---|--------------------------------------|-------------------------------------|
| Deutsche Bank (having acquired EDF's claim)   | 0%                                   | 40.7%                               |
| Value Partners Hong Kong Limited as investment manager of Value Partners Greater China High Yield Income Fund | 0%                                   | 10.7%                               |
| J.P. Morgan Securities PLC  | 0%                                   | 9.1%                                |
| BlueBay Funds: Global Convertible Bond Fund   | 0%                                   | 6.9%                                |
| Leader Investment Corporation   | 0%                                   | 5.6%                                |
| BlackWell Partners LLC-Series A   | 0%                                   | 4.7%                                |
| HOPU Clean Energy (Singapore) Pte Ltd   | 14.6%                                | 0.3%                                |
| GIC Private Limited   | 7.0%                                 | 0.1%                                |

Source: PPB analysis, Explanatory Statement

### 1.3. Conditions precedent

The DOCA is conditional on, amongst other conditions, the following being fulfilled by the sunset date of 31 January 2018 (unless extended) ('Sunset Date'):

- subscription funds for the New Notes being received in escrow
- the Court making an order under S444GA(1) granting the Deed Administrators of the DOCA leave to transfer all of the shares in PEL to the Bondholders and EDF (or any person to whom EDF has sold its claims, including Deutsche Bank)
- ASIC granting such exemptions and modifications from the takeover provisions pursuant to S655A as are necessary to permit the transfer of the majority of the shares in PEL
- all conditions to the reinstatement of PEL to trading on the ASX being satisfied

Foreign Investment Review Board approval which is technically required as a result of the trust arrangements in place for the S444GA transfer, as more fully described in the Explanatory Statement.

In the event that the conditions precedent to implementation of the DOCA are not satisfied or waived by the Sunset Date, the Deed Administrators intend to convene a meeting of creditors to consider the future of PEL.

## 2. Scope of the report

### 2.1. Purpose and scope

The Administrators appointed PPB to prepare an IER in relation to the value of the equity of PEL. Our IER will be used for the purposes of:

- assisting the Court in determining whether the S444GA Application will unfairly prejudice Shareholders
- applying to ASIC for technical relief from S606 of the Act
- sending to Shareholders, together with the Explanatory Statement.

The implementation of the DOCA is conditional upon, amongst other things, ASIC granting relief from S606 (under S655A) and the Court approving the S444GA Application to transfer the majority of the shares in PEL to the major creditors.

Under S444GA (3), the Court will only approve the S444GA Application if it is satisfied that the transfers of shares under the DOCA will not “*unfairly prejudice the interests of members of the company*”.

For the purposes of our opinion, we understand that the proposed share transfer will not unfairly prejudice Shareholders of PEL if the shares have no value.

ASIC requires that value of the shares of PEL be assessed on a going concern basis as per RG 111 and on a distressed basis in determining the application for relief from S606.

This Report sets out PPB's opinion on value of the shares of PEL in relation to the DOCA and is to be included with the Explanatory Statement to be sent to Shareholders before the Court hearing that is expected to occur before mid-January 2017. Our Report has been prepared for the exclusive purpose of assisting the Deed Administrators in the S444GA Application, ASIC granting relief from S606 and to provide Shareholders with a valuation of PEL and inform Shareholders of the restructure, so they can make an informed decision in relation to the S444GA Application. We do not assume any responsibility or liability to any other person as a result of reliance on this report for any other purpose.

The Deed Administrators will tender our Report to the Court as part of the evidence in support of the S444GA Application. As a consequence, we have read the Expert Witness Code of Conduct in Schedule 7 of the Uniform Civil Procedure Rules 2005, which is the code applicable for proceedings in the Supreme Court of New South Wales and we have prepared this Report on the basis that we are bound by the Code.

We have made all enquiries which we believe are necessary and appropriate (save for any matters explicitly identified in this Report) and no matters of significance which we regard as relevant have, to our knowledge, been withheld from the Court.

Our valuation has been undertaken in accordance with the Accounting Professional & Ethical Standards Board Limited professional standard APES 225 'Valuation Services' ('APES 225'). As required under APES 225, we confirm that we are independent of the directors of PEL, the Administrators, the Deed Administrators, the Bondholders and the major shareholders of PEL.

APES 225 defines three types of valuation engagements. This engagement is considered to be Valuation Engagement under APES 225.

This Report should be considered in conjunction with, and not independently of, the information set out in the Explanatory Statement prepared by the Deed Administrators and sent to Shareholders before the Court hearing that is expected to occur before mid-January 2017.

This Report is to accompany the Explanatory Statement to be sent to Shareholders.

## 2.2. Regulatory requirements

Our IER has been prepared in accordance with RG 112 and RG 111.

We confirm that we are independent under the requirements of RG 112 and APES 110 *Code of ethics for professional accountants* issued by the Accounting Professional and Ethics Standards Board.

RG 111 provides guidelines for an expert preparing an independent expert's report and RG 112 deals with the independence of the expert.

RG 111 provides guidance in relation to the content of independent expert's reports for a range of transactions. RG 111.8 states that there are a large range of legal mechanisms that result in a 'control' transaction and RG 111.9 states that an expert should focus on the economic substance rather than the legal mechanism of the transaction. ASIC indicates that in a transaction where shareholders will be left with a diluted interest in an expanded entity and forego the possibility of receiving a control premium in the future, and where the transaction consists of shares being issued in exchange for vending in a business, the transaction should be analysed as if it were a scrip takeover bid.

The DOCA can be classified as a control transaction as the Bondholders and EDF (or any person to whom EDF has sold its claims, including Deutsche Bank) will acquire up to 98% of the shares of PEL. Consequently, our valuation has been assessed on a control basis.

Furthermore, since our Report will also be used for seeking relief from S606, ASIC specifically requires the IER to assess the value of PEL on a 'going concern' basis.

The term 'going concern' is commonly used in the preparation of financial statements and is defined as the assumption that the entity will "*continue its operations for the foreseeable future*". When the going concern assumption is used for accounting purposes, the assets and liabilities of the entity are recognised as if the entity will be able to realise its assets and discharge its liabilities in the normal course of business.

## 2.3. Our approach

In determining the value of PEL on a going concern basis, it is necessary to recognise that PEL may be unable to discharge its liabilities in the normal course of business. Therefore, we have valued the business of PEL on a 'going concern' basis and then deducted the secured and unsecured borrowings (net of cash) as at 30 September 2017, the Deed Administrators' assessment of claims lodged by the Bondholders, EDF and other creditors and an estimate of the expected transaction costs.

We also considered the value of the shares of PEL on a distressed basis (taking into account the financial distress) in order to assess the possible distressed value. In taking into account the financial distress, we have considered that the concept of fair value no longer exists, as the seller can no longer be considered as 'not anxious'.

As PEL does not have sufficient tangible assets to cover its debts, we have assumed that the business operations would be sold as a going concern, however, a potential acquirer would seek a higher level of return to reflect the increased risk. We have also considered distress in the context of the impact of the presence of Administrators in PEL's ordinary course of operations.

## 2.4. Reliance on technical experts

To assist in the assessment of the value of PEL, we have appointed CSA to provide an opinion on technical matters including the value of the Mineral Assets. CSA has provided an opinion on the market value (on a going concern basis) of the Mineral Assets as at 30 September 2017.

CSA is a privately-owned mining consulting company that provides multi-disciplinary services across a broad spectrum of clients in the mining industry globally. CSA has significant experience in providing services across all stages of the mining cycle including project generation, resource estimation, project evaluation, development studies, operations assistance, corporate advice, valuations and technical documentation.

We have relied on the analysis undertaken by CSA in forming our opinion on the value of the shares of PEL. A copy of the CSA Report is included in Appendix I.

We have relied on the CSA Report in making references to the Mineral Assets in this Report.

## 2.5. Definition of value

### Fair value

RG 111.15 states that the fair value of the target securities should be determined on the basis of a knowledgeable and willing, but not anxious, seller that is able to consider alternative options to the bid (eg an orderly realisation of the target's assets). Therefore, the assessment of fair value should not include consideration of the Company's financial distress.

For the purposes of our valuation of PEL, on a going concern basis, we have used 'fair value' defined as:

*"the price that would be negotiated in an open and unrestricted market between a knowledgeable, willing, but not anxious purchaser, and a knowledgeable, willing, but not anxious [Vendor], acting at arm's length".*

By its very nature, the formulation of a valuation assessment necessarily contains significant uncertainties and the conclusions arrived at in many cases will be subjective and dependent on the exercise of individual judgment. Therefore, there is no indisputable value and we normally express our valuation opinion as falling within a likely range.

### Special value

ASIC suggests that the expert should not reflect 'special value' that might accrue to the acquirer.

Therefore, we have not considered special value in forming our opinion.

Special value is the amount that a potential acquirer may be prepared to pay for an asset in excess of the fair value. This premium represents the value to the potential acquirer of various factors that may include potential economies of scale, reduction in competition, other synergies and cost savings arising from the acquisition under consideration not available to likely purchasers generally. Special value is not normally considered in the assessment of fair value as it relates to the individual circumstances of special purchasers.

## 2.6. Valuation date

Our opinion expressed in the Report is as at 30 September 2017 ('Valuation Date'). This date has been based on the latest financial information that had been prepared by PEL at the date of this Report.

## 2.7. Consent and other matters

Our Report has been prepared in accordance with the relevant provisions of the Act and the ASIC RGs. It has been prepared for the exclusive purpose of assisting the Deed Administrators in the S444GA Application, ASIC granting relief from S606 and to provide Shareholders with a valuation of PEL and inform Shareholders of the restructure, so they can make an informed decision in relation to the S444GA Application

Our Report will be attached to the Explanatory Statement.

Neither the whole or any part of this Report or its appendices or any reference thereto may be included in any document, other than the Explanatory Statement, without the prior written consent of PPB. PPB consents for the inclusion of this Report, in the form and context in which it appears, in the Explanatory Statement.

Our opinion is based solely on the information available and provided to us by PEL and the Deed Administrators as set out in Appendix B.

We have not updated our report for events or circumstances arising after the date of this report, other than material items that we believe would impact our opinion. Refer to our limitations and disclosures in Section 11 regarding the basis of preparation and use of this Report.

PPB has prepared a Financial Services Guide ('FSG') in accordance with the Act. The FSG is included as Part 1 of the Report.

## 2.8. Sources of information

In preparing this Report, we have relied on information as summarised in Appendix B, some of which was provided by the Company and some was obtained from public sources.

All documents relied on in support of our opinion are either referred to in the body of this report, identified by way of footnote, or are referred to in the appendices to this report.

We have had discussions with management of PEL ('Management') and the Deed Administrators in relation to the DOCA, the operations of the business, financial results and financial position and outlook for PEL.

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## 3. Overview of Company

### 3.1. Overview of Paladin

PEL is a uranium production company based in Perth, West Australia. PEL was incorporated in September 1993 and completed its initial public offering in Australia in March 1994. PEL is listed on the Australian Securities Exchange (ASX:PDN), the Namibian Stock Exchange (NMSE:PDN), the Toronto Stock Exchange (TSX:PDN) and the Deutsche Boerse AG (DB:PUR).

Paladin's key assets comprise:

- LHM in Namibia – ceased mining operations due to current uranium market conditions but continues to process ore from stockpiles.
- KM in Malawi – currently on care and maintenance due to current uranium market conditions.
- Mineral Assets:
  - Western Australian exploration projects
  - Queensland exploration projects
  - Canadian exploration projects
  - Uranium exploration and production database.

Detailed descriptions of each of PEL's key assets are contained within Section 4 of this Report.

Table 4 provides a summary of PEL's key milestones to date.

**Table 4: Summary of key milestones**

| Date | Key milestone  |
|------|--|
| 1993 | Mr Borshoff established PEL as Paladin Resources NL from former Australian operations of Uranerz   |
| 1994 | Paladin Resources NL lists on ASX  |
| 1998 | Acquired the Manyingee project from Afrimco Mining and Exploration Pty Ltd   |
| 2000 | Name changed from Paladin Resources NL to Paladin Resources Ltd  |
| 2002 | Acquisition of 100% of LHM from Aztec Resources Ltd  |
| 2005 | Paladin Resources Ltd lists on TSX   |
| 2006 | Acquired Valhalla Uranium Ltd the 50% owner of the Isa Uranium JV in Queensland  |
| 2007 | Development agreement for KM executed with Malawian government<br>Production commences at LHM<br>Name changed from Paladin Resources Ltd to current name of Paladin Energy Ltd<br>Acquired 82% of Summit Resources Ltd the 50% owner of the Isa Uranium JV in Queensland |
| 2008 | Lists on NSX   |
| 2009 | Production commences at KM<br>Acquired Fusion Resources Ltd owner of the Valhalla North project in Queensland  |
| 2011 | Acquired Aurora Energy Ltd owner of the Michelin project in Canada   |
| 2012 | Entered into the offtake agreement with EDF  |
| 2014 | Sale of 25% of LHM to China National Nuclear Corporation<br>KM placed on 'care and maintenance'  |
| 2015 | Acquired the Carley Bore project from Energia Minerals Limited   |
| 2016 | LHM ceases mining operations and continues to process from stockpiles  |
| 2017 | EDF offtake agreement was terminated<br>EDF demands payment of \$277 million<br>Enters voluntary administration<br>Delisted from Toronto Stock Exchange  |

Source: PEL company announcements, other publicly available information

Uranium prices have been under pressure since the Fukushima Daiichi power plant disaster in Japan in 2011 and they reached an 11 year low in late 2016. The low uranium prices have had a significant negative impact on Paladin's profitability and cash flows. As a result, PEL sought options to refinance the 2017 Bonds that were due for repayment in April 2017 (approximately \$212 million plus interest).

During 2016, the directors of PEL considered several options including:

- the potential sale of a further 24% interest in LHMHL for \$175 million to COUH
- a potential equity raising.

With the continued decline of the uranium price, the potential sale of the minority stake to COUH stalled and the market's demand for an equity raising in the uranium industry was weak.

In December 2016, PEL commenced discussions and negotiations with some of the holders of 2017 Bonds and the 2020 Bonds, and other relevant parties with regard to a potential restructure of its material debt obligations.

In January 2017, PEL announced the initial restructuring proposal involving a bond for equity exchange. Shortly thereafter, COUH took initial steps to exercise its option to acquire PEL's 75% interest in LHM and had PEL's interest valued by an independent valuer. COUH then decided not to exercise its option.

Then, EDF requested additional security to cover the EDF Prepayment Amount under the LTSC. The additional security offered by PEL was not accepted by EDF because, based on an independent valuation, the additional security was insufficient to cover the EDF Prepayment Amount. Therefore, the outstanding amount became repayable. Despite PEL's attempts to negotiate an extension to the repayment terms, on 3 July 2017 EDF informed PEL that it was not prepared to enter into a standstill agreement and required the repayment in full of the outstanding amount. EDF has since terminated the LTSC.

As a result of the above events, the Administrators were appointed in July 2017 pursuant to S436A of the Act.

## 3.2. Financial information

### 3.2.1. Financial performance

The audited consolidated income statement of PEL for the year ended 30 June 2016 ('FY16'), 30 June 2015 ('FY15'), 30 June 2014 ('FY14') as well as the unaudited consolidated income statement for the 9 months ended 31 March 2017 ('YTD17') as well as the management accounts for the year ended 30 June 2017 ('FY17') and the 3 months ended 30 September 2017 ('YTD18') are set out in the table below:

**Table 5: PEL's financial performance**

| USD (\$) million   | FY14<br>audited | FY15<br>audited | FY16<br>audited | YTD17<br>unaudited | FY17<br>unaudited | YTD18<br>unaudited |
|--|-----------------|-----------------|-----------------|--------------------|-------------------|--------------------|
| Revenue  | 329.5           | 199.5           | 185.4           | 69.6               | 96.0              | 9.1                |
| Cost of sales  | (332.9)         | (189.7)         | (152.5)         | (65.1)             | (92.8)            | (9.1)              |
| Impairment – inventories                                       | (61.7)          | (8.0)           | (19.2)          | (26.7)             | (38.0)            | (9.8)              |
| <b>Gross profit/(loss)</b>                                     | <b>(65.1)</b>   | <b>1.8</b>      | <b>13.7</b>     | <b>(22.2)</b>      | <b>(34.8)</b>     | <b>(9.7)</b>       |
| Other income   | 0.4             | 5.5             | 9.2             | 2.4                | 2.4               | 0.4                |
| Exploration and evaluation expenses                            | (1.7)           | (1.6)           | (0.9)           | (0.6)              | (0.7)             | (0.6)              |
| Administration, marketing and non-production costs             | (21.9)          | (19.3)          | (16.3)          | (8.9)              | (11.9)            | (1.8)              |
| Other expenses   | (337.6)         | (267.6)         | (185.4)         | (15.5)             | (17.1)            | 0.8                |
| <b>(Loss) before interest and tax</b>                          | <b>(425.9)</b>  | <b>(281.2)</b>  | <b>(179.7)</b>  | <b>(44.8)</b>      | <b>(63.1)</b>     | <b>(11.0)</b>      |
| Finance costs  | (59.7)          | (57.0)          | (48.1)          | (52.0)             | (141.2)           | (17.3)             |
| <b>Net (loss) before income tax from continuing operations</b> | <b>(485.6)</b>  | <b>(338.2)</b>  | <b>(227.8)</b>  | <b>(96.8)</b>      | <b>(204.2)</b>    | <b>(28.4)</b>      |
| Income tax benefit/(expense)                                   | 96.0            | 38.1            | 83.4            | (1.1)              | (37.4)            | -                  |

| USD (\$) million   | FY14<br>audited | FY15<br>audited | FY16<br>audited | YTD17<br>unaudited | FY17<br>unaudited | YTD18<br>unaudited |
|--|-----------------|-----------------|-----------------|--------------------|-------------------|--------------------|
| <b>Net (loss) after income tax from continuing operations</b>  | <b>(389.6)</b>  | <b>(300.1)</b>  | <b>(144.4)</b>  | <b>(97.9)</b>      | <b>(241.6)</b>    | <b>(28.4)</b>      |
| Profit after tax from discontinued operations  | -               | -               | -               | 1.2                | 1.2               | -                  |
| <b>Net loss after tax</b>  | <b>(389.6)</b>  | <b>(300.1)</b>  | <b>(144.4)</b>  | <b>(96.7)</b>      | <b>(240.4)</b>    | <b>(28.4)</b>      |
| Attributable to:   |                 |                 |                 |                    |                   |                    |
| Non-controlling interests  | (51.2)          | (32.3)          | (22.4)          | (12.7)             | (26.4)            | (4.2)              |
| Members of the parent  | (338.4)         | (267.8)         | (122.0)         | (84.0)             | (214.0)           | (24.2)             |
| <b>Net loss after tax</b>  | <b>(389.6)</b>  | <b>(300.1)</b>  | <b>(144.4)</b>  | <b>(96.7)</b>      | <b>(240.4)</b>    | <b>(28.4)</b>      |
| <b>Loss per share (US cents)</b>   |                 |                 |                 |                    |                   |                    |
| Loss after tax from operations attributable to ordinary equity holders of the Company - – basic and diluted (US cents) | (32.7)          | (18.9)          | (7.1)           | (4.9)              | na                | na                 |

Source: S&P Capital IQ, statutory financial statements, unaudited interim financial statements for YTD17 and management accounts for 30 June 2017 and 30 September 2017.

na = not available

We note the following with regard to PEL's financial performance:

- revenue declined 70% from FY14 to FY17 largely due to:
  - decrease in sales volumes because of the halting of production at KM and its move to care and maintenance on 6 May 2014
  - lower production from LHM compared to 2014
  - lower average realised uranium prices \$19.54/lb (March 2017) compared to \$37.95/lb (FY14).
- revenue continued to decline by 7% from June 2015 to June 2016 after sales declined by 9% compared to FY15, despite realised uranium prices lifting marginally to \$37.75/lb
- revenue for the nine months ended 31 March 2017 was severely impacted by weaker uranium prices. Uranium markets continued to show weakness with realised uranium prices in the March quarter only averaging \$19.54/lb. Sales volumes in the nine months ended 31 March 2017 were down 8% on the corresponding period of 2016
- during the period from 2014 to March 2017, PEL made significant efficiency and process cost gains at LHM with C1 cash costs in the nine months ended 31 March 2017 of \$17.51/lb down 40% from \$29.07/lb in FY15
- significant impairments, included in other expenses, were incurred on uranium ore stockpiles and inventory across the last four years as a result of lower realised and forecast uranium prices
- declining gross profit is as a result of the Company's exposure to declining uranium prices
- other income comprises net foreign exchange gains
- during the period FY15 to FY17, exploration expenditure occurred primarily in Canada and Queensland
- the administration expenses in FY16 and FY17 comprise primarily restructuring and legal costs associated with the restructure of the Bonds, standstills with major creditors and attempted debt and equity raisings

Further commentary on the uranium industry and market is included in Section 5 of this report

### 3.2.2. Financial position

The consolidated balance sheet of PEL as at 30 June 2016, 30 June 2015, 30 June 2014 as well as the unaudited balance sheet at 31 March 2017, 30 June 2017 and 30 September 2017 are set out in the table below:

**Table 6: PEL's financial position**

| USD (\$) million                       | 30-Jun-14<br>audited | 30-Jun-15<br>audited | 30-Jun-16<br>audited | 31-Mar-17<br>unaudited | 30-Jun-17<br>unaudited | 30-Sep-17<br>unaudited |
|--|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|
| <b>Current assets</b>                  |                      |                      |                      |                        |                        |                        |
| Cash and cash equivalents              | 88.8                 | 183.7                | 59.2                 | 21.8                   | 10.6                   | 38.0                   |
| Trade and other receivables            | 198.7                | 9.5                  | 12.2                 | 12.3                   | 13.7                   | 13.5                   |
| Prepayments                            | 3.3                  | 2.9                  | 1.6                  | 2.5                    | 2.0                    | -                      |
| Inventories                            | 78.1                 | 75.3                 | 35.9                 | 41.4                   | 27.5                   | 36.9                   |
| Assets classified as held for sale     | 3.8                  | 2.8                  | -                    | -                      | 0.2                    | -                      |
| <b>Total Current Assets</b>            | <b>372.7</b>         | <b>274.2</b>         | <b>108.9</b>         | <b>78.0</b>            | <b>53.9</b>            | <b>88.4</b>            |
| <b>Non-current assets</b>              |                      |                      |                      |                        |                        |                        |
| Trade and other receivables            | 1.0                  | 0.6                  | 1.2                  | 0.4                    | 0.4                    | 0.4                    |
| Inventories                            | 160.2                | 156.3                | -                    | -                      | -                      | -                      |
| Other financial assets                 | 6.6                  | 2.6                  | 0.9                  | -                      | -                      | -                      |
| Property, plant and equipment          | 281.8                | 273.7                | 256.8                | 244.9                  | 244.3                  | 234.0                  |
| Mine development                       | 43.9                 | 43.0                 | 39.8                 | 37.7                   | 37.3                   | 41.8                   |
| Exploration and evaluation expenditure | 687.3                | 337.9                | 336.1                | 332.3                  | 337.5                  | 94.1                   |
| Intangible assets                      | 12.2                 | 11.7                 | 11.1                 | 10.7                   | 10.6                   | 10.4                   |
| Deferred Tax Assets                    | -                    | -                    | 36.3                 | 36.2                   | -                      | -                      |
| <b>Total Non-Current Assets</b>        | <b>1193.0</b>        | <b>825.8</b>         | <b>682.2</b>         | <b>662.2</b>           | <b>630.2</b>           | <b>380.8</b>           |
| <b>Total Assets</b>                    | <b>1565.7</b>        | <b>1,100.0</b>       | <b>791.1</b>         | <b>740.2</b>           | <b>684.1</b>           | <b>469.1</b>           |
| <b>Current liabilities</b>             |                      |                      |                      |                        |                        |                        |
| Trade and other payables               | 39.3                 | 30.4                 | 31.5                 | 22.1                   | 17.9                   | 11.6                   |
| Interest bearing loans and borrowings  | 39.4                 | 8.5                  | 204.7                | 379.1                  | 398.2                  | 444.5                  |
| Other Interest-bearing loans - COUH    | -                    | -                    | 10.4                 | -                      | -                      | -                      |
| Provisions                             | 5.5                  | 3.5                  | 2.2                  | 2.1                    | 2.4                    | 2.5                    |
| Unearned revenue                       | -                    | -                    | -                    | 12.7                   | -                      | 11.5                   |
| <b>Total Current Liabilities</b>       | <b>84.2</b>          | <b>42.4</b>          | <b>248.8</b>         | <b>416.0</b>           | <b>418.5</b>           | <b>470.1</b>           |
| <b>Non-current liabilities</b>         |                      |                      |                      |                        |                        |                        |
| Interest bearing loans and borrowings  | 590.2                | 427.3                | 127.8                | -                      | -                      | -                      |
| Other Interest-bearing loans - COUH    | 96.0                 | 98.7                 | 86.3                 | 88.5                   | 89.4                   | 90.3 <sup>3</sup>      |
| Deferred tax liabilities               | 90.2                 | 47.9                 | -                    | -                      | -                      | -                      |
| Provisions                             | 72.7                 | 85.4                 | 79.3                 | 87.4                   | 88.4                   | 87.2                   |
| EDF Prepayment Amount                  | 200.0                | 200.0                | 200.0                | 200.0                  | 278.2                  | 283.5                  |
| <b>Total Non-Current Liabilities</b>   | <b>1,049.1</b>       | <b>859.3</b>         | <b>493.4</b>         | <b>375.9</b>           | <b>445.9</b>           | <b>461.0</b>           |
| <b>Total Liabilities</b>               | <b>1,133.30</b>      | <b>901.7</b>         | <b>742.2</b>         | <b>791.9</b>           | <b>1,152.6.4</b>       | <b>1,214.6</b>         |
| <b>Net Assets</b>                      | <b>432.4</b>         | <b>198.3</b>         | <b>48.9</b>          | <b>(51.7)</b>          | <b>(190.3)</b>         | <b>(462.0)</b>         |

<sup>3</sup> COUH intercompany debt

| USD (\$) million          | 30-Jun-14<br>audited | 30-Jun-15<br>audited | 30-Jun-16<br>audited | 31-Mar-17<br>unaudited | 30-Jun-17<br>unaudited | 30-Sep-17<br>unaudited |
|---------------------------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|
| <b>EQUITY</b>             |                      |                      |                      |                        |                        |                        |
| Contributed equity        | 1,926.9              | 2,094.9              | 2,101.1              | 2,101.1                | 2,101.1                | 2,101.1                |
| Reserves                  | 161.9                | 61.1                 | 49.9                 | 29.3                   | 34.3                   | 34.4                   |
| Accumulated losses        | (1,633.9)            | (1,901.7)            | (2,023.7)            | (2,091.0)              | (2,220.9)              | (2,488.9)              |
| Parent interests          | 454.9                | 254.3                | 127.3                | 39.4                   | (85.5)                 | (353.4)                |
| Non-controlling interests | (22.5)               | (56.0)               | (78.4)               | (91.1)                 | (104.8)                | (108.6)                |
| <b>TOTAL EQUITY</b>       | <b>432.4</b>         | <b>198.3</b>         | <b>48.9</b>          | <b>(51.7)</b>          | <b>(190.3)</b>         | <b>(462.0)</b>         |

Source: S&P Capital IQ, Statutory financial statements and the unaudited interim financial statements for YTD17 30 June 2017 based on management accounts as the financial audit was not yet completed

Our comments to the balance sheet at 30 September 2017 are as follows:

- Property, plant and equipment of \$234.0 million primary comprises the depreciated plant and land associated with LHM as well as some capitalised interest.
- Mine development of \$41.8 million primary comprises of the mine exploration associated with LHM. All other mine development assets are fully provisioned for depreciation.
- Exploration and evaluation expenditure of \$94.1 million primarily comprises the capitalised acquisition costs and joint venture expenditure associated with PEM, Valhalla Uranium Pty Ltd, Summit, Aurora Energy Limited ('Aurora'), Michelin Uranium Ltd ('Michelin'), Paladin Canada Holdings (NL) Ltd ('PCH') and Paladin Canada Investments (NL) Ltd ('PCI').
- Intangible assets of \$10.4 million are held by LHM.
- Interest bearing loans and borrowings of \$444.5 million comprises 2017 Bonds of \$223.82 million, 2020 Bonds of \$160.69 million, DB Facility of \$60 million

2017 Bonds – these convertible bonds matured on 30 April 2017 and bear interest at 6% pa, payable semi-annually in equal instalments in arrears on 30 April and 30 October of each year. Approximately \$223.82 million was outstanding under the 2017 Bonds as at 30 September 2017.

2020 Bonds - convertible bonds that mature on 31 March 2020 and bear interest at 7% pa payable semi-annually in equal instalments in arrears on 31 March and 30 September of each year. Approximately \$160.69 million was outstanding under the 2020 Bonds as at 30 September 2017.

DB Facility - before the appointment of Administrators, LHM was negotiating with DB to seek external finance to meet the operational expenses of LHM. The Administrators continued with the negotiations and on 24 July 2017, PEL and LHM entered into a 12-month \$60 million restated facility agreement with DB ('DB Facility'). The DB Facility will not be compromised under the DOCA and the debt is to be repaid in full.

- Unearned income totalled \$295 million and consisted of the EDF Prepayment Amount of \$283.48 million held within PEL and a COUH prepayment amount of \$11.51 million held within LHM.

The EDF Prepayment Amount is in relation to EDF's large prepayment to PEL according to the LTSC. In specific circumstances, EDF is entitled to be repaid the amount it has already prepaid. EDF has a claim of approximately \$283.48 million in relation to this pre-payment owing at 30 September 2017.

The COUH prepayment amount of \$11.51 million is in relation to COUH's prepayment to LHM for a shipment.

- Other Interest-bearing loans – COUH of \$90.3 million comprises COUH intercompany debt.

### 3.3. Corporate structure

Figure 1 summarises the corporate structure and subsidiaries of PEL as at the date of this Report.

The following companies within the structure are in administration:

- PEL
- PFPL
- PEM

### 3.4. Capital structure

The implied capital structure of PEL as at the Valuation Date is summarised in Table 7 below:

**Table 7: Capital structure**

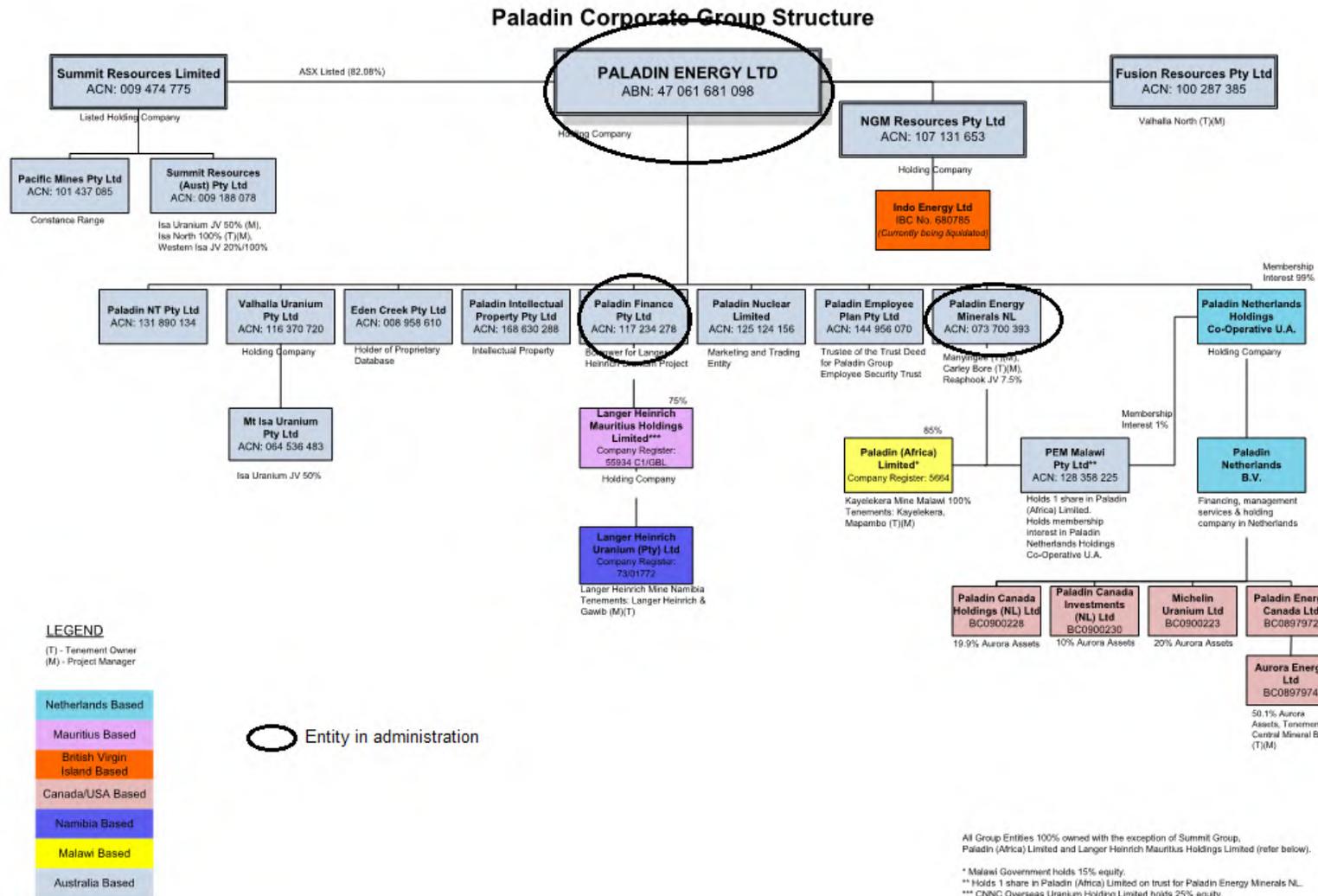
| <b>Equity</b>  |                    |
|--|--------------------|
| Ordinary shares outstanding at Valuation Date (million)            | 1,712,843,812      |
| Closing share price (ASX) at last trading date (9 June 2017) (AUD) | 0.047              |
| <b>Market capitalisation (AUD m)</b>                               | <b>80.5</b>        |
| AUD/USD exchange rate at last trading date (9 June 2017)           | 0.7535             |
| <b>Market capitalisation (USD million)</b>                         | <b>60.7</b>        |
| <b>Debt</b>  |                    |
|  | <b>USD million</b> |
| Secured DB Facility held by PEL                                    | 15.0               |
| 75% of secured DB Facility held by LHM                             | 33.8               |
| 2017 Bonds   | 223.8              |
| 2020 Bonds   | 160.7              |
| EDF Prepayment Amount  | 283.3              |
| 75% of COUH prepayment amount                                      | 8.6                |
| 75% of COUH intercompany debt                                      | 67.7               |
| <b>Total debt (USD million)</b>                                    | <b>792.9</b>       |
| <b>Total equity and debt (USD million)</b>                         | <b>853.6</b>       |
| <i>Debt-to-equity ratio</i>  | <i>13.1x</i>       |

Source: S&P Capital IQ and PEL

Note 1: Book value of debt at 30 September 2017

Outstanding issued unlisted employee options and share appreciation rights ('SARs') at the Valuation Date are summarised in Table 8. We note that all options and SARS are currently 'out of the money'.

Figure 1: PEL corporate structure



Source PEL Management

Table 8: Issued unlisted employee options and SARs

| Option/SAR            | Date granted | Exercise date | Expiry date | Exercise price | Number           |
|-----------------------|--------------|---------------|-------------|----------------|------------------|
| Option                | 10/08/2015   | 10/08/2015    | 10/08/2018  | \$0.20         | 1,000,000        |
| Option                | 10/08/2015   | 08/11/2015    | 08/11/2018  | \$0.30         | 1,000,000        |
| Option                | 10/08/2015   | 23/12/2015    | 23/12/2018  | \$0.40         | 1,000,000        |
| SAR                   | 20/10/2015   | 01/11/2016    | 01/11/2021  | \$0.20         | 2,450,000        |
| SAR                   | 20/10/2015   | 01/11/2017    | 01/11/2022  | \$0.20         | 1,225,000        |
| SAR                   | 20/10/2015   | 01/11/2018    | 01/11/2023  | \$0.20         | 1,225,000        |
| SAR                   | 03/03/2016   | 01/11/2016    | 01/11/2021  | \$0.20         | 157,500          |
| SAR                   | 03/03/2016   | 01/11/2017    | 01/11/2022  | \$0.20         | 78,750           |
| SAR                   | 03/03/2016   | 01/11/2018    | 01/11/2023  | \$0.20         | 78,750           |
| SAR                   | 27/09/2016   | 01/11/2017    | 01/11/2022  | \$0.20         | 751,000          |
| SAR                   | 27/09/2016   | 01/11/2018    | 01/11/2023  | \$0.20         | 751,000          |
| SAR                   | 27/09/2016   | 01/11/2019    | 01/11/2024  | \$0.20         | 751,000          |
| <b>Total – Option</b> |              |               |             |                | <b>3,000,000</b> |
| <b>Total – SAR</b>    |              |               |             |                | <b>7,468,000</b> |

Source: PEL Management

### 3.4.1. Top 20 shareholders

PEL's Top 10 shareholders as at the Valuation Date are listed in Table 9.

Table 9: Top 10 shareholders

| Shareholder   | No. of shares (m)    | Interest (%) |
|---|----------------------|--------------|
| 1 HOPU Jinghua (Beijing) Investment Consultancy Co., Ltd. | 249,888,299          | 14.6         |
| 2 GIC Private Limited                                     | 120,675,544          | 7.0          |
| 3 FIL Limited   | 72,391,450           | 4.2          |
| 4 Dimensional Fund Advisors L.P                           | 42,727,129           | 2.5          |
| 5 TD Waterhouse Canada.                                   | 41,372,227           | 2.4          |
| 6 Global X Management Company LLC.                        | 29,982,387           | 1.8          |
| 7 RBC Dominion Securities                                 | 27,341,017           | 1.6          |
| 8 Private clients of CIBC World Markets                   | 24,957,173           | 1.5          |
| 9 Vanguard Group  | 21,215,103           | 1.2          |
| 10 Hillhouse Capital Management                           | 20,649,780           | 1.2          |
| <b>Total of the top ten shareholders</b>                  | <b>651,200,109</b>   | <b>38.0</b>  |
| <b>Other shareholders</b>                                 | <b>1,061,643,703</b> | <b>62.0</b>  |
| <b>Total</b>  | <b>1,712,843,812</b> | <b>100.0</b> |

Source: Capital IQ, ShareTrak report, S439A report

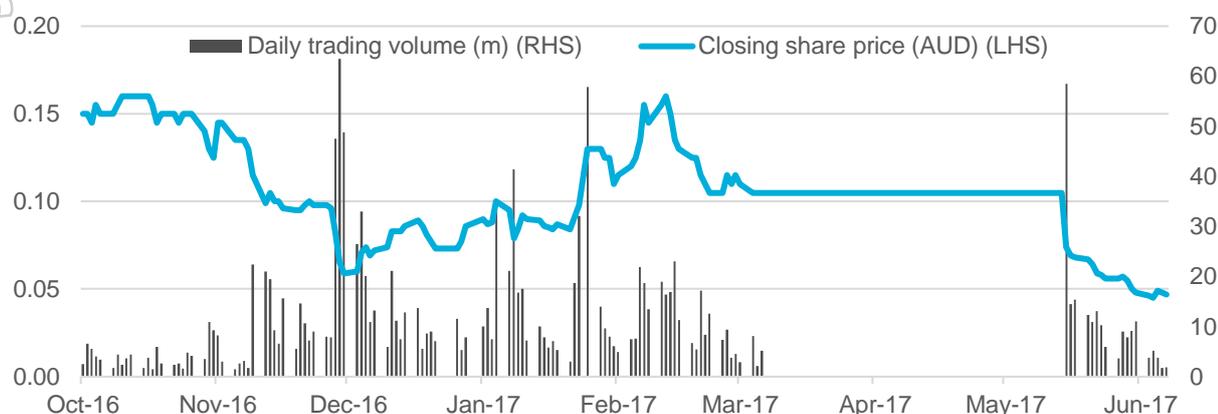
### 3.4.2. Share price and volume history

PEL's share trading history for the year preceding the Valuation Date is summarised in Figure 2.

PEL's shares have been suspended from official quotation since 13 June 2017. The suspension was a result of PEL commencing negotiations with EDF for a standstill to defer PEL's obligation to pay the outstanding amount (being approximately \$283.48 million) under the LTSC following an independent expert's findings that the value of the security offered by PEL to EDF under its LTSC was insufficient. PEL entered voluntary administration on 3 July 2017.

PEL shares were previously suspended between 10 March 2017 and 17 May 2017 as a result of COUH's request for a fair market value assessment of PEL's share in LHM, which was the first step required in COUH exercising its potential option to acquire PEL's 75% interest of LHM. COUH decided not to exercise its potential option.

**Figure 2: PEL share price/volume history**



Source: S&P Capital IQ

In relation to the share trading price of PEL, we note the following:

- a low share price
- the shares maybe thinly traded at approximately 11.6 million (or 0.7% of total shares outstanding) per day for the 12 months to the Valuation Date
- share price volatility is high at approximately 82.6% for the 12 months to the Valuation Date
- share prices are for minority parcels of shares and do not include a control premium.

### 3.5. LHMHL Shareholders' Agreement with COUH

The execution of the DOCA is expected to trigger a process outlined in the LHMHL shareholders' agreement ('LHMHL Shareholders' Agreement') whereby:

- PFPL may be considered a 'defaulting party'
- COUH could exercise its option to acquire PFPL's 75% interest in LHMHL.

In the case where there is a trigger, the call option is priced at a discount to the fair market value of the asset.

The terms of the LHMHL Shareholders' Agreement provides that a default by either party would entitle the other party to give notice within 60 days of the event of default occurring, allowing the non-defaulting party to obtain an independent market valuation of the other's shareholding in LHMHL as at the determined 'default date'. That party would then have an option within 30 days after receipt of the valuation to purchase the remaining shareholding that it does not already own at the market valuation amount less a 5% discount.

COUH had run this process on a previous event of default and advised the Deed Administrators that it would not be exercising its option.

Entry into the DOCA or liquidation may be considered an 'event of default' under the LHMHL Shareholders' Agreement, which would give rights to COUH to trigger this process.

We have been advised that COUH has not waived its right to trigger the default process as a result of the DOCA.

The DOCA is not contingent on COUH providing the Deed Administrators with a formal waiver which means that it is possible that it could be implemented and fully effectuated within the 60-day period in which COUH would have the right to issue an appraisal notice.

If COUH issued a further appraisal notice upon PEL entering into the DOCA and subsequently exercised its option to purchase PFPL's 75% shareholding, settlement of the transaction may take significant time to complete and would result in PEL no longer owning a 75% interest in LHMHL, albeit it would be compensated at market value, less a 5% discount.

At the date of this Report, it is unclear whether COUH will exercise its potential call option.

### 3.6. The Michelin project

The Michelin project (also referred to as Aurora) is located approximately 140 km north east from the town of Happy Valley-Goose Bay in Newfoundland, Labrador. It is a joint venture owned by four participants, all of whom are owned by Paladin Netherlands B.V. (one with another holding company Paladin Energy Canada Ltd (BC0897972) ('Paladin Canada')).

EDF has security over a 60.1% interest in the joint venture (two of the four participants). There are two other participants (39.9% interest) that are not subject to the security. The security arrangements with EDF are summarised in the sections below.

#### 3.6.1. EDF security arrangements

Under the LTSC, PEL was obliged to supply uranium concentrate to EDF annually from 1 January 2019 to 31 December 2024.

The LTSC has an obligation for EDF to make a pre-payment to PEL of \$200 million in relation to the concentrates that it agreed to purchase, which it paid to PEL in 2012. EDF terminated the LTSC in October 2017 but \$283.48 million (at 30 September 2017) remains owing.

The guarantors are three of PEL's wholly-owned subsidiaries, Paladin Canada, PCI and Aurora ('Guarantors'). Aurora and PCH along with Michelin, PCH and EDF are parties to a realisation agreement ('Realisation Agreement') which provides for the:

- creation of the security under the General Security Agreements by Aurora and PCH ('GSAs')
- waiver of pre-emptive rights in respect of the participating interest of Aurora and PCH in the Michelin project
- terms governing any sale, transfer or other disposal of the participating interest in the Michelin project.

#### 3.6.2. EDF demand for payment

The LTSC includes provisions for EDF to conduct an audit to assess whether the value of the First Priority Security is equal to the EDF Prepayment Amount (plus interest). Where the value is insufficient, EDF is entitled to demand that PEL offer additional alternate security. In a situation where the parties cannot agree on the value of this additional security, an independent expert is to be appointed to determine the value of the additional security.

In 2016, a dispute arose between EDF and PEL in respect of the value of the First Priority Security. On 8 February 2017, PEL and EDF appointed an independent valuer to determine the value of the alternate security proposed by PEL in accordance with the LTSC. The independent valuer confirmed that the value of the additional security was insufficient. As a result, in accordance with the terms of the LTSC, the EDF Prepayment Amount (plus accrued interest) became payable within 30 days being, 9 July 2017)

PEL began negotiations with EDF to agree the terms of a standstill in relation to PEL's obligations to pay the EDF Prepayment Amount, but these discussions were terminated by EDF on 1 July 2017 confirming that EDF did not intend to enter into a standstill agreement and required payment of the amount due under the LTSC in full when due.

As the EDF Prepayment Amount (plus accrued interest) was not paid, PEL was in default of the LTSC and EDF served a termination notice on 10 October 2017.

On 24 November 2017, EDF served a notice of demand on each of the Guarantors under their respective Guarantees.

The Realisation Agreement includes provisions governing the realisation of EDF's security interest in the Michelin project.

Under the Realisation Agreement, the Michelin joint venture participants (excluding Aurora and PCH) have agreed not to grant any encumbrance of its participating interests that would impair the security interest of EDF without first seeking EDF's consent. This would permit PCH and Michelin to grant security over their combined 39.9% interest in the Michelin Project subject to EDFs drag right under the Realisation Agreement described above.

We understand that PEL has given covenants under the EDF Prepayment Agreement regarding its ownership and operation of the Michelin Project and that enforcement of any security provided over Michelin would be in breach of that agreement.

On 20 December 2017, EDF advised PEL that it intends to sell all of its claims against PEL to DB's London Branch. Limited detail regarding the sale is available as at the date of this Report.

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## 4. Overview the Mineral Assets

PPB appointed CSA to prepare the CSA Report on the value of the Mineral Assets. CSA provided an opinion on the market value (on a going concern basis) of the Mineral Assets as at 30 September 2017. Refer to Appendix I for a copy of the CSA Report.

PEL has a global portfolio of uranium projects. It has two uranium mines in Africa and advanced uranium exploration projects in Africa, Canada and Australia comprising:

- LHM in Namibia (currently processing stockpiled ore)
- KM (currently on care and maintenance) and exploration tenements in Malawi
- Michelin project in Canada
- Manyingee and Carley Bore projects, in Western Australia
- Valhalla, Skål and Odin deposits and other mineral interests in Queensland, including those held by Fusion Resources Ltd ('Fusion'), Valhalla Uranium Pty Ltd and the Paladin share of the Mineral Assets of Summit
- A minority interest in the Reaphook project in South Australia
- PEL's Uranium database.

PEL has combined mineral resources of 489.8 mlb U<sub>3</sub>O<sub>8</sub>.

Figure 3 illustrates the global distribution of PEL's projects.

**Figure 3: Paladin project locations**



Source: PEL

Table 10 summarises PEL's ownership stake, resources and reserves, and the current operating and the Valmin Code (2015) status of the projects.

**Table 10: Paladin project summary (100% basis)**

| Location          | Project                                  | Tonnes (mt)  | Grade (%)    | Contained U3O8 (mlb) | Operating status     | Valmin Code status |
|-------------------|--|--------------|--------------|----------------------|----------------------|--------------------|
| Namibia           | <b>Langer Heinrich*</b>                  |              |              |                      | Operating            | Production         |
|                   | Proved Ore Reserves                      | 42.0         | .052         | 48.1                 |                      |                    |
|                   | Probable Ore Reserves                    | 13.1         | .049         | 13.9                 |                      |                    |
|                   | Stockpiles                               | 33.9         | .038         | 28.4                 |                      |                    |
|                   | <b>Total Ore Reserves + Stockpile</b>    | <b>89.0</b>  | <b>.046</b>  | <b>90.3</b>          |                      |                    |
|                   | Measured Mineral Resources*              | 60.7         | .051         | 68.2                 |                      |                    |
|                   | Indicated Mineral Resources*             | 21.5         | .046         | 21.8                 |                      |                    |
|                   | Inferred Mineral Resources<br>Stockpiles | 8.7<br>33.9  | .047<br>.038 | 9.0<br>28.4          |                      |                    |
|                   | <b>Total Mineral Resources</b>           | <b>124.8</b> | <b>.047</b>  | <b>129.3</b>         |                      |                    |
| Malawi            | <b>Kayelekera</b>                        |              |              |                      | Care and Maintenance | Pre-Development    |
|                   | Proved Ore Reserves                      | .4           | .117         | 1.0                  |                      |                    |
|                   | Probable Ore Reserves                    | 5.3          | .088         | 10.4                 |                      |                    |
|                   | Stockpiles                               | 1.6          | .076         | 2.6                  |                      |                    |
|                   | <b>Total Ore Reserves + Stockpile</b>    | <b>7.3</b>   | <b>.087</b>  | <b>14.0</b>          |                      |                    |
|                   | Measured Mineral Resources               | .7           | .101         | 1.6                  |                      |                    |
|                   | Indicated Mineral Resources              | 12.7         | .070         | 19.6                 |                      |                    |
|                   | Inferred Mineral Resources<br>Stockpiles | 5.4<br>1.6   | .062<br>.076 | 7.4<br>2.7           |                      |                    |
|                   | <b>Total Mineral Resources</b>           | <b>20.4</b>  | <b>.070</b>  | <b>31.3</b>          |                      |                    |
| Western Australia | <b>Manyingee</b>                         |              |              |                      | Exploration          | Pre-development    |
|                   | Measured Mineral Resources               | -            | -            | -                    |                      |                    |
|                   | Indicated Mineral Resources              | 8.4          | .085         | 15.7                 |                      |                    |
|                   | Inferred Mineral Resources               | 5.4          | .085         | 10.1                 |                      |                    |
|                   | <b>Total Mineral Resources</b>           | <b>13.8</b>  | <b>.085</b>  | <b>25.8</b>          |                      |                    |
|                   | <b>Carlee Bore</b>                       |              |              |                      | Exploration          | Pre-development    |
|                   | Measured Mineral Resources               | -            | -            | -                    |                      |                    |
|                   | Indicated Mineral Resources              | 5.4          | .042         | 5.0                  |                      |                    |
|                   | Inferred Mineral Resources               | 17.4         | .028         | 10.7                 |                      |                    |
|                   | <b>Total Mineral Resources</b>           | <b>22.8</b>  | <b>.031</b>  | <b>15.7</b>          |                      |                    |
|                   | <b>Total Mineral Resources (WA)</b>      | <b>36.6</b>  | <b>.051</b>  | <b>41.5</b>          |                      |                    |

| Location                       | Project                        | Tonnes (mt) | Grade (%)   | Contained U3O8 (mlb) | Operating status | Valmin Code status |
|--------------------------------|--------------------------------|-------------|-------------|----------------------|------------------|--------------------|
| Queensland                     | <b>Valhalla</b>                |             |             |                      | Exploration      | Pre-development    |
|                                | Measured Mineral Resources     | 16.0        | .082        | 28.9                 |                  |                    |
|                                | Indicated Mineral Resources    | 18.6        | .084        | 34.4                 |                  |                    |
|                                | Inferred Mineral Resources     | 9.1         | .064        | 12.9                 |                  |                    |
|                                | <b>Total Mineral Resources</b> | <b>43.8</b> | <b>.079</b> | <b>76.3</b>          |                  |                    |
|                                | <b>Skal</b>                    |             |             |                      | Exploration      | Pre-development    |
|                                | Measured Mineral Resources     | -           | -           | -                    |                  |                    |
|                                | Indicated Mineral Resources    | 14.3        | .064        | 20.2                 |                  |                    |
|                                | Inferred Mineral Resources     | 1.4         | .052        | 1.6                  |                  |                    |
|                                | <b>Total Mineral Resources</b> | <b>15.7</b> | <b>.063</b> | <b>21.8</b>          |                  |                    |
|                                | <b>Odin</b>                    |             |             |                      | Exploration      | Pre-development    |
|                                | Measured Mineral Resources     | -           | -           | -                    |                  |                    |
|                                | Indicated Mineral Resources    | 8.2         | .056        | 10.0                 |                  |                    |
|                                | Inferred Mineral Resources     | 5.8         | .059        | 7.5                  |                  |                    |
|                                | <b>Total Mineral Resources</b> | <b>14.0</b> | <b>.057</b> | <b>17.6</b>          |                  |                    |
|                                | <b>Bikini</b>                  |             |             |                      | Exploration      | Pre-development    |
|                                | Measured Mineral Resources     | -           | -           | -                    |                  |                    |
|                                | Indicated Mineral Resources    | 5.8         | .050        | 6.4                  |                  |                    |
|                                | Inferred Mineral Resources     | 6.7         | .049        | 7.3                  |                  |                    |
|                                | <b>Total Mineral Resources</b> | <b>12.5</b> | <b>.050</b> | <b>13.8</b>          |                  |                    |
|                                | <b>Andersons</b>               |             |             |                      | Exploration      | Pre-development    |
|                                | Measured Mineral Resources     | -           | -           | -                    |                  |                    |
|                                | Indicated Mineral Resources    | 1.4         | .145        | 4.5                  |                  |                    |
|                                | Inferred Mineral Resources     | .1          | .164        | .4                   |                  |                    |
| <b>Total Mineral Resources</b> | <b>1.5</b>                     | <b>.152</b> | <b>5.0</b>  |                      |                  |                    |
| <b>Watta</b>                   |                                |             |             | Exploration          | Pre-development  |                    |
| Measured Mineral Resources     | -                              | -           | -           |                      |                  |                    |
| Indicated Mineral Resources    | -                              | -           | -           |                      |                  |                    |
| Inferred Mineral Resources     | 5.6                            | .040        | 5.0         |                      |                  |                    |
| <b>Total Mineral Resources</b> | <b>5.6</b>                     | <b>.040</b> | <b>5.0</b>  |                      |                  |                    |

| Location | Project                              | Tonnes (mt) | Grade (%)   | Contained U3O8 (mlb) | Operating status | Valmin Code status |
|----------|--------------------------------------|-------------|-------------|----------------------|------------------|--------------------|
|          | <b>Warwai</b>                        |             |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources           | -           | -           | -                    |                  |                    |
|          | Indicated Mineral Resources          | -           | -           | -                    |                  |                    |
|          | Inferred Mineral Resources           | .4          | .037        | .3                   |                  |                    |
|          | <b>Total Mineral Resources</b>       | <b>.4</b>   | <b>.037</b> | <b>.3</b>            |                  |                    |
|          | <b>Mirrioola</b>                     |             |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources           | -           | -           | -                    |                  |                    |
|          | Indicated Mineral Resources          | -           | -           | -                    |                  |                    |
|          | Inferred Mineral Resources           | 2.0         | .056        | 2.4                  |                  |                    |
|          | <b>Total Mineral Resources</b>       | <b>2.0</b>  | <b>.056</b> | <b>2.4</b>           |                  |                    |
|          | <b>Duke Batman</b>                   |             |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources           | -           | -           | -                    |                  |                    |
|          | Indicated Mineral Resources          | .5          | .137        | 1.5                  |                  |                    |
|          | Inferred Mineral Resources           | .3          | .110        | .7                   |                  |                    |
|          | <b>Total Mineral Resources</b>       | <b>.8</b>   | <b>.128</b> | <b>2.3</b>           |                  |                    |
|          | <b>Honey Pot</b>                     |             |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources           | -           | -           | -                    |                  |                    |
|          | Indicated Mineral Resources          | -           | -           | -                    |                  |                    |
|          | Inferred Mineral Resources           | 2.6         | .070        | 4.0                  |                  |                    |
|          | <b>Total Mineral Resources</b>       | <b>2.6</b>  | <b>.070</b> | <b>4.0</b>           |                  |                    |
|          | <b>Total Mineral Resources (QLD)</b> | <b>98.8</b> | <b>.068</b> | <b>148.5</b>         |                  |                    |
| Canada   | <b>Nash</b>                          |             |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources           | -           | -           | -                    |                  |                    |
|          | Indicated Mineral Resources          | .7          | .080        | 1.2                  |                  |                    |
|          | Inferred Mineral Resources           | .5          | .070        | .8                   |                  |                    |
|          | <b>Total Mineral Resources</b>       | <b>1.2</b>  | <b>.078</b> | <b>2.1</b>           |                  |                    |
|          | <b>India</b>                         |             |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources           | -           | -           | -                    |                  |                    |
|          | Indicated Mineral Resources          | 1.2         | .070        | 1.9                  |                  |                    |
|          | Inferred Mineral Resources           | 3.3         | .070        | 5.1                  |                  |                    |
|          | <b>Total Mineral Resources</b>       | <b>4.5</b>  | <b>.070</b> | <b>6.9</b>           |                  |                    |

| Location | Project                                  | Tonnes (mt)  | Grade (%)   | Contained U3O8 (mlb) | Operating status | Valmin Code status |
|----------|--|--------------|-------------|----------------------|------------------|--------------------|
|          | <b>Gear</b>                              |              |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources               | -            | -           | -                    |                  |                    |
|          | Indicated Mineral Resources              | .4           | .080        | .7                   |                  |                    |
|          | Inferred Mineral Resources               | .3           | .090        | .6                   |                  |                    |
|          | <b>Total Mineral Resources</b>           | <b>.7</b>    | <b>.084</b> | <b>1.3</b>           |                  |                    |
|          | <b>Rainbow</b>                           |              |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources               | .2           | .090        | .4                   |                  |                    |
|          | Indicated Mineral Resources              | .8           | .090        | 1.6                  |                  |                    |
|          | Inferred Mineral Resources               | .9           | .080        | 1.6                  |                  |                    |
|          | <b>Total Mineral Resources</b>           | <b>1.9</b>   | <b>.085</b> | <b>3.5</b>           |                  |                    |
|          | <b>Jacques Lake</b>                      |              |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources               | .9           | .090        | 1.8                  |                  |                    |
|          | Indicated Mineral Resources              | 6.0          | .070        | 9.3                  |                  |                    |
|          | Inferred Mineral Resources               | 8.1          | .050        | 8.9                  |                  |                    |
|          | <b>Total Mineral Resources</b>           | <b>15.0</b>  | <b>.060</b> | <b>20.0</b>          |                  |                    |
|          | <b>Michelin</b>                          |              |             |                      | Exploration      | Pre-development    |
|          | Measured Mineral Resources               | 15.6         | .100        | 34.4                 |                  |                    |
|          | Indicated Mineral Resources              | 21.9         | .100        | 50.2                 |                  |                    |
|          | Inferred Mineral Resources               | 8.8          | .120        | 23.3                 |                  |                    |
|          | <b>Total Mineral Resources</b>           | <b>46.3</b>  | <b>.104</b> | <b>107.2</b>         |                  |                    |
|          | <b>Total Mineral Resources (Canada)</b>  | <b>69.5</b>  | <b>.092</b> | <b>140.6</b>         |                  |                    |
|          | <b>Total Mineral Resources (Paladin)</b> | <b>350.1</b> | <b>.063</b> | <b>489.7</b>         |                  |                    |

Source: PEL 2016 Annual Report (Mineral Resources are stated inclusive of Ore Reserves) Management accounts as at 30 June 2017.

The information contained in Table 10 above is extracted from the report entitled Paladin Energy Ltd Annual Report 2016 created on 30 June 2016 and is available to view on the Paladin website at [www.paladinenergy.com.au](http://www.paladinenergy.com.au) as well as the management accounts as at 30 June 2017 for LHM. The Company has confirmed that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates 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 has also confirmed that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

#### 4.1. Langer Heinrich Mine, Namibia

LHM is an operating uranium mine in Namibia. The mine commenced operation in March 2007. PEL held a 75% interest in LHM through LHMHL, having sold a 25% interest in LHMHL to a subsidiary of the China National Nuclear Corporation in January 2014. PEL is the operator of the mine.

LHM currently has a nameplate production rate of 4 mlb U<sub>3</sub>O<sub>8</sub> per year and has a project life in excess of 20 years. Mining was temporarily curtailed in November 2016 due to sustained low uranium prices, although processing of large stockpiles continues. The restart of mining operations is planned for late 2018.

The total resource base of contained metal at LHM is 129.3 mlb of U<sub>3</sub>O<sub>8</sub>, which includes 28.4 mlb of contained U<sub>3</sub>O<sub>8</sub> metal in stockpiles as well as 62.0 mlb of contained U<sub>3</sub>O<sub>8</sub> metal in Ore Reserves.

The LHM ore body is a calcrete type deposit mined using conventional open cut methods and alkaline leach processing. The mine is located in the Namib Desert, 80 km east of the major seaport of Walvis Bay and 40 km south-east of the Rössing uranium mine operated by Rio Tinto.

PEL acquired 100% of Langer Heinrich when it was a development project from Aztec Resources Ltd in 2002 for \$15,000 and a production royalty of \$0.12/kg of yellowcake produced and sold.

A bankable feasibility study was completed in April 2005 and confirmed the prospectivity and economic viability of the project and recommended further development.

Mine construction followed in September 2005 with site commissioning in December 2006 and first production in 2007.

Production capacity of 2.7 mlb of U<sub>3</sub>O<sub>8</sub> per annum was reached in 2008. A stage 2 ramp-up to 3.7 mlb per annum was undertaken in 2010 followed by a stage 3 expansion in 2012. The mine is now producing at a 5.2 mlb per annum rate with studies in progress to expand production further through a stage 3A upgrade to 5.6 mlb per annum.

Figure 4 below shows the location of the Langer Heinrich project.

Figure 4: LHM location plan



Source: PEL

## 4.2. Kayelekera Mine, Malawi

KM is a sandstone-hosted uranium deposit in Malawi. PEL holds an 85% equity interest in KM through Paladin (Africa) Limited ('PAF'), having issued 15% equity to the Malawian Government under the terms of the original development agreement.

The mine operated between April 2009 and May 2014 producing a total of 10.7 mlb U<sub>3</sub>O<sub>8</sub> but is currently on care and maintenance with operations suspended due to the prolonged downturn in uranium prices.

More than half of the mine's Mineral Resource remain, with a current total resource base of 31.3 mlb U<sub>3</sub>O<sub>8</sub>.

PEL also has an 85% equity interest in three Malawian tenements prospective for uranium of a style similar to KM. Two of the licences are immediately adjacent to the KM mining lease, and the third licence is in the same region. PEL is also pursuing applications for two additional exploration licenses to the south of the KM site.

KM is a conventional open pit, sandstone hosted deposit located in northern Malawi, 600 km north of the country's capital Lilongwe and 52 km by road, west of the provincial town of Karonga.

KM falls within mining lease 152, which covers 5,520 hectares in northern Malawi. Paladin was granted mining lease 152 for a period of 15 years in April 2007 (renewable for 10-year period) following the execution of a development agreement with the Government of Malawi in February 2007.

A bankable feasibility study was undertaken following grant of the mining licence and construction of KM commenced in June 2007. The mine was officially opened in April 2009 and is capable of production of up to 3.3 mlb of U<sub>3</sub>O<sub>8</sub> per annum.

Figure 5 below shows the location of KM.

**Figure 5: KM location plan**



Source: PEL

### 4.3. Manyingee and Carley Bore, Western Australia

Manyingee and Carley Bore are exploration projects located approximately 1,100 km north of Perth in northwest Western Australia. The projects are held by Paladin's wholly owned subsidiary, PEM.

The Manyingee Uranium Project is located 85km inland from the coastal township of Onslow. It has a total resource base of 25.8 mlb U<sub>3</sub>O<sub>8</sub>. The project is covered by three mining leases covering 1,307ha.

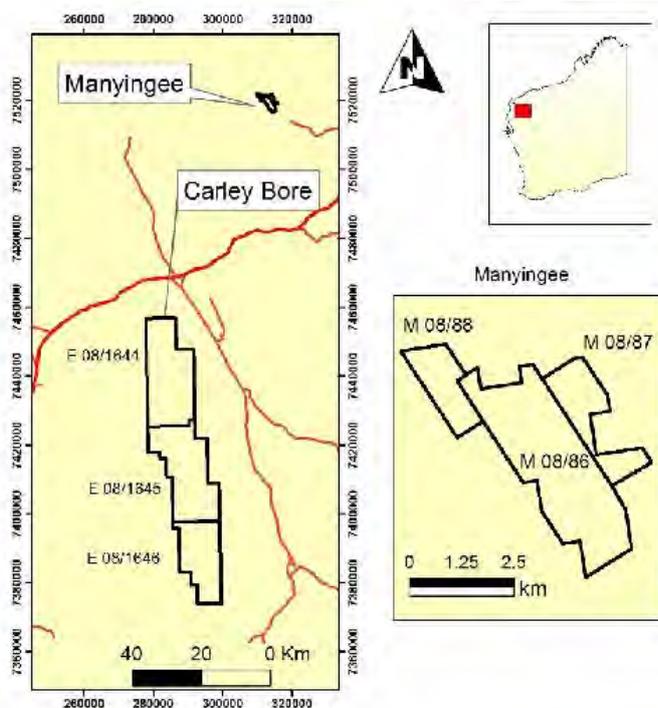
The Carley Bore prospect is positioned along the eastern margin of the Carnarvon Basin, 200 km south of Onslow and approximately 120 km south of Manyingee. It has a total resource base of 15.7 mlb U<sub>3</sub>O<sub>8</sub>. The project is covered by three exploration licences covering 1,003 km<sup>2</sup>.

The deposits are considered amenable to in-situ leaching recovery methods, planning for a potential field leach trial is underway with a three-year staged feasibility study required to progress development.

Paladin purchased the Manyingee project in 1998 from Afmeco Mining and Exploration Pty Ltd, a subsidiary of France-based Cogema. The Carley Bore project was acquired from Energia Minerals Limited in 2015.

Figure 6 below illustrates the tenement area covered by the Manyingee and Carley Bore projects.

Figure 6: Manyingee and Carley Bore area plant



Source: PEL

### 4.4. Queensland projects

PEL's Queensland exploration projects are located 30 km to 80 km north of Mount Isa in northwest Queensland. The uranium tenements in the Mount Isa region are nearly contiguous and are held Summit (PEL 82% interest) and Fusion (PEL 100% interest). Summit also has a 50:50 uranium joint venture with Valhalla Uranium Pty Ltd (PEL 100% interest) and a base and precious metal joint ventures with AEON Metals Ltd.

Table 11 summarises PEL's effective ownership stake across the various Queensland projects.

**Table 11: Paladin Queensland projects - effective ownership**

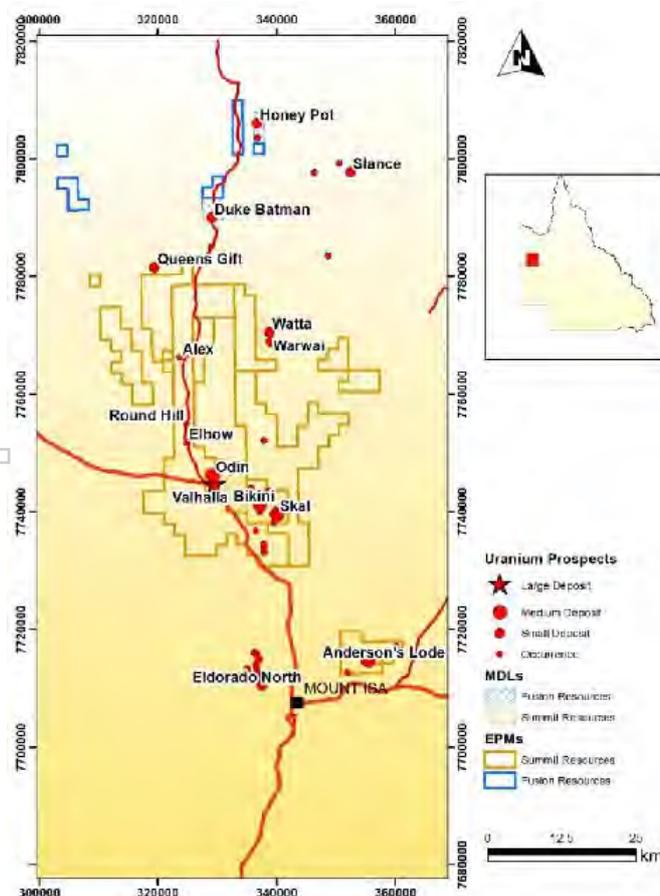
| Deposit     | Project                   | Paladin effective ownership |
|-------------|---------------------------|-----------------------------|
| Valhalla    | Isa Uranium Joint Venture | 91.04%                      |
| Skal        | Isa Uranium Joint Venture | 91.04%                      |
| Odin        | Isa Uranium Joint Venture | 91.04%                      |
| Bikini      | Mount Isa North Project   | 82.08%                      |
| Andersons   | Mount Isa North Project   | 82.08%                      |
| Watta       | Mount Isa North Project   | 82.08%                      |
| Warwai      | Mount Isa North Project   | 82.08%                      |
| Mirrioola   | Mount Isa North Project   | 82.08%                      |
| Duke Batman | Valhalla North Project    | 100.00%                     |
| Honey Pot   | Valhalla North Project    | 100.00%                     |

Source: PEL annual report (2016)

The Mount Isa uranium deposits have a total resource base of 148.5 mlb U<sub>3</sub>O<sub>8</sub>, across 10 separate deposits. There are reasonable prospects for resource expansion and good exploration potential within the projects. PEL has slowed the development of the Queensland projects as a result of the Queensland Government reinstating the ban on uranium mining in early 2015.

Figure 7 shows the location of the Queensland projects.

**Figure 7: Queensland projects location plan**



Source: PEL

#### 4.5. Michelin, Canada

The Michelin project covers 91,500 ha within the Central Mineral Belt of Labrador, Canada. PEL holds 100% of the project through its subsidiary, Aurora Energy Ltd ('Aurora'). PEL acquired 100% of Aurora and the exploration rights to the Michelin project in February 2011. PEL holds 100% of the project through a joint venture between four wholly owned subsidiaries.

In June 2015, the Canadian Government granted an exemption to PEL to the current Non-Resident Ownership Policy under which, by the stage of first production, Canadian resident ownership must be at least 51%. The exemption allows PEL, at the appropriate time, to proceed to production on its own account with no requirement for a majority Canadian partner.

Six separate deposits have been identified within the project area. Paladin has reported combined Mineral Resources in accordance with the JORC Code of 140.6 mlb U<sub>3</sub>O<sub>8</sub>.

The project area is situated in the Central Mineral Belt near the east coast of Labrador and lies approximately 140 km northeast of Happy Valley – Goose Bay and 40 km south of the community of Postville. Michelin is PEL's first entry into the North American market.

The larger uranium deposits (Michelin, Rainbow, Jacques Lake) are associated with a belt of Proterozoic felsic volcanic rocks (Aillik Group) and granitoids in the southwest portions of Aurora's claims. Deposits of the Inda trend (Inda, Gear, Nash and Kitts) are hosted by underlying metasediments and mafic metavolcanics of the Post Hill Group.

Since the acquisition of Aurora in 2011 and following the regional Nunatsiavut Government's lifting of a three-year moratorium on the mining, development and production of uranium PEL has continued resource definition and extension drilling in the area. Additional exploration is planned.

PEL has granted EDF security over 60.1% of the Michelin project. Under the DOCA, EDF's claims against PEL will be compromised in the debt for equity swap, however its security over 60.1% of Michelin will remain on foot, and it will be able to exercise that security given the associate subsidiary guarantees for the US\$288 million pre-payment not repaid in July 2017 pursuant to a uranium concentrates long term supply contract. Paladin will retain its 39.9% interest in Michelin.

Figure 8 illustrates the location of the Aurora mineral rights which make up the Michelin project

**Figure 8: Aurora mineral rights area plan - Michelin project**



Source: PEL

## 4.6. Other assets

### 4.6.1. Other exploration tenements

PEL has various other early stage exploration tenements without any defined mineral resources or ore reserves.

### 4.6.2. Reaphook (South Australia) minority interest

PEL holds a 7.5% interest in the Reaphook Joint Venture which covers the rights to explore for and develop all commodities other than uranium on a relatively small exploration licence in the north-eastern part of South Australia.

The project hosts base metal mineralisation of a style that is similar to the Beltana zinc deposit to the west of the project and it may have potential for uranium mineralisation. Activity in relation to base metal exploration is being conducted and fully funded by Perilya.

Whilst high grade base metal mineralisation has been returned in rock chip sampling, drilling results were less encouraging and the mineralisation style is of a type that can be difficult to process. The tenement is also nearing the end of its term.

### 4.6.3. North Telfer Royalty

Antipa Minerals Limited ('Antipa') entered into an agreement with PEL, where PEL would withdraw its existing exploration licence applications in the North Telfer region of Western Australia, which underlaid Antipa's applications.

Antipa issued shares to a value of \$180,000 to PEL and granted a 1% net smelter royalty (the 'North Telfer Royalty') for the sale of minerals produced from the acquired area other than uranium.

The North Telfer project is an early-stage exploration project without defined Mineral Resource or Ore Reserves.

### 4.6.4. Uranium Database

PEL owns a substantial uranium database, compiled over 30 years of investigations by the international uranium mining house, Uranerzbergbau in Germany, incorporating all aspects of the uranium mining and exploration industry worldwide and including detailed exploration data for Africa and Australia.

While the database represents a very useful collection of information – representing a very substantial past exploration expenditure by a diverse range of companies – the difficulty of accessing this data because of the hardcopy format, the historical nature of the information, and the current depressed market interest in uranium, reduces the market attractiveness of the database.

## 5. Industry overview

PEL operates in the uranium mining industry. Our commentary on the uranium mining industry has been informed by the following sources:

- IBISWorld report dated August 2017<sup>4</sup>
- International Energy Agency, World Energy Outlook 2017<sup>5</sup>
- World Nuclear Association<sup>6</sup>
- Department of Industry, Innovation and Science ('DIIS') report dated September 2017<sup>7</sup>
- Cameco Corporate market information<sup>8</sup>.

The conditions and prospects of the uranium mining industry are summarised below.

### 5.1. Summary

Uranium markets remain oversupplied, prices are expected to remain low, averaging \$22.00/lb in 2017. Limited price recovery is forecast in 2018 to \$32.00/lb and \$39.00/lb in 2019 as global production cutbacks slowly take effect and Asian demand rises. Figure 9 illustrates historic spot and forecast uranium prices.

- At the Valuation Date spot uranium prices were \$20.33/lb. At these prices, most producers would be making a loss, though thus far production cuts have been slow to take effect partly because some producers continue to receive higher than spot pricing due to long-term contracts entered into in the past. Prices have remained low, in part, because rising demand has been met by a rundown in inventories and utility contract positions.
- Inventories and secondary supply have proven to be more robust than expected, and the resulting impact on producers has been exacerbated by ongoing regulatory and political uncertainty affecting the nuclear industry.
- With inventories expected to remain substantial, prices may only rise gradually driven by production cuts and the pace of reactors coming online.
- Price growth may be slower if construction schedules are not met in China and India, or if recently announced production cuts take longer than expected to impact on inventories.

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<sup>4</sup> IBISWorld, World price of uranium report, August 2017

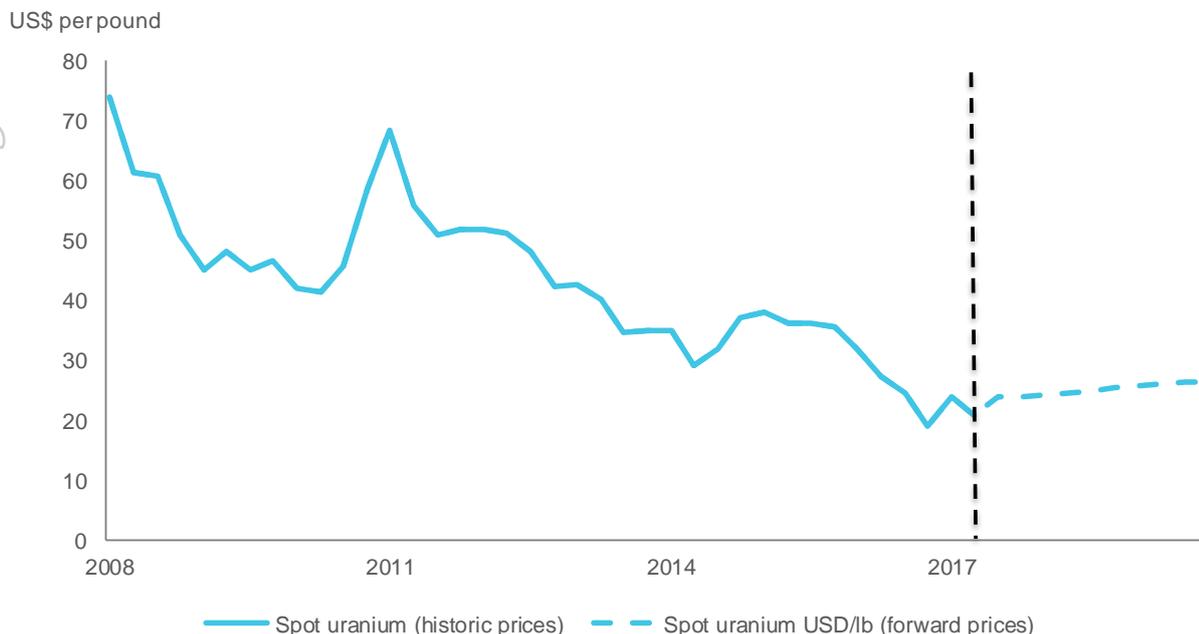
<sup>5</sup> International Energy Agency, World Energy Outlook 2017

<sup>6</sup> World Nuclear Association, website <http://www.world-nuclear.org>

<sup>7</sup> Australian Government Department of Industry Innovation and Science, Resources and Energy Quarterly, Sept 2017

<sup>8</sup> Cameco, website <https://www.cameco.com/invest/markets/uranium-price>

Figure 9: Quarterly uranium spot price and outlook



Source: DIIS, Cameco Corporation, Bloomberg

## 5.2. Introduction

Uranium is a naturally-occurring element in the Earth's crust. Traces of uranium occur in small concentrations almost everywhere. Economically mineable deposits of uranium ore occur where uranium is naturally concentrated.

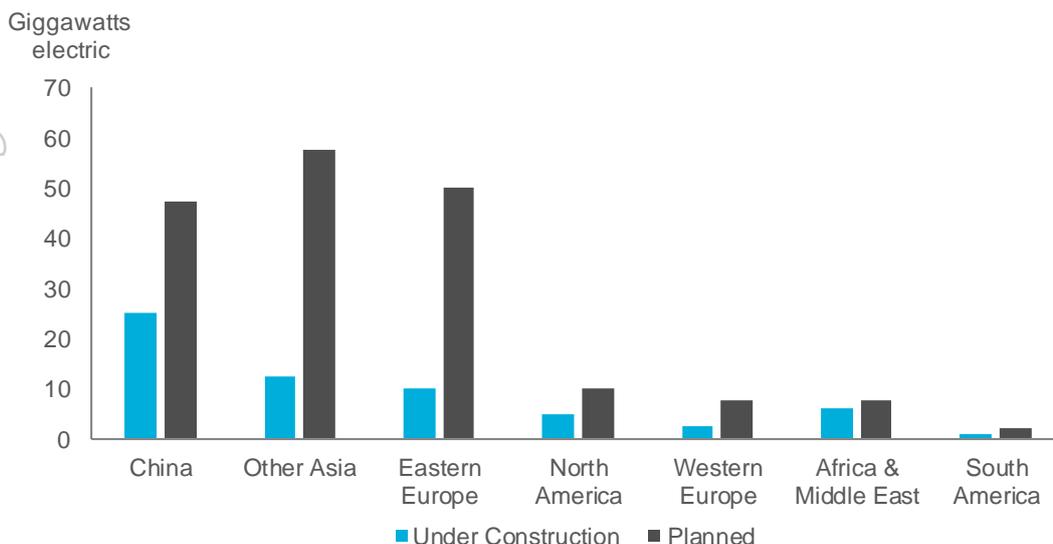
Generally, there is only one commercial use for uranium; as the source fuel for nuclear power generation. To make nuclear fuel from the uranium ore requires the uranium to be extracted from the rock in which it is found, then it is converted into UF<sub>6</sub> and then enriched to increase the proportional composition of the uranium-235 isotope, before being made into pellets that are loaded into assemblies of nuclear fuel rods.

About 27 tonnes of enriched uranium fuel is required each year by a 1000 MWe nuclear reactor. In contrast, a coal power station requires more than two and a half million tonnes of coal to produce as much electricity. Uranium makes up 11% of global electricity generation.

Currently there are 447 operational nuclear power plants across 31 countries worldwide, with a total generating capacity of approximately 2500 terawatts of electricity. Another 59 nuclear power reactors are currently being built with significant additional capacity in the planning phase. In addition, there are 245 small scale civil research reactors, mostly in the medical field, operating across 55 countries.

Figure 10 shows new capacity under construction and planned.

Figure 10: New nuclear capacity



Source: DIIS; World Nuclear Association (2017)

Uranium mines operate in over twenty countries, however, about half of world production comes from just ten mines in six countries, in Canada, Australia, Niger, Kazakhstan, Russia and Namibia.

At conventional mines, the ore goes through a mill where it is first beneficiated and then leached to dissolve the uranium oxides, leaving the remaining rock and other minerals undissolved, as mine tailings (waste).

In addition to conventional mining practices, approximately half the world's uranium production comes from a mining method called in-situ recovery avoiding major ground disturbance. Oxygenated groundwater is circulated through the uranium ore, extracting the uranium. The solution with dissolved uranium is pumped to the surface for processing and extraction of the contained uranium.

Both traditional processing and in-situ recovery methods produce a concentrated uranium liquid solution. The solution is filtered and the uranium then separated by ion exchange, precipitated from the solution, filtered and dried to produce a uranium oxide concentrate, which is then sealed in drums. This concentrate may be a bright yellow colour, hence known as 'yellowcake'.

The majority of all nuclear power reactors require 'enriched' uranium fuel in which the proportion of the uranium-235 isotope has been raised from the natural level of around 0.7% to about 3.5% to 5%.

The enrichment process requires the uranium to be in gaseous form requiring a conversion plant which turns the uranium oxide into uranium hexafluoride (UF<sub>6</sub>). The enriched UF<sub>6</sub> is transported to a fuel fabrication plant where it is converted to uranium dioxide powder. This powder is then pressed to form small fuel pellets, which are heated to make a hard-ceramic material. The pellets are then inserted into thin tubes to form fuel rods which are grouped together to form fuel assemblies for use within the reactor.

### 5.3. Supply

In 2017, world production is forecast to remain stable at 73,100 tonnes.

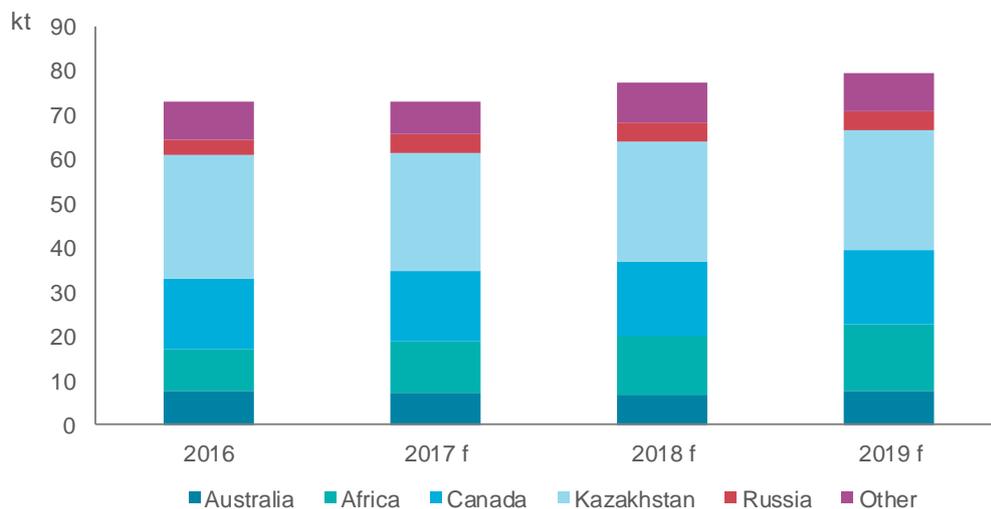
- A number of mines including Rio Tinto's Rössing mine and CGN/Swakop Uranium's Husab mine in Namibia, Peninsula Energy's Lance mine in the US and Cameco's Cigar Lake mine in Canada are expected to increase production in 2017/18.
- Offsetting this, Kazakh production is expected to decline, following the announcement of reduced output by Kazatomprom—the largest producer in the country. We note that none of the broker forecasts appear to have responded this announcement.

Uranium supply is increasingly being met by the rundown of inventories and contract positions. Over the past 25 years, consumption of uranium has exceeded supply by almost 1.4 billion pounds, with the difference accounted for by an increasingly sophisticated secondary market in recycled and stored product.

- UxConsulting ('UxC') has estimated that there are sufficient inventories held by nuclear utilities to cover forward demand for around 5 years in Japan, 30 months in both the United States and Europe, and around seven years in China.
- The existence of a substantial secondary market in recycled and stored product has prevented rising demand from pulling prices up immediately. However, the long-term price trajectory is likely to be slightly favourable, with a supply gap growing each year, due to the lack of incentive current prices provide for new mines to emerge or existing mines to expand.
- As uranium inventories gradually decline, it is likely that primary production will pick up. World uranium production is projected to increase to 79,700 tonnes by 2019. This will be underpinned by continued increases in production at CGN/Swakop Uranium's Husab mine, Peninsula Energy's Lance mine, and Cameco's Cigar Lake mine

Figure 11 demonstrates annual uranium production by key producing jurisdiction.

**Figure 11: World uranium production (kt)**



Source: International Energy Agency; World Nuclear Association (2017)

#### 5.4. Demand

In March 2011, Japan was hit by a large-scale offshore earthquake. The ensuing tsunami damaged its Fukushima nuclear reactor and caused explosions, fires and the release of radioactive material from the plant.

The accident raised questions globally about the sustainability of nuclear power as an energy source, prompting Japan and several other countries to review their exposure to nuclear power production, with some enforcing complete shutdowns of a few nuclear power reactors.

The influence of Fukushima continues to impact uranium demand, particularly in Western jurisdictions whilst growing demand from developing and emerging economies is providing some gradual offsetting growth.

World uranium consumption is expected to grow from 83,400 tonnes in 2016 to 88,300 tonnes in 2017, supported by the development of new nuclear power generation capacity.

- Some positive indicators emerged during the September 2017 quarter that global uranium demand may gain support from emerging markets. Research into small modular reactor technology is picking up in Western nations and the US Concurrent Technologies Corp and the UK Nuclear Advanced Manufacturing Research Centre announced new R&D facilities to study modular reactor technology.

However, although research into new reactor forms is accelerating, actual reactor development has become increasingly stalled in the West.

- At the start of August, South Carolina Electric & Gas announced that construction of a \$9.8 billion reactor project in the US would cease, effectively ending the largest US nuclear construction in over 30 years. This follows the large-scale shutdowns of reactors in Japan and Germany which occurred post Fukushima.
- Several proposed reactors have also been cancelled in South Korea. The fate of another US project, the Vogtleunits 3 and 4 in Georgia, also remains unclear.

While reactor programs have largely stalled across most western countries, developing countries are moving to strongly expand nuclear capacity, creating a re-alignment of the global uranium market.

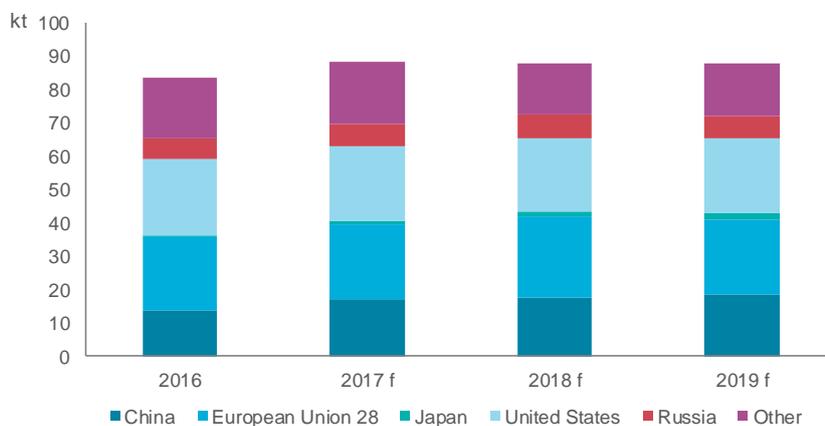
- Chinese and Russian nuclear industries have stepped up plans to expand and export nuclear technology. China and Russia have built competitive advantages through the construction of dozens of reactors in their territory over the past 20 years.
- China completed the construction of Unit 4 of its Fuqing nuclear power plant in August, with grid connection set to deliver 1,020 megawatts of power. The plant is China's 37th, with a further 20 under development.
- A number of Chinese reactors under development also achieved important milestones in the September 2017 quarter. The Sanmen1 reactor passed its final safety check in August; the Haiyang 2 reactor passed its containment integrity tests, and the Yangjiang5 reactor passed cold function tests. All three reactors are expected to be grid-connected in the near future.
- India has also announced final approval of its plan to build 10 additional large pressurised heavy water reactors. These reactors have a combined capacity of more than 7,000 MWe, and will more than double India's total nuclear capacity.

Recent delays and cancellations of reactor projects in developed countries will act as a temporary offset against the longer-term rise in use of nuclear power among developing countries.

- As a result, uranium consumption is expected to remain largely steady over the next two years, falling slightly to 87,800 tonnes in 2018, then rebounding to 88,100 tonnes in 2019.
- Beyond this, the outlook for uranium leans towards moderate but steady growth, with the rate of growth rising slowly over time.

Figure 12 illustrates historical and forecast uranium demand:

**Figure 12: World uranium demand (kt)**



Source: International Energy Agency; World Nuclear Association (2017)

### 5.5. Uranium commodity prices

Uranium prices are set in US dollars and usually priced on a USD/lb basis. Therefore, the strength of the US dollar has a large influence on the revenues of local uranium miners depending on their operating jurisdiction and prevailing foreign exchange rate.

There is no established index for uranium prices. Large uranium producers typically sell most of their output through long term contracts rather than the spot market. Long term contracts typically vary across producers because of differences in contract lengths, volumes and terms, based on market conditions at the time of signing.

The spot price of uranium has been volatile since Japan's Fukushima nuclear accident triggered reductions in global demand for nuclear fuel.

Following the Fukushima accident, Germany has shut down eight of the country's oldest nuclear reactors and plans on closing its remaining nine reactors by 2022. Switzerland and Spain have also banned the construction of new reactors. Officials in China and India, both of which have major investments in nuclear power plants planned, also called for reviews of their atomic energy programs temporarily impacting their new reactor growth rate. All of this had a detrimental effect on global demand for uranium and contributed to lower prices.

Uranium contract prices are published by traders in the industry. The UxC long term indicator contract price is forecast to have dropped to around \$33.00/lb in 2017, but is expected to recover to \$37.75/lb in 2018 and \$40.60/lb in 2019.

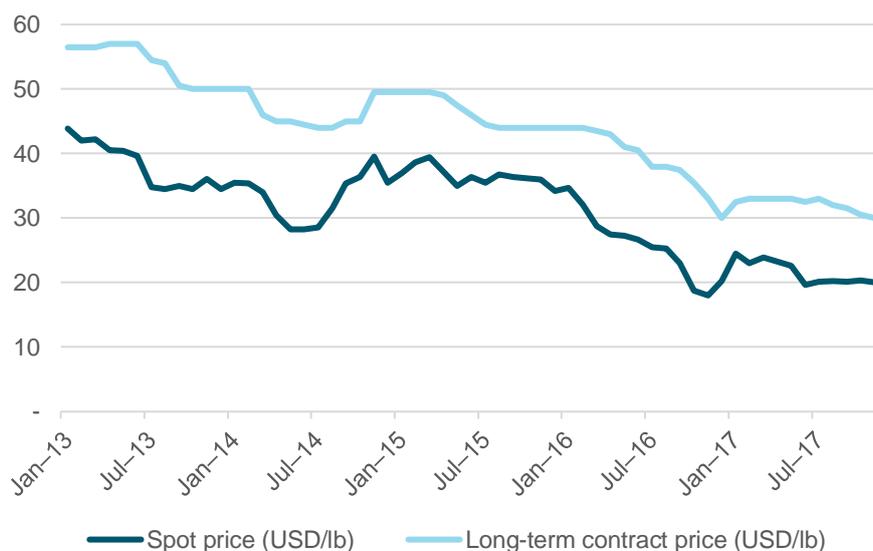
By comparison spot prices forecast by Cameco are outlined to be \$22.00/lb in 2017, \$25.00/lb in 2018 and \$29.00/lb in 2019.

There was little movement in uranium spot prices during the September quarter, with a lift of 5 cents to \$20.20/lb in July and a fall of 7 cents to \$20.13/lb in August. Based on Cameco data, the uranium spot price at 30 September 2017 was \$20.33/lb U<sub>3</sub>O<sub>8</sub>.

At these prices, most producers would be making a loss, though as at the Valuation Date production cuts have been relatively contained and slow to take effect.

Figure 13 below illustrates the historical premium of long term contract prices over spot prices.

**Figure 13: U3O8 price trends and historical AUD/USD rates**



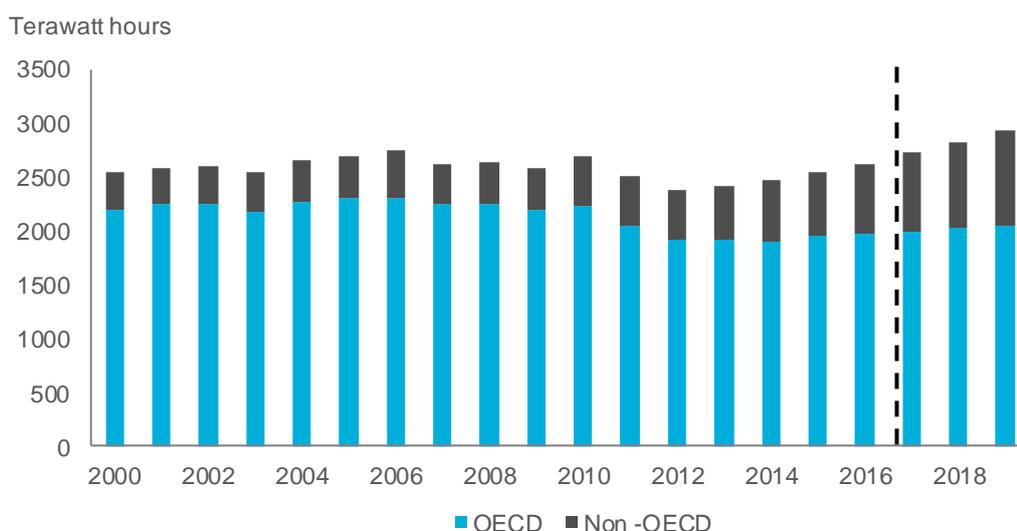
Source: Cameco

## 5.6. Outlook

The performance of the uranium mining industry is heavily dependent on production volumes and global nuclear energy demand to set uranium prices. Producers sell the bulk of their output on the basis of long-term contracts, rather than on spot markets. Contract prices, which are renegotiated periodically, tend to be influenced by spot prices but are less volatile.

Demand for uranium tends to be inelastic, which means that major shifts in price typically do not greatly affect overall demand. Figure 14 illustrates the relatively consistent level of installed nuclear capacity demand and forecast growth beyond 2017.

**Figure 14: Installed nuclear capacity demand**



Source: DIIS; International Energy Agency (2017); World Nuclear Association (2017)

Whilst energy demand has remained relatively consistent, a lower world price of uranium adversely affects uranium miners, as they receive less USD per pound of uranium ore that they mine.

Revenue volatility was very high in five years to 2015 with the years 2016 and 2017 marked by more severely depressed prices. Like revenue, industry profitability can fluctuate dramatically depending on price and volume movements.

Prices have remained low, in part, because rising demand has been met by a rundown in inventories. Inventories and secondary markets have proven to be more robust than expected, and the resulting impact on producers has been exacerbated by ongoing market uncertainty.

With inventories expected to remain substantial, it is likely that prices will only rise gradually to 2020 driven by production cuts and the pace of reactors coming online.

Price growth may be slower if construction schedules are not met in China and India, or if recently announced production cuts take longer than expected to impact on inventories.

## 6. Relevant economic factors

PEL has projects in Namibia, Malawi, Canada and Australia.

In performing our analysis, we have had consideration for the economic outlook for each jurisdiction as summarised in the sections below.

### 6.1. Namibia

#### 6.1.1. Political stability

The South West Africa People's Organisation ('SWAPO') is a quasi-socialist party that has governed Namibia since the country achieved independence in 1990 and is expected to continue to dominate the political environment, although the political terrain will be challenging.

SWAPO reigns supreme in the legislature, and the president, Hage Geingob, has strong popular backing on his mandate to make 'war' on poverty and inequality during his presidential tenure.

However, economic realities have changed, the commodity price downturn and large public debt levels have forced the introduction of a program of austerity causing some elements of SWAPO to question the president's socialist credentials.

Spending cuts are set to continue into the longer term and will intensify existing frustration over poverty and unemployment and may lead to disruptive strike action and protests.

There is strong government support for expanding uranium mining and some interest in using nuclear power. Namibia has two significant uranium mines (Rössing and Langer Heinrich) capable of providing 10% of world mining output. A larger mine (Husab) commenced production in 2017. Namibia's first commercial uranium mine began operating in 1976.

In April 2011, the Namibian government announced that its state-owned mineral exploration company, Epangelo Mining Ltd, would have exclusive control over new strategic minerals developments, including uranium. However, this does not apply retrospectively or amount to nationalisation of existing mines or leases<sup>9</sup>.

#### 6.1.2. Fiscal and monetary policy

Namibia's fiscal policy will be guided by constrained revenue and the need to contain public debt. Southern African Customs Union revenue sharing transfers have been subdued, largely owing to sluggish regional trade, and as a result of low economic growth, widespread avoidance and weak institutional frameworks.

A new Namibian revenue agency set to come into operation in 2017/18 should help to strengthen collection and work to offset lower customs receipts, and revenue will broadly increase as a proportion of Gross Domestic Product ('GDP') from 2018/19 onwards.

Sharp downward readjustments to medium-term spending plans have been made to bring the fiscal account into surplus by 2019/20. However, this will require unprecedented steep and politically unpalatable reductions in recurrent spending placing the consolidation schedule at risk.

Nevertheless, the government cannot afford to sustain the kind of budget deficit it has incurred in recent years and outlays will fall as a proportion of GDP throughout the forecast period. This will result in an overall deficit of 3.2% of GDP in 2021/22.

The Bank of Namibia will likely continue to broadly align its interest rates closely with those of the South African Reserve Bank.

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<sup>9</sup> World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/namibia.aspx>

### 6.1.3. Economic growth

Economic growth is expected to improve after contraction in the first quarter of 2017. However, in the near term the recovery will be uneven.

Construction activity has been contracting in recent quarters and is set to remain depressed over 2017 and 2018. Generally lower government spending will be a drag on other sectors as well, particularly in services such as wholesale and retail.

On the positive side, agricultural production should improve with stronger growing conditions (barring further weather shocks), and related value-added agro-processing will also expand over these years.

Mining is poised for a comeback after three successive years of contraction. To some extent this is premised on the giant Husab uranium mine (estimated to be the world's second-largest) ramping up to full capacity over both 2017 and 2018, although the impact will be moderated slightly by other uranium producers scaling back output in response to low global prices.

Otherwise, diamond output also looks set to recover from lows in 2016, with some increase in external demand and added marine mining capacity. Together, these factors will help to counterweigh lower government spending, but real GDP growth will be sluggish compared with historical rates, averaging 3.1% in 2017 to 2018. The rate will then improve to 3.4% to 2021 as external conditions strengthen.

### 6.1.4. Inflation

Inflation in Namibia is heavily influenced by trends in neighbouring South Africa, Namibia's foremost trading partner. Inflation in early 2017 will be elevated by tight food supply on the back of a regional drought, but the onset of the mid-year harvest will see inflation edge into the Bank of Namibia 3-6% target range and annual average inflation soften to 6.1%, down from 6.7% in 2016.

Economist Intelligence Unit forecast inflation will fall in 2018 to 5.8% on weaker world oil prices and then ease further to an average of 5.5% in 2019 to 2021 broadly following changes in global food and oil prices and inflationary trends in South Africa.

### 6.1.5. Exchange rates

Despite relatively low international reserves, the Namibia dollar will likely remain pegged at parity to the South African rand, as one of four countries in a common monetary area.

The rand has been relatively stable so far in 2017, averaging R13.21: USD1 in the first seven months of the year, despite a string of adverse developments. The rand and Namibian dollar will remain vulnerable to local and global uncertainties, possibly leading to depreciation in the second half of 2017 ahead of the South African ruling party's electoral summit in December, and the next round of assessments by rating agencies.

### 6.1.6. Forecast summary

Table 12 provides a summary of Economist Intelligence Unit economic forecast metrics for Namibia.

**Table 12: Namibia – Economic forecast metric summary (%)**

|  | 2016 <sup>a</sup>   | 2017 <sup>f</sup> | 2018 <sup>f</sup> | 2019 <sup>f</sup> | 2020 <sup>f</sup> | 2021 <sup>f</sup> |
|--|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Real GDP growth                            | 0.2                 | 2.3               | 3.9               | 3.2               | 2.2               | 3.4               |
| Gross agricultural production growth       | 3.0                 | 9.6               | 5.5               | 3.5               | 3.1               | 3.0               |
| Consumer price inflation (average)         | 6.7                 | 6.1               | 5.8               | 5.5               | 5.4               | 5.5               |
| Consumer price inflation (end-period)      | 7.3                 | 5.6               | 6.1               | 4.6               | 5.5               | 5.7               |
| Lending rate (average)                     | 9.9                 | 9.9               | 10.0              | 10.0              | 9.2               | 8.8               |
| Government balance (% of GDP) <sup>c</sup> | -6.2 <sup>e</sup>   | -6.0              | -4.2              | -5.4              | -3.7              | -3.2              |
| Exports of goods fob (USD m)               | 4,003 <sup>e</sup>  | 4710.0            | 5049.0            | 5340.0            | 5251.0            | 5475.0            |
| Imports of goods fob (USD m)               | -6,441 <sup>e</sup> | -6846.0           | -7000.0           | -7160.0           | -7359.0           | -7657.0           |
| Current-account balance (USD m)            | -1,559 <sup>e</sup> | -932.0            | -792.0            | -762.0            | -1025.0           | -1022.0           |
| Current-account balance (% of GDP)         | -14.4 <sup>e</sup>  | -7.2              | -6.6              | -6.6              | -8.8              | -8.5              |
| External debt (year-end; USD m)            | 6,904 <sup>e</sup>  | 7489.0            | 7708.0            | 7844.0            | 8199.0            | 8736.0            |
| Exchange rate ND:USD (average)             | 14.71               | 13.67             | 16.12             | 18.10             | 19.30             | 20.50             |

Source: Economist Intelligence Unit (Note: a Actual. c Fiscal years April-March. e Economist Intelligence Unit estimates. Economist Intelligence Unit forecasts.)

## 6.2. Malawi

### 6.2.1. Political stability

Malawi's underlying stability is not under threat, but a volatile political scene and low public confidence in state institutions will stoke some political volatility. The Economist Intelligence Unit expects the president, Peter Mutharika, and his Democratic Progressive Party will remain in power after the 2019 general election.

Political volatility is likely to intensify in the run-up to and in the immediate aftermath of the polls, but is unlikely to affect the country's underlying stability.

Despite the maintenance of electoral politics, public discontent is likely to remain high. Fueled by recurring allegations of high-level corruption and a persistent lack of jobs. Anti-establishment sentiment is generally fierce, with resistance targeted at the political elite in general (rather than at one party in particular).

The historical track record of shifting policies in response to protests signals that mass demonstrations will continue to be used to secure concessions from the government. However, although there is a risk that mass protests will spark sporadic outbreaks of violence, democratic processes are relatively well established, and attempts to scale up unrest to a level that could challenge the government's hold on power are unlikely.

### 6.2.2. Fiscal and monetary policy

Malawi fiscal policy will focus on preserving debt sustainability while spurring economic growth. The budget for fiscal year 2017/18 (July-June) contains measures to boost domestic revenue, including some policy adjustments (such as tax increases for the highest earners) and measures to strengthen tax compliance.

The government is attempting to rebalance spending in favour of capital investment, with plans to contain the public-sector wage bill and reduce the scope of its costly subsidy programs. However, transfers to lossmaking state-owned enterprises, interest payments and suppliers' payment arrears will continue to squeeze more productivity enhancing spending, and political pressure to protect subsidies and public-sector workers' wages will delay the pace of fiscal reform.

Monetary policy will focus on restoring price stability. The Reserve Bank of Malawi is not expected to intervene excessively in the free-floating exchange-rate mechanism, despite coming under pressure from some business associations to do so, this was a cornerstone of Malawi's agreement with the International

Monetary Fund and, given the country's dependence on external financing, the authorities are unlikely to renege on such a fundamental policy commitment.

More pronounced volatility in global currency markets and a strong dollar is expected to hit the Malawi kwacha in 2018 and 2019, and since this could generate inflationary pressure, the pace of monetary loosening will be cautious in these years. Thereafter, the central bank is likely to grow increasingly accommodative as it attempts to provide room for growth in credit to the private sector.

### 6.2.3. Economic growth

After slumping to 2.7% in 2015 and 2016 amid unfavourable weather conditions, real GDP growth is expected to strengthen to 4.4% in 2017 on the back of a recovery in the agriculture sector. Low investment will, however, keep a lid on growth, amid relatively tight monetary conditions and weak investor sentiment.

Assuming normal weather conditions, real GDP is forecast to average 4.8% a year in 2018 to 2021 as the crucial agriculture sector registers steady growth. Plans to expand cash crops are expected to register some success, supported by firmer global prices for soybeans, tea and sugar, and the introduction of some pro-market reforms in the agriculture sector. However, although tobacco production will recover from the lows of 2015 to 2016, investment in the expansion of the sector will be minimal, as its long-term viability is in doubt.

Beyond the agricultural sector, higher aid inflows and a strengthening of business confidence will spur activity in the construction sector, particularly as the government seeks to expedite projects that address the country's infra structure deficit. Growth elsewhere in the industrial sector is, however, expected to remain fairly lackluster.

Coal production, which has fallen by 75% since 2014, is unlikely to re-emerge as a key driver of growth in 2017 to 2021, since Malawi's mines will struggle to compete with their counterparts in neighbouring countries. Since Malawi is a high-cost operating environment, it is unlikely that international uranium prices will rise sufficiently to justify bringing KM (the country's only operational mine) back on stream.

Construction activity has been contracting in recent quarters and is set to remain depressed over 2017 and 2018. Generally lower government spending will be a drag on other sectors as well, particularly in services such as wholesale and retail.

### 6.2.4. Inflation

In 2017, after averaging 23.2% over the previous five years, annual inflation is expected to fall to an average of 13.2%. This reflects a normalisation of domestic food prices after drought related shortages in 2015 and 2016 and the appreciation of the real trade-weighted exchange rate.

A weaker currency will exert some inflationary pressure in 2018 to 2019, but this is expected to be offset by falling food prices as supply continues to improve. Assuming the government's continued commitment to a relatively tight fiscal policy, inflation should continue falling, reaching 7% by the end of 2021.

### 6.2.5. Exchange rates

After significant depreciation in 2013 to 2016, the Malawi kwacha has stabilised at around MK726:USD1, with tight monetary conditions mitigating the impact of a wide current account deficit. The Malawi kwacha should remain fairly stable in 2017, albeit depreciating slowly as tobacco-related dollars dry up towards the end of the year.

The pace of depreciation is forecast to accelerate in 2018 to 2019, amid volatility in global currency markets.

## 6.2.6. Forecast summary

Table 13 provides a summary of Economist Intelligence Unit economic forecast metrics for Malawi.

**Table 13: Malawi – Economic forecast metric summary (%).**

|                                       | 2016 <sup>a</sup>   | 2017 <sup>f</sup> | 2018 <sup>f</sup> | 2019 <sup>f</sup> | 2020 <sup>f</sup> | 2021 <sup>f</sup> |
|---------------------------------------|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Real GDP growth                       | 2.5                 | 4.4               | 4.7               | 4.9               | 5.0               | 4.7               |
| Gross industrial growth               | 2.4                 | 1.2               | 3.6               | 3.5               | 4.0               | 4.0               |
| Gross agricultural production growth  | -2.3                | 5.4               | 4.6               | 4.5               | 5.7               | 4.1               |
| Consumer price inflation (av)         | 21.7                | 13.2              | 9.9               | 9.2               | 8.3               | 7.9               |
| Consumer price inflation (end-period) | 20.0                | 11.0              | 9.5               | 8.6               | 7.8               | 7.0               |
| Lending rate (av)                     | 44.1 <sup>e</sup>   | 42.3              | 41.9              | 39.0              | 37.2              | 35.2              |
| Government balance (% of GDP)         | -6.1                | -5.4              | -4.1              | -3.5              | -3.2              | -2.7              |
| Exports of goods fob (USD m)          | 1,361 <sup>e</sup>  | 1443.0            | 1482.0            | 1529.0            | 1560.0            | 1599.0            |
| Imports of goods fob (USD m)          | -2,318 <sup>e</sup> | -2388.0           | -2510.0           | -2563.0           | -2601.0           | -2714.0           |
| Current-account balance (USD m)       | -1,016 <sup>e</sup> | -1053.0           | -1128.0           | -1179.0           | -1271.0           | -1393.0           |
| Current-account balance (% of GDP)    | -18.7 <sup>e</sup>  | -16.7             | -17.1             | -17.3             | -17.2             | -17.3             |
| External debt (year-end; USD bn)      | 2.0 <sup>e</sup>    | 2.2               | 2.4               | 2.6               | 2.8               | 3.1               |
| Exchange rate MK:USD (av)             | 713.80              | 729.10            | 798.40            | 877.90            | 916.60            | 947.80            |

Source: Economist Intelligence Unit. (Note: a Actual. e Economist Intelligence Unit estimates. f Economist Intelligence Unit forecasts.)

## 6.3. Canada

### 6.3.1. Political stability

The Liberal Party, led by Justin Trudeau, has shifted Canadian politics to the left since it won a majority at the election in October 2015. Its majority, and the subdued state of the opposition, has made the passage of legislation straightforward.

However, conditions have become more difficult for the government, whose approval ratings have fallen in the past year.

Canada is a country rich in uranium resources and a long politically supportive history of exploration, mining and generation of nuclear power. To 2014, more uranium had been mined in Canada than any other country – 485,000 tU, about one-fifth of world total<sup>10</sup>.

### 6.3.2. Fiscal and monetary policy

The government is committed to an expensive program of infrastructure spending that will entail a series of budget deficits. Given that surpluses are associated with prudent economic management in Canada, this represents a political risk.

However, so far, the government's gamble appears to be paying off. The federal budget deficit for fiscal year 2016 to 2017 (April-March) came in at CD17.8bn (\$13.5bn), compared with a government forecast of a deficit of CD23bn, owing to a higher than expected rate of economic growth boosting tax receipts and what appears to be some difficulty in disbursing new spending.

The Bank of Canada raised its policy rate in July, and again in September. These were the first increases in seven years, and reflected the healthy growth of the economy in the first half of 2017, which had rendered redundant the additional support that the Bank of Canada provided to the economy during the oil slump in 2015 to 2016. With this support removed, the pace of monetary tightening is expected to slow.

There is unlikely to be another rise in interest rates until the first quarter of 2018. Economist Intelligence Unit then expect another three increases in the period to end 2019. The high level of consumer debt, the ongoing

<sup>10</sup> World Nuclear association <http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/canada-uranium.aspx>

slack in the labour market, the effect of potential rapid currency appreciation on exports and the absence of significant inflationary pressure will all prevent the Bank of Canada from moving more aggressively than this.

### 6.3.3. Economic growth

Canada's economy saw remarkable growth in the second half of 2016 and the first half of 2017, peaking at 4.5% on an annualised basis in April to June. Consumers enjoyed the triple benefit of low interest rates, cheap fuel and an improving labour market, while business investment returned to growth following the oil shock of 2015 to 2016.

This means that 2017 should easily be the best year for the economy since 2011, with overall growth of 3%. However, it is clear that this pace is unsustainable, and leading indicators suggest that growth in the second half of the year will be significantly slower.

Pent-up consumer demand is being exhausted, and the Canadian dollar's recent appreciation against the US dollar has caused export growth to stall. Economist Intelligence Unit expect moderately higher interest rates in 2018, combined with the softening of the housing market, to result in a slower private consumption growth of 2.2%, from 3.7% in 2017. Consumers are financially stretched; according to Statistics Canada, the household debt to disposable income ratio reached another record level in April to June 2017.

However, a continued expansion in government spending and business investment will enable respectable growth of 1.9%. A broadly similar profile is expected in 2019. Interest rates will rise gradually, pinching consumer spending further, but government spending, business investment and the external sector will all make positive contributions to economic growth.

### 6.3.4. Inflation

The rate of consumer price inflation will accelerate mildly in 2017, to average 1.5%, from 1.4% in 2016. Inflation softened throughout the first half of the year, slowing from 2.1% year on year in January to 1% in June, but a rapidly growing economy, combined with a tightening labour market, is resulting in inflationary pressures building again.

Inflation is forecast to continue to rise slowly on an annual average basis in 2018 to 2019; monetary tightening by the Bank of Canada will keep inflation at or under its target of around 2%. A mild economic slowdown in 2020 will lead to a slight moderation in inflation as demand cools, before it picks up again in 2021 and 2022 as the economy strengthens.

### 6.3.5. Exchange rates

The Canadian dollar lost around a quarter of its value against the US dollar in 2014 to 2016 as oil prices plunged. At an annual average of CAD1.33:USD1 in 2016, the currency was at its weakest since 2003. However, the economy's strong performance in the first half of 2017 persuaded the Bank of Canada to lift interest rates sooner than it had previously indicated, which has lent some support to the Canadian dollar.

### 6.3.6. Forecast summary

Table 14 provides a summary of Economist Intelligence Unit economic forecast metrics for Canada.

**Table 14: Canadian – Economic forecast metric summary (%).**

|                                    | 2017 <sup>e</sup> | 2018 <sup>f</sup> | 2019 <sup>f</sup> | 2020 <sup>f</sup> | 2021 <sup>f</sup> | 2022 <sup>f</sup> |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Real GDP growth                    | 3.0               | 1.9               | 1.9               | 1.2               | 1.8               | 1.8               |
| Industrial production growth       | 2.8               | 2.0               | 1.6               | 0.4               | 2.0               | 2.9               |
| Unemployment rate (average)        | 6.4               | 6.1               | 5.9               | 6.6               | 6.5               | 6.4               |
| Consumer price inflation (average) | 1.5               | 1.8               | 1.9               | 1.2               | 1.6               | 1.8               |
| 3-month prime corporate paper rate | 1.1               | 1.6               | 2.1               | 1.5               | 1.2               | 1.7               |
| Government balance (% of GDP)      | -1.7              | -1.9              | -2.0              | -2.4              | -1.9              | -1.3              |
| Exports of goods fob (USD bn)      | 443.5             | 482.2             | 494.4             | 447.3             | 462.6             | 480.2             |
| Imports of goods fob (USD bn)      | 455.2             | 494.8             | 499.8             | 469.0             | 477.9             | 489.9             |
| Current-account balance (USD bn)   | -49.4             | -51.1             | -44.2             | -57.2             | -45.2             | -52.0             |
| Current-account balance (% of GDP) | -3.0              | -2.9              | -2.4              | -3.2              | -2.3              | -2.5              |
| Exchange rate CAD:USD (average)    | 1.29              | 1.25              | 1.24              | 1.30              | 1.25              | 1.22              |

Source: Economist Intelligence Unit (Note: e Economist Intelligence Unit estimates. f Economist Intelligence Unit forecasts.)

## 6.4. Australia

### 6.4.1. Political stability

The centre-right Liberal-National coalition emerged weakened from the general election in July 2016. Divisions between the conservative and moderate wings of the Liberal Party run deep, and the government's lack of a majority in the Senate raises the risk of periodic legislative gridlock.

The political scene will be a source of uncertainty at least until the next general election, due by November 2019. An early election cannot be ruled out.

The government's lack of a majority in the Senate will continue to hamper Mr Turnbull's ability to shape the legislative agenda. To pass legislation in the Senate, the government has to compromise with either the Labor Party or some combination of the Greens and the remaining crossbench. The latter comprises 12 independent and minor-party senators, including four representing the right-wing, populist One Nation party.

Historically, many prospective Australian uranium mines have been constrained by active antinuclear opposition. For several decades uranium mining has been a major part of the Australian political landscape, with opposition groups citing the wide ranging environmental impacts, indigenous land access and nuclear proliferation as reasons for ceasing or restricting the industry. The debate has resulted in limitations on mining and export activities, with Federal and State governments occasionally reversing their stance on public policy.

### 6.4.2. Fiscal and monetary policy

The 2017/18 budget sticks to the government's medium term fiscal strategy of returning to surplus by 2020/21. New revenue-raising measures include a levy on the liabilities of Australia's five largest banks, which took effect on July 1st. The government also proposes to lift the Medicare levy, payable on taxable income, from 2% to 2.5%. Also included in the budget is a new levy on employers sponsoring temporary foreign workers, in order to fund training for Australians.

The public debt stood at the equivalent of 46.5% of GDP in 2016, up sharply from 20.4% in 2007, and future governments will seek to avoid putting Australia's strong credit rating at risk. However, fiscal consolidation will remain challenging in a weak global economic environment. The 2017/18 budget projects that the underlying cash balance will shift from a deficit equivalent to 2.1% of GDP in 2016/17 to a slender surplus of 0.4% in 2020/21.

Although inflation is likely to remain below the 2-3% target range pursued by the Reserve Bank of Australia the central bank will likely keep the key policy rate, the cash rate, unchanged at 1.5% in 2018 to 2019 as a

possible slowdown in China's economy will have a negative impact on Australia, and any weakening of the local currency will put upward pressure on import price inflation.

#### 6.4.3. Economic growth

Economist Intelligence Unit estimate that real GDP growth will average 2.7% in 2017, with strong export growth and healthy increases in household and government consumption offsetting a relatively subdued investment performance. The latter is still linked to the unwinding of the mining investment boom. This trend is close to bottoming out, but the cooling of house price inflation in the next two years will dampen real-estate development and ensure that gross fixed capital formation continues to contribute little to growth in 2018 and 2019.

Any significant slowdown in China's economic growth will put downward pressure on the prices of Australia's key commodity exports with the impact on the Australian economy widespread, as softer commodity export prices have a negative effect on government, business and household incomes.

#### 6.4.4. Inflation

Economist Intelligence Unit estimate that consumer price inflation will average 1.9% in 2017, with higher energy prices being a key driver of price growth. Inflation is forecast to remain subdued in 2018, but price pressures will begin to build through the year in response to the effect of the expected Australian dollar's depreciation in pushing up import prices.

Although demand-side inflation pressures are expected to remain weak in 2019, the impact of higher import prices will serve to drive inflation right to the top of the Reserve Bank of Australia's 2-3% target range in the second half of that year.

#### 6.4.5. Exchange rates

The Australian dollar is increasingly viewed by global financial markets as a proxy for the performance of China's economy, which Economist Intelligence Unit expect to slow in 2018. This will consequently put downward pressure on the Australian dollar's exchange rate.

Australia's large gross external financing deficit makes it particularly vulnerable to shifts in international investor sentiment, and there is a risk that the currency could depreciate by even more than Economist Intelligence Unit forecast if China's slowdown proves to be less orderly than we expect.

#### 6.4.6. Forecast summary

Table 15 provides a summary of Economist Intelligence Unit economic forecast metrics for Australia.

**Table 15: Australia – Economic forecast metric summary (%).**

|                                       | 2017 <sup>e</sup> | 2018 <sup>f</sup> | 2019 <sup>f</sup> | 2020 <sup>f</sup> | 2021 <sup>f</sup> | 2022 <sup>f</sup> |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Real GDP growth                       | 2.7               | 2.1               | 1.8               | 2.6               | 2.7               | 2.6               |
| Industrial production growth          | 0.3               | 1.0               | 1.5               | 1.6               | 1.9               | 2.1               |
| Gross agricultural production growth  | 2.0               | 1.4               | 1.2               | 1.4               | 1.5               | 1.5               |
| Unemployment rate (average)           | 5.6               | 5.9               | 6.0               | 5.8               | 5.7               | 5.5               |
| Consumer price inflation (average)    | 1.9               | 1.8               | 2.8               | 2.6               | 2.4               | 2.3               |
| Consumer price inflation (end-period) | 1.7               | 1.9               | 3.0               | 2.6               | 2.4               | 2.5               |
| Money market interest rate (average)  | 1.5               | 1.4               | 1.3               | 2.1               | 2.5               | 2.9               |
| General government balance (% of GDP) | -1.7              | -2.3              | -2.2              | -1.8              | -1.2              | -0.7              |
| Exports of goods fob (USD bn)         | 228.1             | 209.9             | 220.3             | 232.9             | 250.2             | 262.7             |
| Imports of goods fob (USD bn)         | 211.4             | 214.1             | 221.9             | 235.6             | 250.7             | 262.6             |
| Current-account balance (USD bn)      | -15.2             | -37.2             | -35.0             | -36.3             | -36.9             | -37.0             |
| Current-account balance (% of GDP)    | -1.1              | -2.8              | -2.8              | -2.7              | -2.5              | -2.4              |
| External debt (year-end; USD bn)      | 1693.9            | 1578.6            | 1529.1            | 1596.2            | 1675.5            | 1715.9            |
| Exchange rate AUD:USD (average)       | 0.769             | 0.719             | 0.671             | 0.689             | 0.709             | 0.699             |

Source: Economist Intelligence Unit (Note: Economist Intelligence Unit estimates. Economist Intelligence Unit forecasts.)

## 7. Valuation methodologies

### 7.1. Valuation methodologies

RG 111 sets out the valuation methodologies that an expert should generally consider when valuing assets or securities for various purposes such as share capital returns, selective capital reductions, schemes of arrangement, takeovers and prospectuses. The following methodologies are included:

- DCF method and the estimated realisable value of any surplus assets
- Capitalisation of Future Maintainable Earnings ('CFME') method consists of capitalising the estimated future maintainable earnings or cash flows of the entity using an appropriate earnings multiple and adding any surplus assets
- NA method, being the amount available for distribution to security holders on an orderly realisation of assets
- Quoted Market Price ('QMP') for listed securities, where there is a liquid and active market. This method is typically used as a cross check to any of the above methods
- Any recent genuine offers received by the target for any business units or assets as a basis for valuation of those business units or assets. This method is typically used as a cross check to any of the above methods.

Each of these methodologies may be appropriate in certain circumstances. The decision as to which method to apply generally depends on the nature of the business being valued, the availability of appropriate information and the methodology most commonly adopted in valuing such a business. Further details on these methodologies are set out in Appendix C to this IER.

RG 111 does not prescribe the above methodologies as the method(s) that an expert should use in preparing their report. The decision as to which methodology to use lies with the expert based on the expert's skill and judgment having considered the circumstances of the entity or asset being valued. In general, an expert would have regard to valuation theory, the accepted and most common market practice in valuing the entity or asset in question and the availability of relevant information.

Different methodologies are appropriate for valuing particular companies, based on the individual circumstances of that company and available information. It is possible for a combination of different methodologies to be used together to determine an overall value where separate assets and liabilities are valued using different methodologies. When such a combination of methodologies is used, it is referred to as 'sum-of-parts' ('Sum of the Parts') valuation.

### 7.2. Technical expert

PPB has appointed CSA to prepare the CSA Report on the value of the Mineral Assets. CSA provided an opinion on the market value (on a going concern basis) of the Mineral Assets as at 30 September 2017. Refer to Appendix I for a copy of the CSA Report.

We have also reviewed and considered a number of other reports provided by PEL including a confidential valuation report prepared for the COUH potential option in relation to LHR and a confidential valuation report for creditors. In reviewing these reports, mainly for background information, we considered the views of the authors in the context of all the other information available to us, as summarised in Appendix B, and formulated our own views, as presented in our Report.

### 7.3. Methodology selected to value the equity in PEL on a going concern basis

Our going concern valuation of PEL has been undertaken on a fair value basis as defined in Section 2.5 and according to RG 111.15.

In the going concern valuation, we have assumed that PEL will continue its operations for the foreseeable future and will be able to realise its assets (if required) and discharge its post administration liabilities in the normal course of business.

The going concern premise of value assumes that the financial difficulties faced by PEL as at the Valuation Date do not exist and that PAF has sufficient funding to pursue its operations. In our view, these assumptions do not hold for PEL, in the circumstances and likely overstates the value of the issued shares in PEL. However, the going concern valuation has been prepared on this basis in accordance with RG111.

In selecting the appropriate methodology with which to assess the value of the assets of PEL, we have considered the various valuation methodologies available, the nature of the assets and the financial information available.

PEL has a number of 'separate' tangible assets in different jurisdictions, including an operating mine, a mine on care and maintenance, exploration and pre-development projects and shares in Summit.

Because of the structure of the Company and its diverse and discrete standalone operations, we have valued PEL using a Sum of the Parts. The Sum of the Parts methodology, requires the aggregation of the fair value of interests held by PEL in its production assets, Mineral Assets and other assets, corporate assets and investments, before adding the value of surplus assets and deducting net debt. The Sum of the Parts methodology has been applied to the following key assets using the valuation methodologies summarised below:

**Table 16: Sum of the Parts methodology**

| Asset / business   | Primary valuation methodology | Cross checks                          |
|--|-------------------------------|---------------------------------------|
| 75% interest in LHM – operating mine                                   | DCF method                    | Resource multiple<br>Revenue multiple |
| 85% interest in KM – mine on 'care and maintenance' (1)                | DCF method                    | Binomial option<br>Resource multiple  |
| Summit – 82.08% interest in listed shares                              | NA method                     | QMP                                   |
| Exploration and pre-development projects – non-operating mining assets | Relied on CSA valuation       | n/a                                   |
| Other assets and liabilities associated with PEL                       | NA method                     | n/a                                   |

Source: PPB analysis

(1) Although PEL has an 85% equity interest in KM, PEL has a 100% economic interest given the quantum of the intercompany loans owing to PEL

#### 7.3.1. Valuation of LHM and KM

##### 7.3.1.1. Primary valuation methodology

In our view, the DCF method is the most commonly adopted methodology for valuing mining activities due to the availability of long term projected cash flow information and the finite life of the operations. The DCF method requires long term cash flow projections, of at least 5 years. Therefore, DCF method is appropriate to value LHM and KM because the assets (mines) have a finite life and irregular capital expenditure requirements. The Management of PEL has provided us with life of mine financial models (the 'Corporate Model').

To value a business or asset using the DCF method requires the determination of:

- future cash flows
- an appropriate discount rate to be applied to the future cash flows
- an estimate of the terminal value (if appropriate)
- the value of any surplus assets (if any)
- then deducting net debt or borrowings to determine the equity value.

To apply the DCF method, we estimated a range of discount rates to apply to the ungeared, post-tax cash flows of LHM and KM to discount back to a present value as at the Valuation Date. The discount rates represent a nominal, post-tax weighted average cost of capital. The discount rates are discussed in further detail in Appendix F

We have not applied the CFME because this methodology implies cash flows to perpetuity and LHM and KM have limited lives based on the life of the mines and KM is reporting EBITDA losses.

We have not applied the NA method because LHM is an operating mine and KM is in 'care and maintenance' and incurring costs. Therefore it is unlikely that the book values of LHM and KM would be reflective of their fair values.

Our valuations of LHM and KM using the DCF method are sensitive to changes in the uranium price forecasts, the applied discount rate and the availability of tax losses. Therefore, we have undertaken sensitivity analysis on the estimated uranium price forecasts, discount rates and availability of tax losses.

#### ***COUH's potential call option***

We have considered the impact of the COUH's potential call option being exercised in valuation of LHM.

The execution of the DOCA will trigger a process outlined in the LHMHL Shareholders' Agreement whereby:

- PFPL may be considered a 'Defaulting Shareholder'
- COUH may acquire an option to acquire PFPL's 75% interest in LHMHL.

We do not have any further information regarding whether COUH will or will not exercise its call option or whether the call option is legally binding.

If COUH did exercise its call option, COUH could purchase PFPL's 75% interest at a value determined by an investment bank of international repute less a 5% discount. There may also be other tax implications which could reduce the after-tax value of the proceeds ultimately received by PEL.

For the purpose of providing our opinion, we have assumed that the value at which COUH may exercise its call option is the value we have determined for LHM. We have also assumed that the tax payable would be as follows:

- no capital gain tax would be payable in Australia due to an exception for active foreign business assets or any tax payable it would be completely offset by accumulated losses held by PFPL
- there is no capital gains tax regime within Namibia
- tax would be paid on the residual gross proceeds after removing any intercompany loans at a marginal corporate tax rate of 32.0%.

Overall, in our view, the exercise of COUH's potential call option will decrease the value of PEL's equity.

#### **7.3.2. Cross check methodology**

As standard valuation practice and in line with RG 111.68, we have assessed the reasonableness of our valuation of LHM and KM using our primary valuation methodology by considering the following cross checks:

- implied multiples of LHM compared to resource and revenue multiples of potentially comparable listed companies. By assessing the resource and revenue multiples of potentially comparable companies against the implied resource and revenue multiples from our valuations we were able to assess the reasonableness of our valuation range for LHM and KM
- calculated value of KM using the binomial option method as well as implied multiples of KM compared to resource multiples of potentially comparable listed companies.

### **7.3.3. Valuation of shares held in Summit**

#### **7.3.3.1. Primary valuation methodology**

Summit is a uranium exploration company with most of its assets being capitalised exploration and evaluation expenditure. We have valued PELs 82.08% equity interest in Summit using the cost approach, specifically the NA method.

In applying the NA method, we have adopted the following approach:

- the assets and liabilities in the balance sheet as at the Valuation Date are mostly cash, plant and equipment and capitalised exploration and evaluation expenditure. We relied on the CSA valuation of the exploration and evaluation expenditure relating to the Mineral Assets. Refer to Section 7.3.4, below. The fair value of the other assets and liabilities have been assumed to be book value
- we have then calculated net assets based on the fair value of the assets and liabilities to determine the fair value of the equity Summit.

#### **7.3.3.2. Cross check methodology**

We have assessed the reasonableness of our valuation of Summit using QMP at the Valuation Date.

In applying the QMP we have adopted the following approach:

- considered the liquidity and share trading volumes of the shares of Summit
- calculated the market capitalisation of Summit at the Valuation Date based on the closing share price and the 3-month volume weighted average share price ('VWAP') to the Valuation Date
- assumed a control premium of 30% to determine the market capitalisation on a control basis.

#### **7.3.4. Valuation of the Mineral Assets**

In determining the value of the Mineral Assets, we have relied on the assessment and valuation undertaken by CSA.

CSA used the comparative transaction approach, specifically the market based method to determine the market value of the Mineral Assets. The valuation is based on the declared mineral resources and the ore reserves for the mineral deposits and tenement areas for the exploration ground. Where possible, CSA considered one or more alternative methods to cross check their valuation opinion. Alternative methods considered by CSA included the DCF method, yard stick market factors and the geoscientific rating method. The selection of the valuation method was determined on the basis of the exploration stage of the asset and the availability of the information.

CSA valued the following Mineral Assets.

**Table 17: Summary of Mineral Assets**

| Project           | Mineral asset                         | Equity interest |
|-------------------|---------------------------------------|-----------------|
| Malawi            | Kayelekera mineral resources          | 85%             |
|                   | Malawian exploration projects         | 85%             |
| Labrador          | Canadian mineral resources            | 100%            |
|                   | Canadian exploration projects         | 100%            |
| Western Australia | WA mineral resources                  | 100%            |
|                   | WA exploration projects               | 100%            |
| Queensland (1)    | QLD mineral resources                 | 100%            |
|                   | QLD exploration projects              | 100%            |
| Other             | South Australian exploration projects | 7.5%            |
|                   | Antipa mineral net smelter royalty    | n/a             |
|                   | Uranium database                      | 100%            |

Source: CSA Report

(1) PEL has an effective 91.04% interest in Valhalla, Skal and Odin, an 82.08% interest in Bikini, Andersons, Watta, Warwai and Mirrioola and a 100% interest in Duke Batman and Honey Pot.

### 7.3.5. Valuation of the other assets and liabilities associated with PEL

#### 7.3.5.1. Primary valuation methodology

In determining the appropriate methodology to value the assets and liabilities held by the non-operating entities associated with PEL we have considered the available valuation methodologies, the nature of the operations for each non-operating entity as well as the quality and availability of information.

We had regard to the actual financial performance of the non-operating entities and we note that the NA method is the most appropriate due to the lack of business operations and because the majority of the assets and liabilities mostly comprise mine development expenditure, cash, receivables, loans and employee related liabilities.

We relied on the CSA valuation of the exploration and evaluation expenditure relating to the Mineral Assets. Refer to Section 7.3.4, above. We have assumed that the book value of the other assets and liabilities are representative of the fair values as at the Valuation Date.

#### 7.3.5.2. Cross check valuation methodology

We have not used a cross check in relation to the value of the assets and liabilities held by the non-operating entities as we do not consider that there is an appropriate methodology and the values are likely to be minimal compared to the fair values of LHM, KM, the Mineral Assets and Summit.

### 7.4. Methodology selected to value the equity in PEL on a distressed basis

As mentioned in Section 2.3, we consider that the concept of fair value no longer exists in a distressed scenario as the seller is considered to be 'anxious'.

The valuation of the issued shares in PEL on a distressed basis is required for the S444GA Application (to demonstrate there is no prejudice to shareholders), the application for relief under S655A; and to provide information to Shareholders so that they may make an informed decision in relation to the S444GA Application.

In Northern Energy Limited [2011] ATP 2, ASIC provided further guidance on the requirements of RG 111.15 stating that "the valuation should incorporate all the relevant discounting factors (including any appropriate dilutionary impact) which reasonably reflect the capital requirements for the project to be develop".

Therefore, we have also assessed the value of the issued shares in PEL on a distressed basis.

According to the Deed Administrators, PEL does not have sufficient funding to pursue its operations for the foreseeable future. PEL has sufficient cash to continue operating up to 31 July 2018, assuming:

- current uranium prices

- PEL does not cash-back the Kayelekera environmental performance bond
- DB does not accelerate its debts during the interim.

Consequently, should the implementation of the DOCA be unsuccessful and a liquidator is appointed, the liquidator will likely have a limited time to execute a sale of PEL's assets on a going concern basis.

The amount of cash on hand would dictate the timeframe for a potential sale process. An effective sale process to realise all of the assets of PEL, on a portfolio basis (whole of business), would likely take between 6 and 12 months, which would allow potential purchasers sufficient time to conduct due diligence and enter negotiations. If a sale of the business and assets were conducted under a compressed timeframe, then potential purchasers of PEL's assets may not have sufficient time to review and resolve any concerns regarding a transaction. This would likely manifest in decreased bidder participation and offers for specific assets of the portfolio rather than the portfolio as a whole.

Based on the above, in our view, an appropriate distressed basis would require a discount to the going concern valuation. The discount should reflect a forced sale process whereby the consideration obtained would be the best that could be achieved given the prevailing circumstances. In our experience, it is not uncommon for the proceeds from a forced sale process to be substantially less than an otherwise equivalent sale process.

We have applied the following additional adjustments to our going concern valuation to reflect the distressed basis:

- a discount of 20% in respect of the valuation of LHM and KM to account for the existing distressed circumstances, whereby a potential acquirer would seek a higher rate of return to reflect the increased risk associated with a liquidator not providing commercial representations or warranties that would typically be available to a purchaser in a non-distressed sale. In addition, a liquidator is unlikely to be able to offer any earn-out adjustments to the purchaser, based on the performance of the business post sale. Such adjustments are common in non-distressed transactions
- a discount of 10% in respect of the valuation of the Mineral Assets to reflect the limited options available to a liquidator to maintain the tenements (which are non-cash generating assets) should a sale not complete within the limited time frame
- a discount of 20% in the valuation of the shares held in Summit to reflect the relative illiquidity of Summit shares and the likely requirement to gradually sell the large parcel of shares over a period of up to 6 months if a block sale was not possible.

#### 7.4.1. Accelerated forced sale scenario

In our view, there is also an alternative distressed valuation scenario to consider whereby Deutsche Bank AG ('DB') could call an event of default following the transition of PEL, PFPL and PEM to liquidation. In this situation DB could appoint receivers with limited funds to run a sale process. The likely result would be an accelerated forced sale that would provide an even less favorable outcome compared to the Distressed Sale contemplated above.

We consider in this scenario that the appointed liquidator may only have funds to run a sale process over a period of three months. The inability (due to a lack of time and funds) to run an effective sales process that would allow potential purchasers sufficient time for proper due diligence and negotiations would have a negative impact on the achievable sale price.

In our view, under such circumstances, it would not be unreasonable to expect discounts of between 30% and 50% on the fair value of LHM and KM. There would also be additional costs for the appointment of receivers, lawyers and other advisors. These additional costs, involved in concluding sales of multiple assets across multiple countries could be in the range of \$10 million to \$14 million.

## 8. Valuation of equity - Going concern basis

### 8.1. Valuation summary – Going concern valuation

In our opinion, the issued shares in PEL, on a controlling interest and a going concern basis, have no value, as summarised in Table 18.

**Table 18: Summary - Valuation of equity (going concern)**

|  | Low<br>\$'000    | High<br>\$'000  |
|--|------------------|-----------------|
| Equity value (controlling interest basis) for LHM and KM                                     | 345,396          | 466,184         |
| Total mining tenements and database  | 39,210           | 62,751          |
| 82.08% equity value (controlling interest basis) for Summit                                  | 30,843           | 30,843          |
| Total other assets and liabilities   | 15,421           | 15,421          |
| Net debt   | (669,832)        | (669,832)       |
| Administration and associated legal costs  | (7,680)          | (4,590)         |
| <b>100% equity value (controlling interest basis) for PEL (excluding COUH Option impact)</b> | <b>(246,642)</b> | <b>(99,224)</b> |
| 5.00% discount from COUH Option exercise   | (16,191)         |                 |
| Potential tax from COUH Option exercise  | (16,399)         |                 |
| <b>100% equity value (controlling interest basis) for PEL (including COUH Option impact)</b> | <b>(279,232)</b> | <b>(99,224)</b> |

Source: PPB analysis

COUH could potentially have an option to acquire PFPL's 75% interest in LHMHL, if PFPL was considered to be a defaulting party under the LHMHL Shareholders' Agreement. Assuming that there was legally an option and COUH did exercise its option, the value of the shares in PEL would decrease by approximately \$32.59 million (comprising tax payable and the 5% discount applicable to the acquisition of the LHMHL shares held by PFPL per the LHMHL Shareholders' Agreement).

Details of the valuation methodology, inputs, assumptions and calculations relied upon to arrive at the conclusion are set out in the remainder of this section.

### 8.2. Sum of the Parts valuation – Going concern basis

We have used a Sum of the Parts valuation methodology to value the equity in PEL assuming a going concern basis. As a going concern, we have assumed that PEL has immediate access to ongoing funding, as required for its business operations. The valuation does not take into account that PEL does not have funding available to meet its capital requirements. As a result, the going concern valuation likely overstates the realisable value of the assets of PEL in the absence of the DOCA.

Given the nature of PEL's assets, we have assessed the value of the shares of PEL on a going concern by:

- using the DCF method to value PEL's interests in the finite life projects, LHM and KM. LHM is owned by LHMHL (PFPL has a 75% interest) and KM is owned by PAF (PEM has an 85% interest). The other assets and liabilities of LHMHL are minimal and have been valued using their book values. KM is currently in care and maintenance and is likely to only become operational when the uranium price is at least equal to its all-in cash cost of production of approximately \$55/lb.
- relying on the technical expert, the CSA Report for the value of the Mineral Assets
- using the NA method to value PEL's interest in Summit
- using the book values of the other assets and liabilities associated with PEL and its entities. The assets and liabilities mostly comprise mine development expenditure, cash, receivables, loans and employee related liabilities.

Table 19 summarises the fair value of the issued shares of PEL on a going concern basis as at Valuation Date.

**Table 19: Value of PEL equity – Going concern**

|  | Note<br>Refer below | Low<br>\$'000    | High<br>\$'000  |
|--|---------------------|------------------|-----------------|
| <b>Production and development projects</b>   | <b>1</b>            |                  |                 |
| 75% equity value (controlling interest basis) for LHM  |                     | 323,814          | 441,697         |
| 85% equity value (controlling interest basis) for KM <sup>11</sup>                           |                     | 21,582           | 24,487          |
| <b>Mineral resources, exploration projects and database</b>                                  | <b>2</b>            |                  |                 |
| Mineral Assets   |                     | 39,210           | 62,751          |
| <b>Investment in ASX listed company</b>  | <b>3</b>            |                  |                 |
| 82.08% equity value (controlling interest basis) for Summit                                  |                     | 30,843           | 30,843          |
| <b>Other assets/(liabilities)</b>  | <b>4</b>            |                  |                 |
| Total other assets / (liabilities)   |                     | 15,421           | 15,421          |
| <b>Net debt</b>  | <b>5</b>            |                  |                 |
| Cash and equivalents   |                     | 21,791           | 21,791          |
| DB Facility (PEL's interest) <sup>12</sup>   |                     | (15,000)         | (15,000)        |
| 2017 Bonds   |                     | (223,821)        | (223,821)       |
| 2020 Bonds   |                     | (160,686)        | (160,686)       |
| EDF Prepayment Amount  |                     | (283,480)        | (283,480)       |
| COUH prepayment amount   |                     | (8,636)          | (8,636)         |
| <b>Other costs</b>   | <b>6</b>            |                  |                 |
| Administration and associated legal costs  |                     | (7,680)          | (4,590)         |
| <b>100% equity value (controlling interest basis) for PEL (excluding COUH Option impact)</b> |                     | <b>(246,642)</b> | <b>(99,224)</b> |
| 5.00% discount from COUH Option exercise   |                     | (16,191)         | -               |
| Potential tax from COUH Option exercise  |                     | (16,399)         | -               |
| <b>100% equity value (controlling interest basis) for PEL (including COUH Option impact)</b> |                     | <b>(279,232)</b> | <b>(99,224)</b> |

Source: PPB analysis

Ref – see Notes below

The value of the equity of PEL is lower than the market capitalisation (on a controlling interest basis) on the last trading day before the Administrator was appointed of \$78.86 million<sup>13</sup>. The implied discount is not unreasonable because the share trading price of PEL possibly reflects some option value linked to the forecast uranium price.

<sup>11</sup> Note that the economic interest is 100% due to the intercompany loans

<sup>12</sup> Note that \$45 million of the DB Facility is held by LHU and separately accounted for as part of the 75% equity value (controlling interest basis) for LHM amounts

<sup>13</sup> Lasted traded share price of AUD 0.0470 x 1,712,843,812 shares outstanding = AUD 80,503,659 x 0.7535 USD / 1 AUD = USD 60,659,507 + 30% control premium = USD 78,857,359 (Source: S&P Capital IQ and PPB analysis)

Refer below for details of the valuation of PEL on the Sum of the Parts.

### 8.3. Note 1. LHM and KM

The value of PEL's interest in LHM and KM has been determined using the DCF method. The DCF method estimates value of an asset by discounting its future cash flows to their present value.

To value of an asset using the DCF method requires the determination of:

- future cash flows
- an appropriate discount rate to be applied to the future cash flows
- an estimate of the terminal value (if appropriate)
- the value of surplus assets (if any).

LHU owns LHM and LHMHL owns 100% of the shares of LHU. LHMHL is a Mauritian based entity in which PEL has a 75% interest through PFPL. The other net assets of LHMHL comprise:

- cash
- accounts receivables
- accounts payable
- intercompany loans.

PAL, which owns KM, is a Malawian based entity in which PEL has an 85% interest through PEM.

We have deducted net debt to value the equity interests in LHM and KM.

Our valuations of LHM and KM are summarised below:

#### 8.3.1. Future cash flows

Management prepared a Corporate Model with cash flow projection and various assumptions for LHM and KM based on the current mine plans. We have made amendments to the cash flows and assumptions in the Corporate Model to reflect our selected commodity prices and estimated working capital requirements.

We have performed an analysis of the cash flow projections for LHM and KM, including:

- analysing the cash flow projections, including limited procedures regarding the mathematical accuracy of the Corporate Model (but have performed neither a detailed review nor an audit of the Corporate Model)
- review of the basis of the underlying assumptions such as revenue, operating expenditure and capital expenditure
- holding discussions with Management concerning the preparation of the projections, and their views regarding the assumptions on which they are based
- selecting the appropriate scenarios for the valuation of LHM
- reconciled the reserves of LHM and KM to the 2016 financial statements
- a high-level cross check of cash flow outputs against recent financial performance.

The key assumptions adopted in the preparation of the cash flow projections, and the adjustments we have made, are discussed below.

The Corporate Model shows forecast uranium prices and other cash flow projections in real USD that have been converted to nominal terms using inflation rates reflected in the Corporate Model.

The Corporate Model shows three scenarios for LHM for the remaining life of mine:

- Stage 3 to increase the production capacity to 5.4 mlbs per annum with a recovery rate of 89.0% (processing between FY2018 to FY2040)
- Optimised Stage 3A expansion to increase the production capacity to 5.6 mlbs per annum and a recovery rate of 91.2% (processing between FY2018 to FY2043)
- Stage 4 expansion to increase the production capacity to 8.8 mlbs per annum and a recovery rate of 95.0% (production between FY2018 to FY2032).

Based on our discussions with Management, in our opinion the Stage 3 and the Optimised stage 3 expansion scenarios are the most appropriate to assess the fair value LHM on a going concern basis. We have used the cash flows for Stage 3 as our low valuation and the Optimised Stage 3 cash flows as our high valuation.

The Stage 3 option is the base case and reflects the current position of LHM whereas the Optimised stage 3 has been signed off by the PEL board but has not been implemented due to a lack of available capital.

The Stage 4 expansion is only at the concept stage and has not been signed off by the PEL board. Further studies are also required to be undertaken in order to determine the project's economics.

For KM the Corporate Model includes one scenario where KM is assumed to remain in 'care and maintenance' until 2020.

Refer to Appendix D for a summary of the cash flow projections for LHM and KM.

Our major assumptions underpinning the cash flow projections for LHM and KM have been formulated in the context of the prevailing economic, financial and other operating conditions including:

- forecast uranium prices
- inflation assumptions
- capital expenditure
- working capital investment
- tax losses.

#### **Forecast uranium prices**

In considering appropriate forecast uranium prices, we have had regard to the following:

- consensus broker price forecasts, as well as forecasts prepared by PEL
- other publicly available industry estimates and commentary, including but not limited to industry research and brokers' estimates
- global uranium prices experience volatility beyond demand and supply such as the Fukushima nuclear accident. Refer to our analysis of uranium prices in Section 5.

Our analysis of forecast uranium prices is summarised in Appendix E for a summary of the forecast uranium prices of the various brokers and the forecast uranium prices we have used in our valuation of LHM and KM.

We note that on 6 December 2017, Kazakhstan's state-owned uranium producer Kazatomprom announced that it would cut production by 20% over the next three years.

We have considered this, along with other reports in early November by Cameco that it will suspend production for 10 months at McArthur River, Saskatchewan - the world's biggest uranium mine - and the nearby Key Lake mill by the end of January because of low prices.

Our consensus forecasts already factor in a 70% increase in prices over the next three years. Although the announced production cuts may have an additional impact on forecast prices, there has not been any market consensus forecasts that suggest prices will increase further or faster than the consensus prices that we have used.

Accordingly, we do not consider any changes to our forecast prices are appropriate for the purposes of our valuation.

Although we have selected a price curve for the uranium price, we have also undertaken sensitivity analysis on our selected assumptions. Refer to Section 0.

#### ***Inflation assumptions***

The Corporate Model shows uranium prices and other cash flow projections in real USD that have been converted to nominal terms.

In our view the selected inflation rate of 2.00% per annum from the Corporate Model is not unreasonable considering that the long term global inflation rate for OECD countries is expected to remain less than this amount and uranium is a global commodity.

Therefore, we have used an inflation rate of 2.00% for our valuations of LHM and KM.

#### ***Capital expenditure***

Based on our discussions with Management, in our opinion, the capital expenditure assumptions are reasonable.

#### ***Working capital investment***

Based on our review of the Corporate Model there did not appear to be a cash flow relating to working capital investment.

Working capital requirements for a mining company can be highly volatile particularly during the commencement of production and shutdown phases.

To estimate the working capital requirements of PEL as a going concern we reviewed the working capital requirements of potentially comparable listed companies that were profitable in terms of Earnings Before Interest, Tax, Depreciation and Amortisation ('EBITDA') as at the Valuation Date, being Cameco Corporation (TSX:CCO) and UR-Energy Inc. (TSX:URE).

In our view, Cameco Corporation was carrying a large amount of inventory-on-hand and had a ratio of working capital to revenue of 68.0% (implied cash conversion days of 250) whereas UR-Energy Inc. had a ratio of working capital to revenue of 10.0% (implied cash conversion days of 36).

Based on our experience, we considered the 68% working capital of Cameco Corporation as excessive and considered the working capital ratio of 10.0% of UR-Energy Inc to be more in line with industry norms. We note that PEL had historically achieved equivalent cash conversion days of 36 similar to UR-Energy Inc.

Therefore, based on our review, we assumed a working capital proportion to total sales of 10.00% as being representative of the going concern amount of working capital required for PEL.

#### ***Tax losses***

In the Corporate Model, both LHM and KM have substantial tax losses that are assumed to offset the notional tax payable until these tax losses have been utilised.

### **8.3.2. Discount rates**

The discount rate used to equate the future cash flows to a present value reflects the risk adjusted rate of return demanded by a hypothetical investor. We have used nominal after tax discount rate ranges as follows:

- LHM between 11.0% and 12.0%.
- KM between 16.0% and 17.0%.

In selecting this range we considered the following:

- the required rates of return on listed companies in a similar business
- the specific business and financing risks of LHM and KM
- an appropriate level of financial gearing.

The inputs to our discount rate calculation are summarised at Appendix D.

The higher discount rate range for KM is predominantly because of the higher country risk premium for Malawi compared to Namibia. The discount rates have been calculated from the prospective of a potential purchaser and do not take into account the higher funding risks and costs faced by PEL due to its financial difficulties.

### 8.3.3. Terminal value

Since the mine life of LHM and KM are finite we have not included a terminal value.

### 8.3.4. Surplus assets

We have reviewed the balance sheets of Langer Heinrich Uranium Pty Ltd ('LHU') and PAF as at the Valuation Date and, in our view, these entities do not hold any surplus assets.

### 8.3.5. Net debt

Since net debt is comprised of cash assets and liabilities, we have assumed that the book values are equivalent to their fair values as at the Valuation Date.

### 8.3.6. COUH's potential call option

We have considered the impact of the COUH's potential call option being exercised in valuation of LHM.

The execution of the DOCA may trigger a process outlined in the LHMHL Shareholders' Agreement whereby:

- PFPL may be considered a 'Defaulting Shareholder'
- COUH may acquire an option to acquire PFPL's 75% interest in LHMHL.

We do not have any further information regarding whether COUH will or will not exercise its call option or whether the call option is legally binding.

If COUH did exercise its call option, COUH would purchase PFPL's 75% interest at a value determined by a specified investment bank less a 5% discount. There may also be other tax implications which could reduce the after-tax proceeds ultimately received by PEL.

For the purpose of providing our opinion, we have assumed that the value at which COUH may exercise its call option is the value we have determined for LHM. We have also assumed that the tax payable would be as follows:

- no capital gain tax would be payable in Australia due to an exception for active foreign business assets or any tax payable it would be completely offset by accumulated losses held by PFPL
- there is no capital gains tax regime within Namibia
- tax would be paid on the residual gross proceeds after removing any intercompany loans at a marginal corporate tax rate of 32.0%.

Overall, in our view, the exercise of COUH's potential call option will reduce the value of PEL's equity.

We have estimated the:

- discount from the COUH option exercise to be approximately \$16.19 million
- potential tax from the COUH option exercise to be approximately 16.40 million.

### 8.3.7. Valuation of LHM and KM - Summary

For LHM, we have assumed the cash flows for Stage 3 as our low valuation and Stage 3A Optimised as our high valuation. The values of LHM and KM and the issued shares of LHMHL and PAF using the DCF method are summarised in Table 20.

**Table 20: Summary valuation – LHM and KM**

| \$'000   | LHMHL (LHM)    |                | PAF (KM)      |               |
|--|----------------|----------------|---------------|---------------|
|  | Low            | High           | Low           | High          |
| Total FCFF   | 1,359,969      | 1,814,452      | 145,003       | 145,003       |
| Discount rate  | 12.00%         | 11.00%         | 17.00%        | 16.00%        |
| <b>Discounted FCFF</b>                                 | <b>551,437</b> | <b>708,614</b> | <b>25,390</b> | <b>28,808</b> |
| Surplus assets   | -              | -              | -             | -             |
| <b>Business value</b>                                  | <b>551,437</b> | <b>708,614</b> | <b>25,390</b> | <b>28,808</b> |
| Net debt <sup>14</sup>                                 | (120,110)      | (120,110)      | -             | -             |
| <b>100% equity value (controlling interest basis)</b>  | <b>431,327</b> | <b>588,504</b> | <b>25,390</b> | <b>28,808</b> |
| 100% equity value (controlling interest basis) for LHM | 431,327        | 588,504        |               |               |
| Net assets of LHMHL (excluding investment in LHM (1))  | 426            | 426            |               |               |
| <b>100% equity value (controlling interest basis)</b>  | <b>431,752</b> | <b>588,929</b> |               |               |
| Effective interest                                     | 75%            | 75%            | 85%           | 85%           |
| <b>Fair value (excluding COUH Option impact)</b>       | <b>323,814</b> | <b>441,697</b> | <b>21,582</b> | <b>24,487</b> |
| 5.00% discount from COUH Option exercise               | (16,191)       | -              | -             | -             |
| Potential tax from COUH Option exercise                | (16,399)       | -              | -             | -             |
| <b>Fair value (including COUH Option impact)</b>       | <b>291,224</b> | <b>441,697</b> | <b>21,582</b> | <b>24,487</b> |

Source: PPB analysis

(1) LHMHL's net assets include the book value of its investment in LHM, therefore it needs to be excluded because we have determined the fair value of LHM, above.

We note that CSA valued the ore reserves of KM using the comparable transactions methodology and to a lesser extent the yardstick methodology. CSA used these methods because their DCF valuation, using current uranium prices resulted in a negative value. CSA constructed their own cash flow projections for their DCF valuation. Therefore, it is not appropriate to compare CSA's DCF valuation to our DCF valuation as the cash flow projections are not comparable.

CSA considered, for the purpose of its valuation, that the ore reserves at KM are more appropriately considered to be Mineral Resources because at the current uranium prices, it is not economically feasible to extract the Ore Reserves.

CSA concluded a value for KM (excluding its associated exploration tenements) of \$3.0 million to \$7.0 million.

We consider this approach to be reasonable, however for the purpose of our valuation, we have taken a more conservative approach and considered the DCF value using our forecast uranium prices.

<sup>14</sup> Cash and equivalents of \$15.2 million, DB Facility of \$45.0 million and COUH intercompany debt of \$90.3 million

### 8.3.8. Cross check LHM and KM DCF method valuations

To assess the reasonableness of our valuations using the primary methodology we have considered the:

- revenue multiple of the LHM compared to the implied revenue multiples of potentially comparable listed companies
- resource multiple of the LHM and KM compared to the implied resource multiples of potentially comparable listed companies
- binomial option valuation of KM.

Table 21 provides a summary of the LHM and KM cross checks.

**Table 21: LHM and KM cross check summary**

|   | Reference | Low               | High              |
|---|-----------|-------------------|-------------------|
| <b>LHM cross checks</b>                                     |           |                   |                   |
| <b>Revenue multiples</b>                                    |           |                   |                   |
| <b>LHM implied LTM revenue multiples</b>                    |           | <b>5.41</b>       | <b>6.88</b>       |
| Potentially comparable listed company LTM revenue multiple: |           |                   |                   |
| Adjusted average (excluding outliers)                       |           | 3.67              | 3.67              |
| Adjusted median (excluding outliers)                        |           | 3.32              | 3.32              |
| <b>LHM implied NTM revenue multiples</b>                    |           | <b>4.49</b>       | <b>5.75</b>       |
| Potentially comparable listed company NTM revenue multiple: |           |                   |                   |
| Adjusted average (excluding outliers)                       |           | 8.44              | 8.44              |
| Adjusted median (excluding outliers)                        |           | 3.94              | 3.94              |
| <b>Resource multiples</b>                                   |           |                   |                   |
| <b>LHM implied resource multiples</b>                       |           | <b>6.51</b>       | <b>8.42</b>       |
| Potentially comparable listed company resource multiple:    |           |                   |                   |
| Adjusted average (excluding outliers)                       |           |                   | 6.46              |
| Adjusted median (excluding outliers)                        |           |                   | 6.89              |
| <b>KM cross checks</b>                                      |           |                   |                   |
| <b>DCF method valuation of KM</b>                           | Table 20  | <b>25,390,000</b> | <b>28,808,000</b> |
| <b>Binomial option method</b>                               |           |                   |                   |
| Option value  |           | 0.3703            | 2.1737            |
| KM saleable pounds  |           | 15,579,991        | 15,579,991        |
| <b>KM total value</b>                                       |           | <b>5,769,437</b>  | <b>33,866,178</b> |
| <b>Resource multiples</b>                                   |           |                   |                   |
| <b>KM implied resource multiples</b>                        |           | <b>2.08</b>       | <b>2.36</b>       |
| Potentially comparable listed company resource multiple:    |           |                   |                   |
| Adjusted average (excluding outliers)                       |           |                   | 6.46              |
| Adjusted median (excluding outliers)                        |           |                   | 6.89              |

Source: Appendix H

LTM = last 12 months, NTM = next 12 months

Refer to Appendix H for further details and discussion of our cross-check calculations and analysis.

In relation to our cross check analysis in the Table 21, for LHM, we note the following:

- the revenue multiples (LTM) implied in our valuation of LHM are higher than the average and the median of the revenue multiples (LTM) of the potentially comparable listed companies
- the revenue multiples (NTM) implied in our valuation of LHM are within the range of the average and the median of the revenue multiples of the potentially comparable listed companies
- the resource multiples of the potentially comparable listed companies are within the range of the resource multiples implied in our valuation of LHM.

The implied NTM revenue multiple of LHM is in line with the comparable companies indicating that the valuation of LHM derived using our primary method is not unreasonable based on our observations of the market data.

We would expect that the implied LTM revenue multiple for LHM indicates that our valuation of LHM may be overstated because our equity value and the enterprise value are based on future cash flows in our valuation using the DCF method (noting that the revenue for LHM for LTM was approximately 20% lower than the revenue for NTM). LTM revenue is based on a lower uranium price compared to the forecast uranium price.

Forecast revenue during the NTM for LHM is approximately 20% higher than the revenue for the LTM, mainly due to the depressed uranium price achieved over the LTM. On this basis, the implied revenue multiples for LHM are reasonable.

The resource multiple indicates that the assessed value of LHM is in-line with the implied resource multiples of potentially comparable listed companies.

Based cross check analysis summarised above, our assessed valuation range for LHM using the DCF method does not appear unreasonable.

In relation to our cross check analysis in the above table, for KM, we note the following:

- our valuation of KM using the DCF method is within the range of the value for KM derived using binomial option method
- the resource multiples of the potentially comparable listed companies are higher than the range of the resource multiples implied in our valuation of KM. This is mainly because:
  - KM is currently in 'care and maintenance' and is not producing revenue or profits
  - KM has a single mine with a life of mine of approximately 8 years, whereas most of the comparable listed companies have several mines with an average life in excess of 8 years.

Based cross check analysis summarised above, our assessed valuation range for KM using the DCF method does not appear unreasonable.

#### 8.4. Note 2 Mineral Assets (including the database)

CSA valued the Mineral Assets at between \$42.32 million and \$70.08 million as summarised in Table 22.

**Table 22: CSA valuation summary**

|   | Low<br>\$ million | High<br>\$ million |
|---|-------------------|--------------------|
| <b>Values shown on 100% basis</b>                 |                   |                    |
| PAF – Malawian mineral resource (100%)            | 3.00              | 7.00               |
| PAF – Malawian exploration project (100%)         | 0.10              | 0.32               |
| Aurora – Canadian mineral resources (100%)        | 14.80             | 22.20              |
| Aurora– Canadian exploration projects (100%)      | 0.40              | 1.20               |
| PEM – Western Australian mineral resources (100%) | 5.00              | 7.50               |

|   | Low<br>\$ million | High<br>\$ million |
|---|-------------------|--------------------|
| <b>Values shown on 100% basis</b>                               |                   |                    |
| PEM – Western Australian exploration projects (100%)            | 0.10              | 1.50               |
| PEM – South Australian exploration projects (7.5%)              | 0.01              | 0.01               |
| Fusion – Queensland mineral resources (1)                       | 18.00             | 27.00              |
| Fusion – Queensland exploration projects (1)                    | 0.90              | 3.30               |
| Paladin Intellectual Property Pty Ltd – Uranium database (100%) | 0.01              | 0.05               |
| <b>Total – 100% basis</b>                                       | <b>42.32</b>      | <b>70.08</b>       |
| <b>Total – 100% basis excluding PAF</b>                         | <b>39.22</b>      | <b>62.76</b>       |
| <b>Total – PEL's effective interest excluding PAF</b>           | <b>39.21</b>      | <b>62.75</b>       |

Source: CSA Report

(1) The Queensland assets are owned by 3 companies, Summit (Mount Isa North project and 50% of Isa Uranium JV), Valhalla Uranium (50% of Isa Uranium JV) and Fusion Resources

CSA used the market based methods (primarily comparative transactions) and the declared Mineral Resources and Ore Reserves for mineral deposits, and tenement area for exploration ground to determine the market value of the Mineral Assets.

Where possible, CSA considered one or more alternative valuation methods to cross check their valuation. Alternative methods considered included the income approach, DCF method, yardstick market factors, and the geoscientific rating method. The selection of the alternative valuation method was determined by the exploration stage of the asset and the availability of information.

In assessing the value of the Mineral Assets, CSA considered the following:

- Jurisdiction – Namibia, Malawi and Canada are supportive of uranium mining, whereas, the states of Western Australia and Queensland in Australia are not
- Infrastructure – access to existing infrastructure or lack of infrastructure
- Mineral Resource – the mineral resource estimates grade and uranium mineralogy present, which affects potential uranium recovery.
- Exploration Potential – the quality and potential of the exploration tenure to provide future exploration success.

## 8.5. Note 3 Investment in Summit

We have valued PEL's interest in Summit using the NA method as summarised in Table 23 below

**Table 23: Fair value of equity interest in Summit – NA method**

|   | Low / High<br>\$'000 |
|---|----------------------|
| Cash and equivalents                    | 536                  |
| Current trade and other receivables     | 40                   |
| Non-current trade and other receivables | 132                  |
| Property, plant and equipment           | 838                  |
| Exploration and evaluation expenditure  | 36,107               |
| Deferred tax asset                      | 10,498               |
| <b>Total assets</b>                     | <b>48,151</b>        |

Low / High  
\$'000

|  |                 |
|--|-----------------|
| Current accounts payable                         | (76)            |
| Deferred tax liability                           | (10,498)        |
| <b>Total liabilities</b>                         | <b>(10,575)</b> |
| 100.0% equity value (controlling interest basis) | <b>37,577</b>   |
| 82.08% equity value (controlling interest basis) | <b>30,843</b>   |

Source: Unaudited financial information as at 30 September 2017 and PPB analysis

The most significant asset of Summit is its capitalised exploration expenditure that is reflected in the above table at book value. Included in the capitalised exploration and evaluation expenditure are the Isa Uranium and Isa North tenements which the CSA Report has valued at between \$17.4 million and \$26.1 million (equivalent book value of \$17.9 million). The balance relates to other exploration and evaluation expenditure.

### Cross check Summit valuation

We have considered the QMP as a cross check to our valuation of Summit. We note, however, that there have been very low volumes of Summit share traded in the past 12 months.

The market capitalisation of Summit was \$29 million<sup>15</sup> based on closing share price as at Valuation Date. The market capitalisation represents the share prices for minority parcels of shares. Assuming a control premium of 30%, the market value of 100% of the equity of Summit would be approximately \$37.7 million.

Using the three-month VWAP, to the Valuation Date, and a control premium of 30%, the market value of 100% of the equity of Summit would be approximately \$39.9 million.

Table 24 summarises the value of PEL's 82.08% equity interest in Summit using the QMP as at Valuation Date and the 3-month VWAP:

**Table 24: Summary – QMP cross check**

|   | Currency    |               |
|---|-------------|---------------|
| <b>Fair value of Summit based on NA method (Table 23)</b> | \$000       | <b>37,577</b> |
| <b>Last traded price in AUD as at Valuation Date</b>      | AUD         | 0.1700        |
| Total shares outstanding                                  | 000         | 217,982       |
| <b>Market capitalisation in AUD</b>                       | AUD 000     | <b>37,057</b> |
| USD / AUD as at Valuation Date                            | USD / 1 AUD | 0.7839        |
| <b>Market capitalisation in USD</b>                       | \$000       | <b>29,049</b> |
| Estimated 30% control premium                             | \$000       | 8,715         |
| <b>100.00% equity value (controlling interest basis)</b>  | \$000       | <b>37,764</b> |
| <b>82.08% equity value (controlling interest basis)</b>   | \$000       | <b>30,996</b> |
| <b>3 month VWAP in AUD as at Valuation Date</b>           | AUD         | 0.1797        |
| Total shares outstanding                                  | 000         | 217,982       |
| <b>Market capitalisation in AUD</b>                       | AUD 000     | <b>39,166</b> |
| USD / AUD as at Valuation Date                            | USD / AUD   | 0,7839        |
| <b>Market capitalisation in USD</b>                       | \$000       | <b>30,702</b> |

<sup>15</sup> AUD 0.1700 x 217,981,769 shares outstanding = AUD 37,056,901 x 0.7839 USD / AUD = USD 29,048,905 (Source: S&P Capital IQ)

|   | Currency     |               |
|---|--------------|---------------|
| Estimated 30% control premium                           | \$000        | 9,211         |
| <b>100% equity value (controlling interest basis)</b>   | <b>\$000</b> | <b>39,912</b> |
| <b>82.08% equity value (controlling interest basis)</b> | <b>\$000</b> | <b>32,760</b> |

Source: S&P Capital IQ and PPB analysis

We note that the value of Summit using QMP (adjusted for a control premium) approximates our fair value using the NA method, despite Summit's shares being thinly traded with low volumes of trades in the past 12 months.

We note the following regarding the current share trading price of Summit:

- the share trading of Summit maybe illiquid, given the free float being 17.9%, however, the share trading price would provide an indication of the value of Summit.
- the share trading price is for a minority parcel of shares and does not include a control premium. In contrast, our calculated value of Summit includes a control premium<sup>16</sup>.
- the fair value (control basis) of Summit represents a discount of 0.5% over the last traded price as at Valuation Date.
- the fair value (control basis) of summit represents a discount of 5.9% compared to the 3-month VWAP to Valuation Date.
- approximately 82.02% of the issued shares are held by PEL, which indicates that the 'free float' of shares is small. This suggests that the trading price of shares may not be a reasonable reflection of the fair value.

Based on the above, we would expect that the fair value derived using the NA method would be higher than the current share trading price (which excludes a control premium) of Summit. As the QMP (which includes a control premium) approximates our fair value for Summit using the NA method, we do not consider our valuation to be unreasonable.

## 8.6. Note 4 Other assets and liabilities

Table 25 below summarises the other assets and liabilities associated with PEL and its entities for which we have assumed that their book values is reflective of the fair value.

**Table 25: Summary – Other assets and liabilities**

|  | Low<br>\$'000 | High<br>\$'000 |
|--|---------------|----------------|
| Residual other assets  | 77,519        | 77,519         |
| Capitalised exploration and evaluation expenditure for tenement entities <sup>17</sup> | (62,099)      | (62,099)       |
| <b>Total other assets and liabilities</b>  | <b>15,421</b> | <b>15,421</b>  |

Source: Unaudited financial information per management accounts as at 30 September 2017 and PPB analysis

The residual other assets comprise mainly capitalised exploration and evaluation expenditure, capitalised acquisition costs, receivables, inventory, creditors, employee provisions held by the 100% owned, non operating entities of PEL.

<sup>16</sup> Australian studies indicate that the discount compared to a controlling interest in a company ranges between 25% and 40% of the portfolio holding value.

<sup>17</sup> Relates to PEM, Fusion, the Canadian Group and Summit (Isa Uranium JV \$8.6 million and Isa North \$9.0 million). Management have confirmed that the exploration and evaluation expenditure within Valhalla Uranium Pty Ltd relates to the acquisition of company and this has not been removed.

## 8.7. Note 5 Net debt

Table 26 below summarises the debt and cash on hand of PEL and its entities for which we have assumed that their book values is reflective of the fair values.

**Table 26: Summary – net debt**

|                              | Low<br>\$'000    | High<br>\$'000   |
|------------------------------|------------------|------------------|
| Cash and equivalents         | 21,791           | 21,791           |
| DB Facility - LHM            | -                | -                |
| DB Facility - PEL            | (15,000)         | (15,000)         |
| COUH intercompany debt - LHM | -                | -                |
| 2017 Bonds - PEL             | (223,821)        | (223,821)        |
| 2020 Bonds – PEL             | (160,686)        | (160,686)        |
| EDF Prepayment Amount - PEL  | (283,480)        | (283,480)        |
| COUH Prepayment Amount– LHM  | (8,636)          | (8,636)          |
| <b>Total net debt</b>        | <b>(669,832)</b> | <b>(669,832)</b> |

Source: PPB analysis and Deed Administrators

We have deducted the Deed Administrators' assessment of the specified claims lodged by the Bondholders and EDF (for the purpose the second creditors' meeting).

## 8.8. Note 6 Other costs

Table 27 below summarises other costs that are applicable to PEL having assumed a going concern premise of value.

**Table 27: Other costs assuming going concern**

|   | Low<br>\$'000  | High<br>\$'000 |
|---|----------------|----------------|
| Administration and legal fees to date                                 | (1,500)        | (1,500)        |
| Estimated additional administration and legal fees for 6 and 3 months | (6,180)        | (3,090)        |
| Cash trading loss   | -              | -              |
| Liquidator and associated legal and sale advisory costs               | -              | -              |
| Employee termination costs  | -              | -              |
| <b>Total other costs</b>  | <b>(7,680)</b> | <b>(4,590)</b> |

Source: PPB analysis and Deed Administrators

The administration and legal fees incurred to date are those expenses associated with PEL being in administration and remaining as such for a further period of 3 to 6 months.

## 8.9. Sensitivity analysis – Going concern basis

We have considered the sensitivity of the LHM and KM valuation outcomes to changes in uranium price and discount rate assumptions. Table 28 summarises the changes in value of the PEL equity by changing the following key assumptions:

- forecast uranium prices
- discount rate
- availability of tax losses.

**Table 28: Primary valuation sensitivity analysis**

|   | Low<br>\$'000    | Low<br>proportion<br>% | High<br>\$'000  | High<br>proportion<br>% |
|---|------------------|------------------------|-----------------|-------------------------|
| <b>100% equity value</b> (controlling interest basis) for PEL as a going concern (excluding COUH Option impact) | <b>(246,642)</b> | <b>100%</b>            | <b>(99,224)</b> | <b>100%</b>             |
| <b>Forecast uranium prices</b>  |                  |                        |                 |                         |
| Increase \$3.00/lb  | (180,794)        | 73%                    | (27,810)        | 28%                     |
| Increase \$1.00/lb  | (224,691)        | 91%                    | (75,437)        | 76%                     |
| <b>Valuation case</b>   | <b>(246,642)</b> | <b>100%</b>            | <b>(99,224)</b> | <b>100%</b>             |
| Decrease \$1.00/lb  | (268,865)        | 109%                   | (123,043)       | 124%                    |
| Decrease \$3.00/lb  | (313,558)        | 127%                   | (170,914)       | 172%                    |
| <b>Discount rate</b>  |                  |                        |                 |                         |
| Increase 3%   | (319,032)        | 129%                   | (198,562)       | 200%                    |
| Increase 1%   | (272,938)        | 111%                   | (135,660)       | 137%                    |
| <b>Valuation case</b>   | <b>(246,642)</b> | <b>100%</b>            | <b>(99,224)</b> | <b>100%</b>             |
| Decrease 1%   | (217,814)        | 88%                    | (58,811)        | 59%                     |
| Decrease 3%   | (151,194)        | 61%                    | 36,476          | (37%)                   |
| <b>Availability of tax losses</b>   |                  |                        |                 |                         |
| <b>Valuation case</b>   | <b>(246,642)</b> | <b>100%</b>            | <b>(99,224)</b> | <b>100%</b>             |
| Tax losses not available  | (299,054)        | 121%                   | (154,258)       | 155%                    |
| <b>Forecast uranium prices and discount rate</b>  |                  |                        |                 |                         |
| Combined upside (1)   | (73,278)         | 30%                    | 122,248         | (123%)                  |
| <b>Valuation case</b>   | <b>(246,642)</b> | <b>100%</b>            | <b>(99,224)</b> | <b>100%</b>             |
| Combined downside (2)   | (421,428)        | 171%                   | (308,075)       | 310%                    |

Source: PPB analysis.

(1) Forecast uranium prices increase \$3.00/lb, discount rate decrease 3% and tax losses are available

(2) Forecast uranium prices decrease \$3.00/lb, discount rate increase 3% and tax losses are not available

We note that the:

- increase in the forecast uranium prices of \$1.00/lb represents a 1.7% increase to the long term real price of \$58/lb
- above sensitivity analysis is in relation to inputs to the values for LHM and KM as they represent the most material value to PEL
- valuation is most sensitive to changes in the discount rate (change by 1%), followed by changes in the uranium prices (change by \$1/lb)
- value of KM is not affected by the availability of tax losses because it is expected to be sufficiently loss making prior to generating future profits.

### 8.10. Going concern valuation conclusion

In our opinion, as summarised above, the issued shares in PEL on a controlling interest basis and assuming a going concern have no value as at the Valuation Date.

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## 9. Valuation of equity - Distressed basis

### 9.1. Valuation summary - Distressed basis

In our opinion, the issued shares in PEL, on a distressed basis, have no value as at the Valuation Date.

The value of the shares of PEL on a distressed basis assumes that the DOCA is not implemented and that the Company does not have sufficient funding to pursue its operations for the foreseeable future.

In our opinion, 3 to 6 months is not a sufficient period of time to undertake an orderly realisation process for PEL in the absence of additional funding. Consequently, we have assumed a forced sale of PEL as going concern with an 'anxious' vendor, which is contrary to the definition of fair value (refer to Section 2.5).

Table 29 summarises the value of issued shares in PEL on a controlling interest basis and assuming a distressed basis.

**Table 29: Summary - Valuation of equity (distressed basis)**

|   | Low<br>\$'000    | High<br>\$'000   |
|---|------------------|------------------|
| 100.00% equity value (controlling interest basis) for PEL as a going concern (including COUH Option impact) | (279,232)        | (99,224)         |
| 20.00% discount to LHM and KM   | (87,032)         | (111,189)        |
| 10.00% discount to mining tenements   | (3,920)          | (6,270)          |
| 20.00% distressed discount to Summit  | (6,169)          | (6,169)          |
| <b>100.00% equity value (controlling interest basis) for PEL on a distressed basis</b>                      | <b>(376,352)</b> | <b>(222,852)</b> |

Source: PPB analysis

Details of the valuation methodology, inputs, assumptions and calculations relied upon to arrive at the conclusion are set out in the remainder of this section.

We applied the following additional adjustments to our going concern valuation to reflect a Distressed Sale:

- a discount of 20% in respect of the valuation of LHM and KM to account for the existing distressed circumstances, whereby a potential acquirer would seek a higher rate of return to reflect the increased risk associated with a liquidator not providing commercial representations or warranties that would typically be available to a purchaser in a non-distressed sale. In addition, a liquidator is unlikely to be able to offer any earn-out adjustments to the purchaser, based on the performance of the business post sale. Such adjustments are common in non-distressed transactions
- a discount of 10% in respect of the valuation of the Mineral Assets to reflect the limited options available to a liquidator to maintain the tenements (which are non-cash generating assets) should a sale not complete within the limited time frame
- a discount of 20% in the valuation of the shares held in Summit to reflect the relative illiquidity of Summit and the likely requirement to gradually sell the large parcel of shares over a period of up to 6 months if a block sale was not possible.

Table 30 summarises our calculation of the value of issued shares in PEL on a controlling interest basis and assuming a Distressed Sale.

Table 30: Valuation of equity (distressed basis)

|   | Low<br>\$'000    | High<br>\$'000   |
|---|------------------|------------------|
| <b>Production and development projects</b>  |                  |                  |
| LHM discounted FCFF   | 551,437          | 708,614          |
| 100.00% total discounted FCFF   | <b>551,437</b>   | <b>708,614</b>   |
| 75.00% total discounted FCFF  | 413,578          | 531,460          |
| Distressed discount at 20.00%   | <b>(82,716)</b>  | <b>(106,292)</b> |
| KM discounted FCFF  | 25,390           | 28,808           |
| 100.00% total discounted FCFF   | <b>25,390</b>    | <b>28,808</b>    |
| 85.00% total discounted FCFF  | 21,582           | 24,487           |
| Distressed discount at 20.00%   | <b>(4,316)</b>   | <b>(4,897)</b>   |
| 20.00% discount to LHM and KM   | <b>(87,032)</b>  | <b>(111,189)</b> |
| <b>Mining Tenements</b>   |                  |                  |
| Aurora Energy Ltd   | 15,200           | 23,400           |
| Paladin Energy Minerals NL  | 5,100            | 9,001            |
| Fusion Resources Pty Ltd  | 18,900           | 30,300           |
| Total mining tenements  | <b>39,200</b>    | <b>62,701</b>    |
| 10.00% discount to mining tenements   | <b>(3,920)</b>   | <b>(6,270)</b>   |
| <b>Investment in Summit</b>   |                  |                  |
| 82.08% equity value (controlling interest basis) for Summit   | 30,843           | 30,843           |
| 20.00% distressed discount to Summit  | <b>(6,169)</b>   | <b>(6,169)</b>   |
| 100.00% equity value (controlling interest basis) for PEL as a going concern (including COUH Option impact) | <b>(276,232)</b> | <b>(99,224)</b>  |
| 20.00% discount to LHM and KM   | <b>(87,032)</b>  | <b>(111,189)</b> |
| 10.00% distressed discount to mining tenements  | <b>(3,920)</b>   | <b>(6,270)</b>   |
| 20.00% distressed discount to Summit  | <b>(6,169)</b>   | <b>(6,169)</b>   |
| <b>100% equity value (controlling interest basis) for PEL on a distressed basis</b>                         | <b>(376,352)</b> | <b>(222,852)</b> |

Source: PPB analysis

### 9.1.1. Accelerated forced sale scenario

In our view, there is also an alternative distressed valuation scenario to consider whereby DB could call an event of default following the transition of PEL, PFPL and PEM into liquidation. In this situation DB could appoint receivers with limited funds to run a sale process. The likely result would be an accelerated forced sale that would provide an even less favorable outcome compared to the Distressed Sale as contemplated in the table above.

We consider in this scenario that the appointed liquidator may only have funds to run a sale process over a period of three months. The inability (due to a lack of time and funds) to run an effective sales process that would allow potential purchasers sufficient time for proper due diligence and negotiations would have a negative impact on the achievable sale price.

In our view, under such circumstances, it would not be unreasonable to expect discounts of between 30% and 50% on the fair value of LHM and KM. There would also be additional costs for the appointment of receivers, lawyers and other advisors. These additional costs, involved in concluding sales of multiple assets across multiple countries could be in the range of \$10 million to \$14 million.

## 9.2. Valuation conclusion

In our opinion, as summarised above, the issued shares in PEL, on a controlling interest basis, and assuming a distressed basis, have no value, as at the Valuation Date.

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## 10. Conclusion on the value of the shares of PEL

### 10.1. Summary of conclusion

Based on our analysis, as set out above, PPB is of the opinion that the shares of PEL have no value on either a going concern basis or on a distressed basis.

As the shares have no value there will be no return to Shareholders.

Our opinion should be considered in conjunction with, and not independently of, our analysis as set out in our Report in the preceding sections and the appendices.

### 10.2. Other factors

If the DOCA is not implemented, it is highly likely that a liquidator will be appointed. In this situation, a liquidator will have limited time to sell the assets of PEL. The time will be dependent on the available funding.

### 10.3. Other considerations

Our Report has been prepared in accordance with the relevant provisions of the Act and the ASIC RGs. This Report has been prepared for the purpose of assisting the Court assess the S444GA Application that has been proposed by the Bondholders.

Our Report will also be provided to ASIC for the granting of relief to S606 and to the Shareholders with an Explanatory Statement that has been prepared by the Deed Administrators.

All \$ in the report are US dollars, unless otherwise stated.

Neither the whole or any part of this Report or its appendices or any reference thereto maybe included in any document, other than the Explanatory Statement that will be sent to Shareholders to provide them with a valuation of PEL and inform Shareholders of the restructure, so they can make an informed decision in relation to the S444GA Application, without the prior written consent of PPB. PPB consents for the inclusion of this Report, in the form and context in which it appears, in the Explanatory Statement.

Our opinion is based on the information available and provided to us by PEL and the Deed Administrators as set out in Appendix B.

We have not updated our Report for events or circumstances arising after the date of this Report, other than material items that we believe would impact our opinion. Refer to our limitations and disclosures in Section 11.

## 11. Limitations and disclosures

### 11.1. Qualification

PPB holds an Australian Financial Services Licence (No. 344626) under the Act and its authorised representatives are qualified to provide this Report.

PPB provides a range of corporate advisory services and has advised on numerous takeovers, valuations, acquisitions and restructures.

This IER has been prepared by Fiona Hansen B Com, Hon Acc Science, CA, CA (SA) and a Partner at PPB Advisory and authorised representative of PPB Corporate Finance Pty Ltd. Fiona has over 20 years of experience in corporate finance advice including business valuations, preparing independent expert's reports, transaction advisory, financial due diligence and mergers and acquisitions.

This IER has also been prepared by Campbell Jaski BSc (Hons), MBA, FAusIMM (CP), FFin, FCI Arb and a Director of PPB and Partner at PPB Advisory. Campbell has over 20 years of experience in management and corporate finance and is a qualified geologist.

Based on their experience, Fiona and Campbell have the appropriate experience and qualifications to provide the advice offered.

### 11.2. Disclaimers

The Report has been prepared for the S444GA Application, the application for relief from S606 (under S655A) and to provide Shareholders with a valuation of PEL and inform Shareholders of the restructure, so they can make an informed decision in relation to the S444GA Application. We do not assume any responsibility or liability to any other person as a result of reliance on this report for any other purpose without the prior written consent of PPB. Except in accordance with the stated purpose, no extract, quote or copy of this IER, in whole or in part, should be reproduced without our written consent, as to the form and context in which it may appear.

### 11.3. Current market conditions

Our opinion is based on economic, market and other conditions prevailing at the Valuation Date. Such conditions can change significantly over relatively short periods of time. Changes in those conditions may result in any valuation or other opinion becoming quickly out dated and in need of revision. PPB reserves the right to revise any valuation or other opinion in the light of material information existing at the Valuation Date that subsequently becomes known to PPB.

### 11.4. Currency

All references to '\$' and 'dollars' are references to United States dollars unless stated otherwise.

### 11.5. Independence

Prior to accepting this engagement, PPB considered its independence with respect to the DOCA and PEL with reference to the RG 112 and APES 110 *Code of ethics for professional accountants* issued by the Accounting Professional and Ethics Standards Board.

We have concluded that there are no conflicts of interest with respect to PEL, the Administrators, the Deed Administrators or any party involved with the DOCA.

PPB has had no involvement with, or interest in, the outcome of the DOCA other than that of independent expert in the preparation of this IER. PPB is entitled to receive a fee based on commercial rates and including reimbursement of out-of-pocket expenses for the preparation of this IER.

Except for these fees, PPB will not be entitled to any other pecuniary or other benefit, whether direct or indirect, in connection with the issuing of this IER. The payment of this fee is in no way contingent upon the success or failure of the DOCA. PPB will receive no other benefit for the preparation of this IER.

## 11.6. Consents

PPB consents to issuing this IER in the form and context in which it is included in the Explanatory Statement. Apart from the IER, PPB is not responsible for the contents of the Explanatory Statement, or any other document or announcement associated with the DOCA. PPB acknowledges that its IER may be lodged with other regulatory bodies.

## 11.7. Reliance on information

The statements and opinions contained in this IER made given in good faith and are based upon PPB's consideration and assessment of information provided by PEL and the Administrators. PPB believes the information provided to be reliable, complete and not misleading, and we have no reason to believe that any material facts have been withheld.

The information provided has been evaluated through analysis, inquiry and review for the purpose of forming our opinion. The procedures adopted by PPB in forming our opinion may have involved an analysis of financial information and accounting records. This did not include verification work nor constitute an audit or review in accordance with Australian Auditing Standards and consequently does not enable us to become aware of all significant matters that might be identified in an audit or review. Accordingly, we do not express an audit or review opinion.

It was not PPB's role to undertake, and PPB has not undertaken, any commercial, technical, financial, legal, taxation or other due diligence, or other similar investigative activities in respect of the DOCA. PPB understands that the Administrators have been advised by legal, accounting and other appropriate advisors in relation to such matters, as necessary.

PPB does not provide any warranty or guarantee as to the existence, extent, adequacy, effectiveness and/or completeness of any due diligence or other similar investigative activities by the Administrators and/or their advisors.

It is understood that, except where noted, the accounting information provided to PPB was prepared in accordance with generally accepted accounting principles (including adoption of Australian Equivalents to International Financial Reporting Standards) and prepared in a manner consistent with the method of accounting used by PEL and the Administrators in previous accounting periods.

In accordance with normal practice, prior to finalising the IER, we confirmed facts with PEL and the Administrators. This was undertaken by means of providing the Administrators with a draft report. PPB obtained a representation letter from Administrators confirming that, to the best knowledge of Administrators, the information provided to, and relied upon by, PPB was complete and accurate, and that no significant information essential to the IER was withheld.

The Administrators have agreed to indemnify PPB, including its related entities and their partners, directors, employees, officers and agents (as applicable) against any claim, liability, loss or expense, costs or damage, arising out of reliance on any information or documentation provided to PPB by the Administrators, which is false and misleading or omits any material particulars, or arising from failure to supply relevant documentation or information.

## 11.8. Prospective financial information

In preparing the IER, PPB may have regard to prospective financial information in relation to LHM and KM ('Prospective Financial Information'). PPB understands that the Prospective Financial Information has been prepared as part of the ongoing management processes of the respective companies.

For the purposes of our IER, PPB understands and will assume that the Prospective Financial Information:

- will be prepared fairly and honestly, on a reasonable basis and is based on the best information available to the management and directors of PEL and the Administrators
- within the practical constraints and limitations of such information; and will not reflect any material bias, either positive or negative.

We understand that the Prospective Financial Information will be based on assumptions concerning future events and market conditions and while prepared with due care and attention and the directors of PEL and the Administrators consider the assumptions to be reasonable, future events and conditions are not accurately predictable and the assumptions and outcomes are subject to significant uncertainties. Actual results are likely to vary from the Prospective Financial Information and any variation may be materially positive or negative. Accordingly, neither the Directors, the Administrators, nor PPB will guarantee that the Prospective Financial Information or any other prospective statement contained in the IER or otherwise relied upon will be achieved.

PPB has not been engaged to undertake an independent review of the Prospective Financial Information in accordance with Australian Auditing Standards, and has not undertaken such a review. However, in order to disclose and to rely on the Prospective Financial Information in the IER, PPB is required to satisfy itself that the Prospective Financial Information has a reasonable basis.

Set out below are some of the indicative factors that would support a conclusion that the Prospective Financial Information has a reasonable basis:

- A material portion of the Prospective Financial Information incorporates established trends in the businesses and current arrangements in place, for example:
  - Prospective Financial Information largely reflects an established history of operations, sales and profitability of the projects
  - Prospective Financial Information reflects contractual or other forms of written arrangements in place to establish some surety as to future revenues.
- Prospective Financial Information is not based on business models that have yet to be proven and/or anticipated arrangements with customers, suppliers, or other parties that have yet to be confirmed.
- the reporting and budgeting processes of the directors of PEL and the Administrators have been in place for some time and involve regular reporting of actual performance to budget variances, management follow up, input from senior management and that process itself is under continuous review.
- Prospective Financial Information is based on detailed financial models that are designed to be driven by specific key inputs such as commodity sales, forecast commodity prices, exchange rates etc.
- Prospective Financial Information has been endorsed by the management and directors of PEL and the Administrators.
- Prospective Financial Information makes appropriate allowance for known contingencies.

To ascertain the above, PPB:

- obtained details of the Prospective Financial Information and the process by which this information was prepared
- determined the composition of the Prospective Financial Information;
- held discussions with management of PEL and the Administrators regarding the basis on which the Prospective Financial Information was formulated and where possible on a “desktop” level, undertaking evaluation of such information, by reference to past trading performance, available evidence and/or other documentation provided
- reviewed any assumed growth over historical earnings, determining the source of growth eg price, customer acquisition, customer volume purchase increase and investigate any new key contracts
- enquired if the Prospective Financial Information is adopted by the directors of PEL and the Administrators
- investigated previous forecasting history and experience
- reviewed the most recently available monthly management accounts
- considered the relevant industry trends and the position of directors of PEL and the Administrators within their respective industries.

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## Appendices



## Appendix A. Glossary of terms

| Abbreviation        | Definition   |
|---------------------|--|
| \$ or USD           | United States dollar   |
| 2017 Bonds          | The convertible bonds issued by Paladin which matured on 30 April 2017 and incur interest at 6% p.a., payable semi-annually in equal instalments in arrears on 30 April and 30 October of each year in relation to which approximately \$212 million (plus interest) remains outstanding |
| 2020 Bonds          | The convertible bonds issued by Paladin which mature on 31 March 2020 and incur interest at 7% p.a. payable semi-annually in equal instalments in arrears on 31 March and 30 September of each year in relation to which approximately \$150 million (plus interest) remains outstanding |
| AASB                | Australia Accounting Standards Board   |
| Act                 | Corporations Act 2001 ( <i>Cth</i> )   |
| Administrators      | Matthew Woods, Hayden White and Gayle Dickerson, each of KPMG, in their capacity as Administrators, from 3 July 2017   |
| Antipa              | Antipa Minerals Limited  |
| APES 225            | Accounting Professional & Ethics Standard 225 Valuation Services   |
| ASIC                | Australian Competition and Consumer Complaints   |
| ASX                 | Australian Stock Exchange  |
| AUD                 | Australian dollar  |
| Aurora              | Aurora Energy Ltd  |
| Bondholders         | Persons holding the Bonds from time to time  |
| CAD                 | Canadian dollar  |
| CFME                | Capitalised Future Maintainable Earnings   |
| Corporate Model     | The life of mine financial models for LHM and KM   |
| COUH                | CNNC Overseas Uranium Holding Limited  |
| Court               | The Supreme Court of New South Wales   |
| CSA                 | CSA Global Pty Ltd, appointed to provide an opinion on technical matters including the value of the mineral resources, exploration projects and the databases  |
| CSA Report          | The report dated 22 December 2017 prepared by CSA  |
| DB                  | Deutsche Bank AG   |
| DB Facility         | DB's facility to LHM   |
| DCF                 | Discounted Cash Flow   |
| Deed Administrators | Matthew Woods, Hayden White and Gayle Dickerson, each of KPMG, pursuant to the DOCA dated 8 December 2017.   |
| DIIS                | Department of Industry, Innovation and Science   |
| Directors           | Directors of PEL or Paladin  |
| Distressed Sale     | The assumption underpinning the valuation of the shares in PEL on a distressed basis   |

| Abbreviation                  | Definition  |
|-------------------------------|---|
| DOCA                          | The deed of company arrangement between PEL, the Deed Administrators, the Trustees and Perpetual Corporate Trust Limited (ACN 000 341 533) dated 8 December 2017  |
| EBITDA                        | Earnings Before Interest Tax Depreciation and Amortisation  |
| EDF                           | Électricité de France S.A   |
| EDF Prepayment Amount         | The LTSC has an obligation for EDF to make a prepayment to PEL of \$200 million in relation to the concentrates that it agreed to purchase, which it paid to PEL in 2012. EDF terminated the LTSC in October 2017 but \$283.48 million remains owing at 30 September 2017 |
| Explanatory Statement         | The explanatory statement prepared by the Deed Administrators and sent to Shareholders in respect of the DOCA   |
| Fair value                    | <i>“the price that would be negotiated in an open and unrestricted market between a knowledgeable, willing, but not anxious purchaser, and a knowledgeable, willing, but not anxious [Vendor] acting at arm’s length”</i>   |
| FCFF                          | Free Cash Flow to the Firm  |
| FOS                           | Financial Ombudsman Service Limited   |
| FSG                           | Financial Services Guide  |
| Fusion                        | Fusion Resources Pty Ltd  |
| FY                            | The financial year ended or ending 30 June  |
| GDP                           | Gross Domestic Product  |
| GSA                           | The General Security Agreements by Aurora and PCH   |
| Guarantors                    | The guarantors, three of PEL’s wholly-owned subsidiaries, Paladin Canada, PCI and Aurora  |
| IER or Report                 | This Independent Expert’s Report  |
| k                             | Thousand  |
| KM                            | Kayelekera Mine   |
| lb                            | Pound   |
| LHM                           | Langer Heinrich Mine  |
| LHMHL                         | Langer Heinrich Mauritius Holdings Limited  |
| LHMHL Shareholders’ Agreement | The shareholders’ agreement of LHMHL  |
| LHU                           | Langer Heinrich Uranium Pty Ltd   |
| Licence                       | PPB’s Australian Financial Services Licence (No. 344626)  |
| LTSC                          | EDF’s Uranium Concentrate Long Term Supply Contract dated 8 August 2012   |
| m                             | million   |
| Management                    | Senior management of PEL  |
| Michelin                      | Michelin Uranium Ltd  |
| Mineral Assets                | The mineral resources, exploration projects and databases, the subject of the CSA Report  |

| Abbreviation                      | Definition   |
|-----------------------------------|--|
| NA                                | Net assets method  |
| New Bonds                         | The Bondholders and EDF will have the right to subscribe for a pro rata share of \$115 million in new secured bonds whereby the participants will also receive a pro rata share of 25% of the shares in PEL                              |
| PAF                               | Paladin (Africa) Limited   |
| Paladin Canada                    | Paladin Energy Canada Ltd  |
| PCI                               | Paladin Canada Investments (NL) Ltd  |
| PCH                               | Paladin Canada Holdings (NL) Ltd   |
| PEL, Paladin or the Company       | Paladin Energy Limited (Subject to a deed of company arrangement) (ACN 061 681 098)  |
| PEM                               | Paladin Energy Minerals NL   |
| PFPL                              | Paladin Finance Pty Ltd  |
| Prospective Financial Information | Prospective financial information as reflected in the financial models for LHM and KM  |
| PPB                               | PPB Corporate Finance Pty Ltd  |
| QMP                               | Quoted Market Price  |
| Realisation Agreement             | The Guarantors along with Michelin, PCH and EDF are parties to the realisation agreement   |
| RG                                | ASIC Regulatory Guide  |
| RG 111                            | ASIC Regulatory Guide 111 <i>Content of experts reports</i>  |
| RG 112                            | ASIC Regulatory Guide 112 <i>Independence of experts</i>   |
| S444GA Application                | An application to the Court under Section 444GA of the Corporations Act for leave to be granted to the Deed Administrators to transfer 98% of all shares in PEL to the Trustees  |
| S606                              | Section 606 of the Act: takeover provisions - prohibits the acquisition of a relevant interest in voting shares  |
| S655A                             | Section 655A of the Act: ASIC may (a) exempt a person from a provision of this Chapter, or (b) declare that this Chapter applies to a person as if specified provisions were omitted, modified or varied as specified in the declaration |
| SAR                               | Share Appreciation Right   |
| Shareholders                      | Existing shareholders of PEL   |
| Sum of the Parts                  | Sum of the parts valuation method  |
| Summit                            | Summit Resources Limited (ACN 009 474 775) (ASX ticker SMM)  |
| Sunset Date                       | 31 January 2018  |
| SWAPO                             | South West Africa People's Organisation  |
| UxC                               | UxConsulting   |
| Valmin Code                       | Australasian Code for Public Reporting of Technical Assessments and Valuation of Mineral Assets (2015 Edition)   |

| Abbreviation   | Definition                    |
|----------------|-------------------------------|
| Valuation Date | 30 September 2017             |
| VWAP           | Volume Weighted Average Price |
| YTD            | Year To Date                  |

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## Appendix B. List of sources of information

In preparing this Report we have been provided with and considered the following sources of information:

### Publicly available information

- IBISWorld report World price of uranium reported dated August 2017
- International Energy Agency, World Energy Outlook 2017
- World Nuclear Association, website <http://www.world-nuclear.org>
- Department of Industry, Innovation and Science, Resources and Energy Quarterly report dated September 2017
- Cameco market information, website <https://www.cameco.com/invest/markets/uranium-price>
- Audited annual reports of PEL for years ending 30 June 2014, 30 June 2015 and 30 June 2016
- Reviewed interim report of PEL for 31 March 2017
- Various Company ASX announcements
- PEL's website
- Financial information from S&P Capital IQ
- Reserve Bank of Australia website
- Damodaran ([http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/ctryprem.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html))
- LIBOR (Source: page 28, "Interim Financial Report" dated 16 May 2017 and a USD LIBOR at 30 September 2017 of 1.33%)
- S&P Capital IQ
- S&P Global, SNL – Market intelligence, subscription database
- Economist Intelligence Unit, country report, November 2017
  - Namibia
  - Malawi
  - Canada
  - Australia
- OECD, African Economic Outlook, African Economic, Outlook, country report, 2017, [www.africaneconomicoutlook.org](http://www.africaneconomicoutlook.org)
  - Namibia
  - Malawi
- The World Bank, [www.worldbank.org/en/country](http://www.worldbank.org/en/country)
  - Namibia country overview, October 2017
- Paladin, March quarter results, Conference call and investor update, 17 May 2017
- International Monetary Fund, Economic development document, May 2017, [www.imf.org/~media/files/publications/cr/2017/cr17184.ashx](http://www.imf.org/~media/files/publications/cr/2017/cr17184.ashx)
- DIIS, Cameco Corporation (UxConsulting)
- PEL company announcements
- CSA Global report (attached as Appendix B to this Report)

## Non-public information

- Various corporate structure, debt and equity related documentation
- Paladin, Langer Heinrich mine, Valuer information submission, June 2017
- Confidential valuation report for EDF on additional security offered for EDF Prepayment Amount, COUH for the exercise of the potential option and a confidential valuation report for creditors
- Other confidential information including the Corporate Model and documents provided via datarooms
- Management accounts for 30 June 2017
- Management accounts for 30 September 2017.

We have had discussions with Management and the Administrators in relation to the DOCA, the operations of the business, financial results and financial position and outlook for PEL.

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## Appendix C. Valuation methodologies

To estimate the fair value of the issued shares in PEL we have considered the common market practice and the valuation approaches recommended by RG 111 that provide guidance in respect of the content of independent expert's reports. The common valuation approaches are as follows:

- market approach
- income approach
- asset approach.

Each approach is appropriate in certain circumstances. The decision as to which approach to apply generally depends on the nature of the company or asset being valued, the approach most commonly adopted in valuing such companies or assets and the availability of appropriate information.

These approaches are summarised below:

### Market based approach

Market based approach estimates the fair value by considering the market price of transactions in its shares or the market value of comparable companies. The market based approach includes the following methods:

- capitalisation of earnings or revenue method
- QMP method
- industry specific methods.

The capitalisation of earnings method estimate the fair value based on a company's future maintainable earnings and an appropriate earnings multiple. An appropriate earnings multiple is derived from market transactions involving comparable companies. The capitalisation of maintainable earnings is appropriate where a company's earnings are relatively stable and it is assumed that the business will continue trading as a going concern indefinitely.

The QMP method involves considering the liquidity of the shares of the company, an analysis of the most recent share trading history and volume of trades, impact of any announcements on the share price, calculation of the market capitalisation, usually based on spot and VWAP, and adjusting the market capitalisation to reflect the fair value of 100% of the equity, on a controlling basis.

Industry specific methods estimate the fair value using rules of thumb for a particular industry. Generally, rules of thumb provide less persuasive evidence of the value of a company or asset than other valuation methods, because they do not account for company specific factors and are typically only used as cross checks.

### **Resource Multiple Method**

The Resource Multiple valuation methodology compares the Enterprise Value of comparable companies as at the relevant date (eg the valuation date), using the volume of contained mineral reported in the Mineral Resources and/or Ore Reserves as a comparator.

The Enterprise Value may be obtained from publicly traded companies using the share price information and capital structure. For companies that are not traded, the Enterprise Value may be derived from transaction announcements.

The resource multiple is determined in the comparable company by dividing the Enterprise Value by the Mineral Resource base or Ore Reserve base. Typically, for operating mines, an Ore Reserve base will be used and, for Exploration Projects, a Mineral Resource base will be used. The resulting resource multiple (or average resource multiple if more than one comparable company is identified) is then multiplied by the corresponding Mineral Resource base or Ore Reserve Base of the valuation subject.

In determining comparable companies, it is important that companies be selected that are heavily weighted in the commodity of the valuation subject. Accordingly, it is difficult to apply this methodology to companies that have diversified commodity portfolios.

### **Revenue multiple**

Similar to the Resource Multiple valuation methodology, the revenue multiple valuation methodology compares the Enterprise Value of comparable companies as at the relevant date (eg the valuation date) using total revenue.

The Enterprise Value may be obtained from publicly traded companies using the share price information and capital structure. For companies that are not traded, the Enterprise Value may be derived from transaction announcements.

Note that this methodology is ordinarily only relied upon as a cross check rather than a primary valuation methodology.

### **Income based approach**

The income approach, includes the following methods:

- DCF method
- option pricing methods.

#### **DCF Method**

The DCF method estimates the fair value by discounting a company or asset's future cash flows to a net present value using an appropriate discount rate. The DCF method is appropriate where there are long term projections of future cash flows of at least five to ten years and the projections can be made with a reasonable level of confidence. DCF method is typically used where:

- earnings are capable of being forecast for a reasonable period (preferably five to ten years) with reasonable accuracy
- earnings or cash flows are expected to fluctuate significantly from year to year
- the business or asset has a finite life
- the business is in a 'start up' or in early stages of development
- the forecast has major capital expenditure requirements
- the business is currently making losses but is expected to recover.

#### **Option pricing**

The valuation of an option is a function of the price of the underlying share to which the option may convert into, the remaining life of the option, the exercise price, risk free rates of interest and the anticipated yield of the underlying share.

The price of an option is the sum of its intrinsic value and its time value. Intrinsic value is based on the difference between the option's exercise price and the current price of the underlying instrument and time value is the residual value of the option's premium above any intrinsic value.

Options can either be American or European options:

- American options can be exercised by the holder at any time from the date of purchase up until (and including) expiry date.
- European options can be exercised by the holder only on the specified expiry date.

It is possible to derive a formula which determines the price for some option structures. This is referred to as an 'analytic' approach. The most common example of an analytic approach is the Black Scholes formula. The Black Scholes formula can be used to price simple options or rights, where option exercise is only possible upon expiry.

The advantage of this approach is that it allows for the full distribution of (share prices) pricing outcomes whilst being computationally efficient; however it can only be used in a narrow range of circumstances.

Option structures may involve the possibility of exercise prior to the expiry of the option or alternatively, a performance hurdle. Analytic approaches may not be available for these complicated option structures, hence it is necessary to use a computational technique such as a binomial tree methodology.

In a binomial methodology, the time to expiry is divided into discrete steps and the share prices are allowed to either move up or down within each discrete step of time. A large number of discrete steps result in a closer approximation of the underlying movements in share price. The value of the security at each discrete step is determined and the present value of the future outcomes, weighted by probability, results in the value of the award.

Binomial methodologies are more flexible than analytic approaches. They can cope with a variety of complications including early exercise and absolute return hurdles; however the implementation of these methods can be more complicated.

These option valuation models involve plotting possible paths that might be followed by the price of the underlying asset over the life of the option. The outcomes of the movements in the asset price are discounted back to present value using the risk free rate. The model has the capability of valuing American Style options.

### Asset based approach

Asset based approach estimates the fair value of a company's shares based on the realisable value of its identifiable net assets. The asset based approach includes the following methods:

- orderly realisation of assets
- liquidation of assets
- net assets on a going concern basis.

The orderly realisation of assets method estimates the fair value of the net assets by estimating the amount that would be distributed to its shareholders after the payment of all liabilities are satisfied including realisation costs and taxation, assuming that the company is wound up in an orderly manner.

The liquidation of assets method is similar to the orderly realisation of assets method except that the liquidation method assumes that the assets are sold in a shorter timeframe. Since wind up or liquidation of the company may or may not be contemplated, this method in its strictest form may not necessarily appropriate.

The net assets on a going concern basis estimates the market value of the net assets of the company but does not take into account realisation costs.

The net asset value of a trading will generally provide the lowest possible value for the business. The difference between the value of the company's identifiable net assets (including identifiable intangibles) and the value obtained by capitalising earnings is attributable to goodwill.

The assets based methods are relevant where a company is making sustained losses or profits but at a level less than the required rate of return, where it is close to liquidation, where it is a holding company, or where all its assets are liquid. It is also relevant to businesses which are being segmented and divested and to value assets that are surplus to the core operating business.

The net realisable assets method is also used as a cross check for the values derived using other methods.

## Appendix D. LHM and KM cash flow forecasts

Our FCFF estimates for LHM and KM are based on the Corporate Model cash flows provided by Management.

The DCF valuation estimates the value of the firm as the present value of the future FCFF discounted using a discount rate based on WACC:

We note that:

- we have not included a terminal value due to the finite life of LHM and KM
- PEL's Corporate Model projected cash flows that include estimated remediation expenses at the end of the life of the mines, after production ceases
- the accumulated losses partially offset the potential tax payable during the forecast periods
- the Corporate Model did not include any working capital adjustment, therefore we have estimated the working capital requirement based on the Corporate Model's cash flow profiles and the working capital of potentially comparable listed companies to be 10.00% of revenue.

Below we provide a summary of the forecast EBITDA, capital expenditure, working capital and FCFF that we have used in our DCF valuations of LHM and KM, for:

- LHM Stage 3 scenario (base case)
- LHM Stage 3A optimised scenario
- KM.

We note that:

- Corporate Model cash flows provided by Management have been based on the Company's board approved 5-year budget and the life of mine plans
- Forecast revenue is only attributable to uranium sales from producing assets although actual revenue may also include minimal interest income.
- Forecast operating expenditure and capital expenditure estimates are conservative in the view of Management and represent a low, but reasonable estimate. Expenditure decisions are very much dictated by the uranium price and the current financial position of the Company. At the current time, Management's key objectives are to manage the Company's limited cash reserves, maximise operating efficiencies and maximise profitability. These objectives govern all decision making concerning operations of the mines
- PEL is currently processing stockpiled inventory under challenging operating expenditure constraints and is not mining at all. As at the Valuation Date, LHM is loss making, on an all-in cash basis even whilst only processing stockpiled inventory. Only essential repairs and maintenance is being undertaken. The forecast cash flows reflect the current level of operating expenditure prudence continues up to the recommencement of production (mining activities).

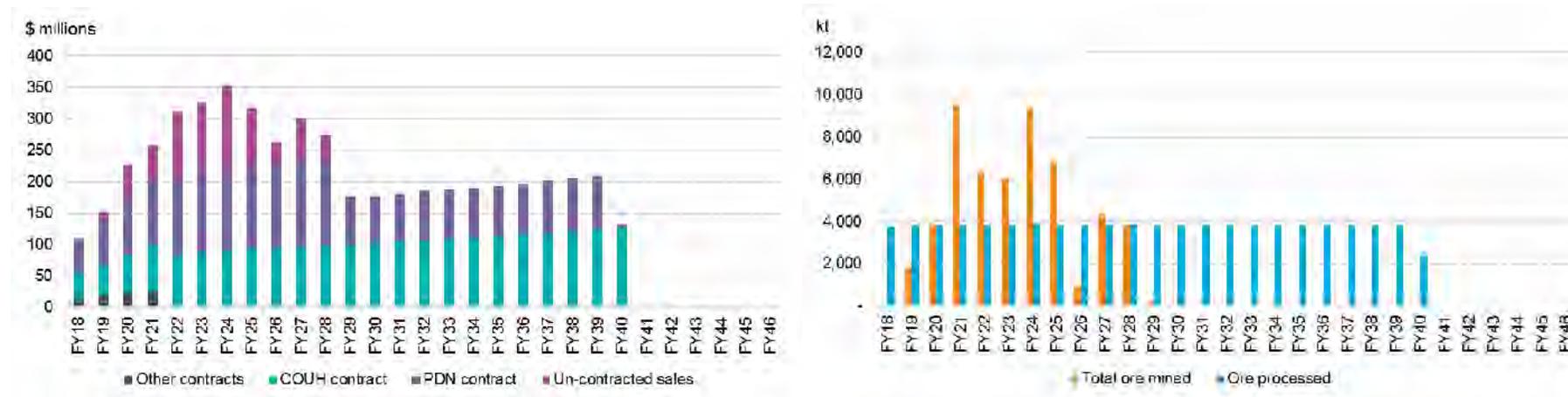
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- A substantial amount of the forecast capital expenditure relates to restarting production at LHM and expanding capacity. Forecast capital expenditure allows potential tonnage to be maximised efficiently. It is our understanding that with the decline in the uranium spot price Management has had to curtail capital expenditure that was no longer essential or feasible and that the current forecast for capital expenditure represents a lowest reasonable estimate of the potential cost.

**LHM stage 3 scenario (base case)**

Figure 15 summarises the LHM stage 3 scenario (base case) sales as well as the ore mined and processed.

**Figure 15: LHM stage 3 scenario (base case) sales summary and ore mined / processed**



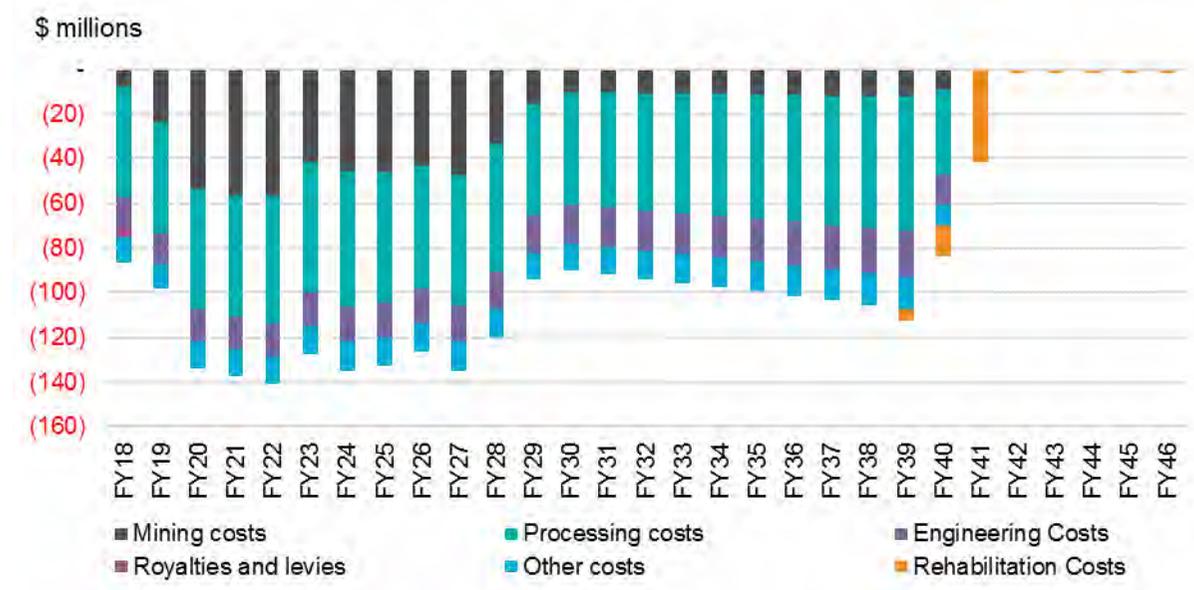
Source: Corporate Model

We note that forecast revenue only includes uranium sales from producing assets.

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Figure 16 summarises the LHM stage 3 scenario (base case) operating expenditure.

Figure 16: LHM stage 3 scenario (base case) operating expenditure summary



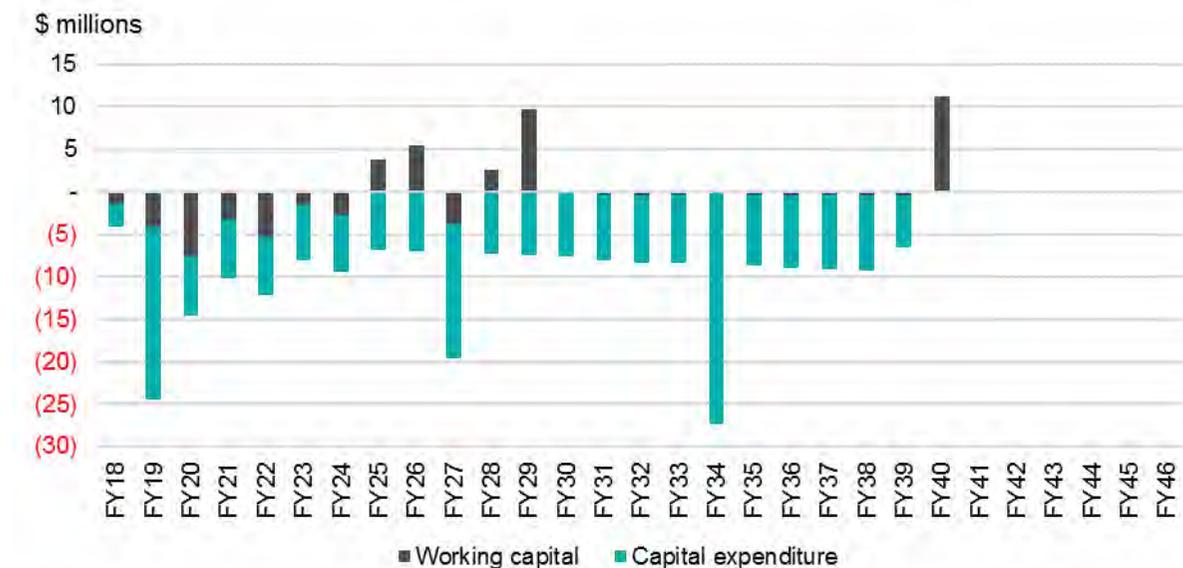
Source: Corporate Model

We note that “Other costs” consists of “Non production costs”, “Marketing fee to PEL Corporate”, “Commercial and Admin”, “Environmental and safety” and “Transport, Logistics & Converter Charges”.

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Figure 17 summarises the LHM stage 3 scenario (base case) working capital and capital expenditure.

Figure 17: LHM stage 3 scenario (base case) working capital and capital expenditure summary



Source: Corporate Model and PPB analysis

We note that capital expenditure for FY19, FY27 and FY34 relates to construction of tailing storage facilities. As total revenue moderates from FY25 onwards there is expected to be less working capital required by LHM until closure from FY40.

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Table 31 summarises the LHM stage 3 scenario (base case) FCFF.

**Table 31: LHM - Stage 3 scenario (base case)**

|                                 | Year 1        | Year 2        | Year 3        | Year 4         | Year 5         | Year 6         | Year 7         | Year 8         | Year 9        | Year 10       |
|---------------------------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|
|                                 | Forecast      | Forecast      | Forecast      | Forecast       | Forecast       | Forecast       | Forecast       | Forecast       | Forecast      | Forecast      |
|                                 | 30-Jun-18     | 30-Jun-19     | 30-Jun-20     | 30-Jun-21      | 30-Jun-22      | 30-Jun-23      | 30-Jun-24      | 30-Jun-25      | 30-Jun-26     | 30-Jun-27     |
|                                 | \$'000        | \$'000        | \$'000        | \$'000         | \$'000         | \$'000         | \$'000         | \$'000         | \$'000        | \$'000        |
| EBITDA                          | 18,874        | 42,091        | 78,644        | 104,679        | 151,843        | 179,339        | 197,328        | 164,634        | 120,104       | 146,820       |
| Tax expense                     | -             | -             | -             | -              | (3,027)        | (63,576)       | (71,482)       | (59,204)       | (42,454)      | (51,330)      |
| <b>After tax free cash flow</b> | <b>18,874</b> | <b>42,091</b> | <b>78,644</b> | <b>104,679</b> | <b>148,816</b> | <b>115,763</b> | <b>125,846</b> | <b>105,431</b> | <b>77,650</b> | <b>95,489</b> |
| Capital expenditure             | (2,818)       | (20,372)      | (6,990)       | (7,065)        | (6,748)        | (6,624)        | (6,757)        | (6,892)        | (7,030)       | (15,895)      |
| Working capital                 | (1,341)       | (4,122)       | (7,621)       | (3,151)        | (5,395)        | (1,467)        | (2,727)        | 3,707          | 5,405         | (3,771)       |
| <b>Estimated FCFF</b>           | <b>14,716</b> | <b>17,597</b> | <b>64,033</b> | <b>94,463</b>  | <b>136,673</b> | <b>107,671</b> | <b>116,362</b> | <b>102,245</b> | <b>76,025</b> | <b>75,824</b> |
| <b>Future FCFF</b>              | <b>10,999</b> | <b>17,597</b> | <b>64,033</b> | <b>94,463</b>  | <b>136,673</b> | <b>107,671</b> | <b>116,362</b> | <b>102,245</b> | <b>76,025</b> | <b>75,824</b> |

Source: Corporate Model and PPB analysis

|                                 | Year 11       | Year 12       | Year 13       | Year 14       | Year 15       | Year 16       | Year 17       | Year 18       | Year 19       | Year 20       |
|---------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                                 | Forecast      |
|                                 | 30-Jun-28     | 30-Jun-29     | 30-Jun-30     | 30-Jun-31     | 30-Jun-32     | 30-Jun-33     | 30-Jun-34     | 30-Jun-35     | 30-Jun-36     | 30-Jun-37     |
|                                 | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        |
| EBITDA                          | 136,975       | 70,897        | 74,844        | 76,389        | 78,191        | 79,571        | 79,266        | 80,385        | 82,278        | 83,729        |
| Tax expense                     | (47,586)      | (22,753)      | (25,269)      | (25,792)      | (26,411)      | (26,870)      | (24,328)      | (24,687)      | (25,335)      | (28,184)      |
| <b>After tax free cash flow</b> | <b>89,389</b> | <b>48,144</b> | <b>49,575</b> | <b>50,597</b> | <b>51,780</b> | <b>52,701</b> | <b>54,938</b> | <b>55,698</b> | <b>56,943</b> | <b>55,544</b> |
| Capital expenditure             | (7,314)       | (7,460)       | (7,609)       | (7,762)       | (7,917)       | (8,075)       | (27,181)      | (8,401)       | (8,569)       | (8,741)       |
| Working capital                 | 2,624         | 9,732         | 21            | (359)         | (417)         | (322)         | (152)         | (323)         | (444)         | (344)         |
| <b>Estimated FCFF</b>           | <b>84,699</b> | <b>50,416</b> | <b>41,987</b> | <b>42,476</b> | <b>43,447</b> | <b>44,304</b> | <b>27,605</b> | <b>46,973</b> | <b>47,929</b> | <b>46,460</b> |
| <b>Future FCFF</b>              | <b>84,699</b> | <b>50,416</b> | <b>41,987</b> | <b>42,476</b> | <b>43,447</b> | <b>44,304</b> | <b>27,605</b> | <b>46,973</b> | <b>47,929</b> | <b>46,460</b> |

Source: Corporate Model and PPB analysis

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|                                 | Year 21       | Year 22       | Year 23       | Year 24         | Year 25        | Year 26        | Year 27        | Year 28        | Year 29        | Year 30   |
|---------------------------------|---------------|---------------|---------------|-----------------|----------------|----------------|----------------|----------------|----------------|-----------|
|                                 | Forecast      | Forecast      | Forecast      | Forecast        | Forecast       | Forecast       | Forecast       | Forecast       | Forecast       | Forecast  |
|                                 | 30-Jun-38     | 30-Jun-39     | 30-Jun-40     | 30-Jun-41       | 30-Jun-42      | 30-Jun-43      | 30-Jun-44      | 30-Jun-45      | 30-Jun-46      | 30-Jun-47 |
|                                 | \$'000        | \$'000        | \$'000        | \$'000          | \$'000         | \$'000         | \$'000         | \$'000         | \$'000         | \$'000    |
| EBITDA                          | 85,451        | 82,051        | 38,872        | (41,418)        | (2,001)        | (2,041)        | (1,747)        | (1,782)        | (1,818)        | -         |
| Tax expense                     | (28,766)      | (27,804)      | (12,705)      | -               | -              | -              | -              | -              | -              | -         |
| <b>After tax free cash flow</b> | <b>56,685</b> | <b>54,247</b> | <b>26,168</b> | <b>(41,418)</b> | <b>(2,001)</b> | <b>(2,041)</b> | <b>(1,747)</b> | <b>(1,782)</b> | <b>(1,818)</b> | -         |
| Capital expenditure             | (8,916)       | (6,063)       | -             | -               | -              | -              | -              | -              | -              | -         |
| Working capital                 | (406)         | (414)         | 11,287        | -               | -              | -              | -              | -              | -              | -         |
| <b>Estimated FCFF</b>           | <b>47,364</b> | <b>47,770</b> | <b>37,454</b> | <b>(41,418)</b> | <b>(2,001)</b> | <b>(2,041)</b> | <b>(1,747)</b> | <b>(1,782)</b> | <b>(1,818)</b> | -         |
| <b>Future FCFF</b>              | <b>47,364</b> | <b>47,770</b> | <b>37,454</b> | <b>(41,418)</b> | <b>(2,001)</b> | <b>(2,041)</b> | <b>(1,747)</b> | <b>(1,782)</b> | <b>(1,818)</b> | -         |

Source: Corporate Model and PPB analysis

We note

- that EBITDA includes sales (Figure 15) and operating expenditure (Figure 16)
- working capital and capital expenditure do not directly have a tax impact. Depreciation in relation to capital expenditure will have a tax impact, through the depreciation charge or capital allowance deduction, that has been accounted for in calculating the tax expense on EBIT.

### LHM stage 3A optimised scenario

Figure 18 summarises the LHM stage 3A optimised scenario sales as well as the ore mined and processed.

Figure 18: LHM stage 3A optimised scenario sales summary and ore mined / processed

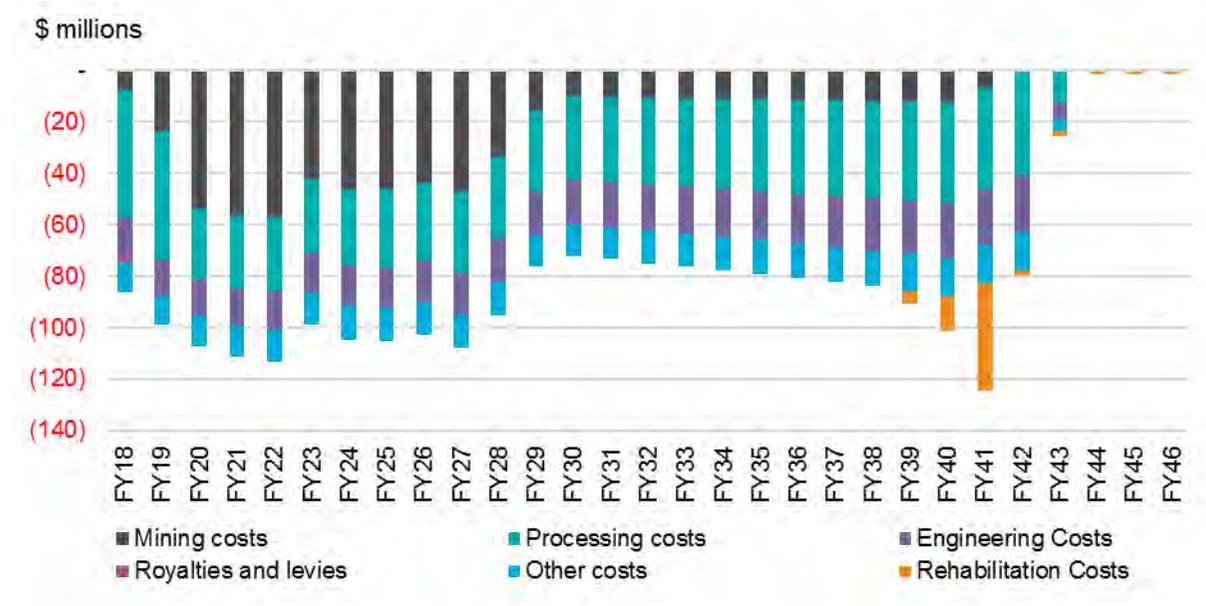


Source: Corporate Model

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Figure 19 summarises the LHM stage 3A optimised scenario operating expenditure.

Figure 19: LHM stage 3A optimised scenario operating expenditure summary



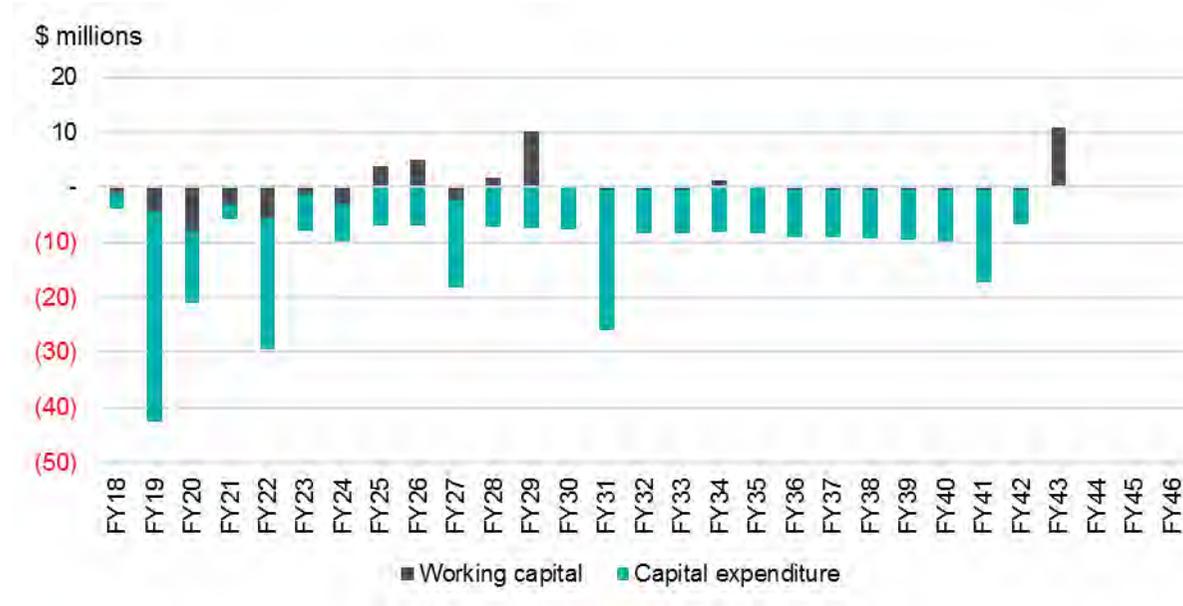
Source: Corporate Model

We note that “Other costs” consists of “Non production costs”, “Marketing fee to PEL Corporate”, “Commercial and Admin”, “Environmental and safety” and “Transport, Logistics & Converter Charges”.

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Figure 20 summarises the LHM stage 3A optimised scenario working capital and capital expenditure.

Figure 20: LHM stage 3A optimised scenario working capital and capital expenditure summary



Source: Corporate Model and PPB analysis

The capital expenditure for FY19 to FY22 relates to an upgrade to the back-end processing as well as the construction of a new tailings storage facility and removal of 2 older tailings storage facilities. The capital expenditure for FY27 and FY34 relates to the construction of tailings storage facilities. As total revenue moderates from FY25 onwards there is expected to be less working capital required by LHM until closure from FY43.

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Table 32 summarises the LHM stage 3A optimised scenario FCFF.

**Table 32: LHM – Stage 3A optimised scenario**

|                                 | Year 1        | Year 2        | Year 3         | Year 4         | Year 5         | Year 6         | Year 7         | Year 8         | Year 9         | Year 10        |
|---------------------------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                                 | Forecast      | Forecast      | Forecast       | Forecast       | Forecast       | Forecast       | Forecast       | Forecast       | Forecast       | Forecast       |
|                                 | 30-Jun-18     | 30-Jun-19     | 30-Jun-20      | 30-Jun-21      | 30-Jun-22      | 30-Jun-23      | 30-Jun-24      | 30-Jun-25      | 30-Jun-26      | 30-Jun-27      |
|                                 | \$'000        | \$'000        | \$'000         | \$'000         | \$'000         | \$'000         | \$'000         | \$'000         | \$'000         | \$'000         |
| EBITDA                          | 18,874        | 45,009        | 110,156        | 136,312        | 187,993        | 214,142        | 236,019        | 200,346        | 155,968        | 172,419        |
| Tax expense                     | -             | -             | -              | -              | (32,722)       | (75,630)       | (83,858)       | (72,595)       | (55,903)       | (60,930)       |
| <b>After tax free cash flow</b> | <b>18,874</b> | <b>45,009</b> | <b>110,156</b> | <b>136,312</b> | <b>155,271</b> | <b>138,512</b> | <b>152,161</b> | <b>127,750</b> | <b>100,065</b> | <b>111,489</b> |
| Capital expenditure             | (2,818)       | (38,176)      | (13,285)       | (2,567)        | (23,814)       | (6,624)        | (6,757)        | (6,892)        | (7,030)        | (15,895)       |
| Working capital                 | (1,126)       | (4,503)       | (7,809)        | (3,193)        | (5,678)        | (1,262)        | (2,924)        | 3,714          | 4,966          | (2,300)        |
| <b>Estimated FCFF</b>           | <b>14,931</b> | <b>2,329</b>  | <b>89,063</b>  | <b>130,552</b> | <b>125,779</b> | <b>130,625</b> | <b>142,480</b> | <b>124,572</b> | <b>98,001</b>  | <b>93,294</b>  |
| <b>Future FCFF</b>              | <b>11,160</b> | <b>2,329</b>  | <b>89,063</b>  | <b>130,552</b> | <b>125,779</b> | <b>130,625</b> | <b>142,480</b> | <b>124,572</b> | <b>98,001</b>  | <b>93,294</b>  |

Source: Corporate Model and PPB analysis

|                                 | Year 11        | Year 12       | Year 13       | Year 14       | Year 15       | Year 16       | Year 17       | Year 18       | Year 19       | Year 20       |
|---------------------------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                                 | Forecast       | Forecast      | Forecast      | Forecast      | Forecast      | Forecast      | Forecast      | Forecast      | Forecast      | Forecast      |
|                                 | 30-Jun-28      | 30-Jun-29     | 30-Jun-30     | 30-Jun-31     | 30-Jun-32     | 30-Jun-33     | 30-Jun-34     | 30-Jun-35     | 30-Jun-36     | 30-Jun-37     |
|                                 | \$'000         | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        | \$'000        |
| EBITDA                          | 168,940        | 92,746        | 97,049        | 99,037        | 101,356       | 103,135       | 90,628        | 88,687        | 90,769        | 92,366        |
| Tax expense                     | (59,573)       | (30,946)      | (33,595)      | (32,054)      | (32,866)      | (33,475)      | (30,957)      | (30,168)      | (30,888)      | (31,423)      |
| <b>After tax free cash flow</b> | <b>109,367</b> | <b>61,800</b> | <b>63,453</b> | <b>66,984</b> | <b>68,490</b> | <b>69,660</b> | <b>59,671</b> | <b>58,518</b> | <b>59,882</b> | <b>60,943</b> |
| Capital expenditure             | (7,314)        | (7,460)       | (7,609)       | (25,613)      | (7,917)       | (8,075)       | (8,237)       | (8,401)       | (8,569)       | (8,741)       |
| Working capital                 | 1,731          | 10,067        | (12)          | (367)         | (427)         | (330)         | 1,191         | 45            | (416)         | (322)         |
| <b>Estimated FCFF</b>           | <b>103,784</b> | <b>64,406</b> | <b>55,832</b> | <b>41,003</b> | <b>60,146</b> | <b>61,255</b> | <b>52,626</b> | <b>50,162</b> | <b>50,896</b> | <b>51,880</b> |
| <b>Future FCFF</b>              | <b>103,784</b> | <b>64,406</b> | <b>55,832</b> | <b>41,003</b> | <b>60,146</b> | <b>61,255</b> | <b>52,626</b> | <b>50,162</b> | <b>50,896</b> | <b>51,880</b> |

Source: Corporate Model and PPB analysis

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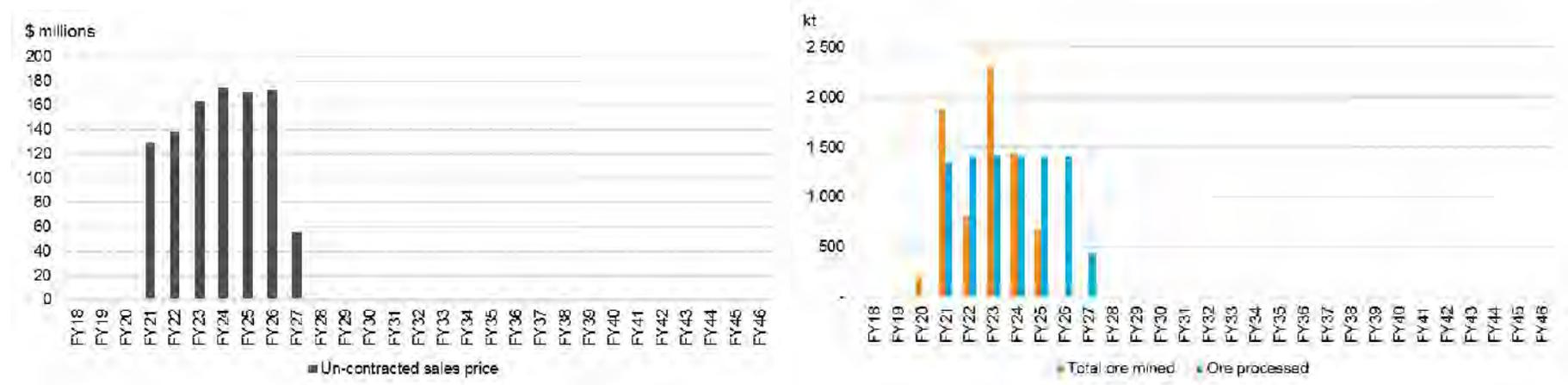
|                                 | Year 21<br>Forecast<br>30-Jun-38<br>\$'000 | Year 22<br>Forecast<br>30-Jun-39<br>\$'000 | Year 23<br>Forecast<br>30-Jun-40<br>\$'000 | Year 24<br>Forecast<br>30-Jun-41<br>\$'000 | Year 25<br>Forecast<br>30-Jun-42<br>\$'000 | Year 26<br>Forecast<br>30-Jun-43<br>\$'000 | Year 27<br>Forecast<br>30-Jun-44<br>\$'000 | Year 28<br>Forecast<br>30-Jun-45<br>\$'000 | Year 29<br>Forecast<br>30-Jun-46<br>\$'000 | Year 30<br>Forecast<br>30-Jun-47<br>\$'000 |
|---------------------------------|--|--|--|--|--|--|--|--|--|--|
| EBITDA                          | 94,261                                     | 91,037                                     | 84,568                                     | 65,150                                     | 113,363                                    | 31,886                                     | (1,747)                                    | (1,782)                                    | (1,818)                                    | -  |
| Tax expense                     | (32,070)                                   | (30,795)                                   | (28,302)                                   | (20,026)                                   | (38,438)                                   | (9,044)                                    | -  | -  | -  | -  |
| <b>After tax free cash flow</b> | <b>62,191</b>                              | <b>60,242</b>                              | <b>56,266</b>                              | <b>45,124</b>                              | <b>74,924</b>                              | <b>22,842</b>                              | <b>(1,747)</b>                             | <b>(1,782)</b>                             | <b>(1,818)</b>                             | -  |
| Capital expenditure             | (8,916)                                    | (9,094)                                    | (9,276)                                    | (16,873)                                   | (6,434)                                    | -  | -  | -  | -  | -  |
| Working capital                 | (380)                                      | (388)                                      | (450)                                      | (348)                                      | (411)                                      | 10,933                                     | -  | -  | -  | -  |
| <b>Estimated FCFF</b>           | <b>52,896</b>                              | <b>50,760</b>                              | <b>46,540</b>                              | <b>27,903</b>                              | <b>68,079</b>                              | <b>33,775</b>                              | <b>(1,747)</b>                             | <b>(1,782)</b>                             | <b>(1,818)</b>                             | -  |
| <b>Future FCFF</b>              | <b>52,896</b>                              | <b>50,760</b>                              | <b>46,540</b>                              | <b>27,903</b>                              | <b>68,079</b>                              | <b>33,775</b>                              | <b>(1,747)</b>                             | <b>(1,782)</b>                             | <b>(1,818)</b>                             | -  |

Source: Corporate Model and PPB analysis

**KM**

Figure 21 summarises the KM scenario sales as well as the ore mined and processed.

**Figure 21: KM scenario sales summary and ore mined / processed**

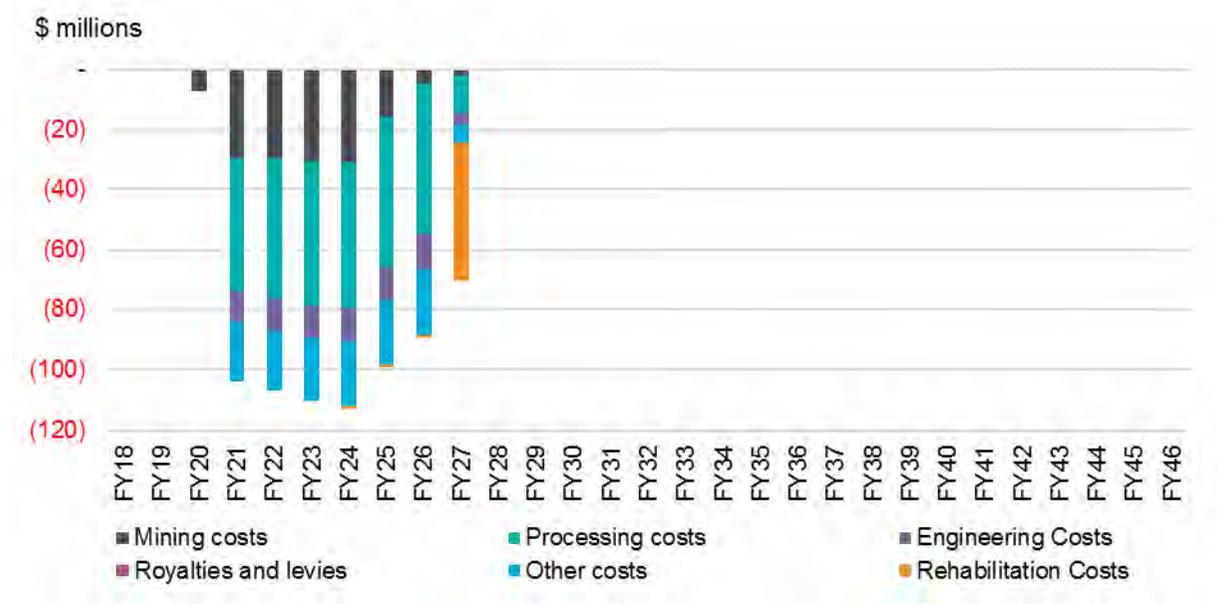


Source: Corporate Model

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Figure 22 summarises the KM operating expenditure.

Figure 22: KM operating expenditure summary



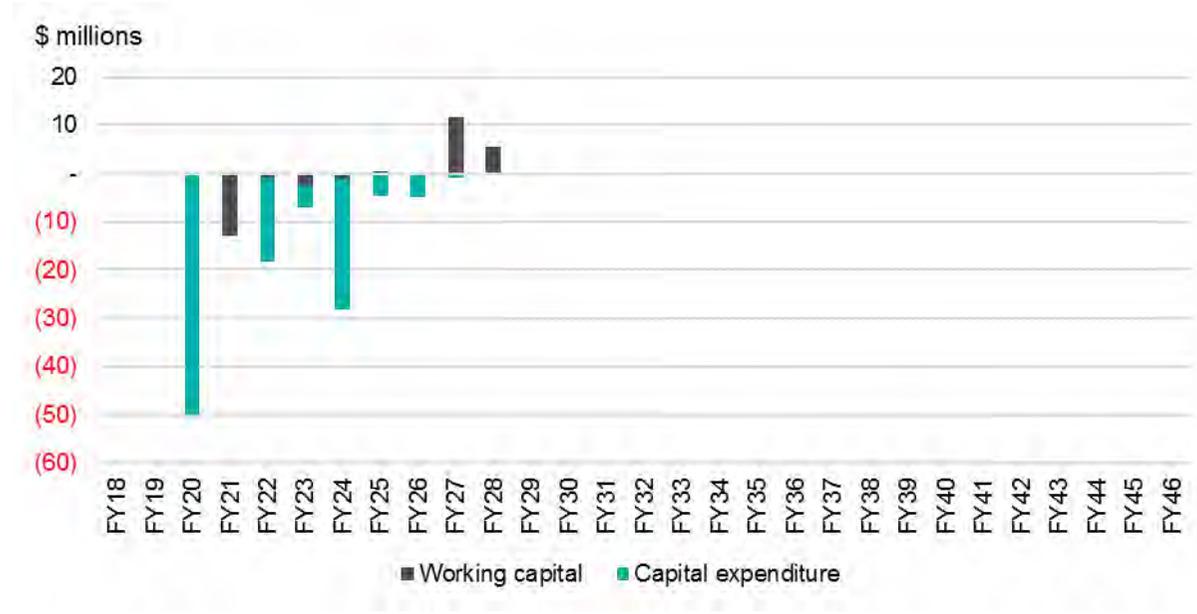
Source: Corporate Model

We note that "Other costs" consists of "Non production costs", "Commercial and Admin", "Environmental and safety" and "Transport, Logistics & Converter Charges"

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Figure 23 summarises the KM scenario working capital and capital expenditure.

Figure 23: KM scenario working capital and capital expenditure summary



Source: Corporate Model and PPB analysis

We note that the capital expenditure for FY20 is to restart the operations and the remainder is to sustain or expand the existing facility. A substantial amount of working capital is required to be invested upon recommencement of KM.

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Table 33 summarises the KM FCFF.

**Table 33: KM cash flow forecasts**

|                                 | Year 1<br>Forecast<br>30-Jun-18<br>\$'000 | Year 2<br>Forecast<br>30-Jun-19<br>\$'000 | Year 3<br>Forecast<br>30-Jun-20<br>\$'000 | Year 4<br>Forecast<br>30-Jun-21<br>\$'000 | Year 5<br>Forecast<br>30-Jun-22<br>\$'000 | Year 6<br>Forecast<br>30-Jun-23<br>\$'000 | Year 7<br>Forecast<br>30-Jun-24<br>\$'000 | Year 8<br>Forecast<br>30-Jun-25<br>\$'000 | Year 9<br>Forecast<br>30-Jun-26<br>\$'000 | Year 10<br>Forecast<br>30-Jun-27<br>\$'000 |
|---------------------------------|---|---|---|---|---|---|---|---|---|--|
| EBITDA                          | (5,000)                                   | (5,100)                                   | (7,270)                                   | 19,396                                    | 25,588                                    | 46,450                                    | 54,169                                    | 64,280                                    | 76,571                                    | (16,083)                                   |
| Tax expense                     | -   | -   | -   | -   | -   | -   | -   | -   | -   | -  |
| <b>After tax free cash flow</b> | <b>(5,000)</b>                            | <b>(5,100)</b>                            | <b>(7,270)</b>                            | <b>19,396</b>                             | <b>25,588</b>                             | <b>46,450</b>                             | <b>54,169</b>                             | <b>64,280</b>                             | <b>76,571</b>                             | <b>(16,083)</b>                            |
| Capital expenditure             | -   | -   | (50,035)                                  | -   | (17,411)                                  | (4,416)                                   | (27,066)                                  | (4,595)                                   | (4,687)                                   | (879)                                      |
| Working capital                 | -   | -   | -   | (12,902)                                  | (929)                                     | (2,509)                                   | (1,084)                                   | 367                                       | (255)                                     | 11,696                                     |
| <b>Estimated FCFF</b>           | <b>(5,000)</b>                            | <b>(5,100)</b>                            | <b>(57,305)</b>                           | <b>6,494</b>                              | <b>7,248</b>                              | <b>39,525</b>                             | <b>26,019</b>                             | <b>60,052</b>                             | <b>71,630</b>                             | <b>(5,266)</b>                             |
| <b>Future FCFF</b>              | <b>(3,737)</b>                            | <b>(5,097)</b>                            | <b>(57,423)</b>                           | <b>6,490</b>                              | <b>7,243</b>                              | <b>39,498</b>                             | <b>26,072</b>                             | <b>60,011</b>                             | <b>71,581</b>                             | <b>(5,262)</b>                             |

Source: Corporate Model and PPB analysis

|                                 | Year 11<br>Forecast<br>30-Jun-28<br>\$'000 |
|---------------------------------|--|
| EBITDA                          | -  |
| Tax expense                     | -  |
| <b>After tax free cash flow</b> | <b>-</b>                                   |
| Capital expenditure             | -  |
| Working capital                 | 5,615                                      |
| <b>Estimated FCFF</b>           | <b>5,615</b>                               |
| <b>Future FCFF</b>              | <b>5,627</b>                               |

Source: Corporate Model and PPB analysis

## Overview of PEL's Corporate Model

The forecast cash flows for LHM and KM are based upon a number of assumptions.

**Table 34: Forecast cash flow assumptions**

|  |              |
|--|--------------|
| Inflation rate                             | 2.0%         |
| <b>LHM</b>                                 |              |
| Life of mine (production) Stage 3/Stage 3A | 2029/2029    |
| Processing Stage 3/Stage 3A                | 2040/2043    |
| Working capital facility                   |              |
| Base rate                                  | LIBOR        |
| Margin                                     | 1.5%         |
| <b>KM</b>                                  |              |
| Life of mine (production)                  | 2025         |
| Processing                                 | 2027         |
| Date of operational restart                | FY2020       |
| Annual 'care and maintenance' charge       | \$5 million  |
| Minimum salvage value                      | \$23 million |
| Assumed price to restart                   | \$55 / lb    |

*Source: Corporate Model*

We note that the all-in cash cost of KM is \$45 / lb in year 2 and year 3 and reduces to \$40 / lb.

## Appendix E. Forecast Uranium prices

PEL's Corporate Model prepared by Management includes the following broker consensus forecasts for uranium prices dated between 9 February 2017 and 18 April 2017.

**Table 35: Corporate Model Management uranium price forecasts – up to 18 April 2017**

| USD/lb              | Nom. / real:<br>Date | Nom.<br>2017 | Nom.<br>2018 | Nom.<br>2019 | Nom.<br>2020 | Nom.<br>2021 | Real<br>LT (2017 real) |
|---------------------|----------------------|--------------|--------------|--------------|--------------|--------------|------------------------|
| BMO Capital         | 17-Apr-17            | 27           | 38           | 48           |              |              | 60                     |
| BoA - Merrill Lynch | 13-Apr-17            | 25           | 28           | 30           |              |              | 57                     |
| CIBC                | 17-Mar-17            | 40           | 40           | 75           | 75           |              | 75                     |
| Deutsche Bank       | 3-Apr-17             | 59           | 62           | 64           | 65           | 66           | 55                     |
| Haywood Securities  | 17-Feb-17            | 36           | 46           | 55           | 63           | 70           | 70                     |
| JP Morgan           | 16-Mar-17            | 24           | 35           | 40           |              |              | 75                     |
| Cantor Fitzgerald   | 27-Apr-17            | 28           | 45           | 66           | 80           | 80           | 80                     |
| Paradigm Capital    | 9-Feb-17             | 30           | 35           | 40           | 55           |              | 55                     |
| RBC                 | 18-Apr-17            | 25           | 30           | 35           | 40           | 45           | 65                     |
| Renaissance Capital | 4-Apr-17             | 25           | 33           | 42           | 51           |              | 50                     |
| UBS                 | 11-Apr-17            | 27           | 33           | 45           | 55           | 60           | 55                     |
| <b>Average</b>      |                      | <b>31</b>    | <b>39</b>    | <b>49</b>    | <b>61</b>    | <b>64</b>    | <b>63</b>              |

Source: Corporate Model

Since the Valuation Date is 30 September 2017 we sought to update the uranium price forecasts using more currently available information. Based on our research we identified 6 more current broker forecasts for uranium prices since 1 July 2017.

**Table 36: Broker forecasts - post 1 July 2017**

| USD/lb         | Nom. / real:<br>Date | Nom.<br>2017 | Nom.<br>2018 | Nom.<br>2019 | Nom.<br>2020 | Nom.<br>2021 | Real<br>LT (2017 real) |
|----------------|----------------------|--------------|--------------|--------------|--------------|--------------|------------------------|
| BMO Capital    | 18-Oct-17            | 22           | 26           | 43           | 60           |              | 60                     |
| Credit Suisse  | 28-Sep-17            | 22           | 25           | 30           | 30           |              | 40                     |
| Eight Capital  | 6-Jul-17             | 27           | 29           | 35           | 40           | 50           |                        |
| Macquarie      | 10-Oct-17            | 22           | 24           | 27           | 30           | 33           | 33                     |
| Raymond James  | 15-Aug-17            | 23           | 27           | 32           | 37           |              | 50                     |
| Scotiabank     | Oct 17               | 21           | 20           | 25           |              |              | 50                     |
| <b>Average</b> |                      | <b>23</b>    | <b>25</b>    | <b>32</b>    | <b>39</b>    | <b>42</b>    | <b>47</b>              |

Source: Various broker reports

We noted that not all the brokers used in the Corporate Model (refer Table 35) had provided updated uranium price forecasts at or around the Valuation Date (refer Table 36). Therefore, we updated Management's uranium price forecast assumptions (per Table 35) with the most current broker uranium price forecasts that were available from S&P Capital IQ at the Valuation Date. These updated uranium price forecasts for brokers noted within the Corporate Model are summarised below.

**Table 37: Updated uranium price forecasts for brokers noted in Corporate Model**

| USD/lb      | Nom. / real:<br>Date | Nom.<br>2017 | Nom.<br>2018 | Nom.<br>2019 | Nom.<br>2020 | Nom.<br>2021 | Real<br>LT (2017 real) |
|-------------|----------------------|--------------|--------------|--------------|--------------|--------------|------------------------|
| BMO Capital | 24-May-17            | 27           | 38           | 48           |              |              |                        |
| BMO Capital | 3-Oct-16             |              |              |              | 60           |              |                        |
| BMO Capital | 17-Apr-17            |              |              |              |              |              | 60                     |
|             | Nom. / real:         | Nom.         | Nom.         | Nom.         | Nom.         | Nom.         | Real                   |

| USD/lb              | Date      | 2017      | 2018      | 2019      | 2020      | 2021      | LT (2017 real) |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------------|
| BoA - Merrill Lynch | 13-Apr-17 | 25        | 28        | 30        |           |           | 57             |
| CIBC                | 17-Mar-17 | 40        | 40        | 75        | 75        |           | 75             |
| Deutsche Bank       | 3-Apr-17  | 59        | 62        | 64        | 65        | 66        | 55             |
| Haywood Securities  | 20-Jul-17 | 26        | 39        | 47        | 55        | 64        |                |
| Haywood Securities  | 17-Feb-17 |           |           |           |           |           | 70             |
| JP Morgan           | 16-Mar-17 | 24        | 35        | 40        |           |           | 75             |
| Cantor Fitzgerald   | 26-Jul-17 | 22        | 29        | 43        | 63        |           |                |
| Cantor Fitzgerald   | 27-Apr-17 |           |           |           |           | 80        | 80             |
| Paradigm Capital    | 9-Feb-17  | 30        | 35        | 40        | 55        |           | 55             |
| RBC                 | 18-Apr-17 | 25        | 30        | 35        | 40        | 45        | 65             |
| Renaissance Capital | 7-Jul-17  | 24        | 32        | 41        | 50        |           |                |
| Renaissance Capital | 7-Aug-17  |           |           |           |           | 54        |                |
| Renaissance Capital | 4-Apr-17  |           |           |           |           |           | 50             |
| UBS                 | 11-Apr-17 | 27        | 33        | 45        | 55        | 60        | 55             |
| <b>Average</b>      |           | <b>30</b> | <b>36</b> | <b>46</b> | <b>57</b> | <b>61</b> | <b>63</b>      |

Source: S&P Capital IQ

In undertaking the valuation of LHM and KM and assessing the cash flow projections, we relied on the updated uranium price forecasts for brokers noted in the Corporate Model as well as the most current available broker forecasts that we were able to source since 1 July 2017. We have summarised the relied upon forecast uranium prices for our valuation of LHM and KM below.

Table 38: PPB relied upon uranium price forecasts

| USD/lb              | Nom. / real:<br>Date | Nom.<br>2017 | Nom.<br>2018 | Nom.<br>2019 | Nom.<br>2020 | Nom.<br>2021 | Real<br>LT (2017 real) |
|---------------------|----------------------|--------------|--------------|--------------|--------------|--------------|------------------------|
| BMO Capital         | 24-May-17            | 27           | 38           | 48           |              |              |                        |
| BMO Capital         | 3-Oct-16             |              |              |              | 60           |              |                        |
| BMO Capital         | 17-Apr-17            |              |              |              |              |              | 60                     |
| BoA - Merrill Lynch | 13-Apr-17            | 25           | 28           | 30           |              |              | 57                     |
| CIBC                | 17-Mar-17            | 40           | 40           | 75           | 75           |              | 75                     |
| Deutsche Bank       | 3-Apr-17             | 59           | 62           | 64           | 65           | 66           | 55                     |
| Haywood Securities  | 20-Jul-17            | 26           | 39           | 47           | 55           | 64           |                        |
| Haywood Securities  | 17-Feb-17            |              |              |              |              |              | 70                     |
| JP Morgan           | 16-Mar-17            | 24           | 35           | 40           |              |              | 75                     |
| Cantor Fitzgerald   | 26-Jul-17            | 22           | 29           | 43           | 63           |              |                        |
| Cantor Fitzgerald   | 27-Apr-17            |              |              |              |              | 80           | 80                     |
| Paradigm Capital    | 9-Feb-17             | 30           | 35           | 40           | 55           |              | 55                     |
| RBC                 | 18-Apr-17            | 25           | 30           | 35           | 40           | 45           | 65                     |
| Renaissance Capital | 7-Jul-17             | 24           | 32           | 41           | 50           |              |                        |
| Renaissance Capital | 7-Aug-17             |              |              |              |              | 54           |                        |
| Renaissance Capital | 4-Apr-17             |              |              |              |              |              | 50                     |
| UBS                 | 11-Apr-17            | 27           | 33           | 45           | 55           | 60           | 55                     |
| Credit Suisse       | 28-Sep-17            | 22           | 25           | 30           | 30           |              | 40                     |
| Eight Capital       | 6-Jul-17             | 27           | 29           | 35           | 40           | 50           |                        |
| Macquarie           | 10-Oct-17            | 22           | 24           | 27           | 30           | 33           | 33                     |
| Raymond James       | 15-Aug-17            | 23           | 27           | 32           | 37           |              | 50                     |
| Scotiabank          | Oct 17               | 21           | 20           | 25           |              |              | 50                     |
| <b>Average</b>      |                      | <b>28</b>    | <b>33</b>    | <b>41</b>    | <b>50</b>    | <b>56</b>    | <b>58</b>              |

Source: S&P Capital IQ and various broker reports

The above table only includes 5 additional most current broker forecasts published after 1 July 2017 that we identified as being potentially relevant. Note that we have also used the higher BMO Capital broker forecasts from Table 36 rather than their lower broker forecasts from Table 37.

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## Appendix F. LHM and KM discount rates

We have calculated a discount rate for:

- LHM to be between 11.0% and 12.0%
- KM to be between 16.0% and 17.0%.

We have calculated USD based discount rates because the cash flows for the LHM and KM are denominated in US dollars.

The discount rate used to equate future cash flows to their present value reflects the risk adjusted rate of return that would be demanded by a hypothetical investor.

Discount rates are determined based on the cost of its debt and equity weighted by the proportion of debt and equity used.

This is commonly referred to as the Weighted Average Cost of Capital ('WACC').

The WACC can be derived using the following formula:

$$\text{WACC} = ((E / V) \times K_e) + ((D / V) \times K_d) \times (1 - t_c)$$

Where:

$K_e$  = cost of equity capital

$K_d$  = cost of debt

$T_c$  = corporate tax rate

$E / V$  = proportion of company funded by equity

$D / V$  = proportion of company funded by debt

### Debt-to-value Ratio ( D / V )

We have assumed an optimal debt-to-value ratio for LHM and KM of 10.0%.

The debt-to-value ratio represents the debt funding of the assets as a proportion of the total value of the assets. Our comparable listed company analysis is summarised below.

#### Analysis of debt-to-value ratios of potentially comparable listed companies as at 30 September 2017

| Time Period            | 1 Year        | 2 Year        | 3 Year        | 4 Year        | 5 Year        |
|------------------------|---------------|---------------|---------------|---------------|---------------|
| Average Gearing        | Debt-to-Value | Debt-to-Value | Debt-to-Value | Debt-to-Value | Debt-to-Value |
| Median                 | 7.5%          | 7.7%          | 6.4%          | 3.9%          | 0.6%          |
| Mean                   | 9.6%          | 8.9%          | 7.7%          | 7.0%          | 5.2%          |
| Minimum                | 0.0%          | 0.0%          | 0.0%          | 0.0%          | 0.0%          |
| Maximum                | 21.1%         | 19.9%         | 20.2%         | 19.0%         | 14.6%         |
| Median (excl outliers) | 6.3%          | 6.0%          | 3.1%          | 3.0%          | 0.6%          |
| Mean (excl. outliers)  | 7.6%          | 4.5%          | 3.2%          | 2.7%          | 1.6%          |

Source: Appendix G

## Cost of equity

The cost of equity ('Ke') is the rate of return that investors require to make an equity investment in a firm.

We have used the Capital Asset Pricing Model ('CAPM') to estimate the Ke for LHM and KM. CAPM calculates the minimum rate of return that the company must earn on the equity-financed portion of its capital to leave the market price of its shares unchanged. The CAPM is the most widely accepted and used methodology for determining the cost of equity.

The cost of equity under CAPM is determined using the following formula:

$$K_e = R_f + \beta (R_m - R_f) + a$$

Where:

Ke = required return on equity

Rf = the risk free rate of return

Rm = the expected return on the market portfolio

$\beta$  = beta, the systematic risk of a stock which can be objectively measured by the responsiveness of company returns to movements in returns earned on the market portfolio

a = specific company risk premium.

Each of the components in the above equation are discussed below.

### Risk free rate

We have used the yield on the 10 and 30 year US Government bond on the Valuation Date of 2.33% and 2.86% as a proxy for the risk free rates ('Rf') for KM and LHM.

The risk free rate compensates the investor for the time value of money and the expected inflation rate over the investment period. The frequently adopted proxy for the risk free rate is the long-term government bond rate.

The table below illustrates that the current yield on the 10 year and 30 year US Government bonds is in line with average yields over the past five years.

#### Analysis of US 10 and 30 Year Government Bonds as at 30 September 2017

| Time Period            | 10 Year<br>Nominal yield (%) | 30 Year<br>Nominal yield (%) |
|------------------------|------------------------------|------------------------------|
| Spot rate              | 2.33                         | 2.86                         |
| 5 day prior average    | 2.28                         | 2.83                         |
| 30 day prior average   | 2.19                         | 2.77                         |
| 60 day prior average   | 2.24                         | 2.81                         |
| 12 month prior average | 2.27                         | 2.90                         |
| 5 year prior average   | 2.21                         | 3.03                         |

Source: S&P Capital IQ

### Market risk premium

We have selected a Market Risk Premium ('MRP') of 5.5% based on the US.

The MRP is calculated as the expected return of holding a market portfolio of investments ( $R_m$ ) less the expected return of holding a risk free asset. It represents the additional risk of the market portfolio above the risk free rate. Whilst in the short term, MRPs are known to fluctuate as investors seek to price the overall equity market, based on the perceived risks associated with it at the time, the long term MRP has generally been found to be stable.

Our assessment of the MRP in US is based on various studies on historic returns and market research.

## Equity Beta

We have calculated an equity beta range for:

- LHM between 1.07 to 1.18
- KM between 1.08 to 1.19.

The beta coefficient is a measure of the expected volatility relative to the market portfolio. The expected beta cannot be observed; therefore, the historical beta is usually used as a proxy for the expected beta. A beta can be estimated by regressing the excess returns of the stock against the excess returns of the index representing the market portfolio.

There are significant measurement issues with beta, which means that only limited reliance can be placed on such statistics. Even measurement of historical betas is subject to considerable variation and requires a considerable degree of judgement.

## Unlevered and Re-levered Beta

The beta is measured on the cash flows returned to equity holders and is therefore after interest. Accordingly, a firm's beta also reflects its capital structure. Since financial leverage is likely to alter between firms it is generally erroneous to make comparison of betas between firms without regard to each firm's leverage.

The betas can all be de-gearred (or 'de-levered') to remove the impact of leverage. The formula is set out below:

$$\beta (\text{ungeared}) = \beta (\text{geared}) / (1 + (D/E) \times (1 - t))$$

The un-levered or 'asset' betas can then be analysed to determine an appropriate asset beta for the subject of the valuation, and it can be re-gearred (or 're-levered') to reflect the appropriate capital structure. The re-levered betas are also known as 'equity' betas.

## Comparable Company Betas

We have selected an asset beta range for LHM and KM of 1.00 to 1.10.

To estimate an appropriate beta for LHM and KM we analysed the historical equity betas and capital structures for listed companies with broadly comparable operations to LHM and KM. Our analysis was over a five year period prior to the Valuation Date. Our comparable company beta analysis is summarised in the table below.

**Table 39: Analysis of betas of potentially comparable listed companies as at 30 September 2017**

| Time Period            | 1 Year     | 2 Year     | 3 Year     | 4 Year     | 5 Year     |
|------------------------|------------|------------|------------|------------|------------|
| Beta Type              | Asset Beta |
| Median                 | 1.50       | 1.30       | 1.03       | 1.01       | 1.05       |
| Mean                   | 1.50       | 1.20       | 1.05       | 1.05       | 1.06       |
| Minimum                | 1.05       | 0.67       | 0.65       | 0.73       | 0.77       |
| Maximum                | 2.04       | 1.60       | 1.48       | 1.39       | 1.41       |
| Median (excl outliers) | 1.37       | 1.34       | 1.09       | 0.99       | 1.05       |
| Mean (excl. outliers)  | 1.42       | 1.28       | 1.14       | 0.97       | 1.05       |

Source: Appendix G

## Specific risk premium (SRP or $\alpha$ )

The specific risk premium adjusts the cost of equity for company specific factors. The CAPM assumes, amongst other things, that rational investors seek to hold efficient portfolios, that is, portfolios that are fully diversified. One of the major conclusions of the CAPM is that investors do not have regard to specific company risks (often referred to as unsystematic risk).

We have included a country risk premium for:

- LHM within Namibia of 3.13%
- KM within Malawi of 9.25%

We used Aswath Damodaran's most current table (Jan 2017) of country default spreads, Moody's ratings and country risk premiums<sup>18</sup> as a source for our selected country risk premiums. Malawi was not listed in the list of countries, therefore we used Malawi's Moody's rating of B3 to estimate an appropriate country risk premium based on other countries listed in Aswath Damodaran's table of countries with the same Moody's rating as Malawi.

We considered and not included any other specific risk premiums.

## Summary

The table below summarises our discount rate calculation for LHM and KM.

**Table 40: Discount rate summary**

|                                    | LHM<br>Namibia |              | KM<br>Malawi |              |
|------------------------------------|----------------|--------------|--------------|--------------|
|                                    | Low<br>%       | High<br>%    | Low<br>%     | High<br>%    |
| <b>Cost of equity (CAPM)</b>       |                |              |              |              |
| Risk Free Rate (Rf)                | 2.86           | 2.86         | 2.33         | 2.33         |
| Market Risk Premium (MRP)          | 5.50           | 5.50         | 5.50         | 5.50         |
| Geared Beta Estimate ( $\beta_L$ ) | 1.07           | 1.18         | 1.08         | 1.19         |
| Asset Beta ( $\beta_U$ )           | 1.00           | 1.10         | 1.00         | 1.10         |
| <b>CAPM based cost of equity</b>   | <b>8.74</b>    | <b>9.33</b>  | <b>8.26</b>  | <b>8.85</b>  |
| Country Risk Premium               | 3.13           | 3.13         | 9.25         | 9.25         |
| <b>Cost of equity</b>              | <b>11.87</b>   | <b>12.46</b> | <b>17.51</b> | <b>18.10</b> |
| <b>Cost of debt<sup>19</sup></b>   | <b>6.50</b>    | <b>6.50</b>  | <b>6.50</b>  | <b>6.50</b>  |
| <b>Optimal capital structure</b>   |                |              |              |              |
| Debt / value                       | 10.00          | 10.00        | 10.00        | 10.00        |
| Equity / value                     | 90.00          | 90.00        | 90.00        | 90.00        |
| <b>Debt-to-equity ratio</b>        | <b>11.11</b>   | <b>11.11</b> | <b>11.11</b> | <b>11.11</b> |

<sup>18</sup> PPB estimate as per Damodaran (Source: [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/ctryprem.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html))

<sup>19</sup> PPB estimate based upon "LIBOR plus 5.17%" ( Source: page 28, "Interim Financial Report" dated 16 May 2017 and a USD LIBOR at 30 September 2017 of 1.33% ( Source: S&P Capital IQ )

|                                  | LHM<br>Namibia |              | KM<br>Malawi |              |
|----------------------------------|----------------|--------------|--------------|--------------|
|                                  | Low<br>%       | High<br>%    | Low<br>%     | High<br>%    |
| <b>WACC</b>                      |                |              |              |              |
| Local tax rate ( $t_c$ )         | 37.50          | 37.50        | 30.00        | 30.00        |
| Weighted post tax cost of equity | 10.68          | 11.21        | 15.76        | 16.29        |
| Weighted post tax cost of debt   | 0.41           | 0.41         | 0.46         | 0.46         |
| <b>Calculated WACC (nominal)</b> | <b>11.09</b>   | <b>11.62</b> | <b>16.21</b> | <b>16.75</b> |
| <b>Selected WACC (nominal)</b>   | <b>11.00</b>   | <b>12.00</b> | <b>16.00</b> | <b>17.00</b> |

Source: Capital IQ and PPB analysis

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## Appendix G. Comparable listed companies

Table 41: Potentially comparable listed company descriptions

| Company                           | Business description   |
|-----------------------------------|--|
| Cameco Corporation                | Cameco Corporation produces and sells uranium worldwide. It operates through three segments: Uranium, Fuel Services, and NUKEM. The Uranium segment is involved in the exploration for, mining, and milling, as well as purchase and sale of uranium concentrates. Its operating uranium properties include the McArthur River/Key Lake, Cigar Lake, and Rabbit Lake properties located in Saskatchewan, Canada; the Inkai property situated in Kazakhstan; the Smith Ranch-Highland property located in Wyoming, the United States; and the Crow Butte property situated in Nebraska, the United States. The Fuel Services segment engages in the refining, conversion, and fabrication of uranium concentrate, as well as the purchase and sale of conversion services. This segment also produces fuel bundles and reactor components for CANDU reactors. The NUKEM segment trades in uranium and uranium-related products. The company sells its uranium and fuel services to nuclear utilities. Cameco Corporation was founded in 1987 and is headquartered in Saskatoon, Canada. |
| Denison Mines Corp.               | Denison Mines Corp. engages in uranium mining and related activities in Canada. The company is involved in the acquisition, exploration, and development of uranium properties; and extraction, processing, and sale of uranium. Its assets include a 22.50% interest in the McClean Lake uranium processing facility and uranium deposits; a 25.17% interest in the Midwest uranium project; and a 60% interest in the Wheeler River project located in northern Saskatchewan. The company's assets also comprise a 63.01% interest in Waterbury Lake project; 100% interest in the Johnston Lake project; 30% interest in the Mann Lake project; and 22.76% interest in Wolly project situated in the Athabasca Basin, northern Saskatchewan. It also provides mine decommissioning and environmental services to a variety of industry and government clients. The company was formerly known as International Uranium Corporation and changed its name to Denison Mines Corp. in December 2006. Denison Mines Corp. was founded in 1996 and is headquartered in Toronto, Canada.   |
| Energy Fuels Inc.                 | Energy Fuels Inc., together with its subsidiaries, engages in the extraction, recovery, and sale of uranium and vanadium in the United States. It operates in two segments, ISR Uranium and Conventional Uranium. The company owns and operates the Nichols Ranch uranium recovery facility located in Wyoming; the Alta Mesa project located in Texas; and the White Mesa Mill located in Utah. It also holds interests in uranium and uranium/vanadium properties and projects in various stages of exploration, permitting, and evaluation located in Utah, Wyoming, Arizona, New Mexico, and Colorado. The company was formerly known as Volcanic Metals Exploration Inc. and changed its name to Energy Fuels Inc. in May 2006. Energy Fuels Inc. was incorporated in 1987 and is headquartered in Lakewood, Colorado.  |
| Energy Resources of Australia Ltd | Energy Resources of Australia Ltd engages in mining, processing, and selling uranium oxide. The company holds interests in the Ranger uranium mine located in the Northern Territory, Australia, as well as title to the Jabiluka deposit located to the north of Ranger. It sells its products to power utilities in Asia, North America, Europe, and Africa. The company was founded in 1980 and is headquartered in Darwin, Australia. Energy Resources of Australia Ltd is a subsidiary of North Limited.  |
| Peninsula Energy Limited          | Peninsula Energy Limited, together with its subsidiaries, explores for, develops, and mines uranium properties in the United States. It also explores for gold ores. The company holds 100% interest in the Lance uranium projects located in Wyoming. It also jointly holds interest in the Karoo uranium exploration projects, which are situated in the Karoo Basin, South Africa; and Raki Raki gold project located in Fiji. The company was formerly known as Peninsula Minerals Limited and changed its name to Peninsula Energy Limited in November 2010. Peninsula Energy Limited was founded in 1993 and is based in Subiaco, Australia.   |
| Uranium Energy Corp.              | Uranium Energy Corp. engages in the exploration, pre-extraction, extraction, and processing of uranium concentrates on projects located in the United States and the Republic of Paraguay. As of July 31, 2017, it had mineral rights in uranium projects located in the states of Arizona, Colorado, New Mexico, Texas, and Wyoming, as well as in the Republic of Paraguay. The company was formerly known as Carlin Gold Inc. and changed its name to Uranium Energy Corp. in January 2005. Uranium Energy Corp. was incorporated in 2003 and is based in Corpus Christi, Texas.  |
| UR-Energy Inc.                    | UR-Energy Inc. engages in the acquisition, exploration, development, and operation of uranium mineral properties. The company holds interests in 13 projects located in the United States. Its principal property is the Lost Creek project comprising a total of approximately 1,900 unpatented mining claims and 3 Wyoming mineral leases covering an area of approximately 37,500 acres located in the Great Divide Basin, Wyoming. The company was founded in 2004 and is headquartered in Littleton, Colorado.  |

Source: S&P Capital IQ

**Table 42: Potentially comparable listed company beta analysis**

As at 30 September 2017

|                                       | Equity beta |        |        |        |        | Asset beta |        |        |        |        |
|---------------------------------------|-------------|--------|--------|--------|--------|------------|--------|--------|--------|--------|
|                                       | 1 Year      | 2 Year | 3 Year | 4 Year | 5 Year | 1 Year     | 2 Year | 3 Year | 4 Year | 5 Year |
| Cameco Corporation                    | 1.50        | 1.19   | 1.18   | 1.16   | 1.18   | 1.25       | 1.00   | 1.03   | 1.01   | 1.05   |
| Denison Mines Corp.                   | 2.04        | 1.59   | 1.37   | 1.39   | 1.41   | 2.04       | 1.59   | 1.37   | 1.39   | 1.41   |
| Energy Fuels Inc.                     | 2.05        | 1.68   | 1.54   | 1.42   | 1.34   | 1.95       | 1.60   | 1.48   | 1.37   | 1.29   |
| Energy Resources of Australia Ltd     | 1.09        | 0.85   | 0.65   | 0.79   | 0.80   | 1.09       | 0.85   | 0.65   | 0.79   | 0.80   |
| Peninsula Energy Limited              | 1.86        | 1.38   | 1.03   | 0.98   | 0.91   | 1.64       | 1.30   | 1.01   | 0.96   | 0.90   |
| Uranium Energy Corp.                  | 1.09        | 1.43   | 1.21   | 1.14   | 1.23   | 1.05       | 1.37   | 1.16   | 1.11   | 1.22   |
| UR-Energy Inc.                        | 1.69        | 0.77   | 0.74   | 0.83   | 0.84   | 1.50       | 0.67   | 0.65   | 0.73   | 0.77   |
| Median                                | 1.69        | 1.38   | 1.18   | 1.14   | 1.18   | 1.50       | 1.30   | 1.03   | 1.01   | 1.05   |
| Average                               | 1.62        | 1.27   | 1.10   | 1.10   | 1.10   | 1.50       | 1.20   | 1.05   | 1.05   | 1.06   |
| Min                                   | 1.09        | 0.77   | 0.65   | 0.79   | 0.80   | 1.05       | 0.67   | 0.65   | 0.73   | 0.77   |
| Max                                   | 2.05        | 1.68   | 1.54   | 1.42   | 1.41   | 2.04       | 1.60   | 1.48   | 1.39   | 1.41   |
| Adjusted median (excluding outliers)  | 1.86        | 1.43   | 1.18   | 1.14   | 1.18   | 1.37       | 1.34   | 1.09   | 0.99   | 1.05   |
| Adjusted average (excluding outliers) | 1.83        | 1.45   | 1.11   | 1.10   | 1.10   | 1.42       | 1.28   | 1.14   | 0.97   | 1.05   |

Source: S&P Capital IQ

Note that outliers are shaded in grey and based on an 80% confidence interval

**Table 43: Potentially comparable listed company gearing**

|                                       | Debt-to-value |        |        |        |        |
|---------------------------------------|---------------|--------|--------|--------|--------|
|                                       | 1 Year        | 2 Year | 3 Year | 4 Year | 5 Year |
| Cameco Corporation                    | 21.1%         | 19.9%  | 17.3%  | 16.3%  | 14.6%  |
| Denison Mines Corp.                   | 0.0%          | 0.0%   | 0.0%   | 0.0%   | 0.0%   |
| Energy Fuels Inc.                     | 7.5%          | 7.7%   | 6.7%   | 6.6%   | 6.6%   |
| Energy Resources of Australia Ltd     | 0.0%          | 0.0%   | 0.0%   | 0.0%   | 0.0%   |
| Peninsula Energy Limited              | 15.9%         | 8.9%   | 3.1%   | 3.0%   | 0.6%   |
| Uranium Energy Corp.                  | 5.1%          | 6.0%   | 6.4%   | 3.9%   | 0.6%   |
| UR-Energy Inc.                        | 17.4%         | 19.8%  | 20.2%  | 19.0%  | 14.3%  |
| Median                                | 7.5%          | 7.7%   | 6.4%   | 3.9%   | 0.6%   |
| Average                               | 9.6%          | 8.9%   | 7.7%   | 7.0%   | 5.2%   |
| Min                                   | 0.0%          | 0.0%   | 0.0%   | 0.0%   | 0.0%   |
| Max                                   | 21.1%         | 19.9%  | 20.2%  | 19.0%  | 14.6%  |
| Adjusted median (excluding outliers)  | 6.3%          | 6.0%   | 3.1%   | 3.0%   | 0.6%   |
| Adjusted average (excluding outliers) | 7.6%          | 4.5%   | 3.2%   | 2.7%   | 1.6%   |

Source: S&P Capital IQ

Note that outliers are shaded in grey and based on an 80% confidence interval

## Appendix H. Valuation cross checks

### Valuation of LHM - cross check

We have assessed the reasonableness of our valuation of LHM using our primary valuation methodology by considering the implied resource and revenue multiples of LHM compared them to the resource and revenue multiples of potentially comparable listed companies.

### Revenue multiples

Based upon our revenue multiple cross check, as summarised by Table 44 and Table 45, our valuation of LHM using our primary valuation methodology does not appear unreasonable as the implied revenue multiples of LHM are similar to those observed for the potentially comparable listed companies.

**Table 44: Revenue multiples of potentially comparable listed companies**

|  | Market cap.<br>\$'000 | EV<br>\$'000 | Revenue multiple<br>LTM | Revenue multiple<br>NTM |
|--|-----------------------|--------------|-------------------------|-------------------------|
| Cameco Corporation                           | 3,815,778             | 4,729,709    | 3.29                    | 3.55                    |
| Denison Mines Corp.                          | 259,438               | 255,045      | 29.51                   | 25.76                   |
| Energy Fuels Inc.                            | 114,259               | 126,768      | 3.36                    | 5.55                    |
| Energy Resources of Australia Ltd            | 229,477               | (87,102)     | n/a                     | n/a                     |
| Peninsula Energy Limited                     | 63,329                | 76,536       | 5.13                    | 3.94                    |
| Uranium Energy Corp.                         | 232,327               | 239,007      | n/a                     | 81.10                   |
| UR-Energy Inc.                               | 84,031                | 102,470      | 2.89                    | 3.42                    |
| <b>Median</b>                                |                       |              | <b>3.36</b>             | <b>4.74</b>             |
| <b>Average</b>                               |                       |              | <b>8.84</b>             | <b>20.55</b>            |
| <b>Adjusted median (excluding outliers)</b>  |                       |              | <b>3.32</b>             | <b>3.94</b>             |
| <b>Adjusted average (excluding outliers)</b> |                       |              | <b>3.67</b>             | <b>8.44</b>             |

Source: S&P Capital IQ and PPB analysis

**Table 45: Implied revenue multiples of LHM**

|   | Low<br>\$'000  | High<br>\$'000 |
|---|----------------|----------------|
| LHM business value  | 551,437        | 708,614        |
| Less cash   | (15,192)       | (15,192)       |
| <b>LHM Enterprise Value</b>                                 | <b>536,245</b> | <b>693,422</b> |
| LHM LTM revenue   | 99,195         | 100,808        |
| <b>LHM implied LTM revenue multiples</b>                    | <b>5.41</b>    | <b>6.88</b>    |
| Potentially comparable listed company LTM revenue multiple: |                |                |
| Adjusted average (excluding outliers)                       | 3.67           | 3.67           |
| Adjusted median (excluding outliers)                        | 3.32           | 3.32           |
| LHM NTM revenue   | 119,556        | 120,507        |
| <b>LHM implied NTM revenue multiples</b>                    | <b>4.49</b>    | <b>5.75</b>    |
| Potentially comparable listed company NTM revenue multiple: |                |                |
| Adjusted average (excluding outliers)                       | 8.44           | 8.44           |
| Adjusted median (excluding outliers)                        | 3.94           | 3.94           |

Source: S&P Capital IQ and PPB analysis

## Resources multiples

Based upon our resource multiple cross check, as summarised by Table 46 and Table 47, our valuation of LHM using our primary valuation methodology does not appear unreasonable as the implied resource multiples of LHM are similar to those observed for the potentially comparable listed companies.

**Table 46: Resource multiples of potentially comparable listed companies**

|  | Market cap. | EV        | Proved and probable reserves | Resource multiple |
|--|-------------|-----------|------------------------------|-------------------|
|  | \$'000      | \$'000    | mlbs                         |                   |
| Cameco Corporation                           | 3,815,778   | 4,729,709 | 414.7                        | 11.41             |
| Denison Mines Corp.                          | 259,438     | 255,045   | 0.2                          | 1,275.22          |
| Energy Fuels Inc.                            | 114,259     | 126,768   | 18.4                         | 6.89              |
| Energy Resources of Australia Ltd            | 229,477     | (87,102)  | 22.05                        | n/a               |
| Peninsula Energy Limited                     | 63,329      | 76,536    | 71.5                         | 1.07              |
| Uranium Energy Corp.                         | 232,327     | 239,007   | n/a                          | n/a               |
| UR-Energy Inc.                               | 84,031      | 102,470   | n/a                          | n/a               |
| <b>Median</b>                                |             |           |                              | <b>4.74</b>       |
| <b>Average</b>                               |             |           |                              | <b>20.55</b>      |
| <b>Adjusted median (excluding outliers)</b>  |             |           |                              | <b>6.89</b>       |
| <b>Adjusted average (excluding outliers)</b> |             |           |                              | <b>6.46</b>       |

Source: S&P Capital IQ and PPB analysis

**Table 47: Implied resource multiples of LHM**

|  | Low<br>\$'000  | High<br>\$'000 |
|--|----------------|----------------|
| LHM business value                                       | 551,437        | 708,614        |
| Less cash  | (15,192)       | (15,192)       |
| <b>LHM Enterprise Value</b>                              | <b>536,245</b> | <b>693,422</b> |
| LHM mineable reserves as at 30 June 2017 mlbs            | 80,546         | 80,546         |
| <b>LHM implied resource multiples</b>                    | <b>6.51</b>    | <b>8.42</b>    |
| Potentially comparable listed company resource multiple: |                |                |
| Adjusted average (excluding outliers)                    |                | 6.46           |
| Adjusted median (excluding outliers)                     |                | 6.89           |

Source: S&P Capital IQ and PPB analysis

## Valuation of KM cross check

We have assessed the reasonableness of our valuation of KM using our primary valuation methodology by considering the binomial option method as well as the implied multiples of LHM compared to resource multiples of potentially comparable listed companies.

### Binomial option method

We consider that value of KM is akin to the value of a call option in that Management may elect to restart the mine when the uranium price reaches the selected restart price. We have therefore also valued KM using the binomial option method as a cross check to our primary valuation methodology. Refer to Appendix C for a summary of the option pricing methods.

The inputs to our binomial option model are summarised in Table 48. We have not included the 'care and maintenance' costs of \$5.0 million per year because we consider that this is discretionary to an extent.

Our valuation of KM using the binomial option method is within the range of value of KM on a 100% basis using our primary valuation methodology of \$25.4 million to \$28.8 million.

**Table 48: Binomial option valuation of KM**

|   | Low<br>30-Sep-17 | High<br>30-Sep-17 |
|---|------------------|-------------------|
| Uranium spot price in USD                               | 20.30            | 20.30             |
| Exercise price in USD (KM restart uranium price target) | 55.00            | 55.00             |
| Risk free rate (US 30 year Government bond yield)       | 2.86%            | 2.86%             |
| Expected exercise date (10 years from Valuation Date)   | 30-Sep-27        | 30-Sep-27         |
| Estimated volatility                                    | 15.00%           | 25.00%            |
| Dividend yield  | -                | -                 |
| <b>Option value</b>                                     | <b>0.3703</b>    | <b>2.1737</b>     |
| KM saleable pounds                                      | 15,579,991       | 15,579,991        |
| <b>Total value</b>                                      | <b>5,769,437</b> | <b>33,866,178</b> |

Source: PPB analysis

## Resources multiples

Based upon our resource multiple cross check, as summarised by Table 49 and Table 50, our valuation of KM using our primary valuation methodology does not appear unreasonable. Because KM is currently in a 'care and maintenance' phase, we would expect its resource multiple to be lower, than the potentially comparable listed companies that are mostly producing.

**Table 49: Resource multiples of potentially comparable listed companies**

|  | Market cap.<br>\$'000 | EV<br>\$'000 | Proved and<br>probable<br>reserves<br>mlbs | Resource<br>multiple |
|--|-----------------------|--------------|--|----------------------|
| Cameco Corporation                           | 3,815,778             | 4,729,709    | 414.7                                      | 11.41                |
| Denison Mines Corp.                          | 259,438               | 255,045      | 0.2  | 1,275.22             |
| Energy Fuels Inc.                            | 114,259               | 126,768      | 18.4                                       | 6.89                 |
| Energy Resources of Australia Ltd            | 229,477               | (87,102)     | 22.05                                      | n/a                  |
| Peninsula Energy Limited                     | 63,329                | 76,536       | 71.5                                       | 1.07                 |
| Uranium Energy Corp.                         | 232,327               | 239,007      | n/a  | n/a                  |
| UR-Energy Inc.                               | 84,031                | 102,470      | n/a  | n/a                  |
| <b>Median</b>                                |                       |              |  | <b>4.74</b>          |
| <b>Average</b>                               |                       |              |  | <b>20.55</b>         |
| <b>Adjusted median (excluding outliers)</b>  |                       |              |  | <b>6.89</b>          |
| <b>Adjusted average (excluding outliers)</b> |                       |              |  | <b>6.46</b>          |

Source: S&P Capital IQ and PPB analysis

Table 50: Implied resource multiples of KM

|  | Low<br>\$'000 | High<br>\$'000 |
|--|---------------|----------------|
| KM business value  | 25,390        | 28,808         |
| Less cash  | (93)          | (93)           |
| <b>KM Enterprise Value</b>                               | <b>25,297</b> | <b>28,714</b>  |
| KM mineable reserves as at 30 June 2017 mlbs             | 12,164        | 12.164         |
| <b>KM implied resource multiples</b>                     | <b>2.08</b>   | <b>2.36</b>    |
| Potentially comparable listed company resource multiple: |               |                |
| Adjusted average (excluding outliers)                    |               | 6.46           |
| Adjusted median (excluding outliers)                     |               | 6.89           |

Source: S&P Capital IQ and PPB analysis

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## Appendix I. CSA technical report

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**CSA Global**  
Mining Industry Consultants



**Independent Technical  
Specialist's Report**

**Valuation of the Mineral Assets  
(excluding Langer Heinrich)  
of  
Paladin Energy Limited  
(subject to deed of company  
arrangement)**

**CSA Global Report N° R422.2017**

**22<sup>nd</sup> December 2017**

**[www.csaglobal.com](http://www.csaglobal.com)**

**Report prepared for**

|                       |  |
|-----------------------|--|
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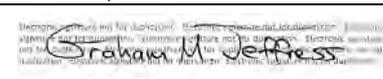
**Report issued by**

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## Executive Summary

CSA Global Pty Ltd (CSA Global) was initially commissioned by KPMG Australia (KPMG) to prepare an Independent Technical Specialist's Report and Valuation on the Mineral Assets (other than the Langer Heinrich Mine) ("Mineral Assets") of Paladin Energy Limited (subject to deed of company arrangement) (Paladin or the "Company") following the appointment of Matthew Woods, Hayden White and Gayle Dickerson of KPMG as joint and several administrators ("Administrators") on 3<sup>rd</sup> July 2017. That report was dated 25<sup>th</sup> August 2017.

PPB Corporate Finance Pty Ltd (PPB) have subsequently engaged CSA Global to 'refresh' our 25<sup>th</sup> August 2017 report for inclusion in an Independent Expert's Report on Paladin (Paladin IER), prepared by PPB to, amongst other things, assist the Court to assess the prospective application by the Administrators pursuant to section 444GA of the Corporations Act, in particular whether the transfer of Paladin shares pursuant to the deed of company arrangement dated 8<sup>th</sup> December 2017 will unfairly prejudice Paladin shareholders.

This independent technical assessment and valuation report (the "Report") has been prepared for PPB Advisory for inclusion in the Paladin IER and is substantially based on the previous report prepared for KPMG (with the permission of KPMG). The Report comprises an independent technical specialist's report and valuation and has been prepared in accordance with the relevant VALMIN, ASIC and ASX guidelines.

The Report provides a review of the Mineral Assets of Paladin, excluding Langer Heinrich. The basis of value assumed in respect of the Mineral Assets is 'market value' as defined in the VALMIN Code (2015). We consider market value to be consistent with the concept of 'fair value' as described in ASIC's Regulatory Guide 111 – Content of expert reports. CSA Global has used a range of valuation methods to reach a conclusion on the value ranges of these assets. We note that the valuations are of the Mineral Assets, and not of the value of Paladin as a company.

The statements and opinions contained in the Report are given in good faith and in the belief that they are not false or misleading. The conclusions are based on the reference date of 30<sup>th</sup> September 2017 and could alter over time depending on exploration results, mineral prices, and other relevant market factors. CSA Global's valuations are based on information provided by Paladin, and public domain information, which are detailed within the body of the Report. CSA Global has endeavoured, by making all reasonable enquiries within the timeframe available, to confirm the authenticity and completeness of the technical data upon which the Report is based. No audit of any financial data has been conducted.

It is stressed that the values are opinions as to likely values, not absolute values, which can only be tested by going to the market.

### Paladin's Mineral Assets

Paladin has assembled a global portfolio of uranium projects (Figure 1). The Company has two uranium mines in Africa (one operating, the other on care and maintenance), and advanced uranium exploration projects in Africa, Canada and Australia comprising:

- Langer Heinrich Uranium Mine in Namibia;
- Kayelekera Uranium Mine, and exploration tenements, in Malawi;
- Michelin Project in Canada;
- Manyingee and Carley Bore projects, in Western Australia;
- Valhalla, Skal and Odin deposits, and other mineral interests, in Queensland, including those held by Fusion Resources Ltd (Fusion), Valhalla Uranium Pty Ltd and the Paladin share of the Mineral Assets of Summit Resources Ltd (Summit);
- A minority interest in the Reaphook Project in South Australia; and
- Paladin's Uranium Database.

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Table 1 lists the Mineral Resources discussed in this report, excluding Langer Heinrich, on a project-by-project basis.

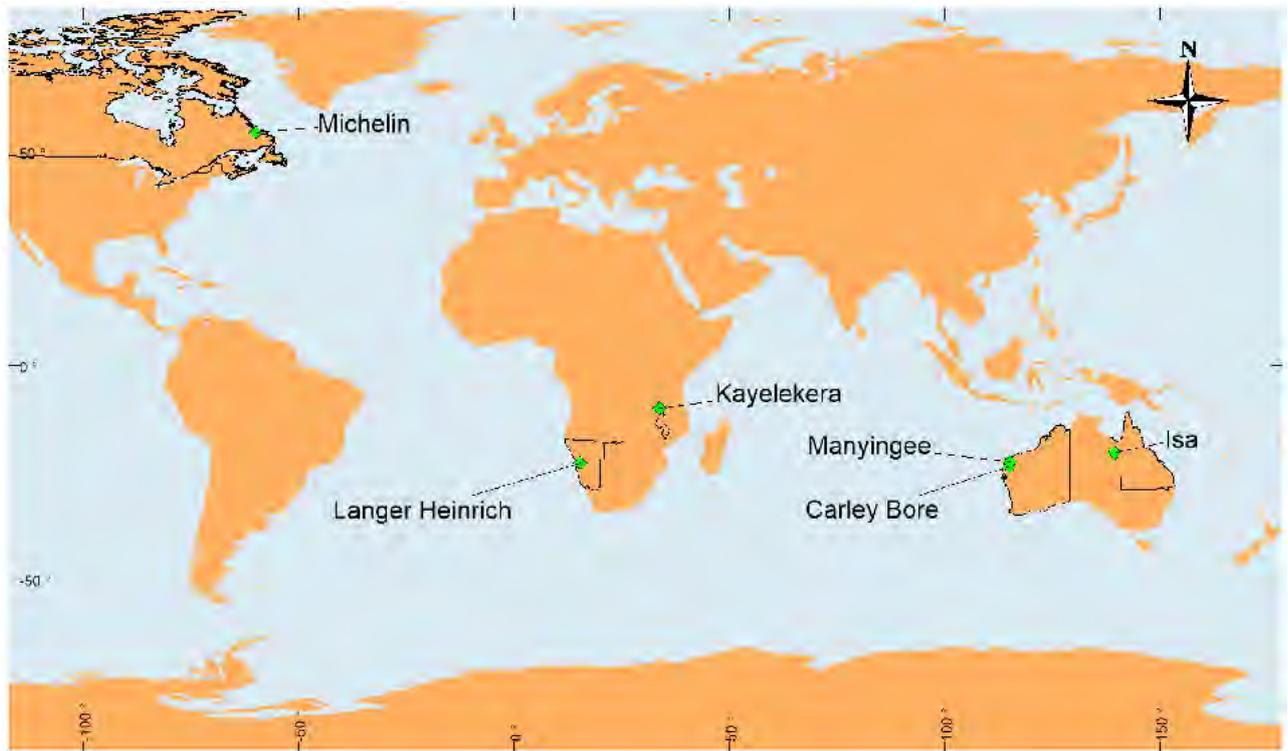


Figure 1: Location of Paladin's projects

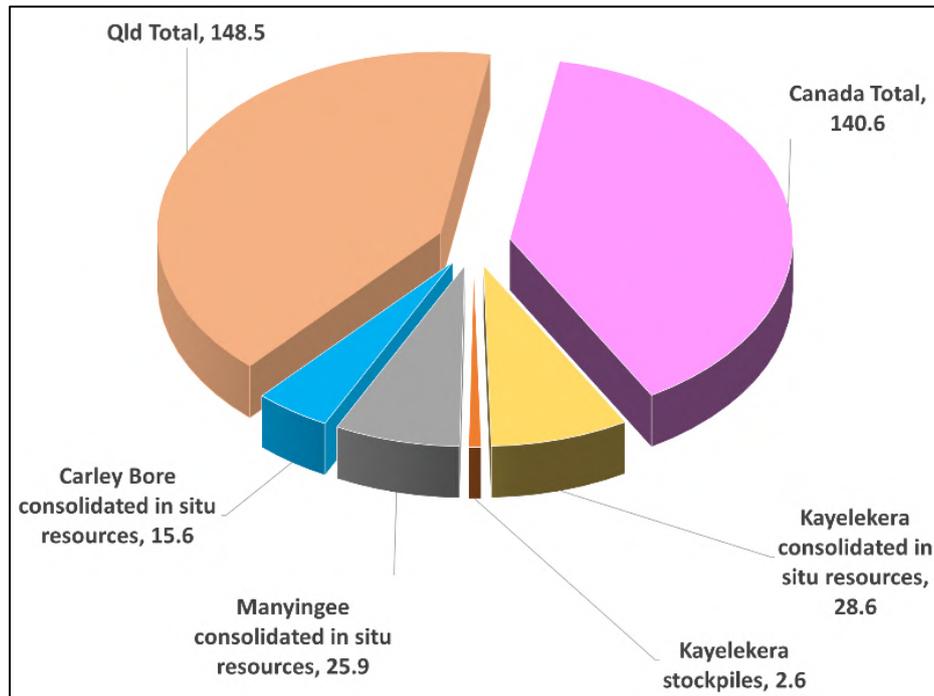


Figure 2: Paladin consolidated Mineral Resources (Mlb U<sub>3</sub>O<sub>8</sub>), excl. Langer Heinrich

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Table 1: Overview of Paladin Mineral Resources and Ore Reserves (Mlb U<sub>3</sub>O<sub>8</sub>) considered in this report

| Location                     | Project                        | Tonnes (mt) | Grade (%) | Contained U <sub>3</sub> O <sub>8</sub> (mlb) | Operating status     | Valmin Code status |
|------------------------------|--------------------------------|-------------|-----------|---|----------------------|--------------------|
| Malawi                       | Kayelekera                     |             |           |   | Care and Maintenance | Pre-Development    |
|                              | Proved Ore Reserves            | .4          | .117      | 1.0   |                      |                    |
|                              | Probable Ore Reserves          | 5.3         | .088      | 10.4  |                      |                    |
|                              | Stockpiles                     | 1.6         | .076      | 2.6   |                      |                    |
|                              | Total Ore Reserves + Stockpile | 7.3         | .087      | 14.0  |                      |                    |
|                              | Measured Mineral Resources     | .7          | .101      | 1.7   |                      |                    |
|                              | Indicated Mineral Resources    | 12.7        | .070      | 19.6  |                      |                    |
|                              | Inferred Mineral Resources     | 5.4         | .062      | 7.4   |                      |                    |
|                              | Total Mineral Resources        | 20.4        | .070      | 31.3  |                      |                    |
| Western Australia            | Manyingee                      |             |           |   | Exploration          | Pre-development    |
|                              | Measured Mineral Resources     | -           | -         | -   |                      |                    |
|                              | Indicated Mineral Resources    | 8.4         | .085      | 15.7  |                      |                    |
|                              | Inferred Mineral Resources     | 5.4         | .085      | 10.2  |                      |                    |
|                              | Total Mineral Resources        | 13.8        | .085      | 25.9  |                      |                    |
|                              | Carlee Bore                    |             |           |   | Exploration          | Pre-development    |
|                              | Measured Mineral Resources     | -           | -         | -   |                      |                    |
|                              | Indicated Mineral Resources    | 5.4         | .042      | 5.0   |                      |                    |
|                              | Inferred Mineral Resources     | 17.4        | .028      | 10.6  |                      |                    |
|                              | Total Mineral Resources        | 22.8        | .031      | 15.6  |                      |                    |
| Total Mineral Resources (WA) | 36.6                           | .051        | 41.5      |   |                      |                    |
| Queensland                   | Valhalla                       |             |           |   | Exploration          | Pre-development    |
|                              | Measured Mineral Resources     | 15.8        | .083      | 28.9  |                      |                    |
|                              | Indicated Mineral Resources    | 18.9        | .083      | 34.5  |                      |                    |
|                              | Inferred Mineral Resources     | 9.1         | .064      | 12.8  |                      |                    |
|                              | Total Mineral Resources        | 43.8        | .079      | 76.3  |                      |                    |
|                              | Skal                           |             |           |   | Exploration          | Pre-development    |
|                              | Measured Mineral Resources     | -           | -         | -   |                      |                    |
|                              | Indicated Mineral Resources    | 14.3        | .064      | 20.2  |                      |                    |
|                              | Inferred Mineral Resources     | 1.4         | .052      | 1.6   |                      |                    |
|                              | Total Mineral Resources        | 15.7        | .063      | 21.8  |                      |                    |
|                              | Odin                           |             |           |   | Exploration          | Pre-development    |
|                              | Measured Mineral Resources     | -           | -         | -   |                      |                    |
|                              | Indicated Mineral Resources    | 8.2         | .056      | 10.0  |                      |                    |
|                              | Inferred Mineral Resources     | 5.8         | .059      | 7.7   |                      |                    |
|                              | Total Mineral Resources        | 14.0        | .057      | 17.6  |                      |                    |
|                              | Bikini                         |             |           |   | Exploration          | Pre-development    |
| Measured Mineral Resources   | -                              | -           | -         |   |                      |                    |
| Indicated Mineral Resources  | 5.8                            | .050        | 6.3       |   |                      |                    |
| Inferred Mineral Resources   | 6.7                            | .049        | 7.3       |   |                      |                    |
| Total Mineral Resources      | 12.5                           | .049        | 13.7      |   |                      |                    |

|        |                               |      |      |       |             |                 |
|--------|-------------------------------|------|------|-------|-------------|-----------------|
|        | Andersons                     |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |
|        | Indicated Mineral Resources   | 1.4  | .145 | 4.6   |             |                 |
|        | Inferred Mineral Resources    | .1   | .164 | .4    |             |                 |
|        | Total Mineral Resources       | 1.5  | .146 | 5.0   |             |                 |
|        | Watta                         |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |
|        | Indicated Mineral Resources   | -    | -    | -     |             |                 |
|        | Inferred Mineral Resources    | 5.6  | .040 | 5.0   |             |                 |
|        | Total Mineral Resources       | 5.6  | .040 | 5.0   |             |                 |
|        | Warwai                        |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |
|        | Indicated Mineral Resources   | -    | -    | -     |             |                 |
|        | Inferred Mineral Resources    | .4   | .037 | .3    |             |                 |
|        | Total Mineral Resources       | .4   | .037 | .3    |             |                 |
|        | Mirrioola                     |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |
|        | Indicated Mineral Resources   | -    | -    | -     |             |                 |
|        | Inferred Mineral Resources    | 2.0  | .056 | 2.5   |             |                 |
|        | Total Mineral Resources       | 2.0  | .056 | 2.5   |             |                 |
|        | Duke Batman                   |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |
|        | Indicated Mineral Resources   | .5   | .137 | 1.6   |             |                 |
|        | Inferred Mineral Resources    | .3   | .110 | .7    |             |                 |
|        | Total Mineral Resources       | .8   | .127 | 2.3   |             |                 |
|        | Honey Pot                     |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |
|        | Indicated Mineral Resources   | -    | -    | -     |             |                 |
|        | Inferred Mineral Resources    | 2.6  | .070 | 4.0   |             |                 |
|        | Total Mineral Resources       | 2.6  | .070 | 4.0   |             |                 |
|        | Total Mineral Resources (QLD) | 98.9 | .068 | 148.5 |             |                 |
| Canada | Nash                          |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |
|        | Indicated Mineral Resources   | .7   | .080 | 1.2   |             |                 |
|        | Inferred Mineral Resources    | .5   | .070 | .8    |             |                 |
|        | Total Mineral Resources       | 1.2  | .076 | 2.1   |             |                 |
|        | India                         |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |
|        | Indicated Mineral Resources   | 1.2  | .070 | 1.8   |             |                 |
|        | Inferred Mineral Resources    | 3.3  | .070 | 4.8   |             |                 |
|        | Total Mineral Resources       | 4.5  | .070 | 6.6   |             |                 |
|        | Gear                          |      |      |       | Exploration | Pre-development |
|        | Measured Mineral Resources    | -    | -    | -     |             |                 |

|                                  |      |      |       |             |                 |
|----------------------------------|------|------|-------|-------------|-----------------|
| Indicated Mineral Resources      | .4   | .080 | .6    |             |                 |
| Inferred Mineral Resources       | .3   | .090 | .6    |             |                 |
| Total Mineral Resources          | .7   | .084 | 1.2   |             |                 |
| Rainbow                          |      |      |       | Exploration | Pre-development |
| Measured Mineral Resources       | .2   | .090 | .4    |             |                 |
| Indicated Mineral Resources      | .8   | .090 | 1.4   |             |                 |
| Inferred Mineral Resources       | .9   | .080 | 1.6   |             |                 |
| Total Mineral Resources          | 1.9  | .085 | 3.5   |             |                 |
| Jacques Lake                     |      |      |       | Exploration | Pre-development |
| Measured Mineral Resources       | .9   | .090 | 1.6   |             |                 |
| Indicated Mineral Resources      | 6.0  | .070 | 9.5   |             |                 |
| Inferred Mineral Resources       | 8.1  | .050 | 9.0   |             |                 |
| Total Mineral Resources          | 15.0 | .060 | 20.2  |             |                 |
| Michelin                         |      |      |       | Exploration | Pre-development |
| Measured Mineral Resources       | 15.6 | .100 | 34.1  |             |                 |
| Indicated Mineral Resources      | 21.9 | .100 | 50.0  |             |                 |
| Inferred Mineral Resources       | 8.8  | .120 | 22.9  |             |                 |
| Total Mineral Resources          | 46.3 | .104 | 107.0 |             |                 |
| Total Mineral Resources (Canada) | 69.6 | .092 | 140.6 |             |                 |

- All Mineral Resources have been publicly reported in the Paladin Energy and Summit Resources 2016 Annual Reports.
- There have been no changes to the resource estimates since that time, and details of the resources are provided in the annual reports.
- All of these resources have been publicly reported by Competent Persons.
- These resources have also been independently reviewed by an international mining consultancy retained by a large international advisory group retained by creditors to Paladin. This consultancy confidentially restated the Paladin MRE in accordance with the 2012 JORC Code. CSA Global has reviewed this confidential report. Paladin has expressed a number of points difference with the conclusions of this report.
- CSA Global for the purposes of valuation in this Report has used the publicly available resources of Paladin, which are in any case higher than in the confidential report.

### Kayelekera Uranium Mine, Malawi

The Kayelekera Project is a redox-controlled, sandstone-hosted uranium deposit in Malawi, southern Africa. Paladin has an 85% equity interest in Kayelekera, which operated between 2009 and 2014 producing a total of 10.7 Mlb U<sub>3</sub>O<sub>8</sub>.

Operations were suspended in May 2014 due to the prolonged downturn in uranium prices. The mine was placed on care and maintenance until such time economic conditions improve sufficiently to resume operations profitably. More than half of the mine's reserves and resources remain, with a current total resource base of 31.3 Mlb U<sub>3</sub>O<sub>8</sub>.

Paladin also has an 85% equity interest in three Malawian tenements prospective for uranium of a style similar to Kayelekera. Two of the licences are immediately adjacent to the Kayelekera mining lease, and the third licence is in the same region.

CSA Global undertook a review of the documentation provided on restarting the mining operations at Kayelekera, the life of mine plan and assessed the technical inputs into the model. A simple pre-tax cashflow model was created as the basis for a DCF analysis. Based on these inputs and ppb,s guidance on forecast commodity prices and exchange rates, CSA Global concludes that the Kayelekera project is unlikely to be cash flow positive, even after delaying the restart date to take advantage of the highest forecast metal prices. Since no positive financial outcome was achieved using the DCF analysis and the model inputs, an alternative

method is required to value the Kayelekera Mine. Therefore, CSA Global reviewed comparable market transactions, and completed a Yardstick Order of Magnitude Check, in forming an opinion on the market value of the resource. Based on this work the market value of Paladin's 85% interest in the Kayelekera resource falls within the range of US\$3 million to US\$7 million, with a preferred value of US\$4.5 million. In addition, the valuation range for Paladin's 85% interest in the Malawian exploration tenure (based on comparable market transactions) is US\$0.1 million to US\$0.3 million, with a preferred value of US\$0.2 million.

### **Michelin Uranium Project, Canada**

Paladin through its wholly-owned subsidiary, Aurora Energy Ltd (Aurora), holds rights to the Michelin Uranium Project which covers 91,600 ha within the Central Mineral Belt (CMB) of Labrador, Canada.

The Central Mineral Belt including the Michelin Uranium Property, is situated near the northeast coast of Labrador in Canada. Six separate deposits have been identified in the project area, and Paladin has reported the resources in accordance with the JORC and NI 43-101 reporting codes. The total resource base is 140.6 Mlb U<sub>3</sub>O<sub>8</sub>. Uranium mineralisation is hosted in two units, the Post Hill Group and the Aillik Group.

The larger uranium deposits (Michelin, Rainbow, Jacques Lake) are associated with a belt of Proterozoic felsic volcanic rocks (Aillik Group) and granitoids in the southwest portions of Aurora's claims. Deposits of the Inda Lake trend (Inda, Gear, Nash and Kitts) are hosted by underlying metasediments and mafic metavolcanics of the Post Hill Group.

Aurora's geologists have defined five styles of uranium in the CMB. They are:

- Michelin type: foliated felsic volcanics of the Aillik Group with strong sodic alteration (albite, hornblende, Na pyroxene, hematite), finely disseminated uranium mineralisation in sphene-albite
- Jacques Lake type: foliated intermediate volcanics of the Aillik Group with variable sodic alteration, late magnetite-calcite veins, magnetic anomalies
- Upper C Zone type: intensely brecciated mafic volcanics of the Bruce River Group, strong iron carbonate alteration with hematite-pyrite
- KING (Kitts-Inda-Nash-Gear) type: sheared and folded mafic volcanics and argillaceous metasediments, abundant syngenetic magnetite-pyrrhotite
- Granite type: Alaskite-type granite hosted in fractures and shears, variable hematite and magnetite with pegmatite sheets, erratic veins with molybdenum, fluorite and copper mineralisation

CSA Global considered recent market transactions that were considered comparable to the Aurora Michelin deposits, as well as a Yardstick order of magnitude check, in forming an opinion on the market value of the resources. CSA Global concludes the market value of Paladin's Canadian resources falls within the range of US\$14.8 million to US\$22.2 million, with a preferred value of US\$18.5 million. In addition, the valuation range for the Canadian exploration tenure is US\$0.4 million to US\$1.2 million, with a preferred value of US\$0.8 million.

### **Manyingee and Carley Bore Uranium Projects, Western Australia**

Paladin's Western Australian Mineral Assets comprise the Manyingee and Carley Bore projects. These are sandstone-hosted roll front uranium deposits considered amenable to in-situ recovery (ISR) of uranium.

The Manyingee Uranium Project is located in the northwest of Western Australia, 85 km inland from the coastal township of Onslow. It has a total resource base of 25.9 Mlb U<sub>3</sub>O<sub>8</sub>. The project is covered by three mining leases covering 1,307 ha.

The Carley Bore prospect is located along the eastern margin of the Carnarvon Basin of Western Australia, approximately 200 km south of Onslow and some 120 km south of Manyingee. It has a total resource base of 15.6 Mlb U<sub>3</sub>O<sub>8</sub>. The project is covered by three exploration licences covering 1,003 km<sup>2</sup>.

CSA Global considered recent market transactions involving Australian ISR uranium projects, as well as valuation checks by the Yardstick and Geoscientific Rating methods, in forming an opinion on the market value of the Manyingee and Carley Bore projects.

We conclude that the current market value of Paladin's Western Australian resources is within the range of US\$5.0 million to US\$7.5 million, with a preferred value of US\$6.2 million. In addition, the valuation range for the associated exploration tenure is US\$0.1 million to US\$1.5 million, with a preferred value of US\$1.2 million.

### Queensland Uranium Projects

Paladin's uranium and base metal exploration and project development activities in Queensland are located 30 km to 80 km north of Mount Isa in northwest Queensland. The uranium tenements in the Mount Isa region are nearly contiguous and are held by Summit (Paladin 82% interest) and Fusion (Paladin 100% interest). Summit also has a uranium joint venture with Mount Isa Uranium Pty Ltd (Paladin 100% interest) and base and precious metal joint ventures with AEON Metals Ltd.

The Paladin Mount Isa uranium deposits are classified as albitite-hosted uranium metasomatite deposits. The total resource base is 148.5 Mlb  $U_3O_8$ , hosted in 10 separate deposits. There are reasonable prospects for resource expansion and good exploration potential within the projects.

The value of Paladin's Queensland Mineral Assets was considered via evaluation of comparative market transactions of uranium projects in Australia and North America (excluding ISR projects and those with resource grade  $>1\% U_3O_8$ ). The Yardstick method was applied as an order of magnitude check where there were defined Mineral Resources and the Geoscientific Rating method was applied for exploration tenure.

Based on our evaluation, the market value of Paladin's interests in the Queensland Mineral Resources falls within the range of US\$18 million to US\$27 million, with a preferred value of US\$22 million. In addition, the valuation range for Paladin's interest in the Queensland exploration tenure is US\$0.7 million to US\$3.1 million, with a preferred value of US\$1.9 million.

### Other Assets

#### *Reaphook (South Australia) Minority Interest*

Paladin holds a 7.5% interest in the Reaphook Joint Venture which covers the rights to explore for and develop all commodities other than uranium on a relatively small exploration licence in the north-eastern part of South Australia. The project hosts base metal mineralisation of a style that is similar to the Beltana zinc deposit to the west of the project and it may have potential for uranium mineralisation. Activity in relation to base metal exploration is being conducted and fully funded by Perilya.

Whilst high grade base metal mineralisation has been returned in rock chip sampling, drilling results were less encouraging and the mineralisation style is of a type that can be difficult to process. The tenement is also nearing the end of its term. For these reasons, CSA Global has attributed a value range of US\$5,000 to US\$10,000 with a nominal preferred value of US\$5,000 for Paladin's minority interest.

#### *North Telfer Royalty*

Antipa Minerals Limited (Antipa) entered into an agreement with Paladin, where Paladin would withdraw its existing exploration licence applications in the North Telfer region of Western Australia, which underlaid Antipa's applications. Antipa issued shares to a value of A\$180,000 to Paladin and granted a 1% net smelter royalty (the "North Telfer Royalty") for the sale of minerals produced from the acquired area other than uranium.

The North Telfer Project is an early-stage exploration project without defined Mineral Resource or Ore Reserves. Due to the early stage of exploration, it is inappropriate to estimate a value of 'potential future production' or the value of the associated 1% net smelter royalty. CSA Global therefore ascribes no market value for the royalty over the North Telfer Project in Western Australia at the reference date.

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### *Uranium Database*

Paladin owns a substantial uranium database, compiled over 30 years of investigations by the international uranium mining house, Uranerzbergbau in Germany, incorporating all aspects of the uranium mining and exploration industry worldwide and including detailed exploration data for Africa and Australia.

While the database represents a very useful collection of information – representing a very substantial past exploration expenditure by a diverse range of companies – the difficulty of accessing this data because of the hardcopy format, the historical nature of the information, and the current depressed market interest in uranium, reduces the market value of the database.

CSA Global believes the data may have a market value in the range of US\$10,000 to US\$50,000 and have elected to apply a nominal valuation of US\$30,000 to the database.

### **Valuation**

The valuation approach adopted by CSA Global has been to rely primarily on Market-based methods (primarily the Comparative Transaction approach) to inform CSA Global's opinion of the Market Value of Paladin's Mineral Assets (excluding the Langer Heinrich Mine). This was based on the declared Mineral Resources and Ore Reserves for mineral deposits, and tenement area for exploration ground.

Where possible, CSA Global has considered one or more alternative valuation methods to check our valuation opinion. Alternative methods considered included the Income approach (DCF analysis), Yardstick market factors, and the Geoscientific Rating method. The choice of alternative valuation method employed was dictated by the exploration stage of the asset and the availability of information.

CSA Global discusses previous valuations of the assets, some of which are recent, in this report. Differences to CSA Global's opinion are primarily due to differences in uranium price forecasts assumed.

In assessing the value of Paladin's Mineral Assets, CSA Global considered the following:

- Jurisdiction – Namibia, Malawi and Canada are supportive of uranium mining. The states of Western Australia and Queensland in Australia are not;
- Infrastructure – access to existing infrastructure or lack of infrastructure;
- Mineral Resource – the Mineral Resource estimates grade and uranium mineralogy present, which effects potential uranium recovery;
- Exploration Potential – the quality and potential of the exploration tenure to provide future exploration success.

CSA Global's opinion on the Market Value of Paladin's Mineral Assets (excluding Langer Heinrich Mine) is summarised in Table 2.

Table 2: Summary market valuation of Paladin's Mineral Assets as at 30th September 2017  
(excluding Langer Heinrich Mine)

| Project           | Mineral Asset                           | Equity (%) | Valuation (US\$M) |             |             |
|-------------------|---|------------|-------------------|-------------|-------------|
|                   |   |            | Low               | Preferred   | High        |
| Malawi            | Kayelekera Mineral Resource             | 85%        | 3.0               | 4.5         | 7.0         |
|                   | Malawian Exploration Projects           | 85%        | 0.1               | 0.2         | 0.32        |
| Labrador          | Canadian Mineral Resources              | 100%       | 14.8              | 18.5        | 22.2        |
|                   | Canadian Exploration Projects           | 100%       | 0.4               | 0.8         | 1.2         |
| Western Australia | Western Australian Mineral Resources    | 100%       | 5.0               | 6.2         | 7.5         |
|                   | Western Australian Exploration Projects | 100%       | 0.1               | 1.2         | 1.5         |
| Queensland        | Queensland Mineral Resources            | Various    | 18                | 22.7        | 27          |
|                   | Queensland Exploration Projects         | various    | 0.9               | 1.9         | 3.3         |
| Other             | South Australian Exploration Projects   | 7.5%       | 0.005             | 0.005       | 0.01        |
|                   | Antipa Minerals Net Smelter Royalty     | N/A        | 0                 | 0           | 0           |
|                   | Uranium Database                        | 100%       | 0.01              | 0.03        | 0.05        |
| <b>Total</b>      |   |            | <b>42.3</b>       | <b>56.0</b> | <b>70.1</b> |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding discrepancies may occur.

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# 1 Introduction

## 1.1 Context, Scope and Terms of Reference

Paladin Energy Limited (subject to deed of company arrangement) (Paladin or “the Company”) is a Perth-based uranium production company listed on the Australian Securities Exchange (ASX), the Namibian Stock Exchange (NSX), and the German Exchanges.

Paladin’s key assets are the producing Langer Heinrich uranium mine in Namibia, which has currently ceased mining, but continues to process stockpiles, and the Kayelekera uranium mine in Malawi, which is currently on care and maintenance. Paladin also has significant uranium projects in Canada, Western Australia and Queensland.

On 3<sup>rd</sup> July 2017, Paladin announced that the Board of Directors appointed Administrators to the Company.

CSA Global Pty Ltd (CSA Global) was commissioned by KPMG to prepare an independent opinion on:

1. reasonable operational, technical and capital cost assumptions to be adopted in undertaking a discounted cash flow valuation of the Langer Heinrich Mine; and
2. the Market Valuation of Paladin’s Mineral Assets other than the Langer Heinrich Mine (“CSA Global Report” or the “Report”).

CSA Global’s conclusions were based on a reference date of 15<sup>th</sup> August 2017, as presented in the CSA Global Report R273.2017 (Naidoo et al., 2017).

PPB Corporate Finance Pty Ltd (PPB) has been appointed by King & Wood Mallesons (KWM), on behalf of the Administrators, to prepare an independent expert’s report (“Paladin IER”) to be:

- used to assist the Court to assess the prospective application by the Administrators pursuant to Section 444GA of the Corporations Act 2001 (Cth) (“Act”) (“S444GA Application”);
- used for the application to the Australian Securities and Investments Commission (ASIC) for technical relief from Section 606 of the Act (“S606”); and
- included with the explanatory statement to be made available to shareholders of Paladin so as to provide them with the valuation of Paladin’s equity and inform shareholders of the restructure so they can make an informed decision in relation to the S444GA application, in particular whether the transfer of Paladin shares pursuant to the deed of company arrangement dated 8<sup>th</sup> December 2017 will unfairly prejudice Paladin shareholders.

PPB would like to rely on part of the CSA Global Report – the Independent Technical Specialist Report and Valuation of the mineral assets excluding Langer Heinrich – for the purposes of their Paladin IER. To that end, PPB engaged CSA Global to update the CSA Global Report so that it meets their requirements in respect of the Paladin IER.

KPMG has provided consent for CSA Global to use any published or supporting material obtained or developed by CSA Global in the preparation of the CSA Global Report for the purposes of the Report.

## 1.2 Compliance with the VALMIN and JORC Codes

The Report has been prepared in accordance with the VALMIN Code 2015<sup>1</sup>, which is binding upon Members of the Australian Institute of Geoscientists (AIG) and the Australasian Institute of Mining and Metallurgy

<sup>1</sup> *Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets*. The VALMIN Code, 2015 Edition. Prepared by the VALMIN Committee, a joint committee of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists.

(AusIMM), the JORC Code<sup>2</sup> and the rules and guidelines issued by such bodies as ASIC and ASX that pertain to Independent Experts' Reports (IERs).

The authors have taken due note of the rules and guidelines issued by such bodies as ASIC and ASX such as RG 111 and RG 112.

### 1.3 Principal Sources of Information

The Report has been based upon information available up to and including 12<sup>th</sup> August 2017. The information was provided to CSA Global by Paladin, or has been sourced from the public domain, and includes both published and unpublished technical reports prepared by consultants, and other data relevant to Paladin's projects.

The authors have endeavoured, by making all reasonable enquiries within the timeframe available, to confirm the authenticity and completeness of the technical data upon which the Report is based.

CSA Global has had access to and discussions with key Paladin personnel, and the current Competent Person for Paladin's Mineral Resources, and CSA Global is satisfied that there is sufficient current information available to allow an informed evaluation. Technical peer review of this report has been completed by Dr Andy Wilde, a former Paladin Chief Geologist, who has visited all the projects when employed by the Company.

Tenement information was provided by Paladin; details are contained in the relevant sections describing each Mineral Asset. CSA Global has relied on the information provided by Paladin and the Company Administrators with regards to the validity of Paladin's licences, and has completed independent checks on the tenure on the relevant jurisdictions tenement websites.

CSA Global makes no other assessment or assertion as to the legal title of tenements, nor to the Company holding all required permits and government approvals to operate, and is not qualified to do so. CSA Global did not find any information during the course of its work which indicated Paladin's licences were not in good standing.

CSA Global notes that uranium price forecasts used in this valuation were provided by PPB and do not necessarily reflect those that would be used by Paladin to determine the cut off grades (COG) for Mineral Resources or Ore Reserves. CSA Global further notes that our views in this report on Mineral Resources and Ore Reserves are predicated on providing an opinion on the Market value of the assets at the reference date. Considerations with respect to the JORC Code with relation to the prospects for eventual economic extraction are a separate matter and take a longer-term view as expressed in the estimates provided by the Competent Person/s.

### 1.4 Authors of the Report – Qualifications, Experience and Competence

The Report has been prepared by CSA Global, a privately-owned consulting company that has been operating for over 30 years; with its headquarters in Perth, Western Australia.

CSA Global provides multi-disciplinary services to a broad spectrum of clients across the global mining industry. Services are provided across all stages of the mining cycle from project generation, to exploration, resource estimation, project evaluation, development studies, operations assistance, and corporate advice, such as valuations and independent technical documentation.

The information in this report that relates to Technical Assessment and Valuation of Mineral Assets reflects information compiled and conclusions derived by Sam Ulrich who is a Member of the Australasian Institute of Mining and Metallurgy and Australian Institute of Geoscientists, and Trivindren Naidoo, who is a Member

<sup>2</sup> *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*. The JORC Code, 2012 Edition. Prepared by: The Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

of the Australasian Institute of Mining and Metallurgy. Sam and Trivindren are not related parties or employees of Paladin. Sam and Trivindren have sufficient experience relevant to the Technical Assessment and Valuation of the Mineral Assets under consideration and to the activity which they are undertaking to qualify as Practitioners as defined in the 2015 edition of the “Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets”. Sam and Trivindren consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

The valuation of Mineral Resources and Exploration Properties in this report (Langer Heinrich resources outside the mine plan, Kayelekera, Michelin and central mineral belt properties in Canada, the Isa metasomatic deposits in Queensland, and the sandstone hosted deposits at Manyingee and Carley Bore in WA) was completed by CSA Global Principal Consultants, Mr Sam Ulrich, BSc(Hons) GDipAppFin, MAusIMM, MAIG, and FFin and Mr Trivindren Naidoo, MSc (Exploration Geology), Grad.Cert (Mineral Economics), FGSSA, MAusIMM, and Pr.Sci.Nat. (Geology).

Sam is a consulting geologist with over 20 years’ experience in the minerals industry, including six years as a consultant. Sam has the relevant qualifications, experience, competence, and independence to be considered a “Specialist” under the definitions provided in the VALMIN Code and a “Competent Person” as defined in the JORC Code.

Trivindren is a consulting geologist with over 17 years’ experience in the minerals industry, including 12 years as a consultant. Trivindren has the relevant qualifications, experience, competence, and independence to be considered a “Specialist” under the definitions provided in the VALMIN Code and a “Competent Person” as defined in the JORC Code.

The technical assessment of the Mineral Resources was completed by CSA Global Principal Consultants, Maria O’Connor, Nerys Walters and David Williams. Maria focussed on Langer Heinrich and Kayelekera, Nerys on Manyingee and Carley Bore, and David on the Isa and Canadian deposits.

Maria is an experienced resource geologist with skills in resource estimation, feasibility studies, project evaluations, resources auditing, due diligence studies, exploration geology, grade control, technical reporting and provision of training. Key areas of focus include geostatistical modelling, creating and maintaining geological and resource models, sensitivity analyses, QAQC and coordinating transfer of skills emphasizing a high degree of collaboration and up-skilling with clients.

Nerys is an experienced exploration and production geologist. She is skilled in 3D geological and mineralisation models, training and mentoring, due diligence reporting, independent expert reporting, international exploration planning, management and resource estimation for gold and other commodities.

David is a Principal Resource Geologist with over 20 years’ experience in mine geology and Mineral Resource estimation for a wide variety of publically listed companies and privately funded consortiums. He is well versed in mine geology and Mineral Resource estimation, and has prepared Mineral Resources reported to JORC and NI43-101 reporting guidelines.

Maria, Nerys and David have the relevant qualifications, experience, competence and independence to be considered a “Competent Person” relevant to the style of mineralisation and type of deposit described in the Report, as defined in the JORC Code.

The assessment of the technical inputs in the Langer Heinrich and Kayelekera life of mine plans was undertaken by CSA Global Manager Mining, Principal Mining Engineer, Karl van Olden, and by Wayne Ghavalas. Dr Daniel Limpitlaw undertook a site visit to Langer Heinrich.

Karl is a mining engineer with 26 years’ experience in planning, development and operation of a diverse range of open pit and underground mines across Africa and Australia. His broad expertise includes mining engineering, business process development, business and mine planning, Ore Reserves, financial analysis and valuation.

Wayne is a mining engineer with over 20 years of experience. This mining experience has been gained in operational, technical and consulting roles. Site based experience has been gained in South Africa, Namibia and Australia. Non-mining experience is in mergers and acquisitions, venture capital and capital raisings.

Daniel is a mining engineer with over twenty years' experience, specialised in mine closure and the assessment of both direct and indirect impacts of mining on the environment and the surrounding communities. His operational experience includes restoring production from the underground sections at a formerly closed gold mine and achieved viable production amid capital limitations and compromised infrastructure. He has experience of mining projects in a range of countries in Africa, the Middle East, Europe and the Pacific

Andre Vorster reviewed the geology of the Langer Heinrich and Kayelekera Projects, and undertook a site visit to Langer Heinrich. Andre is a minerals industry professional with almost 20 years international experience as exploration manager and consultant for both private and public companies. His experience includes the development, initiation, management and review of exploration projects across a wide range of commodities and for all phases of exploration. Andre's strength is the marriage of technical and economic aspects of projects, facilitating the maximum economic benefit of each project.

Patrick Maher reviewed and summarised the geology of the Queensland and Canadian Projects. He is a geologist with over 20 years' experience in geological disciplines ranging from mapping and exploration to working as a project leader for community development and sustainability groups in Ireland and Australia.

The overall reviewer of the Report is CSA Global Managing Director Jeff Elliott. Jeff Jeff has over 27 years' experience in the mining industry during which time he has developed broad capabilities in project evaluation, exploration, resource development and mining for a wide variety of commodities in diverse geological settings and locations. He has significant technical experience in exploration, project assessment, technical valuations, independent reporting and corporate advice. He also has strong financial, business management, communication, and strategy development and implementation skills.

Technical peer review of the report was undertaken by Dr Andy Wilde PhD, BSc(Hons), FAIG, RPGeo, FAusIMM, FSEG. Andy is a Geologist with over 35 years experience, spanning four continents, and focussing on uranium, gold, base metals, and coal. His key areas of competence include field geology, project management, target generation, all aspects of geochemistry, global exploration strategy development, and academic research. Andy worked for nearly six years as Paladin's Chief Geologist, during which time he visited all of the projects on numerous occasions. His role encompassed the maintenance of technical excellence, project generation, staff training and mentoring. Technically he was responsible for uranium resource development and exploration, and he completed over 40 project evaluations and due diligence studies.

Graham Jeffress coordinated the report and contributed to the section on the WA projects. Graham is a geologist with over 28 years' experience in exploration geology and management in Australia, Papua New Guinea and Indonesia. He is Principal Geologist with CSA Global in Perth and manages the Exploration and Evaluation Division. Graham has worked in exploration (ranging from grassroots reconnaissance through to brownfields, near-mine and resource definition), project evaluation and mining in a variety of geological terrains, commodities and mineralisation styles within Australia and internationally. He is competent in multidisciplinary exploration, and proficient at undertaking prospect evaluation and all phases of exploration – sampling, mapping, prospecting and drilling through to resource definition; as well as project management including planning, budgeting, logistics, safety, people management, landowner liaison and project presentation. Additionally, Graham has completed numerous Independent Geologist Reports, Competent Person Reports, and Independent Valuation Reports. Graham was a Federal Councillor of the Australian Institute of Geoscientists for 11 years and joined the Joint Ore Reserves Committee in 2014.

## 1.5 Prior Association and Independence

The authors of this report have no prior association with Paladin regarding the Mineral Assets. Neither CSA Global, nor the authors of this report, have or have had previously, any material interest in Paladin or the mineral properties in which Paladin has an interest. CSA Global's relationship with Paladin is solely one of professional association between client and independent consultant.

CSA Global is an independent geological consultancy. This report is prepared in return for professional fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of this report. The fee for the preparation of this report is approximately A\$148,000 for the original report to KPMG, and a further cost of approximately A\$25,000 to update the the report for PPB.

No member or employee of CSA Global is, or is intended to be, a director, officer or other direct employee of Paladin. No member or employee of CSA Global has, or has had, any shareholding in Paladin. There is no formal agreement between CSA Global and Paladin to CSA Global conducting further work for Paladin.

## 1.6 Declarations

The statements and opinions contained in this Report are given in good faith and in the conviction that they are not false or misleading. This Report has been compiled based on information available up to and including the date of this Report.

The statements and opinions are based on the reference date of 30<sup>th</sup> September 2017 and could alter over time depending on exploration results, mineral prices and other relevant market factors.

The opinions expressed in this Report have been based on the information supplied to CSA Global by Paladin. The opinions in this Report are provided in response to a specific request from PPB to do so. CSA Global has exercised all due care in reviewing the supplied information. Whilst CSA Global has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. CSA Global does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this Report apply to the site conditions and features, as they existed at the time of CSA Global's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which CSA Global had no prior knowledge nor had the opportunity to evaluate

CSA Global's valuations are based on information provided by Paladin, and public domain information. This information has been supplemented by making all reasonable enquiries within the timeframe available, to confirm the authenticity and completeness of the technical data.

No audit of any financial data has been conducted.

**The valuations discussed in this Report have been prepared at a valuation date of 30<sup>th</sup> September 2017. It is stressed that the values are opinions as to likely values, not absolute values, which can only be tested by going to the market.**

### 1.6.1 Results are Estimates and Subject to Change

The interpretations and conclusions reached in this Report are based on current scientific understanding and the best evidence available to the authors at the time of writing. It is the nature of all scientific conclusions that they are founded on an assessment of probabilities and, however high these probabilities might be, they make no claim for absolute certainty.

The ability of any person to achieve forward-looking production and economic targets is dependent on numerous factors that are beyond CSA Global's control and that CSA Global cannot anticipate. These factors include, but are not limited to, site-specific mining and geological conditions, management and personnel capabilities, availability of funding to properly operate and capitalise the operation, variations in cost



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elements and market conditions, developing and operating the mine in an efficient manner, unforeseen changes in legislation and new industry developments. Any of these factors may substantially alter the performance of any mining operation.

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## 2 Uranium Market and Pricing

Uranium does not trade on an open market like other commodities. Due to its strategic nature, buyers and sellers negotiate contracts privately. These contracts are generally considered long-term contracts. OECD (2016) notes that spot price indicators for immediate or near-term delivery (less than one year) that typically amount to 15% to 25% of all uranium transactions, are provided by industry trade press such as TradeTech and the UX Consulting Company. Cameco calculates and publishes industry average “spot prices” as well as long-term industry average prices from the month-end prices published by UX Consulting and TradeTech.

The long-term price history for uranium is indicated in Figure 3, with the price history of the past seven years indicated in Figure 4. The long-term price history is dominated by a uranium price boom commencing early 2003, with prices rising sharply from approximately US\$10/lb to a peak of US\$136/lb in June 2007, before retreating sharply to approximately US\$45/lb by October 2008.

Another smaller boom occurred in 2011, with the uranium price increasing from around US\$45/lb in August 2010 to nearly US\$73/lb in January 2011, before falling back to US\$49/lb by August 2011. This sharp drop in price in early 2011 is generally attributed to the Fukushima accident, with low public confidence in nuclear power and negative market sentiment maintaining depressed prices.

The uranium price history of the past five years is generally characterised by a decrease in the uranium price from US\$50.75/lb in June 2012 to US\$20.20/lb by July 2017. In late 2014 there was a rally from US\$28.50/lb to US\$39.50/lb over a period of four months, and there was a short rally from a low of US\$18/lb in November 2016 to US\$24.50/lb in January 2017.

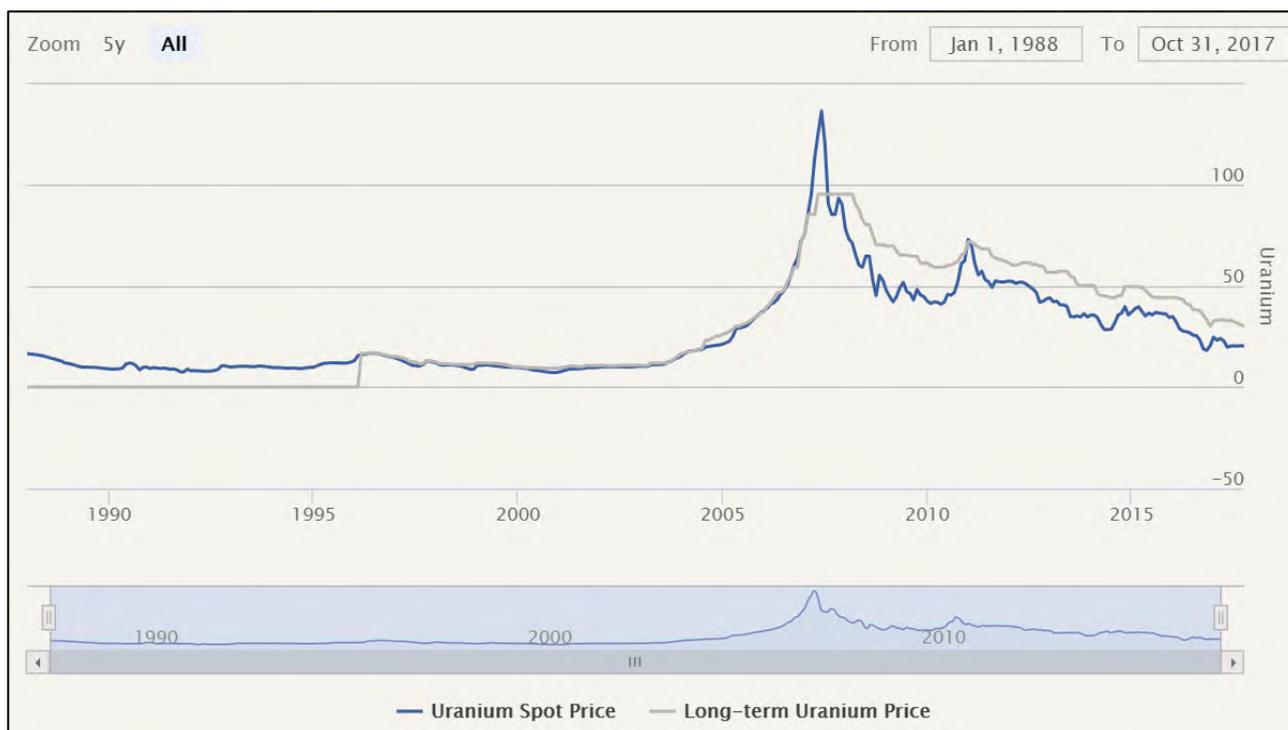


Figure 3: Uranium price history (US\$/lb  $U_3O_8$ ) – long term

Source: Cameco (<https://www.cameco.com/invest/markets/uranium-price>)

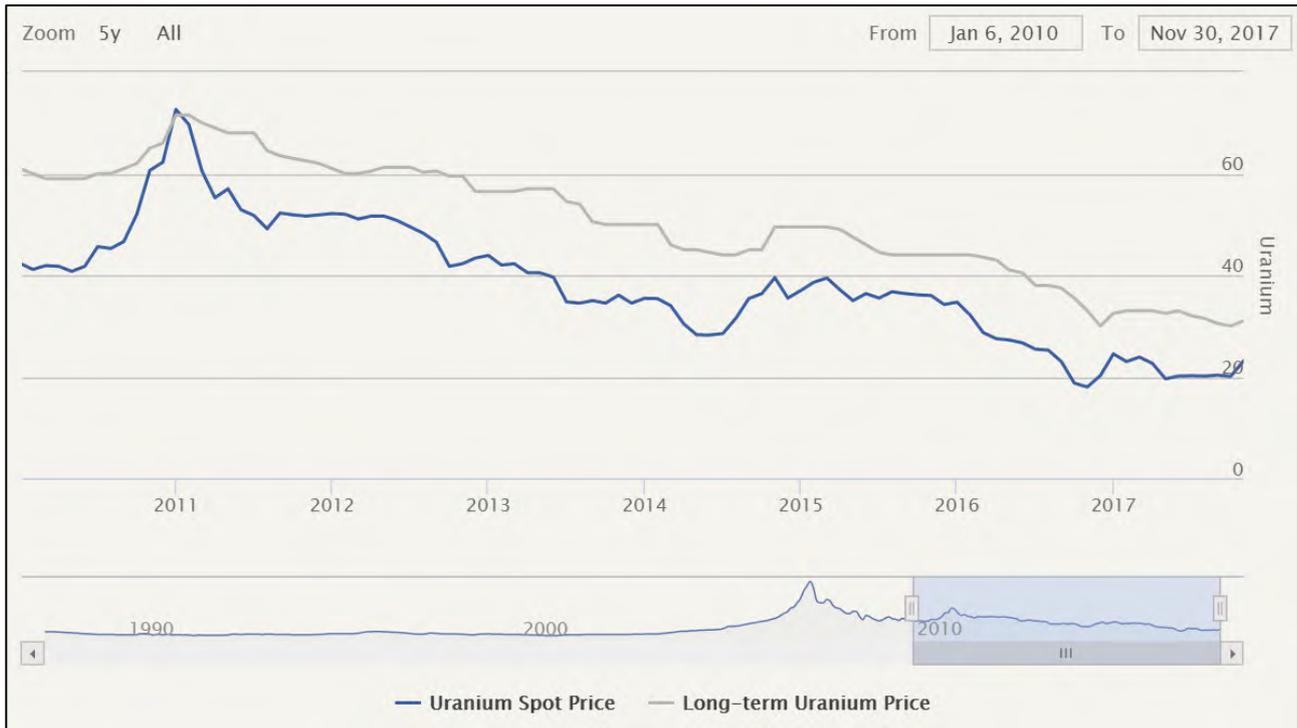


Figure 4: Uranium price history (US\$/lb U<sub>3</sub>O<sub>8</sub>) - past seven years  
 Source: Cameco (<https://www.cameco.com/invest/markets/uranium-price>)

OECD (2016) notes production of uranium from 21 different countries in 2012, 2013 and 2014, with Kazakhstan being the world’s largest producer (41%), followed by Canada (16%) and Australia (9%). Other significant producers included Niger (7%), Namibia (6%), Russia (5%), Uzbekistan (5%), the US (3%), China (3%), Malawi (1%) and the Ukraine (1%).

Giblin (2017) notes that mined uranium production rose barely 1% in 2016, with strong output growth of 10% in Australia and 5% in Canada almost outweighed by a reduction in production from the US and a levelling of output from in-situ leach (ISL) projects in Kazakhstan. The use of ISL technology has seen production from Kazakhstan increase remarkably in the past decade, with Kazakhstan now being the largest global U<sub>3</sub>O<sub>8</sub> producer, producing more than both Canada and Australia combined. Eight of the top twenty U<sub>3</sub>O<sub>8</sub> producing operations in the world are in Kazakhstan (Table 3), and collectively produce 28% of global supply.

Despite uranium prices being below US\$30/lb since March 2016, which is the longest period of sub-US\$30/lb prices since 2005, most of the major uranium producers have been able to maintain production (Giblin, 2017). SandP Global Market Intelligence's Mine Economics data indicates that approximately 10% of output in 2016 was being produced at total cash costs exceeding the 2016 average uranium price (Figure 5).

Giblin (2017) notes that while much uranium trading occurs on long-term contracts, with U<sub>3</sub>O<sub>8</sub> prices above the current spot price, buyers are starting to cancel offtake contracts despite resistance from uranium producers. Uranium prices dipped to US\$18/lb in the first week of December 2016. This dip in price, if sustained, could threaten operations in the upper quartile of the curve if exposed to spot sale prices or reducing long-term indicative prices.

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Table 3: Global top 20 uranium producers, 2016

| Rank   | Property name           | Contained U308 (Mlb) |              | Change 2015-16 (%) |
|--|-------------------------|----------------------|--------------|--------------------|
|  |                         | 2015                 | 2016         |                    |
| 1  | McArthur River          | 19.1                 | 18.0         | -5.5               |
| 2  | Cigar Lake              | 10.6                 | 17.3         | 63.1               |
| 3  | Katco                   | 10.7                 | 10.4         | -2.6               |
| 4  | Olympic Dam             | 8.3                  | 8.4          | 1.7                |
| 5  | Central Mining District | 6.2                  | 6.2          | 0.0                |
| 6  | Inkai                   | 5.8                  | 6.0          | 3.4                |
| 7  | Somair                  | 6.5                  | 5.6          | -13.8              |
| 8  | Karatau                 | 5.4                  | 5.4          | 1.0                |
| 9  | South Inkai             | 5.3                  | 5.2          | -2.6               |
| 10   | Ranger                  | 4.4                  | 5.2          | 17.2               |
| 11   | Langer Heinrich         | 4.9                  | 4.9          | 0.2                |
| 12   | Priargunsky             | 5.1                  | 4.8          | -6.4               |
| 13   | Kharassan-2             | 3.6                  | 4.8          | 31.3               |
| 14   | Mynkuduk                | 4.8                  | 4.8          | -1.0               |
| 15   | Akbastau                | 4.3                  | 4.6          | 7.3                |
| 16   | Rossing                 | 2.7                  | 4.1          | 48.6               |
| 17   | Kharasan                | 2.9                  | 3.7          | 26.5               |
| 18   | Cominak                 | 4.2                  | 3.4          | -18.3              |
| 19   | Beverley                | 2.1                  | 2.8          | 37.2               |
| 20   | Four Mile               | 2.6                  | 2.6          | 0.3                |
| <b>Subtotal (Mlb)</b>  |                         | <b>119.6</b>         | <b>128.2</b> |                    |
| <b>Global total (Mlb)</b>                                      |                         | <b>160.3</b>         | <b>162.0</b> |                    |
| As of June 10, 2017.<br>Source: S&P Global Market Intelligence |                         |                      |              |                    |

Source: SNL ([www.snl.com](http://www.snl.com))

In the opinion of Giblin (2017), production in 2017 is expected to increase due to the ramp up at Husab, and it is likely that uranium supply will remain in surplus for the foreseeable future unless production is scaled back commensurately. In the meantime, security of resource supply will continue to be a more important factor than market supply/demand dynamics in this sector.

The Nuclear Energy Agency and the International Atomic Energy summarise their view of uranium supply and demand in OECD (2016) "Despite recent declines in electricity demand in some developed countries, global demand is expected to continue to grow in the next several decades to meet the needs of a growing population, particularly in developing countries. Since nuclear power plant operation produces competitively priced, baseload electricity that is essentially free of greenhouse gas emissions, and the deployment of nuclear power enhances the security of energy supply, it is projected to remain an important component of energy supply. However, the Fukushima Daiichi accident has eroded public confidence in nuclear power in some countries, and prospects for growth in nuclear generating capacity are thus being reduced and are subject to even greater uncertainty than usual. In addition, the abundance of low-cost natural gas in North America and the risk-averse investment climate have reduced the competitiveness of nuclear power plants in liberalised electricity markets. Government and market policies that recognise the benefits of low carbon electricity production and the security of energy supply provided by nuclear power plants could help alleviate these competitive pressures. Nuclear power nonetheless is projected to grow considerably in regulated electricity markets with increasing electricity demand and a growing need for clean air electricity generation.

Regardless of the role that nuclear energy ultimately plays in meeting future electricity demand, the uranium resource base is more than adequate to meet projected requirements for the foreseeable future. The challenge in the coming years is likely to be less one of adequacy of resources than adequacy of production capacity development due to poor uranium market conditions".

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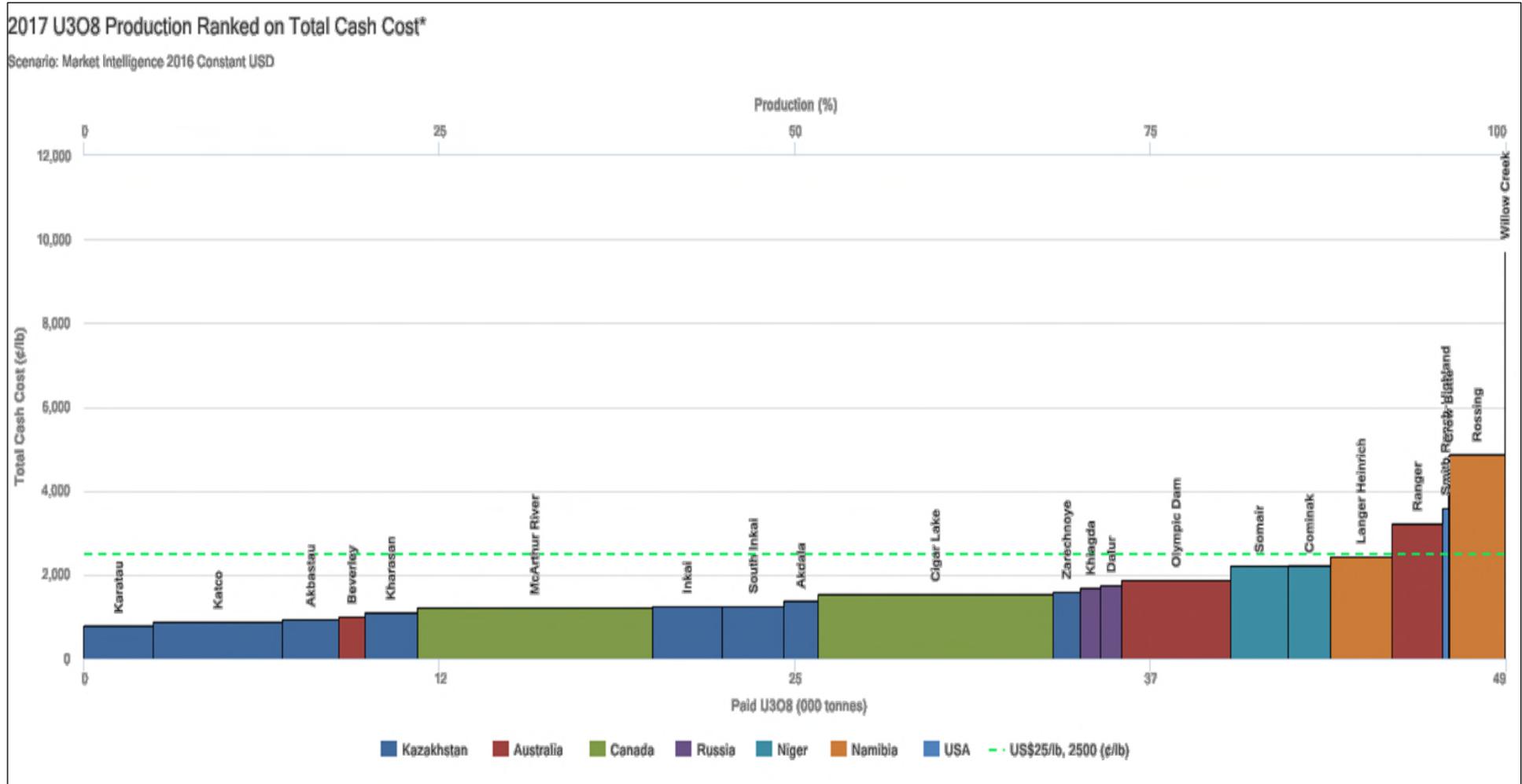


Figure 5: 2017 U<sub>3</sub>O<sub>8</sub> production cost curve  
 Source: SNL (www.snl.com)

## 2.1 Uranium Equities Markets

An overview of the performance of uranium equities for the past seven years is provided by reviewing the price histories of Cameco Corporation (one the largest uranium companies), and the Global X Uranium ETF <sup>3</sup> (which provides a broad overview of the listed uranium sector). The prices of uranium equities correspond quite closely with uranium prices as comparison with Figure 3 and Figure 4 show, however there is a degree of decoupling with share prices .

In CSA Global’s professional opinion, the market for uranium assets is characterised by limited appetite for uranium equities and a generally negative sentiment. There is negligible exploration activity, and only limited activity around mines.

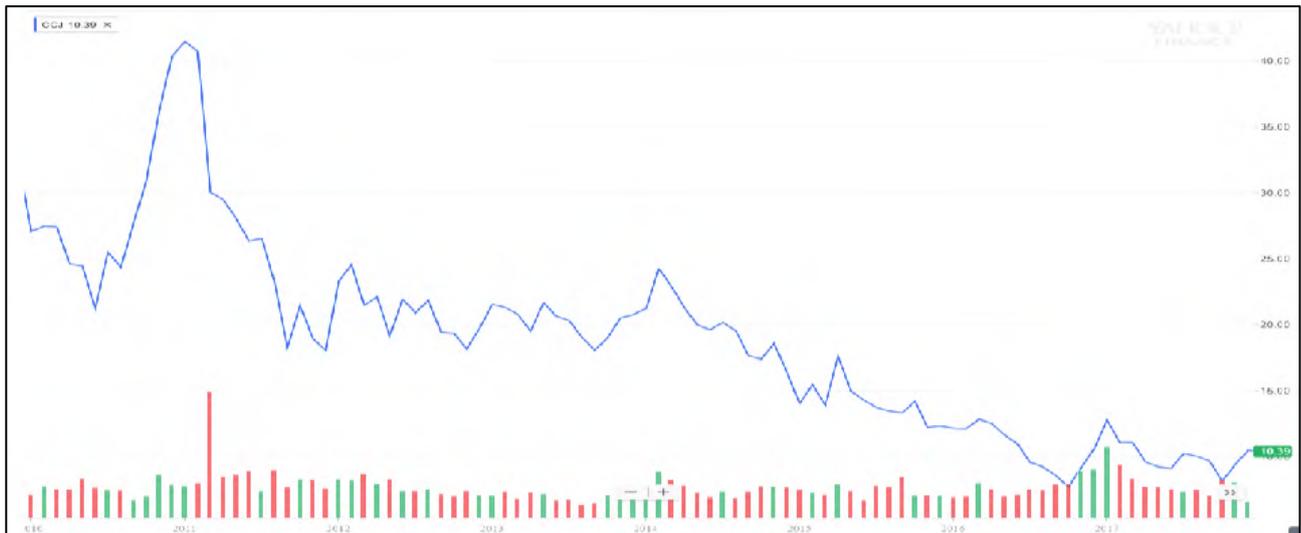


Figure 6: Cameco Corporation share price history 1/1/2010–1/12/2017  
Source: Yahoo Finance

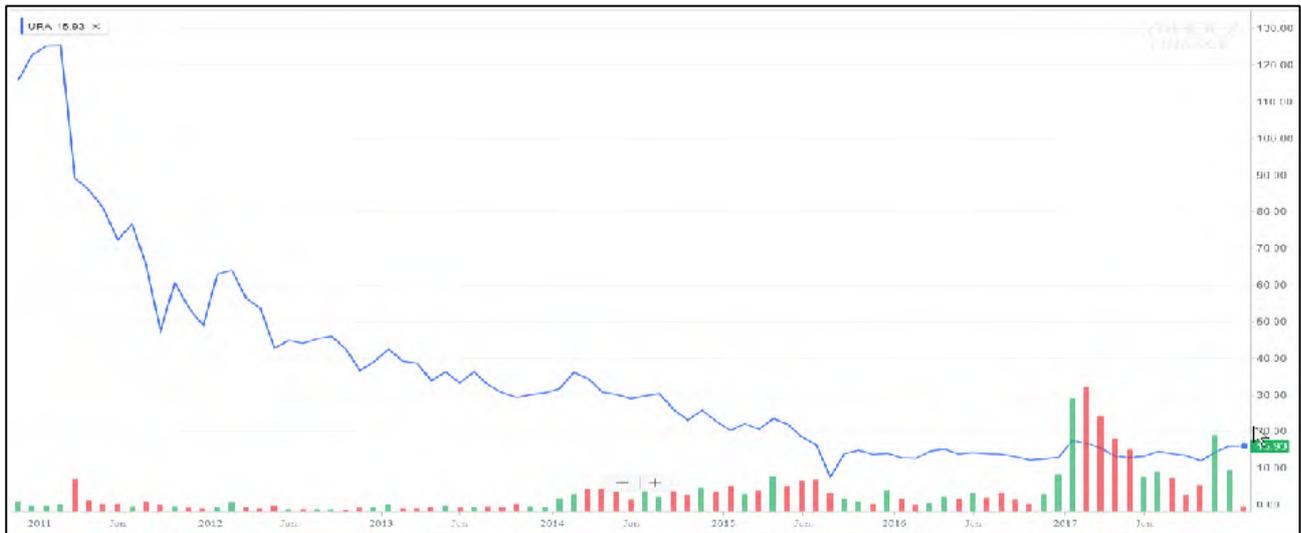


Figure 7: Global X Uranium EFT price history 1/1/2010–1/12/2017  
Source: Yahoo Finance

<sup>3</sup> The Global X Uranium EFT provides investors access to a broad range of uranium mining companies, and is designed to correspond with the price and yield performance, before fees and expenses, of the Solactive Global Uranium Total Return Index. The Solactive uranium fund tracks the price movements in shares of companies which are active in the uranium industry. The components are weighted according to freefloat market capitalization (<https://www.solactive.com/?s=uranium&index=DE000SLA0UR5> )

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### 3 Valuation Approach

Valuation of Mineral Assets is not an exact science; and a number of approaches are possible, each with varying positives and negatives. While valuation is a subjective exercise, there are a number of generally accepted procedures for establishing the value of Mineral Assets. CSA Global consider that, wherever possible, inputs from a range of methods should be assessed to inform the conclusions about the Market Value of Mineral Assets.

The valuation is always presented as a range, with the preferred value identified. The preferred value need not be the median value and is determined by the Practitioner based on their experience.

Refer to Appendix 1 for a discussion of Valuation Approaches and Valuation Methodologies, including a description of the VALMIN classification of Mineral Assets. In forming an opinion on the Market Value of the Paladin's various Mineral Assets, the valuation approach adopted by CSA Global has been to rely primarily on Market-based methods (primarily the Comparative Transaction method). This was based on the declared Resources and Reserves for mineral deposits, and tenement area for exploration ground.

Where possible, CSA Global has considered one or more alternative valuation methods to check our valuation opinion (Table 4). Alternative methods considered included the income approach (Discounted Cash Flow analysis), Yardstick market factors, and the Geoscientific Rating Method. The choice of alternative valuation method employed was dictated by the exploration stage of the asset and the availability of information.

Table 4: Valuation basis and methods employed for Paladin's significant Mineral Assets

| Mineral Asset               | Development stage       | Basis of valuation | Valuation methods                             |
|-----------------------------|-------------------------|--------------------|---|
| Kayelekere Resources        | #Pre-Development        | Declared Resources | Comparable Transactions, Yardstick            |
| Malawian Exploration Ground | Early-Stage Exploration | Tenement area      | †Comparable Transactions                      |
| Canadian Resources          | Pre-Development         | Declared Resources | Comparable Transactions, Yardstick            |
| Canadian Exploration Ground | Advanced Exploration    | Tenement area      | Comparable Transactions, Geoscientific Rating |
| WA Resources                | Pre-Development         | Declared Resources | Comparable Transactions, Yardstick            |
| WA Exploration Ground       | Early-stage Exploration | Tenement area      | Comparable Transactions, Geoscientific Rating |
| Mt Isa Resources            | Pre-Development         | Declared Resources | Comparable Transactions, Yardstick            |
| Mt Isa Exploration Ground   | Advanced Exploration    | Tenement area      | Comparable Transactions, Geoscientific Rating |

# The VALMIN Code defines properties on care and maintenance as Pre-Development properties.

† Only the Comparable Transactions method was considered practicable, due to the lack of knowledge and relevant expenditure on the recently granted Malawian Exploration tenure

The Valuation Basis employed by CSA Global is Market Value, as defined by the VALMIN Code (2015). The Valuation Date is 1 December 2017. The currency is US dollars (US\$) unless otherwise stated.

In each project valuation provided below, CSA Global has applied various factors to the technical valuations to derive a fair market value (depending on the particular approach). Three principal factors were considered:

1. Resource risk;
2. A market factor; and
3. A jurisdiction factor.

As part of CSA Global's technical assessment of the resources of the mineral assets, various risk factors were identified for each Mineral Resource. To reflect these risks, the valuer has applied discounts to the valuations



to address these risks. The size of the discount varied based on CSA Global's opinion of the significance of the risk factors, and is based on CSA Global's professional judgement.

CSA Global's basis for market discounts was the qualitative judgement of the valuer. A review of the share price history of a selection of representative uranium companies, as well as global uranium index funds (e.g. <https://www.globalxfunds.com/funds/ura/>) very clearly reveals a collapse in interest in uranium equities, consistent with the fall in price for the commodity, as discussed above in section 2.1.

Specifically for the Geoscientific Factor Method, a Market Factor of 20% was applied (as per the standard method) in deriving a Fair Market Value. This factor was chosen such that the average value for the tenement package considered is consistent with the range of valuation factors obtained from the analysis of comparative transactions. It is CSA Global's view that this adequately accounts for global market factors on an empirical basis.

CSA Global has also considered the jurisdiction in which the asset is located. Uranium mining can be a contentious issue, and different political parties can have starkly opposing views on the issue. This is most clearly demonstrated in the Australian states of Queensland and Western Australia, where the ability to explore for and mine uranium has depended on the government of the day. Currently, uranium mining is banned, for new mines in WA, and for any mines in Queensland. These policy decisions have a negative effect on uranium mineral assets in these jurisdictions.

In this report, a 25% jurisdiction discount was selected to provide a material discount but not such a large discount as to suggest the asset has minimal value, because the mining bans may change within a 5-10 year period and therefore the assets retain much of their value for investors with longer term outlooks. This factor has been chosen based on the judgement of the CSA Global, and is not based on an empirical analysis of transaction values in different jurisdictions.

## 4 Malawian Projects

The Kayelekera Project is a tabular sandstone-hosted uranium deposit in Malawi, southern Africa. Paladin has an 85% equity interest in Kayelekera, which operated as an open pit mine and uranium processing operation between 2009 and 2014, producing a total of 10.7 Mlb U<sub>3</sub>O<sub>8</sub>.

Operations were suspended in May 2014 due to the prolonged downturn in uranium prices. The mine was placed on care and maintenance until such time economic conditions improve sufficiently to resume operations profitably. More than half of the mine's reserves and resources remain, with a current total resource base of 31.3 Mlb U<sub>3</sub>O<sub>8</sub>.

Paladin also has an 85% equity interest in three Malawian tenements prospective for uranium of a style similar to Kayelekera. Two of the licences are immediately adjacent to the Kayelekera mining lease, and the third licence is in the same region.

### 4.1 Location and Access

The Kayelekera uranium deposit is in northern Malawi in southern Africa. It is 8 km south of the road connecting the townships of Chitipa and Karonga and is accessible via dirt road from Karonga, 40 km to the west at the main north/south road of Malawi (Figure 8).

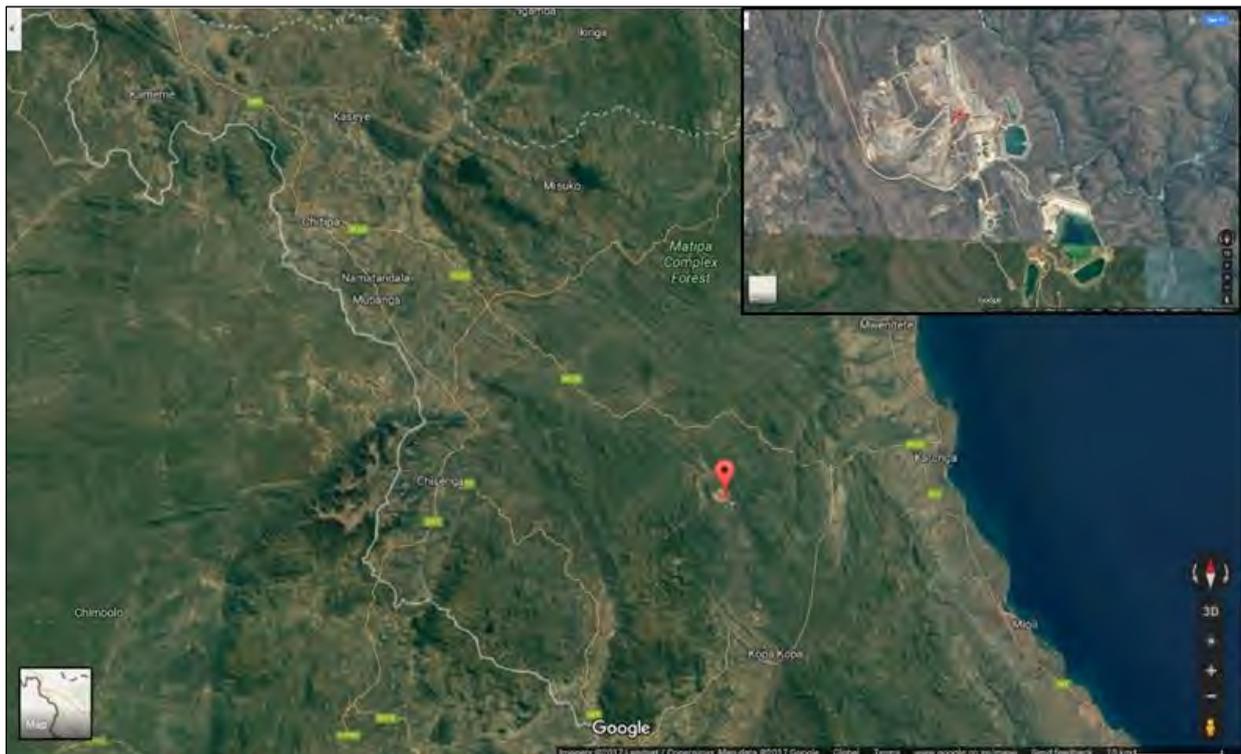


Figure 8: Location map of the Kayelekera uranium deposit, Northern Malawi

### 4.2 Topography and Climate

The Great Rift Valley containing Lake Malawi runs through the country from north to south. Lake Malawi makes up over three-quarters of Malawi's eastern boundary. West of the Great Rift Valley, the land forms high plateaus, generally between 900 m and 1,200 m above sea level. In the north, the Nyika Uplands rise as high as 2,600 m. The area to the west of the lake in northern and central Malawi has been categorised by the World Wildlife Fund as part of the Central Zambebian Miombo woodlands ecoregion. South of the lake lie the Shire Highlands, with an elevation of 600–1,600 m, rising to elevations of 2,130 m and 3,002 m at the

Zomba Plateau and Mulanje Massif respectively. In the extreme south, the elevation is only 60–90 m above sea level.

In the north, the altitude moderates what would be an otherwise equatorial climate. Between November and April, the temperature is warm with equatorial rains and thunderstorms, with the storms reaching their peak severity in late March. After March, the rainfall rapidly diminishes and from May to September wet mists float from the highlands into the plateaus, with almost no rainfall during these months

### 4.3 Mineral Tenure

The Kayelekera Mine is 100% owned by Paladin (Africa) Limited, a subsidiary of Paladin. In July 2009, Paladin issued 15% of the equity in Paladin (Africa) Limited to the Government of Malawi.

Paladin's currently granted tenure in Malawi consists of one mining lease covering 55.5 km<sup>2</sup> and three EPLs covering a total of 436.6 km<sup>2</sup> (Table 5 and Figure 9). The mining lease expires in April 2022, whereas the EPLs expire in May 2018 and December 2018.

Table 5: *Paladin's granted mineral tenure in Malawi*

| Tenement | Holder                   | Name       | Grant date  | Expiry date | Area (km <sup>2</sup> ) |
|----------|--------------------------|------------|-------------|-------------|-------------------------|
| ML 152   | Paladin (Africa) Limited | Kayelekera | 2 Apr 2007  | 1 Apr 2022  | 55.5                    |
| EPL 0225 | Paladin (Africa) Limited | Mapambo    | 12 Dec 2007 | 11 Dec 2018 | 14.0                    |
| EPL 0417 | Paladin (Africa) Limited | Rukuru     | 22 May 2015 | 21 May 2018 | 146.3                   |
| EPL 0418 | Paladin (Africa) Limited | Uliwa      | 22 May 2015 | 21 May 2018 | 276.3                   |

*Note: The Malawian Government holds a 15% equity share in Paladin (Africa) Limited*

CSA Global reviewed the status of the Mining licences using the Malawian Department of Mines tenure website (<http://portals.flexicadastre.com/malawi/>) system on 24<sup>th</sup> November 2017. These tenements were all listed and noted as active. CSA Global makes no other assessment or assertion as to the legal title of tenements and is not qualified to do so.

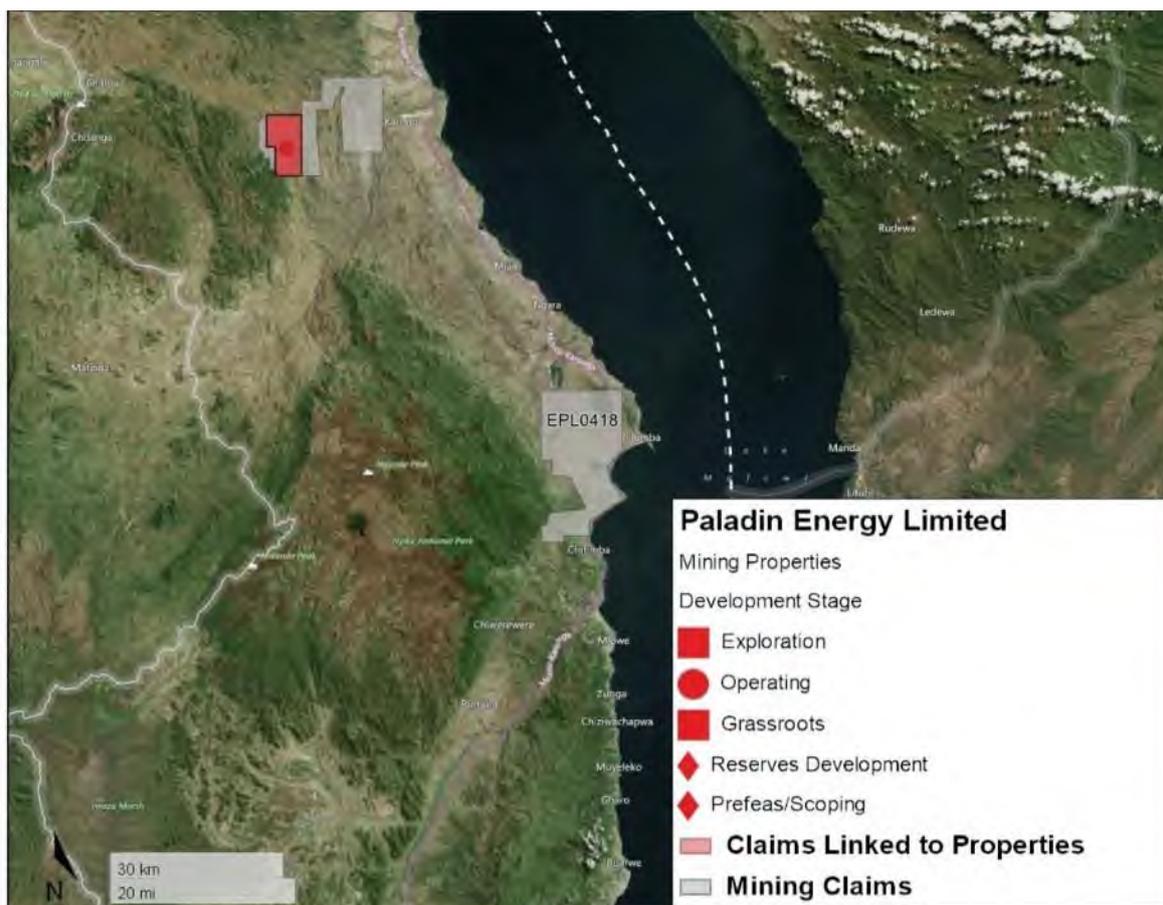


Figure 9: Paladin's granted Malawian tenements

Note: The claim in red is ML 152, with EPL 0225 adjoining it to the west, and EPL 0417 adjoining it to the east. Source: SNL ([www.snl.com](http://www.snl.com))

## 4.4 Geology

### 4.4.1 Regional Geology (mostly Bowden and Shaw, 2007)

Northern Malawi is mainly underlain by metamorphic and igneous rocks of the pre-Karoo Malawi Basement Complex, the main components of which are gneisses and intrusives of the Misuku Belt, that form the south-eastern extension of the Ubendian Mobile Belt (ca. 2000 Ma) of southwestern Tanzania into Malawi.

The Precambrian basement was subjected to four episodes of mainly brittle deformation in the late Precambrian and early Palaeozoic during the Irumide and Mozambique orogenies. An extended period of erosion of the Misuku belt was interrupted in the Early Permian by the deposition of Karoo sediments upon a subdued but irregular topography initially under glacial and periglacial conditions. Faulting and subsidence accompanied Karoo sedimentation which ended with the initiation of the Gondwana erosion cycle in the Lower Jurassic. The Karoo sedimentary strata, which probably covered much of the area by the mid-Permian, now occupy several partially or totally fault-bounded basins. The North Rukuru Basin is an elongated basin some 50 km along strike (north-south) with a maximum width of 6.5 km. It contains a thick (at least 1,500 m) sequence of Karoo sedimentary rocks preserved in a semi-graben about 35 km to the west of and broadly parallel with, the Lake Malawi segment of the East African Rift system. The formation of the North Rukuru Basin, and the other Karoo basins of northern Malawi, preceded the development of the main East African Rift System, including the Lake Malawi Rift, by perhaps 250 million years (inception of rifting of the Lake Malawi Rift is variously assigned to the Upper Miocene to as early, possibly, the late Jurassic. However, the development of these graben and semi graben basins shows that conditions of crustal extension existed in the Early Permian before the onset of the main rifting phase. The faulted eastern margin of the basin may

have been active during sedimentation although there is no known field evidence for this. To the west the Karoo sedimentary rocks rest unconformably on the basement gneisses.

#### 4.4.2 Local Geology and Mineralisation

Kayelekera is a sandstone-hosted uranium deposit, associated with the Permian Karoo sediments and hosted by the Kayelekera member of the North Rukuru sedimentary outcrop of the Karoo System. The mineralisation is associated with seven variably oxidised, coarse grained arkoses, separated by shales and mudstones. Uranium mineralisation occurs as lenses, primarily within the arkose layers and, to a lesser extent, in the mudstone. The lowest level of known mineralisation is at a depth of approximately 160 m below surface.

Unless otherwise stated, the following detail is from “restart of Kayelekera study, CH 4, by Paladin Energy, Dec 2014”.

##### *Basal Beds (K1) and Coal Measures (K2)*

The oldest sediments of the Karoo sequence of the North Rukuru Basin (K1) are represented west of Kayelekera by up to 50 m of conglomerate. Overlying coal measures and arkose were included in the North Rukuru Sandstone by Bowden and Shaw (2007) but have subsequently been assigned to K2 (Figure 10). The two units are separated by a prominent unconformity.



Figure 10: Coal seam exposed west of Kayelekera  
Source: Paladin Energy Limited, 2014

The base of the coal measures is defined by a cross-bedded pebbly sandstone. Individual pebbly grit beds grade into fine-grained sandstone and are separated from the next grit bed by thin layers of fine, micaceous, flaggy sandstone. This overall fining-upward succession is overlain by a sequence of mudstone, carbonaceous shale and coal seams. The coal seams are up to 1.5 m thick.

A sample from the glacial unit was dated as Lower Permian (Sakmarian) using palynological evidence (Bowden and Shaw, 2007).

### North Rukuru Sandstone (K3 to K5)

Overlying the basal beds with an angular unconformity are arkosic sandstones and mudstones of the North Rukuru Sandstone, deposited in braided and meandering river systems (Bowden and Shaw, 2007). Several informal units are recognised: the Upper Kalopa Arkose Member, Muswanga Red Bed Member and Kayelekera Member (Bowden and Shaw, 2007). The arkoses of the Muswanga Member are characterised by a haematitic matrix that is partially altered to goethite on weathering. A distinctive bed containing fossilized wood occurs at the top of the Muswanga Member. This bed defines the top of K3 in the Kayelekera area.

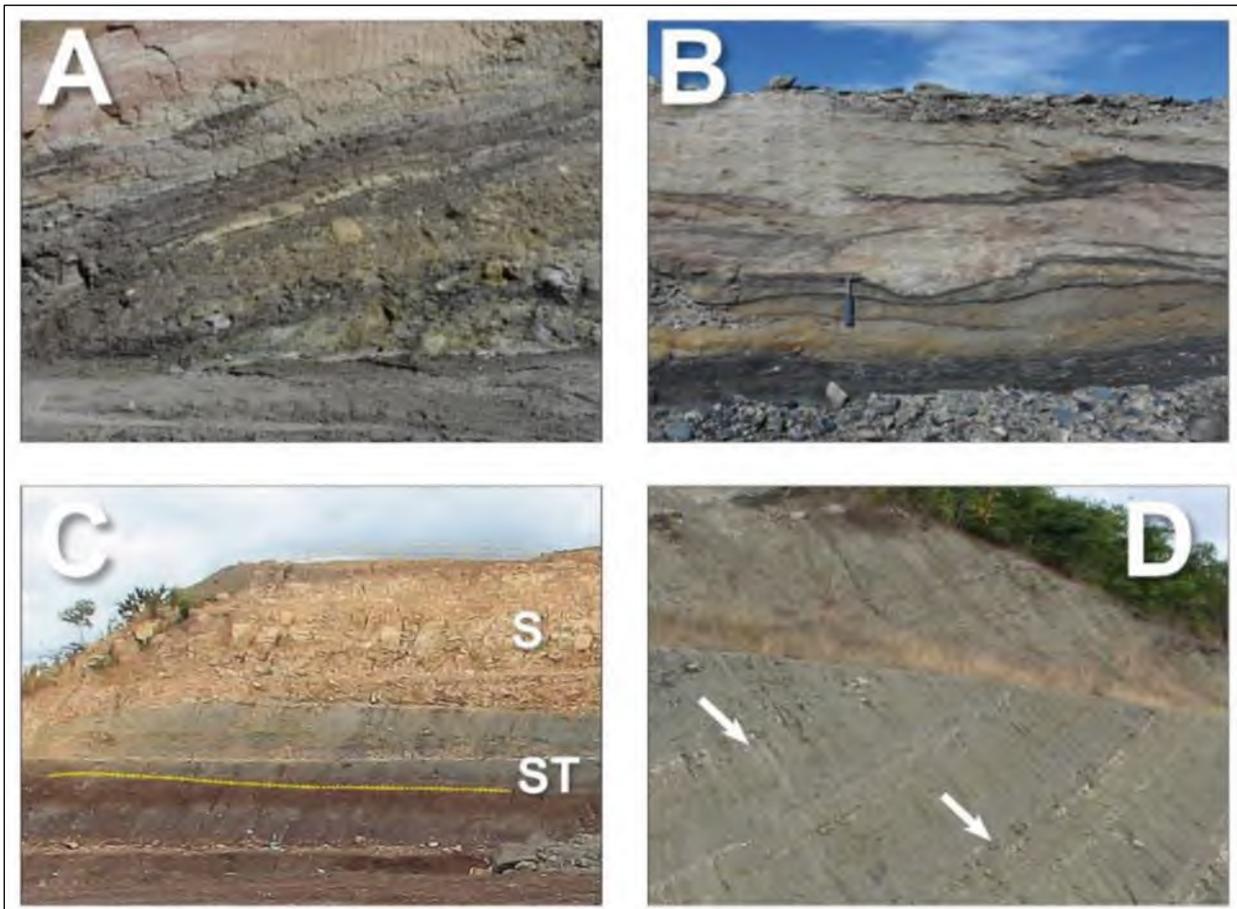


Figure 11: Images of the main stratigraphic units at Kayelekera  
Source: Paladin Energy Limited, 2014

From Figure 11:

- A – Basal beds (K1) near the basement unconformity along the Karonga-Chitipa road. Tillite at the base overlain by flaggy sandstone and varved shale.
- B – Coal measures (K2) along the Karonga-Chitipa road. Flaggy micaceous sandstone, carbonaceous shale and coal seams.
- C – S arkose and ST mudstone showing horizontal redox interface (dashed yellow line) between grey and chocolate brown mudstones. Open pit.
- D – Lacustrine sediments, grey-green mudstone and creamy white limestone (examples arrowed), possible lateral equivalent of K4.

The Kayelekera Member (K4) is about 150 m thick and is the main uranium host. It is relatively well known due to numerous drillhole intercepts and exposure in the open pit. At least 10 arkose units have been identified which range in thickness up to 14 m. Arkoses define the base of cyclothems and pass upwards into reddish to chocolate brown “oxide-facies” mudstone and then into “reduced facies” grey-black carbonaceous and silty mudstone. Thin coal rich horizons are present at the top of some cyclothems. The redox interface

defined by the change from oxide to reduced facies mudstone is bedding-parallel and is probably indicative of fluctuations in redox potential during, or soon after, sedimentation. Several carbonaceous samples from the Kayelekera Member were dated as Middle Permian (Kazanian) using palynological evidence (references in Bowden and Shaw, 2007).

The arkoses contain poorly-sorted clasts of sub-rounded to sub-angular microcline, perthite, plagioclase, quartz, chert, polycrystalline quartz, biotite, muscovite, mudstone pellets, cellular plant material and unidentified carbonaceous material associated with framboidal pyrite (Basham and Milodowksi, 1987; Bowden and Shaw, 2007). Feldspars are typically pink to red, with the red colouration is interpreted to have been inherited from source (Basham and Milodowksi, 1987; Bowden and Shaw, 2007). Carbonaceous debris occurs as fine layers, as disseminations and as individual woody fragments several centimetres in length. Discrete dark-coloured layers of <1 mm thickness are defined by higher concentrations of carbonaceous material or heavy minerals such as ilmenite, zircon and rutile.

A distinctive Karoo unit has in the past been assigned to K5. This unit is relatively rich in grey-green mudstone and discrete limestone beds. Recent mapping suggests that this is laterally equivalent to the K4 unit and represents transition from alluvial channels into a lacustrine environment.

A recent study of detrital zircons from the K4 unit suggests derivation from the southeast, consistent with a drainage system sourced in the southeast and flowing westwards (Ferrand, 2013).

#### *Post-Depositional History*

The margins of the North Rukuru Basin are not well exposed, but there is little doubt that the eastern margin is defined by a major northwest-southeast trending fault, referred to as the Eastern Boundary Fault. The dip of this fault is poorly constrained, but is likely to be steep if not vertical, at least near the surface. Sediments of the North Rukuru Basin generally dip at 35°E. Adjacent to the fault on the eastern margin of the basin, however, the dip is often 10 to 20°W. This dip reversal has been interpreted as the result of faulting (Bowden and Shaw, 2007).

The western boundary of the North Rukuru Basin is suggested by magnetic data to be shallower and could be a low angle fault or depositional unconformity, juxtaposing K1 glacial sediments or K2 Coal Measures against metamorphic basement rocks. Recent traverses have however identified a near vertical contact against which the basal conglomerate is dipping near vertically.

#### *The Uranium Orebody*

Ore at Kayelekera is hosted in several arkose units where they are adjacent to the Eastern Boundary Fault zone (Figure 12). The ore forms more or less tabular bodies restricted to the arkoses, except adjacent to the north-strand of the Eastern Boundary fault at the eastern extremity of the pit (Figure 12). Here, ore also occurs in mudstones in the immediate vicinity of the fault. It can be seen that the highest grades correspond to the intersection of the eastern and Champhanji faults (Figure 12). Ore grade and tonnage declines with lateral distance from these faults. Figure 13 presents a representative cross-section of the orebody.

Secondary ore tends to be concentrated in vertical fractures and along the contacts between mudstone and arkose and is restricted to the upper parts of the orebody.

Primary reduced (i.e. carbon and pyrite-bearing) arkose ore accounts for 40% of the total ore (Becker, 2005). About 30% of the ore is hosted in oxidised arkose (i.e. lacking carbon and pyrite) and is called oxidised ore. 10% of ore is termed "Mixed Arkose" and exhibits characteristics of both primary and secondary arkose ore types.

Uranium in primary ore is present as coffinite, minor uraninite and a U-Ti mineral, tentatively referred to as brannerite (Prince and Young, 2012a). Modes of occurrence include: disseminated in matrix clay, included in detrital mica grains and intimately intergrown with carbonaceous matter. Individual grains are extremely fine, typically <10 µm. Coffinite and uraninite also show an association with a TiO<sub>2</sub> phase, possibly rutile after

detrital ilmenite. It is possible that uranium deposition was accompanied by leaching of iron from detrital ilmenite and precipitation of a  $\text{TiO}_2$  polymorph.

Oxidized arkose is characterised by evidence of feldspar dissolution, prevalence of matrix iron oxide and consequently, red to orange-brown colour. It is readily distinguished from darker, greyish reduced arkoses. Oxidized arkose is found at or near the current surface and in peripheral parts of the deposit. Secondary uranium is often most concentrated at contacts with adjacent mudstones. Most of the uranium in these rocks is present as autunite, but traces of uranophane are also present as well as minor amounts of the primary minerals. Autunite typically coats detrital quartz or feldspar grains and occurs in cavities in feldspar presumably the product of chemical dissolution. Quantitative x-ray diffraction (XRD) measurements show that the oxidized arkoses contain almost no calcite or detrital biotite and have a matrix of smectite and illite rather than smectite and kaolinite (Prince and Young, 2012a).

A further 20% of primary ore is hosted by mudstone and is termed mudstone ore. Most uranium in mudstone ore is present as coffinite with lesser uraninite in a matrix of clay minerals. Quantitative XRD measurement of a composite mudstone sample shows that the mudstone mineralogy is dominated by smectite (21%) and illite (19%), but also that a significant portion (34%) of the rock is amorphous to x-rays (Prince and Young, 2012b). Uranium phases in the mudstone include coffinite, autunite, uranophane, uraninite and brannerite, but typically fine grain size prevents unambiguous identification (Prince and Young, 2012b).

More information on the Kayelekera deposit can be found in Becker (2005), Bowden and Shaw (2007), Becker *et al.* (2009).

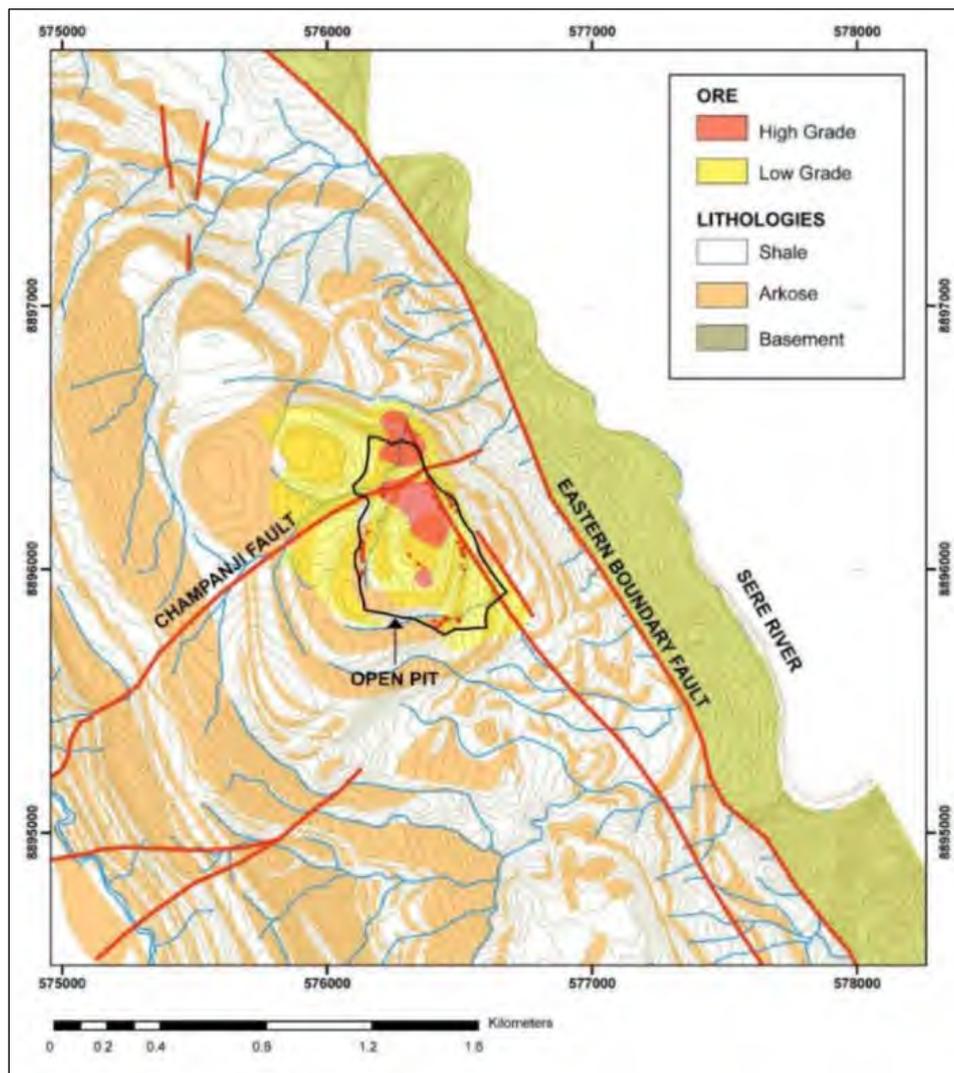


Figure 12: Surface geology of the Kayelekera orebody

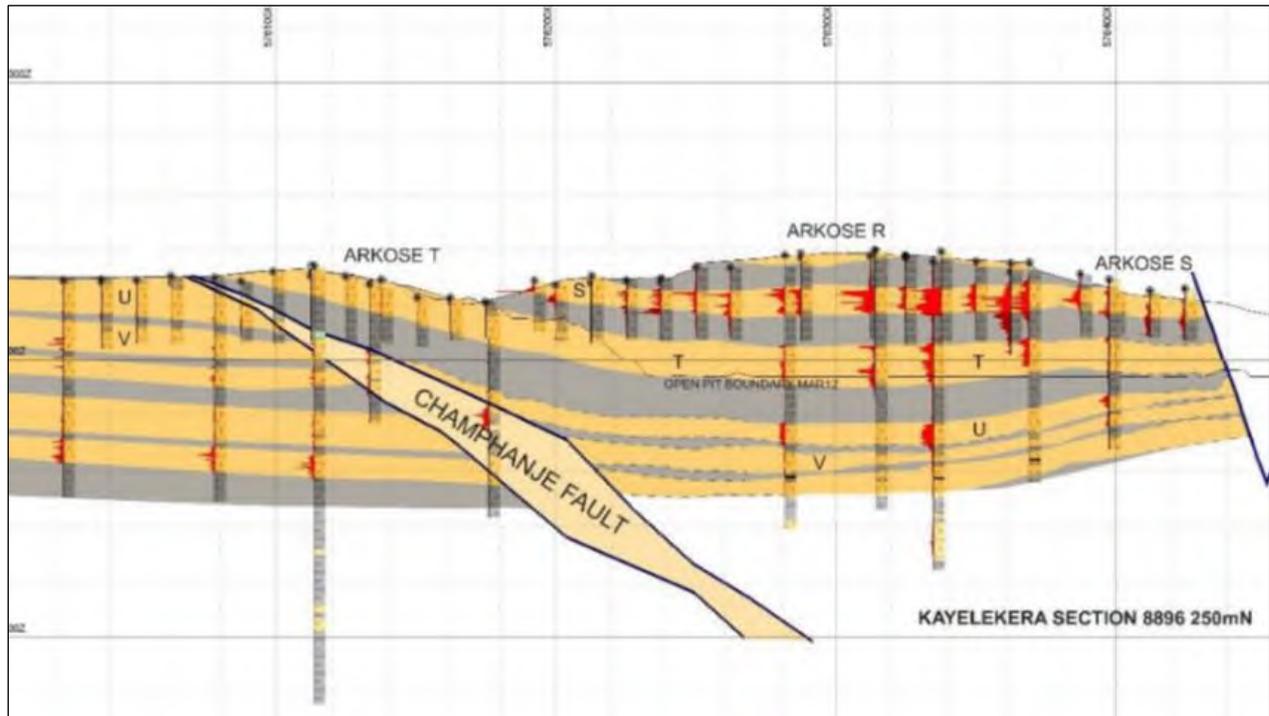


Figure 13: Typical cross-section of Kayelekera showing tabular nature of ore (shown as red histograms)

#### 4.5 Exploration and Mining History

The exploration and mining history for Kayelekera is well documented and is only summarised here.

Uranium was first discovered in Malawi whilst drilling for coal in the Livingstonia Basin about 90 km southeast of Kayelekera. Further exploration resulted in uranium being found near Karonga during 1957.

The Kayelekera deposit itself was discovered as a result of an airborne spectrometric survey undertaken in 1977 by AGIP. Ground follow-up was limited, however included pits and trenches.

The Central Electricity Generating Board (CEGB) obtained licences during 1983 and realised Kayelekera's importance as a potential economic deposit. A Pre-Feasibility Study conducted in 1986 confirmed the economic significance of the Kayelekera deposit. CEGB relinquished the tenement in 1992 as the UK government decided to privatise CEGB and the drop of the uranium price from about US\$30/lb to US\$10/lb in the late 1980s.

By 1997, Balmain Resources obtained the licence covering the Kayelekera deposit. Paladin earned a 90% interest through a farm-in agreement and in 2005 acquired the remaining equity. Paladin completed confirmation drilling in 2006 and a new Pre-Feasibility Study. Following further drilling and the completion of a Feasibility Study and an environmental impact assessment, the company applied to the Malawi Government for a mining licence, which was granted in 2007.

Mine construction took place from 2007 to 2009 and it operated for five years from 2009–2014 producing a total of 10.7 M lb U<sub>3</sub>O<sub>8</sub>. After the Fukushima incident, the mine incurred a series of sustained losses due to the low uranium price and by May 2014 operations were suspended. The mine was placed on care and maintenance until such time economic conditions improve sufficiently to resume operations profitably. More than half of the mine's reserves and resources remain untouched.

#### 4.6 Exploration by Paladin

As Paladin's early focus was on completing a bankable Feasibility Study (BFS) and Environmental Impact Study for the proposed Kayelekera Mine, no regional exploration was undertaken prior to 2008.

Regional work completed post-2008 included:

- An airborne radiometric and magnetic survey
- Ground radiometric surveys focused on anomalous areas identified by the airborne survey
- Pitting and trenching of selected targets (mainly Mapambo)
- RCP drilling in seven target areas (195 holes)
- Acquisition of satellite imagery (Aster and Alos)
- Geological mapping and traversing.

#### 4.7 Exploration Potential

It seems that Paladin's main exploration focus was on high-grade ore material that could provide feed for the Kayelekera mill. This would include tabular sandstone-hosted deposits of Karoo age.

Airborne and ground radiometric surveys confirmed eleven prospects in the area first identified by CEGB regional exploration during the 1980s. Paladin has drilled 195 RCP holes in seven of the 11 prospect areas. There exists opportunity to further explore the remainder of the areas. In addition, only magnetic and radiometrics have been employed to date.

The opinion of Paladin's exploration group was that the probability of further significant discovery was minimal.

#### 4.8 Mineral Resources

CSA Global reviewed the Mineral Resource Estimate completed in 2015 for the Kayelekera Project, the basis of the Restart Study. The Mineral Resource Estimate was reported by Paladin in their 2016 Annual Report assessing the feasibility of restarting the project. In this study, the Mineral Resource estimate was reported at a 300 ppm U<sub>3</sub>O<sub>8</sub> cut-off.

CSA Global consider that a cut-off grade of 600 ppm U<sub>3</sub>O<sub>8</sub> would be more appropriate in current market conditions. Paladin have noted that in their opinion the marginal cut-off grade at uranium price of US\$55/lb is 540 ppm, and at US\$65/lb (to incentivise open pit operations) the cut-off grade would fall to 450 ppm (i.e. that used for the LOM in the Restart Study).

CSA Global considers the Mineral Resource estimate reported in Table 6 to be reasonable and fit for use in valuation. The Mineral Resource estimates has been reported in accordance with the JORC Code (2012 Edition).

Table 6 Mineral Resource estimate, Kayelekera Project (Paladin, 2016)

| Classification      | Tonnage (Mt) | Grade U <sub>3</sub> O <sub>8</sub> (ppm) | Contained metal (Mlb U <sub>3</sub> O <sub>8</sub> ) |
|---------------------|--------------|---|--|
| Measured            | 0.7          | 1,011                                     | 1.7  |
| Indicated           | 12.7         | 700                                       | 19.6   |
| Inferred            | 5.4          | 623                                       | 7.4  |
| Measured stockpiles | 1.6          | 756                                       | 2.6  |
| <b>TOTAL</b>        | <b>20.4</b>  | <b>694</b>                                | <b>31.3</b>  |

Note: Reported at a 300 ppm U<sub>3</sub>O<sub>8</sub> cut-off and depleted as at 31 December 2013.

CSA Global reviewed the 2015 resource model, composites, assays, equivalent U<sub>3</sub>O<sub>8</sub> (eU<sub>3</sub>O<sub>8</sub>). Wireframes defining arkose units which provided the basis for estimation domains were also provided.

CSA Global relied mainly on the following reports to understand the data collection, sampling, modelling and estimation methodologies used by Paladin to complete the Mineral Resource estimate:

- "Restart of Kayelekera Study-Geology Mineralisation Resources.pdf", hereafter referred to as the "Paladin Restart Study".

CSA Global concludes the following:

- On the basis of reports and data reviewed, it is CSA Global's opinion that the Mineral Resource estimate outlined in Table 6 is valid for use in valuation. A higher cut-off of 600 ppm  $U_3O_8$  compared to that used in the Mineral Resource estimates by Paladin is supported by current economic criteria.
- The disequilibrium factors are substantial ranging from 0.71 in mudstone (10% resource), 0.83 in reduced arkose (50% resource) and 1.11 (30% resource) in oxidized arkose, and CSA Global did not review the data supporting the derivation of these factors. However, given good mine to mill reconciliation, it appears to be suitable.
- CSA Global agrees with the methodology used to interpret and constrain the arkose and mudstone units within the estimation.
- The Mineral Resource has been depleted to account for open pit mining completed as at end of December 2013, coinciding with the mine being put in care and maintenance in February 2014.
- Mineral Resource classification appears to have been undertaken solely upon estimation quality statistics which can lead to single blocks or small incoherent zones of Inferred or Indicated Mineral Resources within Measured, and vice versa. This is not too pervasive at Kayelekera, and CSA Global broadly agrees with the classification.
- CSA Global understands that Paladin has a current stockpile of low-grade material whose tonnage and grade is estimated from grade control, mining and plant reconciliation data and that over the life of the mine this has reconciled closely. The stockpile comprised 1.6 Mt at 756 ppm  $U_3O_8$  for 22.7 Mlb of contained metal at a 600 ppm cut-off.
- CSA Global reviewed the extent of Mineral Resources that lie outside the LOM (2014-09-17 KM LoM\_Update Summary.xlsx). The stage 7 pit was used as the limit of the LOM. At a 600 ppm  $U_3O_8$  cut-off, there is an estimated 10 Mlb of contained metal that lies outside the 2014 LOM and Inferred Mineral Resources within the reserve pit shell.

#### 4.9 Mining Studies

The sandstone deposit of Kayelekera lends itself to conventional, open pit mining and it can operate at about 3.3 Mlb  $U_3O_8$  per year.

##### 4.9.1 Study Basis

The Kayelekera Mine operated between 2008 and 2014, producing over 10 Mlb  $U_3O_8$ . In May 2014, the mine was placed on care and maintenance due to a period of sustained low uranium prices.

CSA Global undertook review of the documentation provided on restarting operations at the Kayelekera Mine. The DRAFT KM Restart Study Master Final 160203 document appeared to contain the most current information for restarting the project. The information contained in this document formed the basis for the cash flow model that was created for the Kayelekera Mine. The unit costs and capital estimates are quoted as Real 2017 values and are considered to be reasonable for the purposes of this valuation.

##### 4.9.2 Project Schedule

The mining inventory is based on Measured, Indicated and Inferred Mineral Resources above a cut-off of 450 ppm; which as noted above was the COG considered by Paladin to incentivise open pit operations and a valid cut-off from the perspective of reasonable prospects for eventual economic extraction<sup>4</sup>.

<sup>4</sup> Paladin (pers. comm. Princep Nov. 2017) still consider there to be Ore Reserves remaining at Kayelekera, with the breakeven costs for the operation being below the current consensus long term uranium price. CSA Global further notes that our views in this report on Mineral Resources and Ore Reserves are predicated on providing an opinion on the Market value of the assets at the reference date. Considerations with respect to the JORC Code with relation to the prospects for eventual economic extraction are a separate matter and take a longer-term view as expressed in the estimates provided by the Competent Person/s

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The key physicals driving the valuation for the project are shown in Table 7. The metallurgical recovery is constant at 86.7%.

Table 7: *Production physicals*

| Year | Ore mined<br>kt | Waste mined<br>kt | Ore crushed |     | U <sub>3</sub> O <sub>8</sub> produced<br>Mlb |
|------|-----------------|-------------------|-------------|-----|---|
|      |                 |                   | kt          | ppm |   |
| 2018 | 0               | 0                 | 0           | 0   | 0.0   |
| 2019 | 0               | 0                 | 0           | 0   | 0.0   |
| 2020 | 2,837           | 5,909             | 1,339       | 934 | 2.2   |
| 2021 | 1,241           | 5,565             | 1,414       | 840 | 2.1   |
| 2022 | 3,010           | 3,860             | 1,418       | 923 | 2.3   |
| 2023 | 2,035           | 4,717             | 1,414       | 967 | 2.4   |
| 2024 | 1,052           | 1,714             | 1,414       | 928 | 2.3   |
| 2025 | 0               | 0                 | 1,414       | 924 | 2.3   |
| 2026 | 0               | 0                 | 444         | 937 | 0.7   |

#### 4.9.3 *Operating Costs*

The operating costs in the reference document are in US\$ as at June 2015 cost. Accordingly, these costs have been escalated to June 2017 US\$ costs by applying 1.5% per annum escalation factor. The unit operating costs used in the cash flow model are shown in Table 8. Royalties are included in the sales and marketing unit cost.

Table 8: *Unit operating costs (US\$)*

| Activity                           | Unit cost    |                     |
|------------------------------------|--------------|---------------------|
| Mining                             | 4.09         | \$/t mined          |
| Processing                         | 31.42        | \$/t crushed        |
| Sales and marketing                | 5.75         | \$/lb               |
| <b>Other operating costs</b>       |              |                     |
| Engineering                        | 6.98         | \$/t crushed        |
| SHER                               | 2.63         | \$/t crushed        |
| CandA                              | 11.89        | \$/t crushed        |
| Social responsibility              | 0.47         | \$/t crushed        |
| <b>Total other operating costs</b> | <b>21.97</b> | <b>\$/t crushed</b> |

The annual care and maintenance cost has been estimated at US\$5.5 million per year.

#### 4.9.4 *Capital Costs*

The capital estimate includes an allowance for the rehabilitation work required prior to restart, initial working capital, sustaining capital, tailings storage facility (TSF) expenditure and closure costs. As with the operating costs, the capital costs have been escalated to June 2017 figures. Table 9 shows the expected capital expenditure schedule.

Table 9: Capital expenditure schedule

| Year | Restart estimate (US\$M) | Initial working (US\$M) | Sustaining capital (US\$M) | TFS (US\$M) | Closure TSF (US\$M) | Closure EOM (US\$M) |
|------|--------------------------|-------------------------|----------------------------|-------------|---------------------|---------------------|
| 2018 | 49.5                     |                         | 0.0                        | 0.0         |                     |                     |
| 2019 |                          | 31.2                    | 0.0                        | 0.0         |                     |                     |
| 2020 |                          |                         | 4.1                        | 0.0         |                     |                     |
| 2021 |                          |                         | 4.1                        | 0.0         |                     |                     |
| 2022 |                          |                         | 4.1                        | 0.0         |                     |                     |
| 2023 |                          |                         | 4.1                        | 37.2        | 0.7                 |                     |
| 2024 |                          |                         | 4.1                        | 0.0         | 0.7                 |                     |
| 2025 |                          |                         | 4.1                        | 0.0         | 0.7                 |                     |
| 2026 |                          |                         | 1.3                        | 0.0         |                     | 39.3                |

#### 4.9.5 Other Forecast Assumptions

The forecast assumptions supplied by PPB and used in determining the DCF valuation are shown in Table 10.

Table 10: Uranium Forecast assumptions

|                                     | June 2018 | June 2019 | June 2020 | June 2021 | June 2022 | June 2023 and beyond |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|----------------------|
| Uranium spot prices (real, US\$/lb) | 28        | 33        | 41        | 50        | 56        | 58                   |

#### 4.9.6 DCF Valuation

A simple pre-tax cash flow model was created using the inputs described in the previous sections. The resulting annual cash flows are shown in Table 11. Having regard to the extent of the negative cashflows, outstripping the positive cashflows, it is clear that the project would not be positive on an NPV basis.

Table 11: Pre-tax cash flow model

| Year | Total revenue (US\$M) | Mining (US\$M) | Processing (US\$M) | Sales and marketing (US\$M) | Other operating costs (US\$M) | Care and maintenance (US\$M) | Total opex (US\$M) | Total capex (US\$M) | Surplus after capex (US\$M) |
|------|-----------------------|----------------|--------------------|-----------------------------|-------------------------------|------------------------------|--------------------|---------------------|-----------------------------|
| 2018 | 0.0                   | 0.0            | 0.0                | 0.0                         | 0.0                           | 5.5                          | 5.5                | 49.5                | -55.0                       |
| 2019 | 0.0                   | 0.0            | 0.0                | 0.0                         | 0.0                           | 5.5                          | 5.5                | 31.2                | -36.7                       |
| 2020 | 103.1                 | 35.8           | 42.1               | 12.6                        | 29.4                          | 0.0                          | 119.9              | 4.1                 | -20.9                       |
| 2021 | 108.4                 | 27.8           | 44.4               | 12.0                        | 31.1                          | 0.0                          | 115.3              | 4.1                 | -11.1                       |
| 2022 | 133.2                 | 28.1           | 44.6               | 13.2                        | 31.2                          | 0.0                          | 117.0              | 4.1                 | 12.1                        |
| 2023 | 139.2                 | 27.6           | 44.4               | 13.8                        | 31.1                          | 0.0                          | 116.9              | 42.0                | -19.7                       |
| 2024 | 133.6                 | 11.3           | 44.4               | 13.2                        | 31.1                          | 0.0                          | 100.1              | 4.8                 | 28.7                        |
| 2025 | 133.0                 | 0.0            | 44.4               | 13.2                        | 31.1                          | 0.0                          | 88.7               | 4.8                 | 39.5                        |
| 2026 | 42.3                  | 0.0            | 14.0               | 4.2                         | 9.8                           | 0.0                          | 27.9               | 40.5                | -26.1                       |

Delaying the restart date of the project to the highest forecast metal prices, reduced the magnitude of the net negative cashflows but would still clearly return a negative NPV outcome.

As no positive financial outcome is achievable using the DCF valuation technique and the model inputs, an alternative method is required to value the Kayelekera Mine.

## 4.10 Valuation

### 4.10.1 Previous Valuations

CSA Global is aware that a large independent international advisory firm (“the Firm”) was engaged by Paladin and its creditors to prepare an independent assessment of the Fair Market Value of certain assets of Paladin as of 1<sup>st</sup> February 2017. The assets considered included the Kayelekera Project.

The Firm used the income method (DCF) to value Paladin’s 85% interest in Kayelekera at US\$18.0 million to US\$28.0 million. The premise of the DCF model was the assets were maintained through care and maintenance in anticipation of restarting the mine upon an increase in uranium prices. The cash flows derived in this approach represent amounts from the operations of Kayelekera after consideration of reinvestment (capex and net working capital investment), as well as restart, closure, and care and maintenance costs.

As summarised in Figure 14, the assumed uranium price profile adopted by the Firm was much the same as the price forecasts provided to CSA Global by PPB. However, the treatment of the restart capital estimate cost and the initial working capital requirement was different. Together these changes accounts for the difference in outcomes between the Firm’s DCF valuation and the CSA Global DCF valuation.

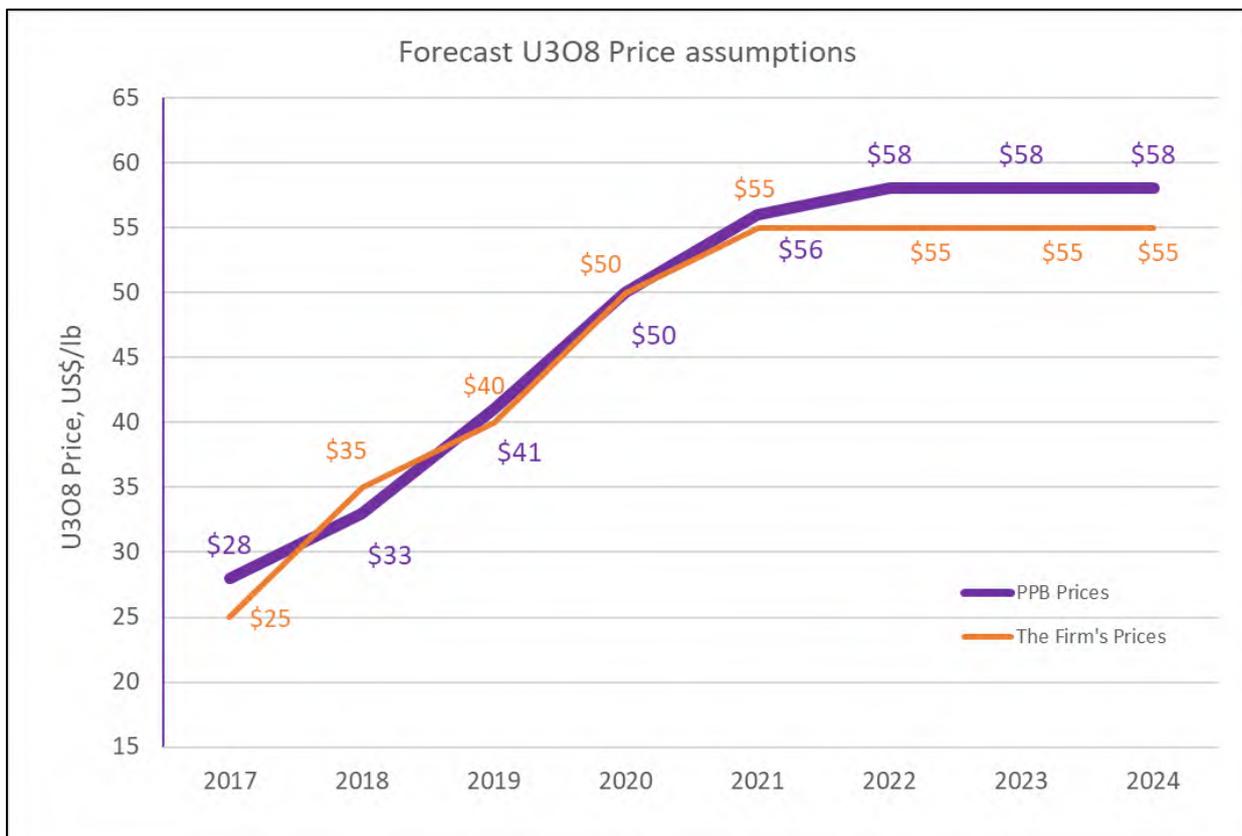


Figure 14: PPB Advisory forecast uranium prices

As discussed below, CSA Global’s analysis concluded that this income based approach was not suitable for a valuation at the reference date of 1 December 2017.

### 4.10.2 Comparable Transactions Valuation

#### Mineral Resources

CSA Global considered relatively recent (within the past six years) relevant transactions for which sufficient information is available in the public domain in assessing a market-based value for the Kayelekera Mineral Resource. CSA Global has identified six transactions within the past six years which we consider to be relevant to the Kayelekera Mineral Resource. These transactions involve Southern African uranium projects at an

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advanced exploration stage, i.e. projects that included well-defined resources, but that were not in operation. The transactions are summarised in Table 77 and analysed in Table 78, both of which are detailed in Appendix 2 of this report.

Of the six transactions considered, three involve projects in Namibia, two involve projects in Zambia, and one involves a project in South Africa. One of the six transactions involved a project that was being commissioned at the time of the transaction (Husab), and was therefore excluded as it was considered to be at a more advanced stage than the other projects, and not a good comparative for Kayelekera at this time.

In addition, three of the transactions considered, involved Karoo uranium projects, whereas the other three (including Husab) involved Alaskitic uranium resources.

Table 12 presents the summary statistics of the five transactions retained, showing the implied price in US\$/lb U<sub>3</sub>O<sub>8</sub> at the time of the transaction and the normalised price per pound of U<sub>3</sub>O<sub>8</sub> using the June 2017 average spot price of US\$20.79/lb. It also shows these statistics for just the three Karoo uranium projects.

Table 12: Comparable transactions data of African uranium projects with Mineral Resources

| Statistic        | All projects (excluding Husab)                   |  | Karoo projects only                              |  |
|------------------|--|--|--|--|
|                  | Implied (US\$/lb U <sub>3</sub> O <sub>8</sub> ) | #Normalised (US\$/lb U <sub>3</sub> O <sub>8</sub> ) | Implied (US\$/lb U <sub>3</sub> O <sub>8</sub> ) | #Normalised (US\$/lb U <sub>3</sub> O <sub>8</sub> ) |
| Count            | 5  | 5  | 3  | 3  |
| Minimum          | 0.04   | 0.03   | 0.04   | 0.03   |
| Maximum          | 0.62   | 0.25   | 0.34   | 0.16   |
| Mean             | 0.23   | 0.11   | 0.15   | 0.08   |
| Median           | 0.08   | 0.06   | 0.06   | 0.06   |
| Weighted average | 0.13   | 0.07   | 0.09   | 0.05   |

#Normalised to a U<sub>3</sub>O<sub>8</sub> price of US\$20.79/lb

When all five transactions are considered, the implied transaction prices range from US\$0.04/lb to US\$0.62/lb with a mean of US\$0.23/lb, a median of US\$0.08/lb and a weighted average of US\$0.13/lb. When normalised to the June 2017 uranium price of US\$20.79/lb, the range changes to US\$0.03/lb to US\$0.25/lb with a mean of US\$0.11/lb, a median of US\$0.06/lb and a weighted average of US\$0.07/lb.

When only the three Karoo uranium projects are considered, the implied transactions prices range from US\$0.04/lb to US\$0.34/lb with a mean of US\$0.15/lb, a median of US\$0.06/lb and a weighted average of US\$0.09/lb. When normalised to the June 2017 uranium price of US\$20.79/lb, the range changes to US\$0.03/lb to US\$0.16/lb with a mean of US\$0.08/lb, a median of US\$0.06/lb and a weighted average of US\$0.05/lb.

In CSA Global's opinion, the project most comparable to Kayelekera (in terms of geology, grade and size of resource) is the Ryst Kuil Project in South Africa, which had a normalised transaction price of US\$0.16/lb, the highest of the Karoo projects.

However, in recognition of the comparatively de-risked technical nature of Kayelekera (Paladin has shown that it can be mined when market conditions are favourable), compared to the these three comparable transactions, CSA Global believes that appropriate valuation factors for the Kayelekera Mineral Resource should be somewhat higher than the highest comparable implied value for the Karoo projects. We have therefore applied our professional judgement and chosen a preferred valuation factor of US\$0.20/lb, within a range from a low factor of US\$0.10/lb, to a high factor of US\$0.25/lb. The lower range (US\$0.10/lb) reflecting the gap between the median and maximum of the data, and the higher value was set at the top of the transaction range (US\$0.25/lb).

Based on the findings of the resource review detailed in Section 4.8 of this report, CSA Global is of the opinion that there is a level of risk in the current Mineral Resource, and we have addressed this risk by applying a 25% discount, as an appropriate means of dealing with the resource risks identified, since this approximates

the likely quantum of resource reduction associated with the identified risks should the resources be re-estimated taking into account the issues identified in our technical assessment. The size of the discount has been determined following review of preliminary resource updates being prepared by Paladin that address material issues identified independently by CSA Global and discussed in Section 4.8.

With a total resource base of 31.1 Mlb U<sub>3</sub>O<sub>8</sub>, this implies a valuation range of US\$2.0 million to US\$4.9 million, with a preferred value of US\$4.0 million for Paladin's remaining 85% equity interest in the Kayelekera Mineral Resource (Table 13).

Table 13: Kayelekera Mineral Resource valuations by Comparable Transactions

| Mineral Resource | U <sub>3</sub> O <sub>8</sub> (Mlb) | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|------------------|-------------------------------------|----------------|-------------|-------------------|--------------|
| Kayelekera       | 31.3                                | 85%            | 2.0         | 4.0               | 4.9          |

Low factor: US\$0.10/lb; High factor: US\$0.25/lb; Preferred factor: US\$0.20/lb.

Discount factor of 25% applied due to identified resource risk

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

### Exploration Tenure

CSA Global considered eight transactions involving early stage uranium projects in Southern Africa. This transaction set involved two properties in Namibia, two in Tanzania, two in Zambia, one in Mozambique and one in South Africa.

The two transactions involving exploration properties in Namibia were excluded, as the mineralisation being targeted was Alaskitic and the acquisitions were strategic in nature. The transaction values were therefore significantly higher than those of the remaining transactions, which all involved Karoo uranium targets.

The six remaining transactions are summarised and analysed in Table 81 in Appendix 3.

The implied transaction prices of the six remaining transactions (Table 14) ranged from US\$199/km<sup>2</sup> to US\$1,527/km<sup>2</sup>, with a mean of US\$1,047/km<sup>2</sup>, a median of US\$1,090/km<sup>2</sup> and a weighted average of US\$727/km<sup>2</sup>. When normalised to the current uranium price, this changed to a range of US\$105/km<sup>2</sup> to US\$920/km<sup>2</sup>, with a mean of US\$547/km<sup>2</sup>, a median of US\$504/km<sup>2</sup> and a weighted average of US\$375/km<sup>2</sup>.

CSA Global note that the proposed acquisition of a Zambian uranium exploration portfolio by Karoo Exploration in October 2013 was terminated prior to completion. When this transaction was discarded, the implied transaction prices of the remaining five transactions (Table 14) ranged from US\$199/km<sup>2</sup> to US\$1,437/km<sup>2</sup>, with a mean of US\$951/km<sup>2</sup>, a median of US\$974/km<sup>2</sup> and a weighted average of US\$649/km<sup>2</sup>. When normalised to the current uranium price, this changed to a range of US\$105/km<sup>2</sup> to US\$848/km<sup>2</sup>, with a mean of US\$473/km<sup>2</sup>, a median of US\$429/km<sup>2</sup> and a weighted average of US\$322/km<sup>2</sup>.

Table 14: Comparable transactions data of African uranium exploration projects

|                        | All transactions                |                                     | Excluding terminated transaction |                                     |
|------------------------|---------------------------------|-------------------------------------|----------------------------------|-------------------------------------|
|                        | Implied (US\$/km <sup>2</sup> ) | #Normalised (US\$/km <sup>2</sup> ) | Implied (US\$/km <sup>2</sup> )  | #Normalised (US\$/km <sup>2</sup> ) |
| Number of transactions | 6                               | 6                                   | 5                                | 5                                   |
| Minimum                | 199                             | 105                                 | 199                              | 105                                 |
| Maximum                | 1,527                           | 920                                 | 1,437                            | 848                                 |
| Mean                   | 1,047                           | 547                                 | 951                              | 473                                 |
| Median                 | 1,090                           | 504                                 | 974                              | 429                                 |
| Weighted average       | 727                             | 375                                 | 649                              | 322                                 |

#Normalised to a U<sub>3</sub>O<sub>8</sub> price of US\$20.79/lb

From this analysis, and based on our professional judgement, CSA Global concludes that suitable valuation factors for Paladin's Malawian uranium exploration ground (excluding the mining lease) would be a low factor of US\$375/km<sup>2</sup>, a high factor of US\$848/km<sup>2</sup>, and a preferred factor of US\$504/km<sup>2</sup>.

These values were selected based on the median of all the transactions for the preferred, the minimum is the weighted average of all the transactions but the high end is the maximum of the transactions excluding the terminated transaction.

A summary of the valuation of Paladin's Malawian uranium exploration ground using these valuation factors is presented in Table 15. This results in a range of US\$0.14 million to US\$0.31 million with a preferred value of US\$0.19 million for Paladin's 85% interest in the 436.6 km<sup>2</sup> of exploration ground.

Table 15: Valuation of Malawian exploration tenure using area-based comparative transactions

| Tenement | Area (km <sup>2</sup> ) | Paladin Equity | Low factor (US\$/km <sup>2</sup> ) | Preferred factor (US\$/km <sup>2</sup> ) | High factor (US\$/km <sup>2</sup> ) | Low (US\$) | Preferred (US\$) | High (US\$) |
|----------|-------------------------|----------------|------------------------------------|--|-------------------------------------|------------|------------------|-------------|
| Mapambo  | 14                      | 85%            | 375                                | 504                                      | 848                                 | 4,500      | 6,000            | 10,000      |
| Rukuru   | 146.3                   | 85%            | 375                                | 504                                      | 848                                 | 46,500     | 63,000           | 105,000     |
| Uliwa    | 276.3                   | 85%            | 375                                | 504                                      | 848                                 | 88,000     | 118,000          | 200,000     |
| Total    | 436.6                   |                |                                    |  |                                     | 139,000    | 187,000          | 315,000     |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

#### 4.10.3 Yardstick Order of Magnitude Check

CSA Global used the Yardstick method as a order of magnitude check on the Kayelekera project Mineral Resource valuations completed using comparable transactions.

For the Yardstick valuation, CSA Global used the following commodity spot price, which is the average U<sub>3</sub>O<sub>8</sub> price for June 2017 being US\$20.79/lb.

In addition, CSA Global utilised the following commonly used Yardstick valuation factors:

- Inferred Mineral Resources: 0.5% to 1% of spot price
- Indicated Mineral Resources: 1% to 2% of spot price
- Measured Mineral Resources: 2% to 5% of spot price.

Stockpiles were treated as Measured Mineral Resources in the absence of Ore Reserves.

The average U<sub>3</sub>O<sub>8</sub> price for June 2017 was used as a basic spot price for the Yardstick valuation so that the results could be compared to the Comparative Transactions, which were normalised to this U<sub>3</sub>O<sub>8</sub> price.

Based on the findings of the resource review detailed in Section 4.8 of this report, CSA Global is of the opinion that there is a level of risk in the current Mineral Resource, and we have addressed this risk by applying a 25% discount, as an appropriate means of dealing with the resource risks identified, since this approximates the likely quantum of resource reduction associated with the identified risks should the resources be re-estimated taking into account the issues identified in our technical assessment. The size of the discount is based on CSA Global's professional judgement, and has been determined following review of preliminary resource updates being prepared by Paladin that address material issues identified independently by CSA Global and discussed in Section 4.8.

A summary of the order of magnitude checks, which is based on Yardstick factors, for the Kayelekera Project are presented in Table 16.

This method resulted in a valuation range of US\$4.2 million to US\$9.0 million, with a preferred value of US\$6.6 million for the Kayelekera Project.

Table 16: Yardstick Order of Magnitude Check of Kayelekera Mineral Resources (85% interest)

| Resource category | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors % |           |           | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|-------------------|-------------------------------------|---------------------|-----------|-----------|-------------|-------------------|--------------|
|                   |                                     | Low                 | Preferred | High      |             |                   |              |
| Measured          | 1.7                                 | 2.0                 | 3.5       | 5.0       | 0.4         | 0.8               | 1.1          |
| Indicated         | 19.6                                | 1.0                 | 1.5       | 2.0       | 2.6         | 3.9               | 5.2          |
| Inferred          | 7.4                                 | 0.5                 | 0.75      | 1.0       | 0.5         | 0.7               | 1.0          |
| Stockpiles        | 2.6                                 | 2.0                 | 3.5       | 5.0       | 0.7         | 1.2               | 1.7          |
| <b>Total</b>      | <b>31.3</b>                         | <b>NA</b>           | <b>NA</b> | <b>NA</b> | <b>4.2</b>  | <b>6.6</b>        | <b>9.0</b>   |

Discount factor of 25% applied due to identified resource risk

spot price, which is the average U<sub>3</sub>O<sub>8</sub> price for June 2017 being US\$20.79/lb

The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

#### 4.10.4 DCF Considerations

Based on the pricing assumptions provided by PPB and the current cost model reviewed by CSA Global, the Kayelekera Project is unlikely to be cash flow positive in the near future. In addition, there is a US\$5.4 million per annum cost for care and maintenance. Based on these observations, CSA Global concluded that an income approach was unsuitable for valuing the Kayelekera operation for the reference date.

#### 4.10.5 Summary of the Malawian Valuations

Based on professional judgement, CSA Global's opinion on the value of the Kayelekera Project (Table 17) is weighted towards the Comparable Transactions valuation, with some influence from the outcomes of the Yardstick valuation order of magnitude check (Figure 15). This is because the Yardstick method takes a very broad, market-wide view, whereas the Comparable Transactions method allows for the consideration of project-specific criteria.

In this case, whilst the Mineral Resources have been technically de-risked, Paladin's experience has shown that they are not economically exploitable in the current market environment. Therefore, CSA Global places more weighting on the outcomes of the Comparable Transactions valuation.

CSA Global's opinion on the value of Paladin's Malawian exploration ground (Table 17) is based solely on the Comparable Transactions valuation. CSA Global considered other valuation methods, including Multiples of Exploration Expenditure and the Geoscientific Rating methods, but concluded that these were not appropriate, as the two larger tenements (constituting 97% of the exploration ground valued) were only recently granted, and no work has been conducted on them. This means that there is little relevant expenditure to assess, and there is insufficient knowledge of the tenements to allow them to be rated with any confidence.

Table 17: Summary valuations of Paladin's 85% interest in the Malawian Mineral Assets

|                    | Parameter valued                       | Paladin equity interest | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|--------------------|--|-------------------------|-------------|-------------------|--------------|
| Kayelekera Project | 33.1 Mlb U <sub>3</sub> O <sub>8</sub> | 85%                     | 3.0         | 4.5               | 7.0          |
| Exploration ground | 436.6 km <sup>2</sup>                  | 85%                     | 0.1         | 0.2               | 0.3          |
| Malawian assets    |  | 85%                     | 3.1         | 4.7               | 7.3          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

In CSA Global's opinion, the market value of the Kayelekera Project lies within the range of US\$3 million to US\$7 million, with a preferred value of US\$4.5 million. The market value of the Malawian uranium exploration lies within the range of US\$0.1 million to US\$0.3 million, with a preferred value of US\$0.2 million. Therefore, the market value of Paladin's Malawian Mineral Assets lies within the range of US\$3.1 million to US\$7.3 million, with a preferred value of US\$4.7 million.

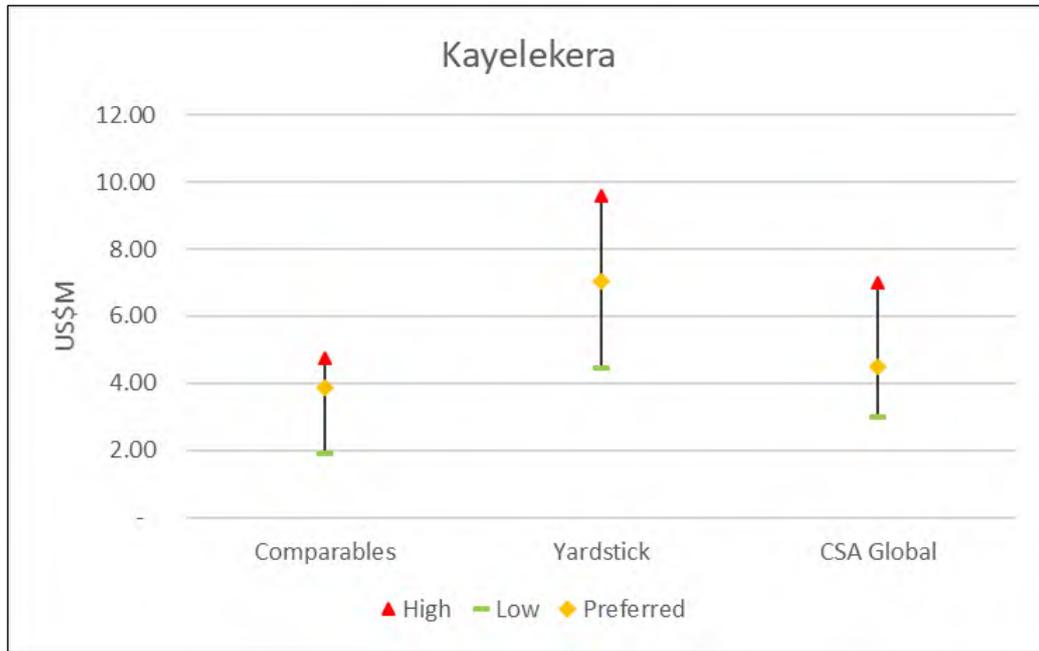


Figure 15: CSA Global’s opinion on the value of Paladin’s 85% interest in the Kayelekera Deposit

CSA Global note that the market approach and rule of thumb (Yardstick) method deliver different value ranges, but with overlap. In CSA Global’s professional opinion the primary valuation approach based on comparable transactions provides a superior valuation approach, being based on geologically and geographically similar recent transactions. The yardstick method is higher than the market approach as the yardstick does not allow consideration of project specific factors such as the location.

For these reasons, in combination with our view on the current negative market sentiment towards uranium assets, we have chosen to restrict our preferred value to within the range of the market approach, and to restrict our valuation range to the lower half of the Yardstick range.

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## 5 Canadian Projects

Paladin's Canadian Mineral Asset, the Michelin Uranium Project is an advanced exploration stage project in the Central Mineral Belt (CMB) of Labrador (Figure 16). The uranium assets consist of 916 km<sup>2</sup> of contiguous exploration licences (Figure 18) where exploration has so far identified six uranium deposits (Michelin, Rainbow, Jacques Lake, Nash, Inda, and Gear) within the project area which have been subject to preliminary economic assessments.

The project is held through the Aurora Energy Ltd group, wholly owned by Paladin. Paladin completed the acquisition of the uranium assets of Aurora Energy Resources Inc. (Aurora) from Fronteer Gold Inc. in February 2011.

### 5.1 Location and Access

The Michelin Project is near the northeast coast of Labrador, about 40 km southwest of Postville on Kaipokok Bay. The community of Happy Valley-Goose Bay, Labrador lies 180 km to the south-southwest.

The region is very sparsely populated and has no road network. All deposits are remote and are accessed by helicopter, fixed wing aircraft or on foot. The local government is very keen to see a road from Goose Bay to service the outlying villages as well as Michelin, and likely financial support for this from local government was an important plank in Aurora's development plan.

Infrastructure is limited to facilities in the coastal communities of Postville and Makkovik, which include commercial airline service and seasonal ferry service from Happy Valley to Goose Bay.



Figure 16: Aurora Michelin Project location in Labrador, Western Canada

### 5.2 Topography and Climate

The climate is sub-arctic with cold snowy winters from about October to April and short mild summers in July and August. Annual rainfall averages 600 mm and snowfall is estimated at 500 cm. Topography consists of northeast-trending, low-lying hills and elevation ranges from sea level to 800 m above sea level. Surficial cover is extensive and includes about 50% black spruce forest, 30% lakes, bogs and streams and 10% boulder fields.

### 5.3 Mineral Tenure

Aurora currently holds the rights to 29 mineral licences in the Province of Newfoundland and Labrador, Canada. These licences incorporate a total of 3,664 Mineral Claims. The majority (3,227 claims) are contiguous and are in the eastern portion of the CMB, an additional 40 claims cover the Croteau property and are further west, towards the interior of Labrador. The other 397 claims are along the anticipated road alignment (Figure 18) between North West River (Goose Bay) and the Michelin Deposit.

Forty-six percent of Aurora's CMB claims, which includes the Michelin Deposit, are on Labrador Inuit Lands. This area is administered at the local level by the Inuit of Labrador through the Nunatsiavut Government, a regional aboriginal government formed in 2005.

CSA Global reviewed the status of the Mining licences using the Newfoundland Labrador Department of Natural Resources tenure website (<http://gis.geosurv.gov.nl.ca/mrinquiry/mrinquiry.asp>) system on 24<sup>th</sup> November 2017. These tenements were all listed and noted as active. CSA makes no other assessment or assertion as to the legal title of tenements and is not qualified to do so.



Figure 17: Aurora's Central Mineral Belt claim area and six uranium deposits

Table 18: Canadian Mineral Licences: Aurora Energy Limited 100% owned by Paladin

| Granted tenement numbers | Registered holder | Tenement name          | Date granted (application lodged) | Renewal date | Area (blocks) |
|--------------------------|-------------------|------------------------|-----------------------------------|--------------|---------------|
| 017214M                  | Aurora            | Michelin Northwest     | 27 Mar 2003                       | 27 Mar 2018  | 42            |
| 017286M                  | Aurora            | Melody West            | 27 Mar 2003                       | 27 Mar 2018  | 190           |
| 017289M                  | Aurora            | Melody Lake            | 27 Mar 2003                       | 27 Mar 2018  | 120           |
| 017290M                  | Aurora            | East Micmac Lake       | 27 Mar 2003                       | 27 Mar 2018  | 36            |
| 017292M                  | Aurora            | Mustang Lake Northwest | 27 Mar 2003                       | 27 Mar 2018  | 137           |
| 017299M                  | Aurora            | Long Point Pond        | 27 Mar 2003                       | 27 Mar 2018  | 128           |
| 017300M                  | Aurora            | Post Hill West         | 27 Mar 2003                       | 27 Mar 2018  | 60            |
| 017301M                  | Aurora            | Kaipokok Bay           | 27 Mar 2003                       | 27 Mar 2018  | 54            |
| 022148M                  | Aurora            | Witch Doctor Lake      | 27 Mar 2003                       | 27 Mar 2018  | 215           |
| 024459M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 43            |
| 024461M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 65            |
| 024462M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 58            |
| 024697M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 137           |
| 024932M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 126           |
| 024940M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 254           |
| 024946M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 127           |
| 024948M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 206           |
| 024995M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 247           |
| 009415M                  | Aurora            | Croteau                | 27 Mar 2003                       | 27 Mar 2018  | 40            |
| 022145M                  | Aurora            | Seabaskachu River      | 27 Mar 2003                       | 27 Mar 2018  | 168           |
| 022146M                  | Aurora            | Mulligan River         | 27 Mar 2003                       | 27 Mar 2018  | 134           |
| 022147M                  | Aurora            | 5460                   | 27 Mar 2003                       | 27 Mar 2018  | 95            |
| 025618M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 99            |
| 025620M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 147           |
| 025621M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 99            |
| 025624M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 251           |
| 025627M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 84            |
| 025630M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 128           |
| 025632M                  | Aurora            |                        | 27 Mar 2003                       | 27 Mar 2018  | 174           |
| <b>Total</b>             |                   |                        |                                   |              | <b>3,664</b>  |

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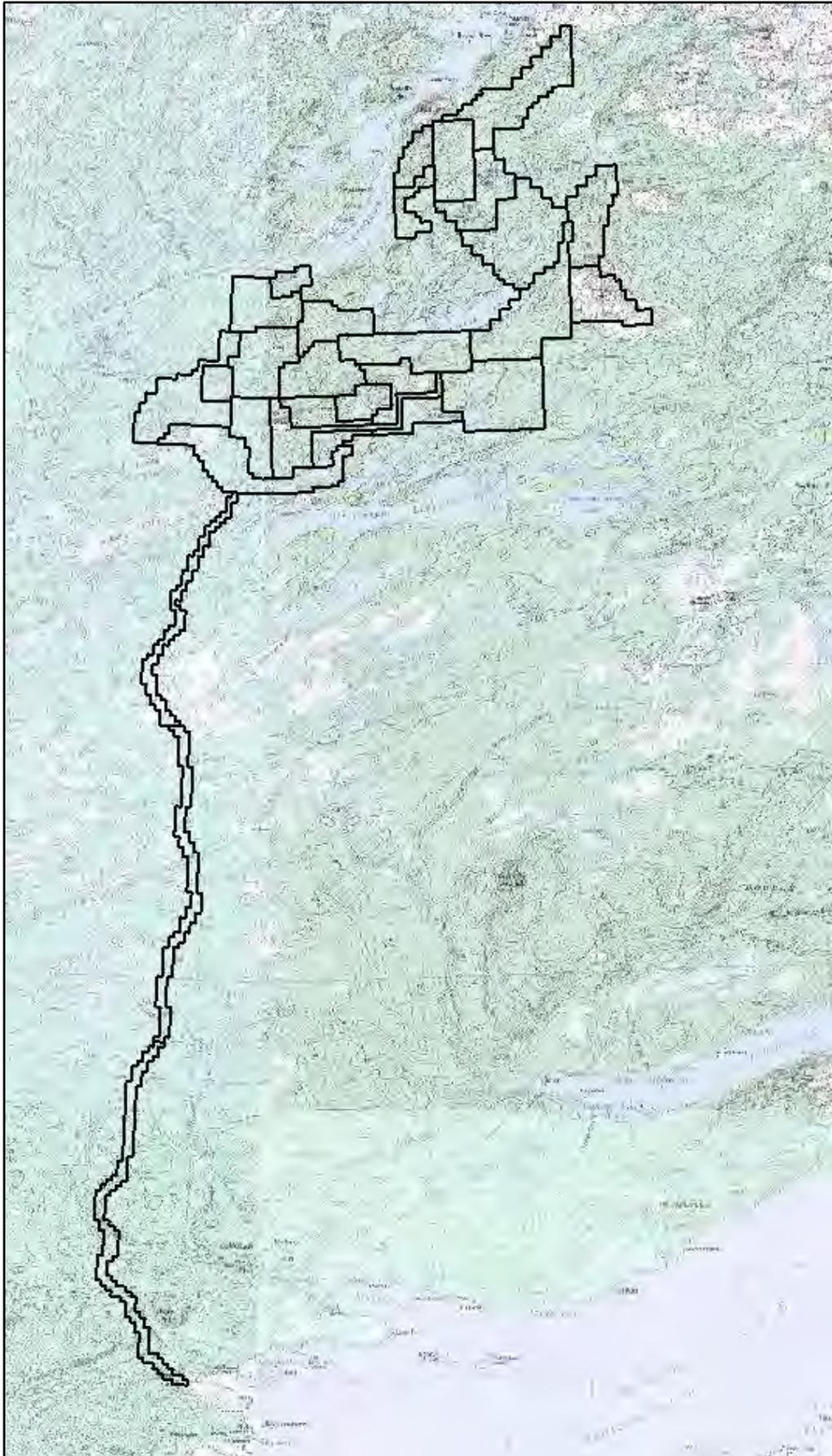


Figure 18: Outline of the main Aurora Energy Limited tenure as at 28<sup>th</sup> November 2017

## 5.4 Geology

### 5.4.1 Regional Geology

The CMB includes portions of the Archean Nain Province, the Paleoproterozoic Makkovik and Churchill provinces and the Paleoproterozoic to Mesoproterozoic Grenville Province. The styles of uranium mineralisation are diverse, but the most significant occurrences are hosted by metavolcanic and metasedimentary rocks. A major zone of east-northeast trending thrust faulting separates rocks of the Grenville orogen to the south from the dominantly Archean gneisses of the Nain province and Paleoproterozoic supracrustal rocks to the north (Figure 19). The main Proterozoic deformational event within the CMB is the ~1.8 Ga Makkovikian Orogeny.

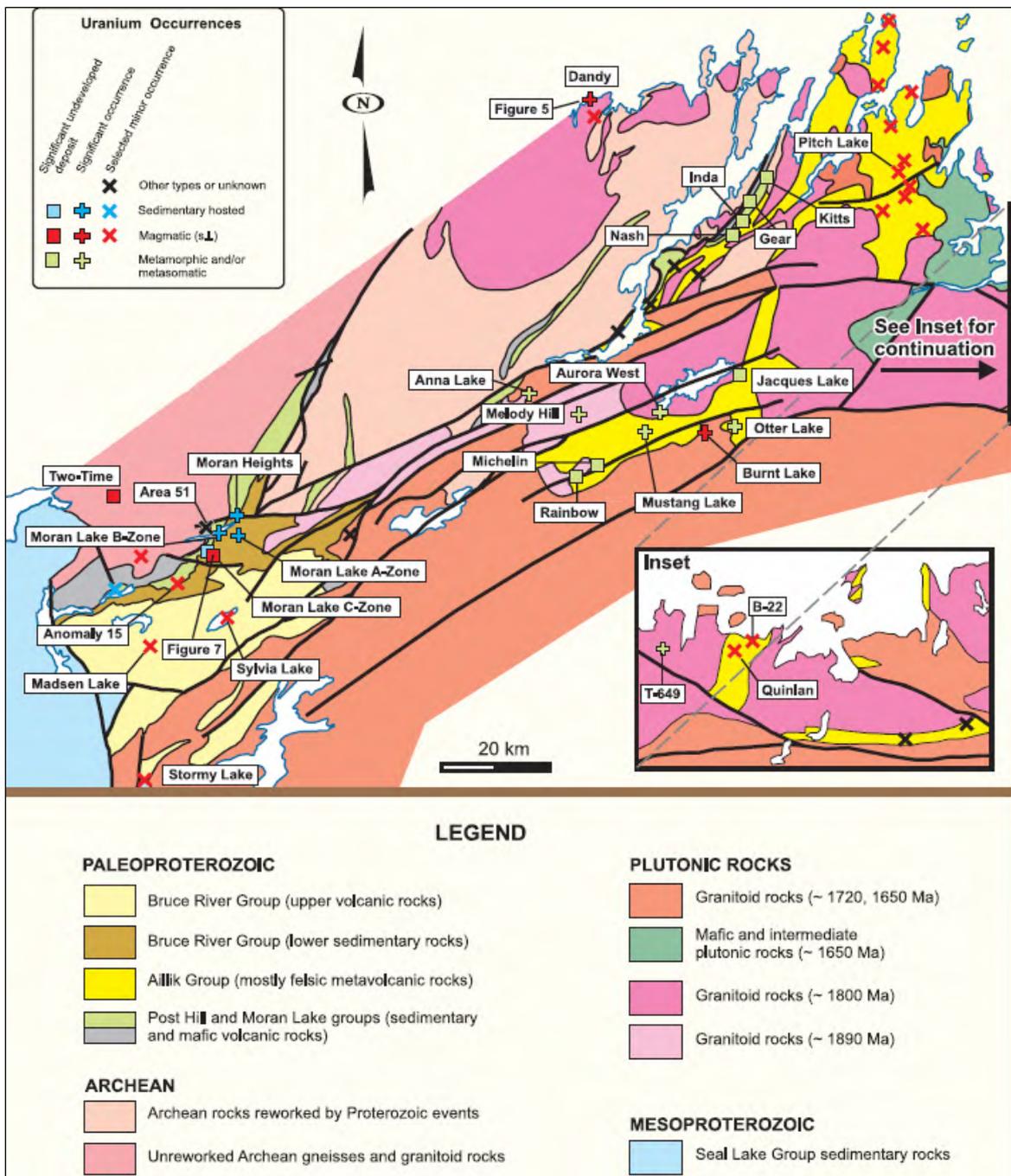


Figure 19: Simplified geological map of the Central Mineral Belt with uranium deposits  
Source: Sparkes and Kerr, 2008

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Regional geology is discussed further in Sparkes and Kerr (2008 and 2009).

Uranium mineralisation in the CMB is dominantly epigenetic with respect to its host rocks, and the precise timing of mineralising events remains unknown.

#### 5.4.2 *Local Geology and Mineralisation*

Uranium mineralisation is hosted in two units, the Post Hill Group and the Aillik Group.

The larger uranium deposits (Michelin, Rainbow, Jacques Lake) are associated with a belt of Proterozoic (1.8 Ga) felsic volcanic rocks (Aillik Group) and granitoids in the southwest portions of Aurora's claims. Deposits of the Inda Lake trend (Inda, Gear, Nash and Kitts) are hosted by underlying metasediments and mafic metavolcanics of the Post Hill Group (2.0 Ga).

Styles of uranium deposits in the CMB are listed as follows:

- Michelin and Jacques Lake are examples of an ALBITITE-TYPE U deposit style (metasomatite-type of International Atomic Energy Agency (IAEA) terminology).
- Upper C zone is also known as Moran Lake and is an example of the the IOCG deposit style (hematite-cemented breccias in metabasalt).
- KING (Kitts-Inda-Nash-Gear) type deposit styles are poorly understood and probably a variant on albitite-type. Host-rocks to the "KING" type are variable but include metasediments and mafic metavolcanic rocks.

Mineralisation in the Aillik group is typified by the Michelin deposit which consists of several subparallel groups of mineralised zones along a strike length of 1,200 m and to local depths of 700 m, remaining open in all directions. Other deposits in the Aillik Group are much smaller and defined by limited drilling.

### 5.5 **Exploration and Mining History**

Exploration commenced in the CMB in 1955 and the small Kitts deposit was discovered in 1956. Michelin was discovered in 1968. Brinex (British Newfoundland Exploration Limited) was active in the CMB from 1968 to 1982, when they identified 18 Mlb  $U_3O_8$ . Brinex completed geological mapping, geophysical and geochemical surveys, 290 core holes (32,480 m) and 580 m of underground workings at Michelin and preliminary engineering and cost reports. Work by the Fronteer–Altius Alliance from 2003 to 2005 comprised district evaluation for copper-gold-uranium targets and acquisition of new mineral licences.

The uranium interests were transferred to Aurora in 2005, which conducted large exploration programs from 2005 to 2008. An internal scoping study was commissioned by Aurora in 2007 by SNC Lavalin, and was updated by a preliminary economic assessment by AMEC in 2009. Annual assessment reports by Aurora and Fronteer from 2004 to 2008 provide details of work conducted and results.

### 5.6 **Exploration by Paladin (Aurora)**

Paladin acquired Aurora in February 2011 and started drilling at Michelin in August 2012 after the uranium mining moratorium was lifted by the Nunatsiavut Government.

Paladin conducted drilling programs at Michelin during summer 2012, winter 2013 and winter 2014 completing 48 diamond holes totalling 12,388 m. Drilling included 42 holes at Michelin, four holes at Running Rabbit and two holes at Rainbow.

Exploration fieldwork conducted from 2012 to 2015 focussed on geological mapping, ground radiometric and magnetic, airborne EM and soil geochemical surveys of the "Michelin Corridor".

### 5.7 **Exploration Potential**

CSA Global notes that the Michelin Project is at an advanced exploration stage.

In addition to the deposits in the Aillik Group (Michelin, Rainbow and Jacques Lake), there are several exploration targets and radioactive showings. These include the Aurora Corridor target, Burnt Brook showing, the Gayle showing, the Otter Lake target, the White Bear target, the Melody Hill showing, and the Michelin East target.

Mineralisation in the Post Hill Group (Gear Lake, Inda Lake and Nash Lake deposits) is generally hosted in sheared metasediments. All deposits are small but are certainly not fully explored.

Prospectivity criteria is being refined to prioritize new target areas using structure, magnetics, gravity and IP/resistivity. Regional exploration potential is deemed excellent, and most areas under surficial cover have not been evaluated.

Overall the exploration potential is deemed good and additional drilling is likely to increase the resources in most deposit areas.

## 5.8 Mineral Resources

Estimates of Mineral Resources for the Michelin Project comprise the Michelin, Jacques Lake, Rainbow, Inda, Gear and Nash deposits have been completed, and are presented in Table 19.

CSA Global note the following key findings in relation to these resource estimates:

- Disequilibrium is noted to be low for the Michelin Mineral Resource estimate.
- Quality assurance and quality control (QAQC) of the drilling and sampling appears to be sound and to industry standard.
- The classification of the Mineral Resources used the “Spotted Dog” approach which uses the grade interpolation outputs to control classification, and removes the Competent Person’s oversight in determining what and how the block model volumes are classified, so that practical classification domains are achieved. This presents a low to moderate risk in mine planning, with spotty locations of Measured and/or Indicated often surrounded by Inferred Mineral Resources. Nonetheless, the resource classification appears to be supported by good geological understanding of the deposits.
- CSA Global recommends assigning 0% assay grades to the unassayed samples within the resource domains in the Michelin, Rainbow and Jacques Lake deposits. Paladin had left these samples as blank without an assay value. CSA Global also recommends adopting higher reporting cut-off grades (0.03%  $U_3O_8$ ) than used by Paladin (generally 0.02%  $U_3O_8$ ).
- No discussion is presented in any reports as to the methodology for the calculation of density data, although the assigned values appear reasonable for the rock types.

Table 19: Mineral Resources, Michelin Project (Paladin, 2016)

| Deposit      | Measured Mineral Resource |         |                                   | Indicated Mineral Resource |         |                                   | Inferred Mineral Resource |         |                                   |
|--------------|---------------------------|---------|-----------------------------------|----------------------------|---------|-----------------------------------|---------------------------|---------|-----------------------------------|
|              | Mt                        | Grade % | Mlb U <sub>3</sub> O <sub>8</sub> | Mt                         | Grade % | Mlb U <sub>3</sub> O <sub>8</sub> | Mt                        | Grade % | Mlb U <sub>3</sub> O <sub>8</sub> |
| Michelin     | 15.6                      | 0.10    | 34.1                              | 21.9                       | 0.10    | 50.0                              | 8.8                       | 0.12    | 22.9                              |
| Jacques Lake | 0.9                       | 0.09    | 1.6                               | 6.0                        | 0.07    | 9.5                               | 8.1                       | 0.05    | 9.0                               |
| Rainbow      | 0.2                       | 0.09    | 0.4                               | 0.8                        | 0.09    | 1.4                               | 0.9                       | 0.08    | 1.6                               |
| Inda         |                           |         |                                   | 1.2                        | 0.07    | 1.8                               | 3.3                       | 0.07    | 4.8                               |
| Nash         |                           |         |                                   | 0.7                        | 0.08    | 1.2                               | 0.5                       | 0.07    | 0.8                               |
| Gear         |                           |         |                                   | 0.4                        | 0.08    | 0.6                               | 0.3                       | 0.09    | 0.6                               |
| Total        | 16.6                      | 0.10    | 36.2                              | 31.0                       | 0.09    | 64.7                              | 21.9                      | 0.08    | 39.8                              |

Notes on Table 19:

- Open pit and underground cut-off grades based upon nominated depth from surface
- Michelin cut-off grades: Paladin – open pit (0.02%), underground (0.05%).%
- Rainbow cut-off grades: Paladin – open pit (0.02%), underground (0.05%).
- Jacques Lake cut-off grades: Paladin – open pit (0.02%), underground (0.05%).
- Inda Trend cut-off grades: Paladin – open pit (0.02%), underground (0.05%).
- Michelin reported according to JORC (2012); remainder are JORC (2004)

### 5.8.1 Michelin

CSA Global reviewed the Paladin reports (ASX, 26 June 2014; Brettschneider, 2009) and Paladin memorandum (Princep, 2017) to understand the methodologies used to prepare and report the Mineral Resource estimates for the Aurora deposits. Paladin also provided technical model data used to create and estimate the 2014 Mineral Resource. Paladin published the Michelin Mineral Resource estimate in 2014, reported according to JORC (2012), while the Mineral Resource estimates for Nash, Inda, Gear, Rainbow and Jacques Lake were re-reported in accordance with JORC (2004).

The long survey intervals from the earlier drilling are likely to have affected the geospatial location of the interpreted mineralisation domains. The risk of errors in location of interpreted domains is more pronounced in the deeper volumes of the Mineral Resource, than in the higher elevations. CSA Global express caution with the classification of Measured Mineral Resources in the deeper volumes due to this issue, and recommend the drillholes in question be re-surveyed if possible.

CSA Global recommends assigning a 0% U<sub>3</sub>O<sub>8</sub> value to absent values, in contrast to the Paladin resource, where absent values were ignored. When the blank sample grades were replaced with 0 ppm, the average U<sub>3</sub>O<sub>8</sub> grade was reduced to 633 ppm, a 17% decrease. A moderate risk is assigned to the interpolated grades especially in volumes where non-sampled intervals within the mineralisation domains are prevalent. The risk is heightened in Measured resource volumes where significant errors in grade should not be expected.

In light of current market conditions in the uranium space, CSA Global recommends cut-off grades of 260 ppm and 600 ppm for open pit and underground resources respectively. Paladin contends that the higher cut-off grades are not required (Princep, 2017).

**CSA Global believes that the Mineral Resource models have merit, with the Paladin Mineral Resource estimate supported by sound geological understanding, and good QAQC results. In CSA Global's opinion, a more robust grade interpolation can be derived by including 0 ppm grades in the place of absent samples.**

### 5.8.2 Rainbow

Paladin reported a Mineral Resource estimate for the Rainbow deposit in 2014 classified as a combination of Measured, Indicated and Inferred Mineral Resources. The Mineral Resource estimate was reported in accordance with the JORC Code (2004), and was originally modelled in 2008 by Aurora Energy Resources Inc. Paladin chose not to report the Mineral Resource estimate in accordance with the JORC Code (2012) because

there was no additional data which would have materially changed the Mineral Resource estimate since the 2009 Mineral Resource estimate was prepared. Consequently, Paladin did not prepare a JORC Table 1 for the Mineral Resource estimate, which CSA Global concludes at a minimum would have been sufficient for the reporting of the Mineral Resource estimate to JORC (2012) guidelines.

A review of the Mineral Resource estimate resulted in the following key findings:

- 29 drillholes support the Mineral Resource estimate but nine have no assays.
- Aurora determined there were insufficient sample pairs to calculate variograms therefore interpolated the grade into the block model using Inverse Distance Squared (IDS)
- Aurora used a maximum of 12 samples per block estimate with no discussion provided on maximum samples per drillhole used per block estimate
- A “Hi-Yield” search ellipse (Vulcan grade estimation method) was used to constrain very high grade (>3500 ppm) samples
- The geological model of the barren dyke was intercepted by mineralisation in one drillhole
- Aurora appeared to suppress some very low-grade samples from the grade interpolation.

**CSA Global supports using all drill sample intervals. No QAQC issues were noted by Aurora which might have led to the suppression of selected drillholes. CSA Global recommend ordinary kriging be used for future grade interpolations, using “borrowed” variogram models from similar deposits if necessary. CSA Global also supports Aurora’s decision to include the Footwall domain in the Mineral Resource estimate, provided there was sufficient geological evidence to imply grade and geological continuity. In this instance, CSA Global supports Aurora’s and Paladin’s Inferred classification for this domain.**

The Aurora Mineral Resource estimate was reported in 2009 as a combination of Indicated and Inferred. A “spotted dog” approach to classification was employed for the Hangingwall domain. CSA Global also notes that Paladin reported a small Measured Mineral Resource in 2014, with no discussion provided to support this. **CSA Global are of the opinion the Rainbow Mineral Resource estimate should be a combination of Indicated and Inferred.**

The Paladin Mineral Resource estimate is supported by a reasonable understanding of the geological controls on mineralisation, good QAQC, and a grade interpolation method which is still accepted within the mining industry. CSA Global support using a higher cutoff grade in recognition of current market conditions in the uranium space.

### 5.8.3 Jacques Lake

Paladin reported a Mineral Resource estimate in 2014 classified as a combination of Measured, Indicated and Inferred. The Mineral Resource estimate was reported in accordance with the JORC Code (2004), and was originally modelled in 2008 by Aurora Energy Resources Inc. Paladin chose not to report the Mineral Resource estimate in accordance with the JORC Code (2012) because there were no additional data which would have materially changed the Mineral Resource estimate since the 2009 Mineral Resource estimate was prepared. Consequently, Paladin did not prepare a JORC Table 1 for the Mineral Resource estimate, which CSA Global concludes at a minimum would have been sufficient for the reporting of the Mineral Resource estimate to JORC (2012) guidelines.

reviewed review of the Mineral Resource estimate resulted in the following key findings:

- Barren dykes are geologically logged within the deposit but were not modelled in the Mineral Resource Estimate. Drill samples intersecting these dykes within the mineralisation envelopes, with 0 ppm grade, were used to interpolate grade into the mineralisation domain.
- There are 50% more samples within the mineralisation envelopes than reported by Aurora. These samples were regarded as barren by Aurora and Paladin, with some samples assayed at 0 ppm, whilst majority were absent assays.

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- Aurora estimated grade using ordinary kriging, using four to 16 samples per block estimate with a maximum of four samples per drillhole per block estimate.
- A bulk density of 2.79 t/m<sup>3</sup> was based upon 194 samples from within the mineralised envelope.
- The block model was classified using the “spotted dog” approach.

**CSA Global supports the use of all samples within the mineralisation envelope to interpolate grades. However, some of these barren grades are associated with intruding dykes and this throws into question the veracity of the geological model. It is CSA Global’s opinion that the geological model may be sufficient for an Indicated classification, but does not support a Measured classification. However, CSA Global also notes that the Measured MR accounts for 15% of the total MR tonnage. In addition, CSA Global supports the use of higher cutoff grades in recognition of current market conditions in the uranium space.**

#### 5.8.4 *Inda Trend*

The Inda Trend comprises Mineral Resources for the Inda, Gear and Nash deposits. Paladin reported a Mineral Resource estimate in 2014 classified as a combination of Indicated and Inferred. The Mineral Resource estimate was reported in accordance with the JORC Code (2004), and was originally modelled in 2008 by Aurora Energy Resources Inc. Paladin chose not to report the Mineral Resource estimate in accordance with the JORC Code (2012) because there were no additional data which would have materially changed the Mineral Resource estimate since the 2009 Mineral Resource estimate was prepared. Consequently, Paladin did not prepare a JORC Table 1 for the Mineral Resource estimate, which CSA Global concludes at a minimum would have been sufficient for the reporting of the Mineral Resource estimate to JORC (2012) guidelines.

CSA Global’s review of the Mineral Resource estimate resulted in the following findings:

- 116 drillholes support the three Mineral Resource estimates, for 1,965 samples contained within the mineralisation domains.
- Aurora determined there were insufficient sample pairs to calculate variograms therefore interpolated the grade into the block model using IDS.
- Aurora used a maximum of 12 samples per block estimate with a maximum of four samples per drillhole used per block estimate.
- A “Hi-Yield” search ellipse (Vulcan grade estimation method) was used to constrain very high grade (>4,000 ppm) samples.
- A bulk density of approximately 2.8 was used for the three deposits, which is slightly higher than the densities used for the other Aurora Mineral Resource estimates. The higher density values are supported by the more mafic host unit in the Inda Trend, compared to more felsic lithologies logged at Michelin.

Mineral Resource classification is via the “spotted dog” method, as discussed in the Michelin Mineral Resource review.

It should be noted that there is additional mineralisation outside the 2009 resource wireframe that is not included in the resource discussed here (pers.comm. Princep Nov. 2017).

**CSA Global recommends ordinary kriging be used for future grade interpolations, using “borrowed” variogram models from similar deposits if necessary. However, this approach will not result in a material change in global reported tonnes and grade. It is CSA Global’s opinion that both the Paladin Mineral Resource estimates fairly represent the Inda Trend deposits, with the MR classification levels appropriate for the geological understanding and amount and quality of sampling. CSA Global believes the Mineral Resource classification methodologies can be improved in both reports.**

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## 5.9 Mining Studies (PEA/SS)

Aurora retained AMEC Americas Limited (AMEC) to prepare a Preliminary Assessment report (PEA) on the Michelin Project hosted within the CMB Property in 2009. The Michelin Project comprised the Michelin, Jacques Lake, Rainbow, Nash, Inda, and Gear uranium deposits, and additional prospects and exploration targets.

The PEA used Ultimate pit shells established using a uranium price of US\$85/lb. The cut-off grade was estimated using US\$75/lb.

AMEC noted that the geology, resources, geotechnical and mining sections of the project were not sufficiently detailed to support a pre-feasibility assessment in 2009.

The PEA envisaged a LOM of 18 years, with open pit mining at Michelin to a depth of about 175 m, and underground mining to a depth of about 850 m. It envisaged open pit mining at Jacques Lake to a depth of about 200 m, and underground mining to a depth of about 400 m.

Pilot-scale metallurgical testwork indicated that the material can be processed, using a resin-in-pulp (RIP) plant, with a thickening before leaching.

Project development would require construction of a powerline, road access, and port facilities, in addition to mine buildings and support infrastructure.

On-site infrastructure considered included the construction of:

- Mine service building
- Warehouse
- Mill
- Permanent accommodation (400 persons)
- Powerhouse for emergency supply
- Administration building
- Security building
- Mine service building and mine dry and ablution at Jacques Lake.

Off-site Infrastructure considered included the construction of:

- An access road from Postville
- A new port near Postville, including:
  - marginal wharf
  - cement silos
  - bulk storage areas
  - port building
  - lime kiln
  - bulk fuel storage.
- A permanent access road from Michelin to Jacques Lake.

The PEA financial model was most sensitive to metal price, with the project NPV reducing to zero at around US\$53/lb. It was equally sensitive to fluctuations in foreign exchange, and was run at an exchange rate of C\$1=US\$0.90.

## 5.10 Valuation

CSA Global's review of the Michelin Project is based on the Mineral Resources reported by Paladin in the Paladin 2016 Annual Report. CSA Global then discounted the valuations as appropriate, based on our findings from the resource review detailed above.

### 5.10.1 Previous Valuations

CSA Global is aware that a large independent international advisory firm ("the Firm") was engaged by Paladin and its creditors to prepare an independent assessment of the Fair Market Value of certain assets of Paladin as of 1<sup>st</sup> February 2017. The assets considered included the Michelin Project.

The Firm concluded that the fair market value of the Michelin Project was within the range US\$16.5 million to US\$41.5 million. No preferred value within the range was stated.

### 5.10.2 Comparable Transactions Valuation

#### Mineral Resources

The value of Paladin's Canadian Mineral Resources were evaluated by assessment of the comparative market transactions of uranium projects in North America and Australia (Appendix 2: Table 79, Table 80). Table 20 presents the summary statistics of the 12 transactions identified, showing the implied price in US\$/lb U<sub>3</sub>O<sub>8</sub> at the time of the transaction and the normalised price per pound of U<sub>3</sub>O<sub>8</sub> using the June 2017 average spot price of US\$20.79/lb.

Table 20: Comparable transaction data of Australian and North American uranium resources

| Statistic | All transactions                                    |  | Canadian projects <10Mlbs U <sub>3</sub> O <sub>8</sub> |  |
|-----------|---|--|---|--|
|           | Implied<br>(US\$/lb U <sub>3</sub> O <sub>8</sub> ) | Normalised<br>(US\$/lb U <sub>3</sub> O <sub>8</sub> ) | Implied<br>(US\$/lb U <sub>3</sub> O <sub>8</sub> )     | Normalised<br>(US\$/lb U <sub>3</sub> O <sub>8</sub> ) |
| Minimum   | 0.025   | 0.012  | 0.025   | 0.012  |
| Maximum   | 3.378   | 1.455  | 0.134   | 0.074  |
| Mean      | 0.750   | 0.392  | 0.072   | 0.040  |
| Median    | 0.353   | 0.257  | 0.065   | 0.037  |

Based on the above analysis, and applying our professional judgement, CSA Global selected a range of US\$0.16/lb to US\$0.24/lb U<sub>3</sub>O<sub>8</sub> and a preferred value of US\$0.20/lb U<sub>3</sub>O<sub>8</sub> to apply to the Michelin OP (open pit) and Michelin UG (underground) resources (Table 21), which all contain >10 Mlb of U<sub>3</sub>O<sub>8</sub> with both Measured and Indicated Mineral Resources. The preferred value of US\$0.20/lb is has been selected as appropriate as it is below the median value for the transaction set, in recognition of the remoteness and lack of infrastructure associated with these specific assets. Using our professional judgement, CSA Global has selected high and low values to reflect a range of 20% above and below the preferred value.

CSA Global's analysis of comparable transactions identified four Canadian transactions for small <10 Mlb U<sub>3</sub>O<sub>8</sub> Mineral Resources, which had a normalised range of values from US\$0.01/lb to US\$0.07/lb of U<sub>3</sub>O<sub>8</sub>. These four transactions all involved relatively low grade resources, with grades ranging from 250ppm to 440ppm U<sub>3</sub>O<sub>8</sub>.

Based on the above analysis, and applying our professional judgement, CSA Global applied a range of US\$0.04/lb to US\$0.06/lb U<sub>3</sub>O<sub>8</sub> and a preferred value of US\$0.05/lb U<sub>3</sub>O<sub>8</sub> for the valuation of the Mineral Resources of the Nash, Inda, Gear, Rainbow, Jacques Lake OP and Jacques Lake UG deposits (Table 21). These deposits are smaller, and apart from Inda, contain <5 Mlb of U<sub>3</sub>O<sub>8</sub>. Except for the Jacques Lake Mineral Resources, which contain some Measured Mineral Resources, all the other deposits contain Indicated and Inferred Mineral Resources. As the Aurora deposits all have grades above 700ppm U<sub>3</sub>O<sub>8</sub>, which is higher than the four comparatives, we have applied our professional judgement in selecting a low value of US\$0.04/lb, which is equivalent to the mean and median of the comparative transactions. We then applied our

professional judgement in selecting a high value ((US\$0.06/lb) that is 50% greater than the low value, and a preferred value (US\$0.05/lb) that is at the midpoint of the range.

The two different ranges reflect the differences in the quality, confidence and size of the individual declared resource base.

Table 21: Valuation factors applicable to the Canadian Mineral Resources

| Mineral Resource                        | Low (US\$/lb) | Preferred (US\$/lb) | High (US\$/lb) |
|---|---------------|---------------------|----------------|
| Michelin                                | 0.16          | 0.20                | 0.24           |
| Nash, Inda, Gear, Rainbow, Jacques Lake | 0.08          | 0.10                | 0.12           |

Based on the resource review documented in Section 5.8 of this report, CSA Global consider a 20% discount to be an appropriate means of dealing with the resource risks identified, since this approximates the likely quantum of resource reduction associated with the identified risks should the resources be re-estimated taking into account the issues identified in our technical assessment. The size of the discount is based on CSA Global's professional judgement, and has been determined following review of preliminary resource updates being prepared by Paladin that address material issues identified independently by CSA Global and discussed in Section 5.8.

This resulted in a valuation range of US\$14.8 million to US\$22.2 million, with a preferred value of US\$18.5 million (Table 22).

Table 22: Canadian Mineral Resource valuations by Comparable Transactions

| Mineral Resource | U <sub>3</sub> O <sub>8</sub> (Mlb) | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|------------------|-------------------------------------|----------------|-------------|-------------------|--------------|
| Nash             | 2.1                                 | 100%           | 0.1         | 0.1               | 0.1          |
| Inda             | 6.6                                 | 100%           | 0.2         | 0.3               | 0.3          |
| Gear             | 1.2                                 | 100%           | 0.0         | 0.0               | 0.1          |
| Rainbow          | 3.5                                 | 100%           | 0.1         | 0.1               | 0.2          |
| Jacques Lake     | 20.2                                | 100%           | 0.6         | 0.8               | 1.0          |
| Michelin         | 107.0                               | 100%           | 13.7        | 17.1              | 20.5         |
| <b>Total</b>     | <b>140.6</b>                        | <b>100%</b>    | <b>14.8</b> | <b>18.5</b>       | <b>22.2</b>  |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

### Exploration Tenure

CSA Global also reviewed 13 recent (within the past five years) transactions involving early stage uranium exploration properties in Canada. Most of these involved projects in the Athabasca Basin, Saskatchewan.

The normalised values of these transactions fell within two groups, those with values below US\$1,500/km<sup>2</sup> and those with values above US\$10,000/km<sup>2</sup>. The transactions with values above US\$10,000/km<sup>2</sup> tended to involve small, focused ground holdings with demonstrated strategic value, or tenements proximal to operating mines or advanced projects.

The group of transactions with values below US\$1,500/km<sup>2</sup> was considered a more appropriate comparison subset for Paladin's Canadian ground holding, considering the large size of the ground holding, and its relatively isolated nature with regards to operating mines. This peer group also included the June 2013 acquisition of the 128 km<sup>2</sup> CMB ground holding by Deep Sea Capital Ltd, which is the most suitable comparative for Paladin's Canadian ground holding, as this ground holding included a declared resource and exploration ground in the same district as the Michelin Project.

The seven comparative transactions are listed in Appendix 3 and summarised below (Table 23).

Table 23: Comparable transaction data of Canadian uranium exploration projects

| Statistic        | Implied US\$/km <sup>2</sup> | #Normalised US\$/km <sup>2</sup> |
|------------------|------------------------------|----------------------------------|
| Minimum          | 142                          | 94                               |
| Maximum          | 2,167                        | 1,149                            |
| Mean             | 1,117                        | 649                              |
| Median           | 944                          | 496                              |
| Weighted average | 734                          | 454                              |

#Normalised to a U<sub>3</sub>O<sub>8</sub> price of US\$20.79/lb

Note that the CMB transaction represents the median value, with an implied transaction price of US\$944/km<sup>2</sup>, which normalises to US\$496/km<sup>2</sup> when considering the current uranium price.

To apply suitable factors to the individual tenements, the project was divided into four groups, as follows:

- Tenements hosting currently declared Mineral Resources
- Tenements with known prospects identified
- Tenements with target areas identified
- Tenements with no currently identified prospects or targets.

Based on analysis of the seven comparative transactions and the prospectivity ranking described above, we have applied our professional judgement in selecting the factors in Table 24 for the valuation of Paladin's Canadian exploration ground holding.

Table 24: Valuation factors applicable to the Canadian exploration projects

| Tenement prospectivity          | Low factor (US\$/km <sup>2</sup> ) | Preferred factor (US\$/km <sup>2</sup> ) | High factor (US\$/km <sup>2</sup> ) |
|---------------------------------|------------------------------------|--|-------------------------------------|
| Current Mineral Resources       | Not valued using this method       |  |                                     |
| Known prospects identified      | 1,000                              | 2,000                                    | 3,000                               |
| Target areas identified         | 500                                | 1,000                                    | 1,500                               |
| No current prospects or targets | 200                                | 500                                      | 800                                 |

The preferred value of US\$500/km<sup>2</sup> for tenements without current prospects or targets was based on rounding the median and weighted average of the comparative transactions. Based on our professional judgement, the high (US\$800/km<sup>2</sup>) and low (US\$200/km<sup>2</sup>) values were selected to reflect a suitable trimmed range from the transactions (~US\$95/km<sup>2</sup> to ~US\$1,150/km<sup>2</sup>).

For tenements with target areas identified, CSA Global applied professional judgement in selecting a range based on the upper half of the transactions range. The low valuation factor (US\$500/km<sup>2</sup>) is based on rounding the median and weighted average of the transaction set, and the preferred value (US\$1,000/km<sup>2</sup>) is based on rounding down the maximum value from the transaction set (US\$1,149/km<sup>2</sup>). The high valuation factor (US\$1,500/km<sup>2</sup>) has been selected to ensure a symmetrical range around the preferred value.

The low value of US\$1,000/km<sup>2</sup> for the tenements with known prospects identified is based on rounding down the maximum value from the transaction range (US\$1,149/km<sup>2</sup>), to reflect CSA Global's view that these tenements are likely to transact at a premium to the transaction set. Using professional judgement, the preferred value (US\$2,000/km<sup>2</sup>) and high value (US\$3,000/km<sup>2</sup>) were selected to give a relative range consistent with the range for the tenements with target areas identified (50% above and below the preferred value).

Table 25 summarises the valuation of Paladin's Canadian exploration ground using these valuation factors. This implies a valuation range of US\$0.4 million to US\$1.2 million, with a preferred value of US\$0.8 million. Note that this excludes the tenements containing declared resources.



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CSA Global notes that the implied valuation factor for the package as a whole (755.25 km<sup>2</sup>, excluding the tenements containing declared resources) is a low of US\$485/km<sup>2</sup>, a high of US\$1,541/km<sup>2</sup> and a preferred of US\$1,013/km<sup>2</sup>. In CSA Global's opinion, this range is reasonable, based on the analysis of transactions summarised in Table 23.

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Table 25: Valuation of Canadian exploration tenure using area-based comparative transactions

| Tenement | Area km <sup>2</sup> | Low factor (US\$/km <sup>2</sup> ) | Preferred factor (US\$/km <sup>2</sup> ) | High factor (US\$/km <sup>2</sup> ) | Low (US\$) | Preferred (US\$) | High (US\$) | Prospectivity comments                                |
|----------|----------------------|------------------------------------|--|-------------------------------------|------------|------------------|-------------|---|
| 009415M  | 10                   | 200                                | 500                                      | 800                                 | 2,000      | 5,000            | 8,000       | Low   |
| 017206M  | 43.75                | 1,000                              | 2,000                                    | 3,000                               | 43,750     | 87,500           | 131,250     | Burnt Brook + Target Identified                       |
| 017214M  | 10.5                 | 200                                | 500                                      | 800                                 | 2,100      | 5,250            | 8,400       | Low   |
| 017221M  | 25                   | 500                                | 1,000                                    | 1,500                               | 12,500     | 25,000           | 37,500      | Target Identified                                     |
| 017286M  | 47.5                 | 1,000                              | 2,000                                    | 3,000                               | 47,500     | 95,000           | 142,500     | Elbow Pond, Active Pond Prospects + Target Identified |
| 017288M  | 36.25                | 1,000                              | 2,000                                    | 3,000                               | 36,250     | 72,500           | 108,750     | Melody Hill Prospect                                  |
| 017289M  | 30                   | 200                                | 500                                      | 800                                 | 6,000      | 15,000           | 24,000      | Low   |
| 017290M  | 9                    | 200                                | 500                                      | 800                                 | 1,800      | 4,500            | 7,200       | Low   |
| 017292M  | 34.25                | 200                                | 500                                      | 800                                 | 6,850      | 17,125           | 27,400      | Low   |
| 017299M  | 32                   | 500                                | 1,000                                    | 1,500                               | 16,000     | 32,000           | 48,000      | Target Identified                                     |
| 017300M  | 15                   | 200                                | 500                                      | 800                                 | 3,000      | 7,500            | 12,000      | Low   |
| 017301M  | 13.5                 | 200                                | 500                                      | 800                                 | 2,700      | 6,750            | 10,800      | Low   |
| 022145M  | 42                   | 200                                | 500                                      | 800                                 | 8,400      | 21,000           | 33,600      | Low – Access to project                               |
| 022146M  | 33.5                 | 200                                | 500                                      | 800                                 | 6,700      | 16,750           | 26,800      | Low – Access to project                               |
| 022147M  | 24                   | 200                                | 500                                      | 800                                 | 4,800      | 12,000           | 19,200      | Low – Access to project                               |
| 022148M  | 53.75                | 500                                | 1,000                                    | 1,500                               | 26,875     | 53,750           | 80,625      | Target Identified                                     |
| 024459M  | 10.75                | 500                                | 1,000                                    | 1,500                               | 5,375      | 10,750           | 16,125      | Target Identified                                     |
| 024461M  | 16.25                | 500                                | 1,000                                    | 1,500                               | 8,125      | 16,250           | 24,375      | Target Identified                                     |
| 024462M  | 14.5                 | 500                                | 1,000                                    | 1,500                               | 7,250      | 14,500           | 21,750      | Target Identified                                     |
| 024463M  | 22                   | 500                                | 1,000                                    | 1,500                               | 11,000     | 22,000           | 33,000      | Target Identified                                     |
| 024688M  | 12.75                | 200                                | 500                                      | 800                                 | 2,550      | 6,375            | 10,200      | Low   |
| 024697M  | 34.25                | 500                                | 1,000                                    | 1,500                               | 17,125     | 34,250           | 51,375      | Target Identified                                     |
| 024932M  | 31.5                 | 500                                | 1,000                                    | 1,500                               | 15,750     | 31,500           | 47,250      | Target Identified                                     |
| 024940M  | 63.5                 | 200                                | 500                                      | 800                                 | 12,700     | 31,750           | 50,800      | Low   |
| 024946M  | 31.75                | 200                                | 500                                      | 800                                 | 6,350      | 15,875           | 25,400      | Low   |

| Tenement           | Area km <sup>2</sup> | Low factor (US\$/km <sup>2</sup> ) | Preferred factor (US\$/km <sup>2</sup> ) | High factor (US\$/km <sup>2</sup> ) | Low (US\$) | Preferred (US\$) | High (US\$) | Prospectivity comments         |
|--------------------|----------------------|------------------------------------|--|-------------------------------------|------------|------------------|-------------|--------------------------------|
| 024948M            | 51.5                 |                                    |  |                                     | -          | -                | -           | Nash, Inda, Gear MR            |
| 024984M            | 25                   |                                    |  |                                     | -          | -                | -           | Rainbow MR                     |
| 024986M            | 41.25                | 1,000                              | 2,000                                    | 3,000                               | 41,250     | 82,500           | 123,750     | Otter Lake + Target Identified |
| 024988M            | 5.75                 | 1,000                              | 2,000                                    | 3,000                               | 5,750      | 11,500           | 17,250      | White Bear + Target Identified |
| 024993M            | 11                   | 500                                | 1,000                                    | 1,500                               | 5,500      | 11,000           | 16,500      | Target Identified              |
| 024994M            | 22.75                |                                    |  |                                     | -          | -                | -           | Michelin MR                    |
| 024995M            | 61.75                |                                    |  |                                     | -          | -                | -           | Jacques Lake MR                |
| Total <sup>#</sup> | 916.25               |                                    |  |                                     | 365,950    | 764,875          | 1,163,800   |                                |

<sup>#</sup> Area total includes four tenements with declared Mineral Resources. Excluding these tenements, the total area valued using this method is 755.25 km<sup>2</sup>.

### 5.10.3 Yardstick Order of Magnitude Check

CSA Global used the Yardstick method as a Order of Magnitude Check on the Canadian Mineral Resource valuations completed using comparable transactions.

For the Yardstick Order of Magnitude Check, CSA Global used the following commodity spot price, which is the average U<sub>3</sub>O<sub>8</sub> price for June 2017 being US\$20.78/lb.

In addition, CSA Global utilised the following commonly used Yardstick Order of Magnitude Check factors:

- Inferred Mineral Resources: 0.5% to 1% of spot price
- Indicated Mineral Resources: 1% to 2% of spot price
- Measured Mineral Resources: 2% to 5% of spot price.

The average U<sub>3</sub>O<sub>8</sub> price for June 2017 was used as a basic spot price for the Yardstick Order of Magnitude Check so that the results could be compared to the Comparative Transactions, which were normalised to this U<sub>3</sub>O<sub>8</sub> price.

Applying professional judgement based on the resource review documented in Section 5.8 of this report, CSA Global consider a 20% discount to be an appropriate means of dealing with the resource risks identified, as discussed above in the Comparable Transactions section (Section 5.10.2).

A summary of the comparative valuations, which is based on Yardstick factors, for the Michelin Project is presented in Table 26.

This method resulted in a valuation range of US\$26.1 million to US\$58.2 million, with a preferred value of US\$42.1 million for the Michelin Project. CSA Global notes that this is higher than the valuation range derived using the comparable transactions method, but it is of the same order of magnitude, lending some support to the primary valuation. CSA Global would have considered a valuation range below US\$1 million or above US\$100 million as indicative that the primary valuation method may be seriously flawed.

Bearing in mind that this approach is simplistic (e.g. it is very generalised and does not address project specific value drivers but takes an “industry-wide” view), CSA Global considers that these results are likely to be higher than the market value of these assets, as they do not take into account the isolated nature of these deposits, and the considerable capital expenditure on infrastructure that is likely to be required in order to exploit these deposits. Therefore CSA Global views the comparable transaction method as more appropriate for valuing these resources.

Table 26: Yardstick Order of Magnitude Check of Canadian Mineral Resources

| Resource category | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |           | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|-------------------|-------------------------------------|-------------------|-----------|-----------|-------------|-------------------|--------------|
|                   |                                     | Low               | Preferred | High      |             |                   |              |
| Measured          | 36.2                                | 2.0               | 3.5       | 5.0       | 12.0        | 21.0              | 30.1         |
| Indicated         | 64.7                                | 1.0               | 1.5       | 2.0       | 10.8        | 16.1              | 21.5         |
| Inferred          | 39.8                                | 0.5               | 0.75      | 1.0       | 3.3         | 5.0               | 6.6          |
| <b>Total</b>      | <b>140.6</b>                        | <b>NA</b>         | <b>NA</b> | <b>NA</b> | <b>26.1</b> | <b>42.1</b>       | <b>58.2</b>  |

### 5.10.4 Geoscientific Factor Method Check – Canadian Exploration Tenure

The Geoscientific Factor Method was used as a Order of Magnitude Check on Canadian exploration tenure valuations completed using comparable transactions.

The Geoscience method requires the consideration of those aspects of a mineral property, which enhance or downgrade the intrinsic value of the property. The first and key aspect of the Geoscientific Factor method

described by Kilburn (1990) is the derivation of the Base Acquisition Cost (BAC) that is the basis for the valuation. Goulevitch and Eupene (1994) discuss the derivation of BAC. The BAC represents the average cost to identify, apply for and retain a base unit of area of tenement.

A BAC for Newfoundland and Labrador exploration licences (Table 27) has been estimated using the following data:

- Based on the New Foundland and Labrador's Department of Natural Resources online databases as of August 2017, it is determined that the average age of exploration licences in New Foundland and Labrador is 3.7 years, and the average size of these licences is approximately 30.3 claims (7.6 km<sup>2</sup>). A claim is 500 m by 500 m or 25 ha (0.25 km<sup>2</sup>) in area.
- An average cost to identify an area of interest of C\$5,000 was chosen, as well as C\$10,000 for the cost of landowner notices, negotiations, legal costs and compensation.
- An application fee of C\$65/claim is payable.
- New Foundland and Labrador mining law includes a minimum annual expenditure requirement of C\$200/claim in the first year, C\$250/claim in the second and C\$300/claim the third and C\$350/claim for the fourth year.

Altogether, this gives a BAC for the average Newfoundland and Labrador Exploration Licence of C\$1,681/km<sup>2</sup> (US\$1,285 per km<sup>2</sup>), as shown in Table 27.

Table 27: Base Acquisition Cost for exploration tenure in Newfoundland and Labrador

| Statistic  | 1 Claim (25 ha) | 1 km <sup>2</sup> |
|--|-----------------|-------------------|
| Average area (claim)   | 1               |                   |
| Initial term (years)   | 5               |                   |
| Average age (years)  | 3.7             |                   |
| Application fee (C\$)  | 65              | 260               |
| Minimum annual expenditure per claim Y1 (C\$)                                | 200             | 800               |
| Minimum annual expenditure per claim Y2 (C\$)                                | 250             | 1,000             |
| Minimum annual expenditure per claim Y3 (C\$)                                | 300             | 1,200             |
| Minimum annual expenditure per claim Y4 (C\$)                                | 350             | 1,400             |
| Cost to identify (C\$)   | 165             | 660               |
| Costs of landowner notices, negotiations, legal costs and compensation (C\$) | 330             | 1,320             |
| Total cost in km <sup>2</sup> + application (C\$)                            | 1,555           | 6,220             |
| Average area (km <sup>2</sup> )  | 0.25            | 1                 |
| BAC/km <sup>2</sup> (C\$)  | 6,220           | 6,220             |
| BAC/yr (C\$)   | 1,681           | 1,681             |
| US\$ BAC/yr at 0.7645 FOREX  | 1,285           | 1,285             |

CSA Global considered the various factors indicated in Table 27 in assessing the Technical Value of each project area. The ratings for each project are indicated in Appendix 4.

A Market Factor of 20% was applied in deriving a Fair Market Value from the Technical Value obtained from the rating matrix, as is required in applying this valuation method. This factor was chosen using professional judgement, such that the average value for the tenement package considered is consistent with the range of valuation factors obtained from the analysis of comparative transactions. It is CSA Global's view that this adequately accounts for global market factors on an empirical basis.

Table 28: Geoscientific Factor Method of Canadian exploration tenure

| Area (km <sup>2</sup> ) | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|-------------------------|----------------|-------------|-------------------|--------------|
| 755                     | 100%           | 0.29        | 0.84              | 1.39         |

BAC US\$1,285/km<sup>2</sup>, Market factor 20%

The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

### 5.10.5 Summary of the Canadian Valuations

In CSA Global's opinion, the value of Paladin's Canadian projects lies within the range shown in Table 29. The valuation is based on the values derived from comparative transactions for valuing the Mineral Resources (Figure 20), and with support from the Geoscientific Rating method for the exploration tenure (Figure 21).

In CSA Global's opinion, the Yardstick Order of Magnitude Check for the Mineral Resources does not adequately consider or reflect the isolated nature of these deposits, and the high capital expenditure on infrastructure likely required before these deposits can be exploited.

For these reasons, in combination with general current negative market sentiment towards uranium assets, we have exercised our professional judgement and chosen to restrict our value range to that from the market approach.

Table 29: Summary of Canadian Project valuations

| Project                     | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|-----------------------------|----------------|-------------|-------------------|--------------|
| Canadian Mineral Resources  | 100%           | 14.8        | 18.5              | 22.2         |
| Canadian Exploration Tenure | 100%           | 0.4         | 0.8               | 1.2          |
| <b>Canada Total</b>         | <b>100%</b>    | <b>15.1</b> | <b>19.2</b>       | <b>23.3</b>  |

The valuation has been compiled to an appropriate level of precision, minor rounding errors may occur.

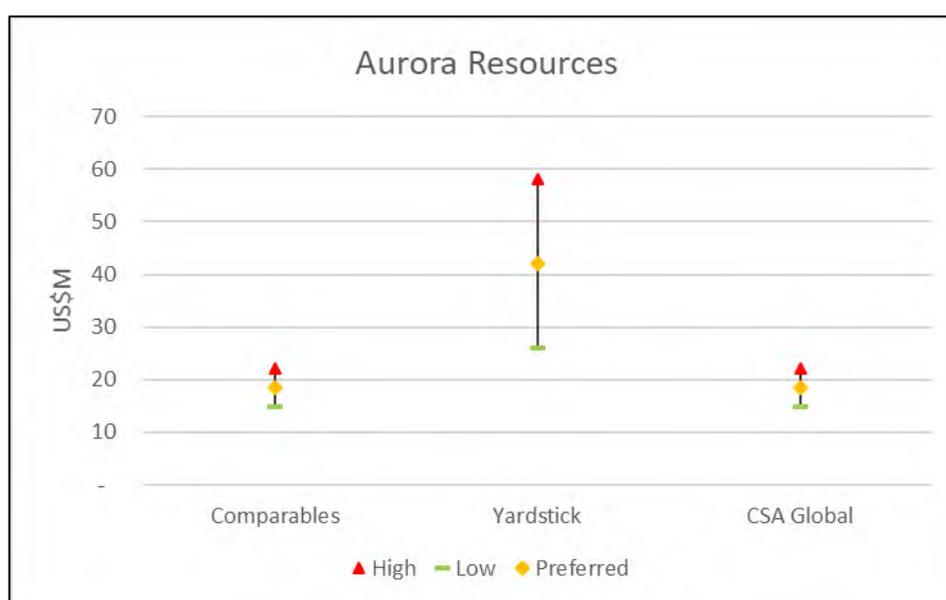


Figure 20: CSA Global opinion of the valuation range of Paladin's Canadian Mineral Resources

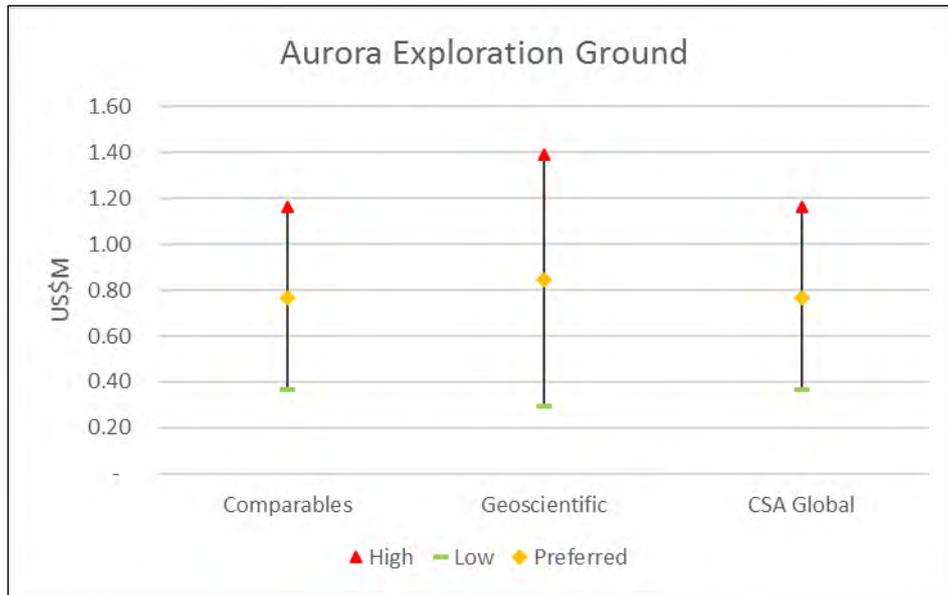


Figure 21: CSA Global opinion of the valuation range of Paladin's Canadian exploration tenure

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## 6 Western Australian Projects

Paladin's Western Australian projects comprise the Manyingee and Carley Bore Projects. These are sandstone-hosted uranium deposits amenable to *in situ* recovery of uranium (Figure 22).

### 6.1 Location and Access

The Manyingee Uranium Project is located in the northwest of Western Australia, 85 km inland from the coastal township of Onslow. The project is covered by three mining leases covering 1,307 ha. The tenements are located on the Minderoo and Yanrey pastoral leases.

Access to the site is along station tracks, either from the Nanutarra Roadhouse on the North West Coastal Highway (39 km) or from the Barradale–Onslow Road to the west (22 km). There is a gravel airstrip on the tenements suitable for light aircraft. Regional airports are located at Karratha and Paraburdoo, both located approximately 275 km from Manyingee.

The Tubridgi Natural Gas Pipeline passes 500 m east of the prospect leases. Paladin also holds exploration licence 08/1496 covering 89 km<sup>2</sup> at Spinifex Well, 25 km northeast of Manyingee.

The Carley Bore prospect is located along the eastern margin of the Carnarvon Basin of Western Australia on the Lyndon River, approximately 200 km south of Onslow and some 120 km south of Manyingee.

Access to the area is via the sealed Northwest Coastal Highway from Carnarvon for 137 km, then along well graded, unsealed road for 162 km, then on graded station tracks.

### 6.2 Topography and Climate

The project area is located on a flat alluvium plain, 50 m above sea level, on the Peedamullah Shelf in the Ashburton River Basin and is part of the Yanrey Plains Zone. The major topographic feature that falls within the Project is Manyingee Hill. The northern part of the Project area is typically covered by Gilgai soils or otherwise referred to as “crabhole soils” consisting of clay and sandy clay with scattered gravel floats on the surface. The southern part of the lease area is covered by a mixture of very low dunes and small clay pans.

Onslow has an arid-tropical climate with two distinct seasons, hot summers from December to March when the mean maximum temperatures exceed 35°C and milder temperatures from May to September when the mean maximum temperature ranges from 29°C to 30°C. Rainfall in the Pilbara region is often sporadic, and can occur in both summer and winter. The Onslow area has an average annual rainfall of 321 mm (Onslow Airport), with most falling between January and March from tropical cyclones and also between May and June from mid-latitude depressions. Evaporation has been estimated at 3,068 mm per year at Nyang Station, which is located 100 km southeast of Manyingee.

The project area lies within the Ashburton River catchment, which drains to the north of the Exmouth Gulf in the Indian Ocean near Onslow. The Ashburton River, located about 1 km from the mining lease, is an ephemeral watercourse which flows intermittently from southeast to northwest.

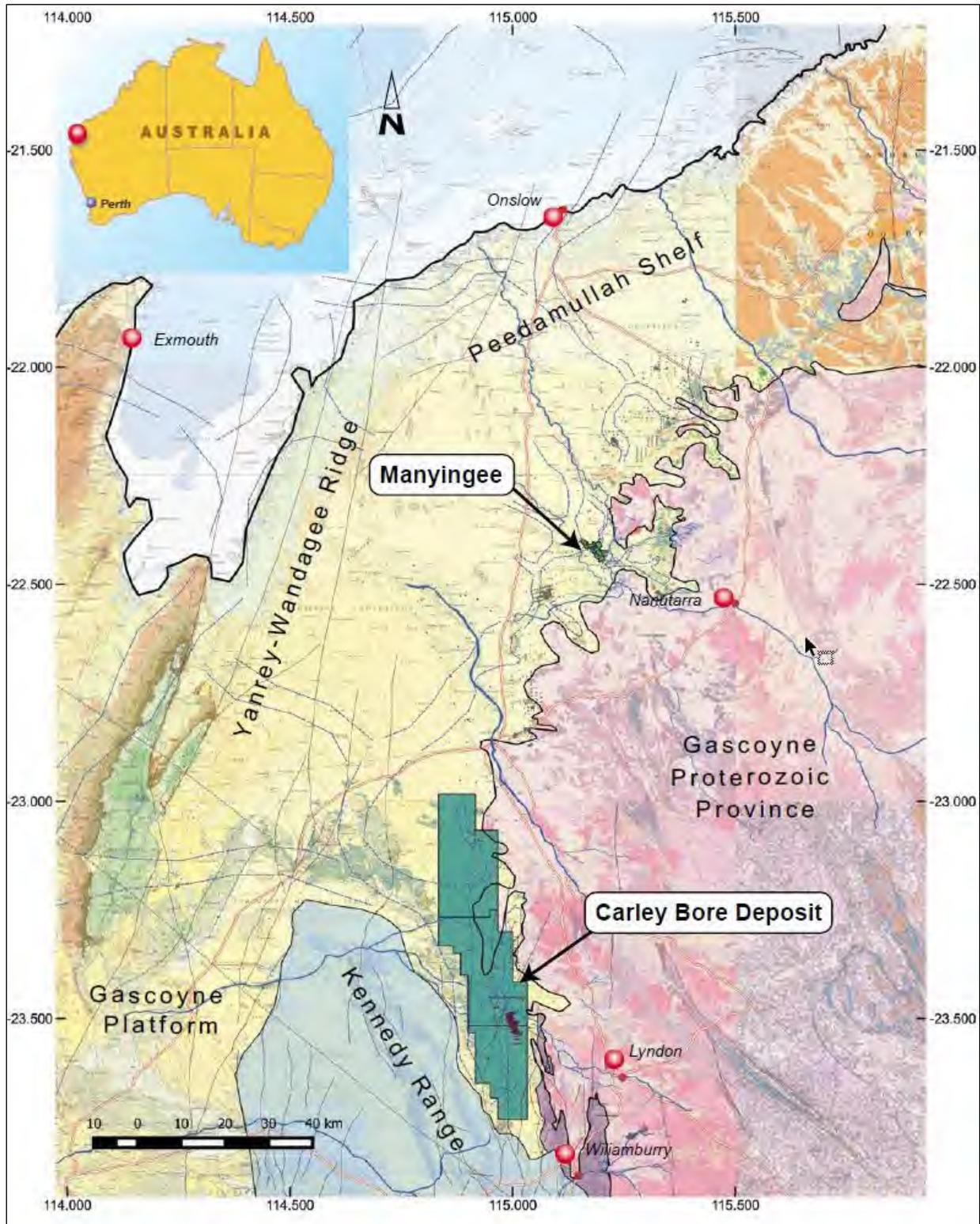


Figure 22: Location of the Manyingee and Carley Bore projects and regional geological setting of the Manyingee and Carley Bore projects. Note: GSWA 1:250,000 scale geology modified by Paladin

### 6.3 Mineral Tenure

CSA Global reviewed the status of the Mining licences using the WA Department of Mines tenure website (<https://geoview.dmp.wa.gov.au/GeoViews/?Viewer=GeoVIEW> ) system on 24<sup>th</sup> November 2017. The

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tenements were all listed and noted as active. CSA makes no other assessment or assertion as to the legal title of tenements and is not qualified to do so.

### 6.3.1 Manyingee

The Manyingee Project area is within Paladin Energy Mineral NL's mining leases (M08/86, M08/87, M08/88) which form a contiguous block that covers the Manyingee deposit. Mining leases M08/86, M08/87 and M08/88 were granted to Total Mining Australia Pty Ltd (formerly called Minatome Australia Pty Ltd) on 18 May 1989 for a term of 21 years to 17 May 2010.

In 1994, Total Mining Australia Pty Ltd changed its name to Afmeco Mining and Exploration Pty Ltd (Afmeco). In 1998, Afmeco entered into an agreement to sell the three tenements to Paladin Resources Ltd (now Paladin Energy Limited). Sale formalities were completed and transfers were registered on 16 June 2000, transferring a 100% interest in the tenements to Paladin Energy Minerals NL, a wholly owned subsidiary of Paladin. In January 2010, Paladin applied for renewal of the three mining leases for a further term from 18 May 2010 and this was granted on 19 February 2010 for a period of 21 years expiring on 17 May 2031 (Table 30).

Table 30: Manyingee tenement summary

| Tenement      | Registered holder | Date granted | Expiry date | Area (ha)       | Minimum annual expenditure |
|---------------|-------------------|--------------|-------------|-----------------|----------------------------|
| M08/86        | PEM               | 18 May 1989  | 17 May 2031 | 857.55          | 85,800                     |
| M08/87        | PEM               | 18 May 1989  | 17 May 2031 | 250.55          | 25,100                     |
| M08/88        | PEM               | 18 May 1989  | 17 May 2031 | 198.10          | 19,900                     |
| <b>Totals</b> |                   |              |             | <b>1,306.20</b> | <b>\$130,800</b>           |

The three Paladin mining leases occur across two pastoral stations, Yanrey and Minderoo. Two of the mining leases (M08/86 and M08/87) lie partially on Yanrey Station pastoral lease (Crown Lease number CL54/1967, Land Act number LA3114/477) and partially on Minderoo Station pastoral lease (Crown Lease number CL56/1967, Land Act number LA3114/661). Mining lease M08/88 lies wholly on Minderoo Station. Minderoo is owned by Mr Andrew Forrest, a prominent businessman, who has publicly opposed uranium mining on the station.

The Manyingee area is subject to the Thalanyji Native Title determination (WC99/45 and WAD6113/98), which was ratified by the Federal Court of Australia on 18 September 2008. The claim covers an area of 11,120 km<sup>2</sup> extending from the coast west of Onslow inland for a distance of 150 km. The determination recognised the Native Title rights of the Thalanyji people of the determination area, but preserved the interests of Paladin Energy Minerals NL as holders of mining leases M08/86, M08/87 and M08/88 (Figure 23).

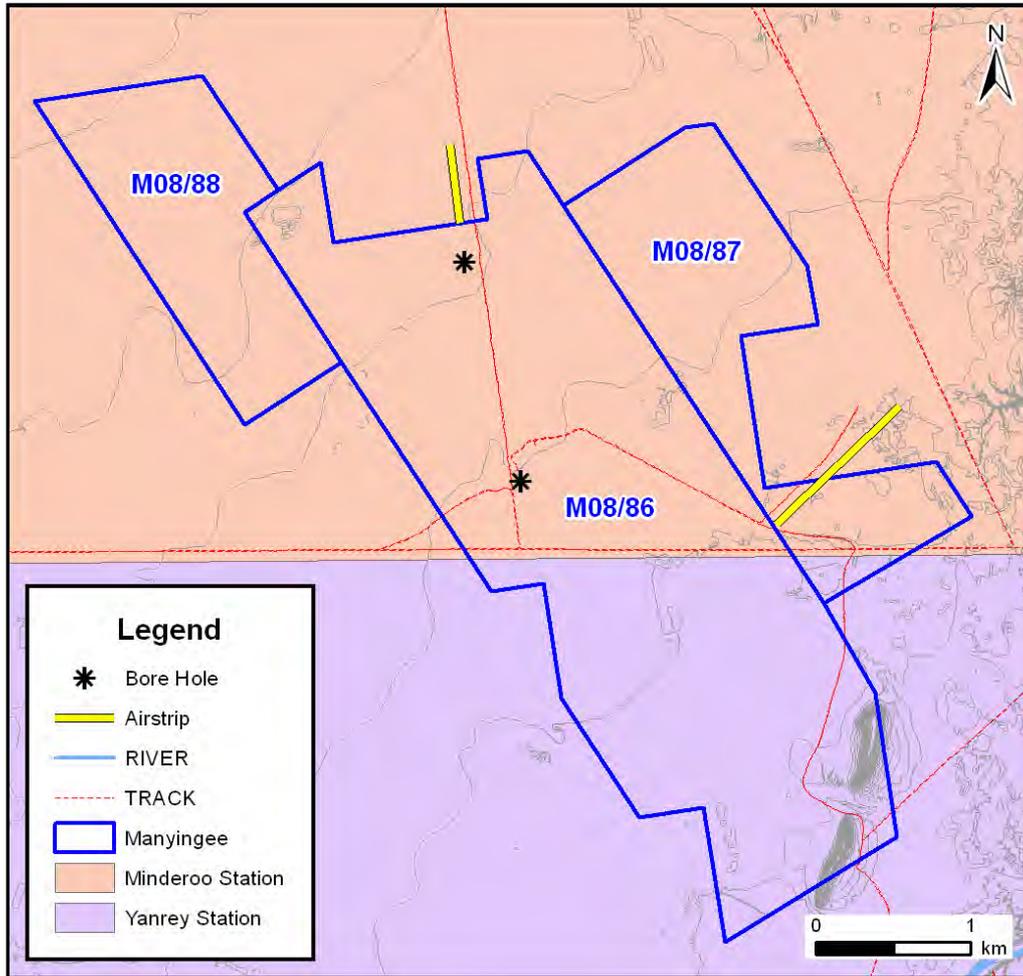


Figure 23: Manyingee Project mining leases and pastoral leases  
Source: Paladin

### 6.3.2 Carley Bore

The Carley Bore Project comprises three granted exploration licences (Table 31). The three core tenements (E08/1644-1646) were granted on 22 December 2006 for a period of five years. All were subject to a statutory 50% relinquishment on 21 December 2011, however this term was extended until 21 December 2012 as part of an exemption application and extensions of term application. The term of the licences was extended for five years on 22 December 2011, and a subsequent compulsory partial relinquishment was made in late 2012.

Table 31: Carley Bore tenement summary

| Project/Tenement number | Registered holder       | Tenement name | Date granted | Expiry date | Area (blocks) |
|-------------------------|-------------------------|---------------|--------------|-------------|---------------|
| E08/1644                | Paladin Energy Minerals | Carley Bore   | 22 Dec 2006  | 21 Dec 2018 | 120           |
| E08/1645                | Paladin Energy Minerals | Carley Bore   | 22 Dec 2006  | 21 Dec 2018 | 120           |
| E08/1646                | Paladin Energy Minerals | Carley Bore   | 22 Dec 2006  | 21 Dec 2018 | 79            |

The project area covers the Lyndon, Winning and Mia Mia pastoral stations in the Shire of Carnarvon and the Towera, Nyang and Yanrey pastoral leases in the Shire of Ashburton.

The Nyang tenements overlap pastoral leases (Lyndon, Nyang/Emu Creek) and Native Title Claim areas of the Gnulli, Budina and Thudgari People, the traditional owners of the Land.

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Carbon Energy, as former tenement owners, completed Heritage Agreements with the Gnulli, Budina and Thudgari People. Energia formally entered into negotiation with the appropriate Representative Bodies for the Gnulli, Budina and Thudgari people to become party to the aforementioned agreements under a Deed of Assumption.

Signed Deeds of Assignment and site heritage clearance approvals were completed by representatives of the Budina, Gnulli and Thudgari People in late 2010.

Additional heritage clearances were completed with the Gnulli and Budina traditional owners during 2012, to enable regional drill programs to be undertaken over the entire strike length of the tenement holding. In 2014, the Thudgari were engaged to provide monitors while site preparatory works were undertaken on the E08/1646 tenement.

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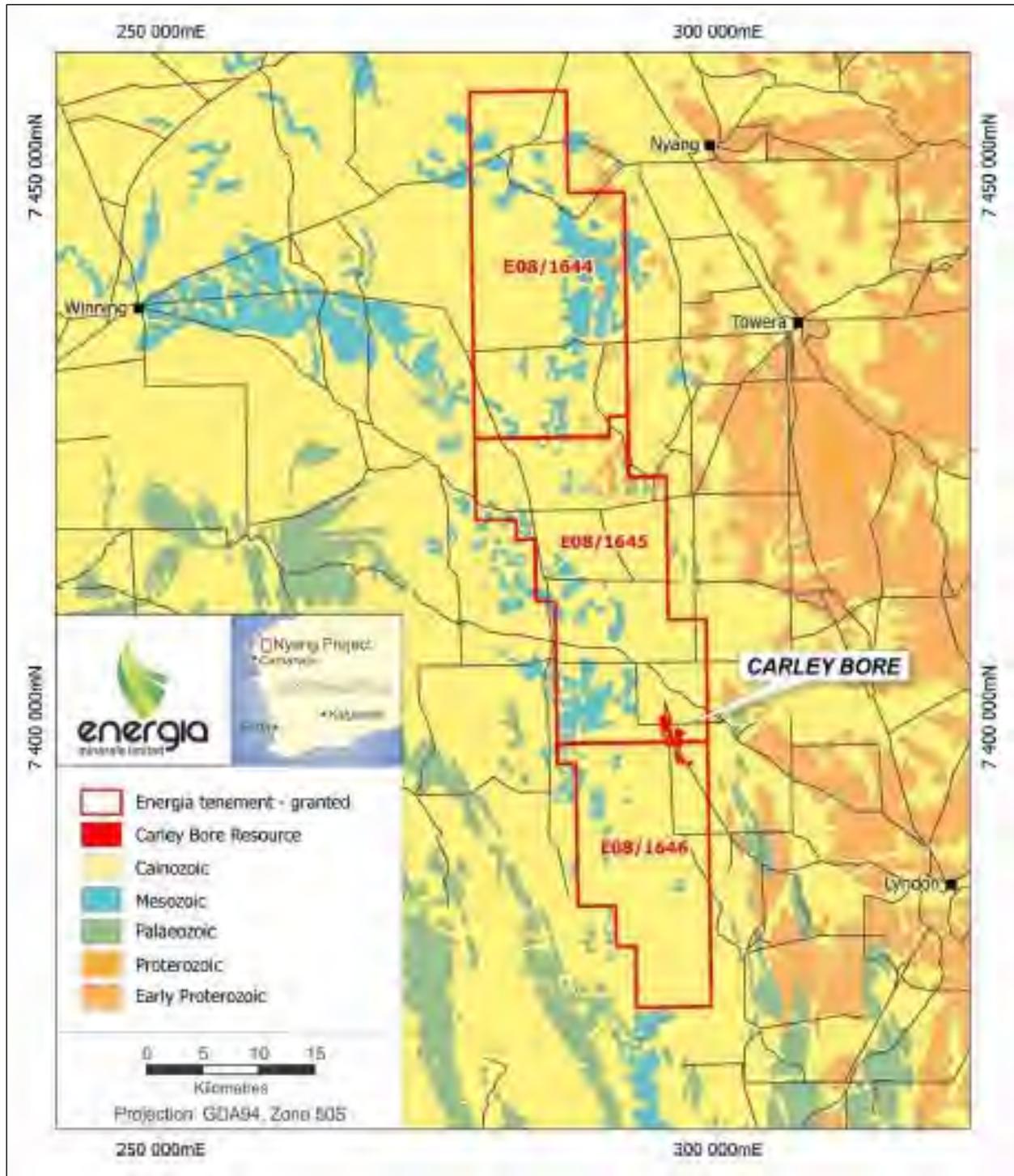


Figure 24: Carley Bore Project tenements

## 6.4 Geology

### 6.4.1 Regional Geology

Thom (2014) summarised the geological setting of the Manyingee and Carley Bore projects.

The Manyingee uranium deposit is located with the northern part of the Carnarvon Basin (see Figure 25), which is an elongate basin along the western and north-western coastline of Western Australia between

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Geraldton and Karratha, a distance of about 1,000 km. The width of the basin onshore ranges from about 50 km to 300 km, but is generally 150 km to 200 km.

The Palaeozoic-Recent Northern Carnarvon Basin, is a large, mainly offshore basin on the northwest shelf of Australia. The basin is Australia's premier hydrocarbon province.

The major basin faults trend north or northeast, and define a series of structural highs and sub-basins. The North Carnarvon Basin developed during four successive periods of extension and thermal subsidence. The first phase, Silurian to Permian, developed as a series of intracratonic basins during the breakup of Gondwana along the western margin of Australia. Subsequent Early Jurassic extension initiated the four main depocentres – the Exmouth, Barrow, Dampier and Beagle sub-basins. A third extension phase in the Middle Jurassic resulted in the seafloor spreading in the Argo Abyssal Plain to the north, and the fourth Early Cretaceous rifting phase culminated in the creation of the Gascoyne-Cuvier abyssal plains to the west and south.

The targeted Cretaceous sequences including the Manyingee deposit belong to that part of the Northern Carnarvon Basin where a series of transgressive/regressive marine sediments lap onto the shallow Peedamullah Shelf (Figure 25). The Peedamullah Shelf is an area of shallow basement with onlapping Mesozoic and Cainozoic deposits, which thicken off-shore. Palaeozoic sediments are present in the more westerly and northerly (deeper) parts of the shelf. The Peedamullah Shelf has a faulted boundary with the Barrow Sub-basin.

The Cretaceous sediments in the Manyingee area form a sequence of fluvial, deltaic and near-shore facies sediments that were deposited along a palaeochannel, which incised into the basement rocks (Figure 24). The Cretaceous sediments are 50–100 m thick on average, but thicknesses up to 200 m are found in places. The palaeochannels are separated by palaeohighs, which have only a thin and/or partial veneer of lower Cretaceous sediments covering them.

The generalised sequence in the Nanutarra Region and Ashburton Plain is as follows:

Quaternary/Tertiary:

Superficial cover, 30–40 m thick, gravel, sand, silt, silcrete and calcrete.

Lower Cretaceous:

Windalia Radiolarite, 0 to a few metres thick, sand and cherty radiolarite.

Muderong Shale, 0–30 m thick, glauconite rich and carbonaceous silt and shale with occasional sand lenses.

Birdrong Sandstone, 0–70 m thick, interfingers both laterally and vertically with Muderong Shale, glauconite rich reduced sands with an epigenic oxidized facies.

Yarraloola Conglomerate (0–100 m thick, usually of the order of 50 m).

Basal arkose unit (0–50+ m plus thick), which grades laterally and vertically into the Yarraloola Conglomerate.

Pre-Cambrian:

Granite and metamorphic rocks of the Ashburton Province and associated cover rocks.

#### 6.4.2 *Local Geology and Mineralisation*

Most deposits are hosted in sandstones and coarser conglomeratic units that are lateral equivalents of the Birdrong Sandstone. The Birdrong Sandstone is a regional aquifer thought to extend into the offshore Northern Carnarvon Basin.

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### *Manyingee*

The uranium mineralisation at Manyingee is located in a Lower Cretaceous palaeochannel that was cut into Lower Proterozoic granitic basement. The palaeochannel ranges in depth from 100 m in the south to 220 m in the northwest.

The host rocks are conglomerates and poorly sorted, graded, sandstone units, deposited in a fluvio-deltaic to marine environment. They are the outcome of a Cretaceous marine transgression. The stratigraphy reflects this transgression, starting with a basal terrestrial arkosic valley-fill deposit, cut by braided (conglomerate filled) stream alluvium (locally known as the Conglomeratic Unit).

At the beginning of the marine transgression, there was a reworking of the terrestrial sediments described above, followed by a coarse-grained, poorly sorted sandstone to micro-conglomerate called the Birdrong Sandstone. This micro-conglomerate graded gradually into a fine-grained sandstone, then a siltstone, and finally to a glauconitic mudstone, which is called the Muderong Shale.

The reduced sediments of the Conglomeratic Unit and Birdrong Sandstone Unit were affected by a secondary oxidation progressing preferentially within the more permeable lower part of the Conglomeratic Unit, and then in the coarser lower and middle horizon of the Birdrong Sandstone Unit.

Uranium, which is mobile in the oxidising water, has been concentrated at the oxidation-reduction interface. The majority of the known mineralisation is between 70 m and 110 m in depth. The main minerals within the layers and roll-fronts are uraninite and coffinite. Minor amounts of phosphuranylite, meta-autunite and goethite are also present.

Manyingee is a typical stacked roll-front uranium deposit. The mineralisation occurs between 50 m and 150 m below the surface within Lower Cretaceous channel sediments. The 40–70 m thick Birdrong Sandstone, which hosts the bulk of the uranium, overlies 20 m of conglomerate and a basal, 20–40 m thick, arkosic unit. The channel sequence is capped by the Muderong Shale, a 10 m thick impervious unit.

Several specific roll-front uranium systems have been recognised (Figure 25 and Figure 26). These are now categorised into Unit 2, being the Yarraloola conglomerate, and Units 3a, 3b, 3c and 3d of the Birdrong Sandstone, all of which show multiple stacked sub-roll-fronts.

The basement source of these sediments is presumed to be Lower Proterozoic metamorphic rocks and granitoids which outcrop over an extensive area to the south and east of Manyingee.

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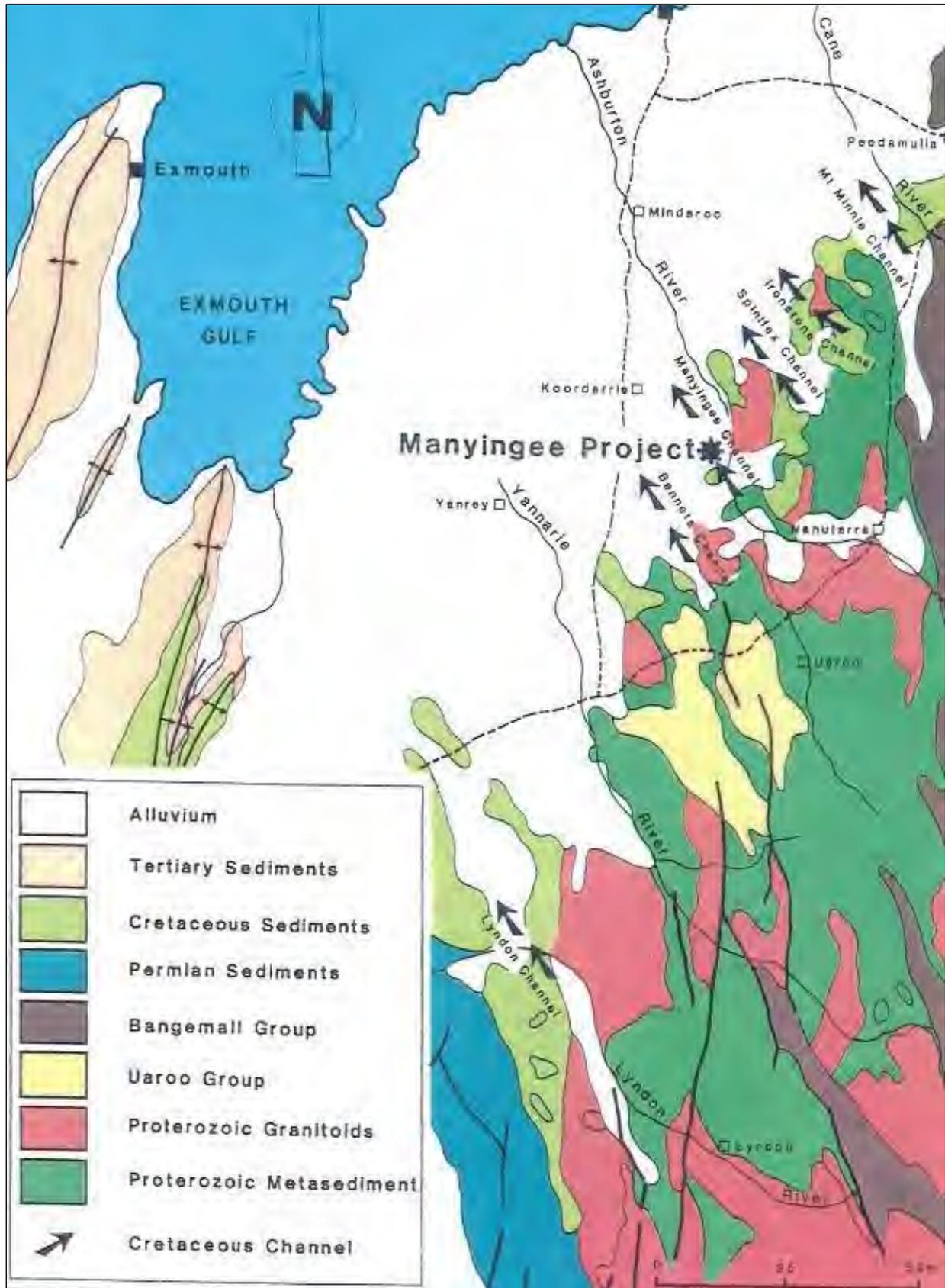


Figure 25: SSE to NNW trending palaeochannel systems Nanutarra Region/Ashburton Plain

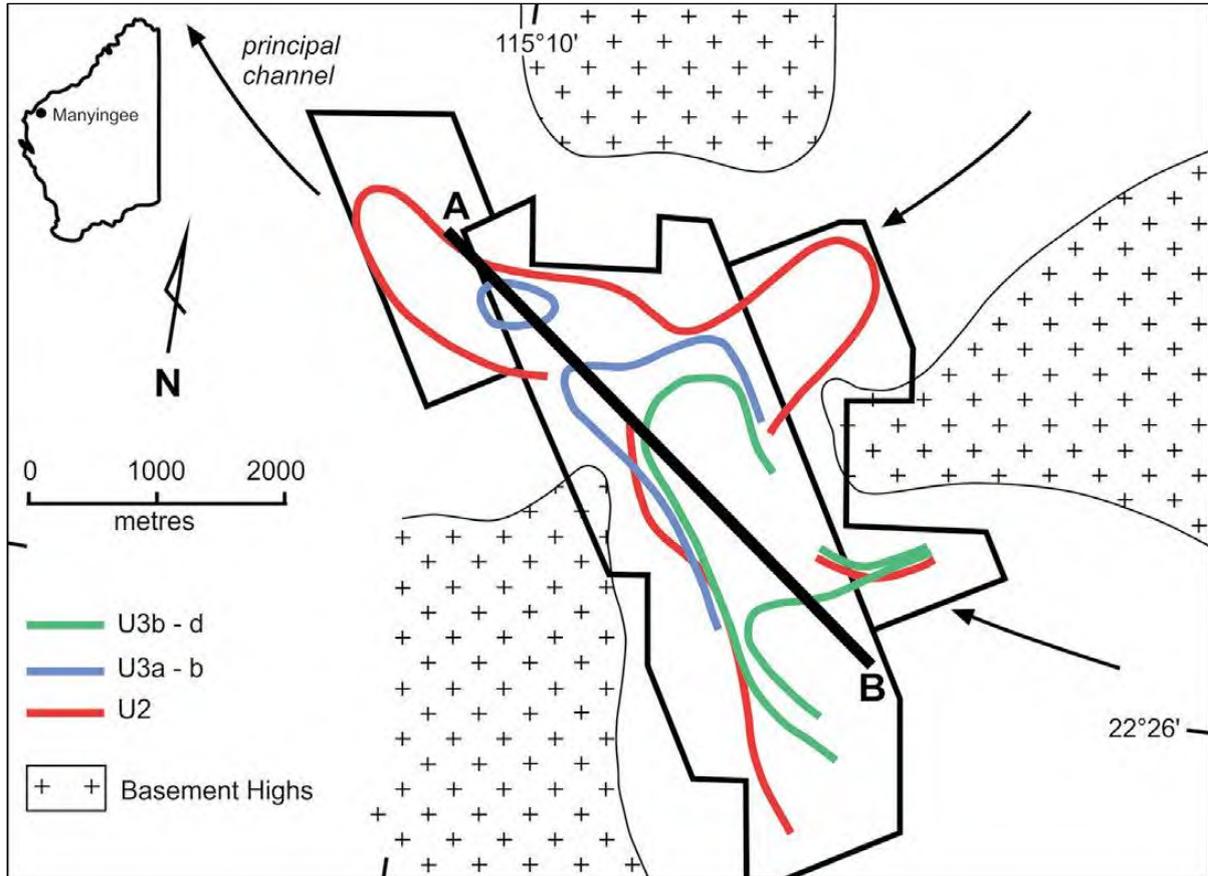


Figure 26: Schematic Plan of Manyingee Depoist roll front  
Showing principal flow directions in the channel and the geometries of the roll fronts (Paladin)

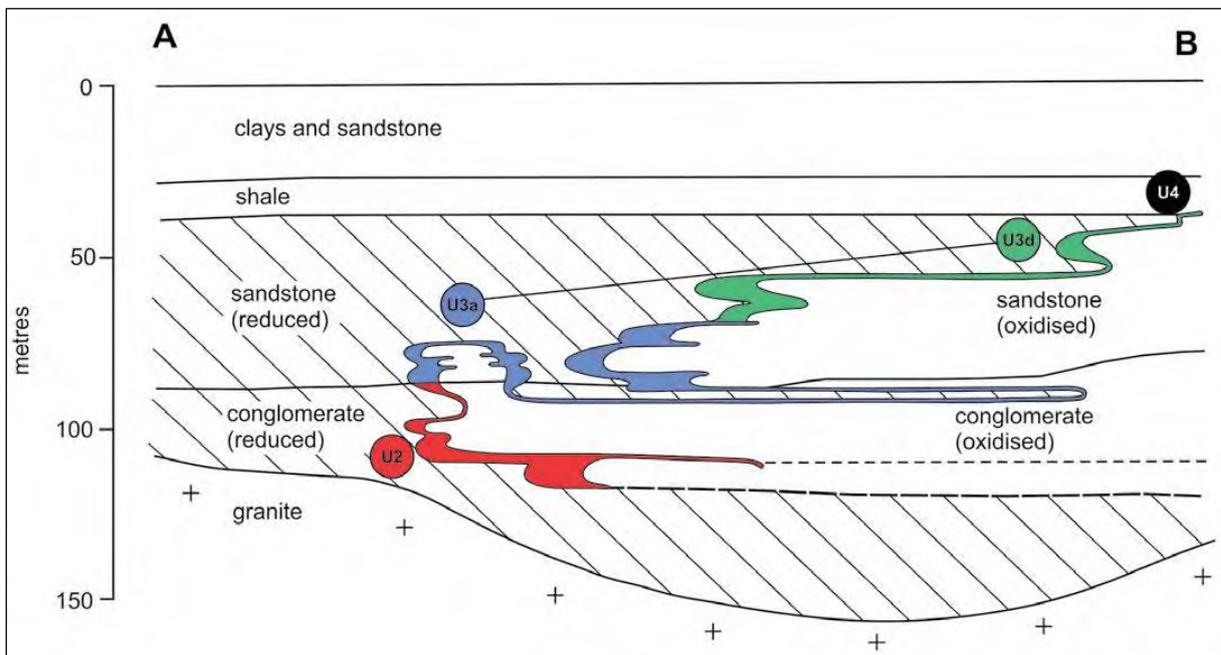


Figure 27: Conceptual long section of the Manyingee deposit  
Source: Paladin

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### Carley Bore

The Carley Bore Project area is located along the north-eastern margin of the Carnarvon Basin where basin sediments unconformably overlie Precambrian basement of the Gascoyne Province. The basement consists of Proterozoic granites, and metamorphic gneisses and schists.

The margin of this basement is block faulted, mostly along north-south and north-northwest to south-southeast trending structures. On the western side of the project area, the Proterozoic complex deepens, due to the block faulting with a system of horsts and grabens.

The basin subsequently is overlain by sediments of the Cretaceous Winning group which consists of Birdrong Sandstone, Muderong Shale, Windalia Radiolarite and Gearle Siltstone.

Late Tertiary and Quaternary laterite and silcrete overlay these Cretaceous units and form resistant caps on mesas and buttes. Stratigraphically older than the Cretaceous units are Devonian limestones, sandstones and mudstones that outcrop over small areas along the eastern side of the project area.

The main host unit for uranium mineralisation throughout the project area is the Birdrong Sandstone, of the Cretaceous Winning group. The Cretaceous units are locally thickened in palaeochannels which incise into Devonian limestones, sandstones and mudstones or into the Proterozoic basement.

Uranium mineralisation is associated with “redox” boundaries within permeable sand units caused by the progressive oxidation of the sediment due to the passage of oxidized groundwater containing dissolved uranium. These zones are marked visually by the disappearance of pyrite in dark grey sediments, which is replaced by haematite and goethite in brown to white oxidized zones. They are caused by progressive oxidation of the sediment due to the passage through the aquifer of oxidized groundwater (“roll-front” deposits). Uranium at Carley Bore is principally in the form of coffinite (which can be written as  $U_{(4+)}SiO_4 \cdot nH_2O$ ), a readily leachable form of uranium and is interpreted to be deposited at redox fronts.

There are two types of mineralisation hosted by the Birdrong Sandstone:

- Uranium mineralisation associated with roll-front type oxidation of reduced Birdrong Sandstone. Nose-type seems having been intersected in several holes.
- Mineralisation occurring when the redox interface coincides with the contact between the Birdrong Sandstone and the underlying green clay unit – uranium is hosted by clayey impermeable sediments and so is of little interest for extraction by *in situ* leach. However, as the uranium being trapped on the very pyritic layers at the top of the clay unit, the impervious character of this unit would not allow the exploitation by in-situ leaching.

Regarding the roll-front type there are clear indications that it occurs at the different places of the Carley Bore deposit. This type of mineralisation is hosted by the reduced sandstone at the front or below the oxidation cells.

At Carley Bore, detailed gravity surveys and exploration drilling have been used to define a significant fault controlled (possibly half graben type) north-south palaeochannel which may extend for up to 60 km within the Nyang project tenements. The Carley Bore palaeochannel corresponds to an abrupt east to west deepening and thickening of sedimentary units including the Birdrong Sandstone. Furthermore, there is an abrupt change to more reduced groundwater conditions within the Carley Bore channel.

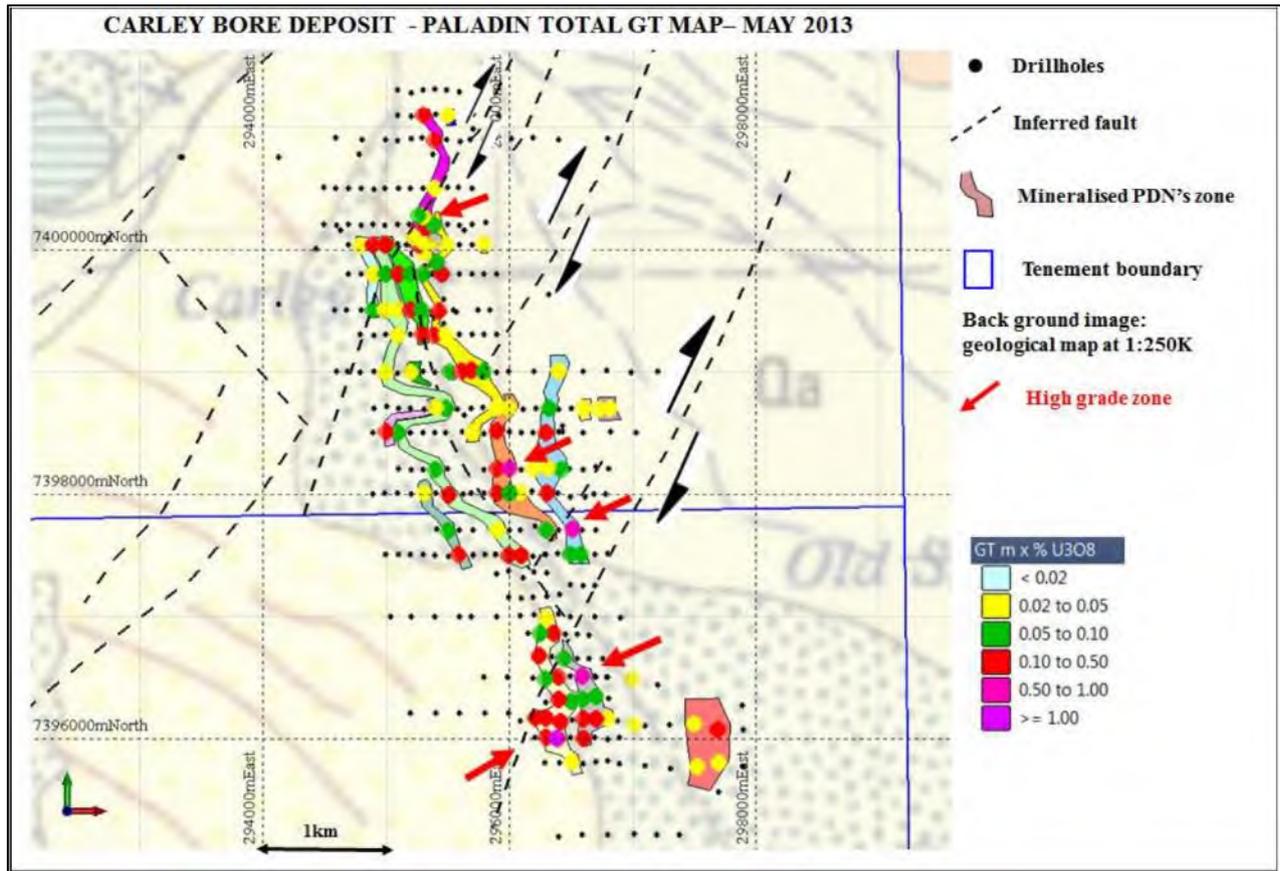


Figure 28: Carley Bore deposit – Paladin grade-thickness interpretation  
 Source: Corbin, 2015

In its current geometry, the Carley Bore deposit is of comparable size to the Manyingee deposit. It seems that the main difference lies in the shape of the roll-front and its position relative to the axis of the main channel. At the difference of Manyingee, the Carley Bore's roll-front appears to be developed along the eastern edge of the channel. However, further work would be required to better understand the geological setting of the deposit and the control of the mineralisation.

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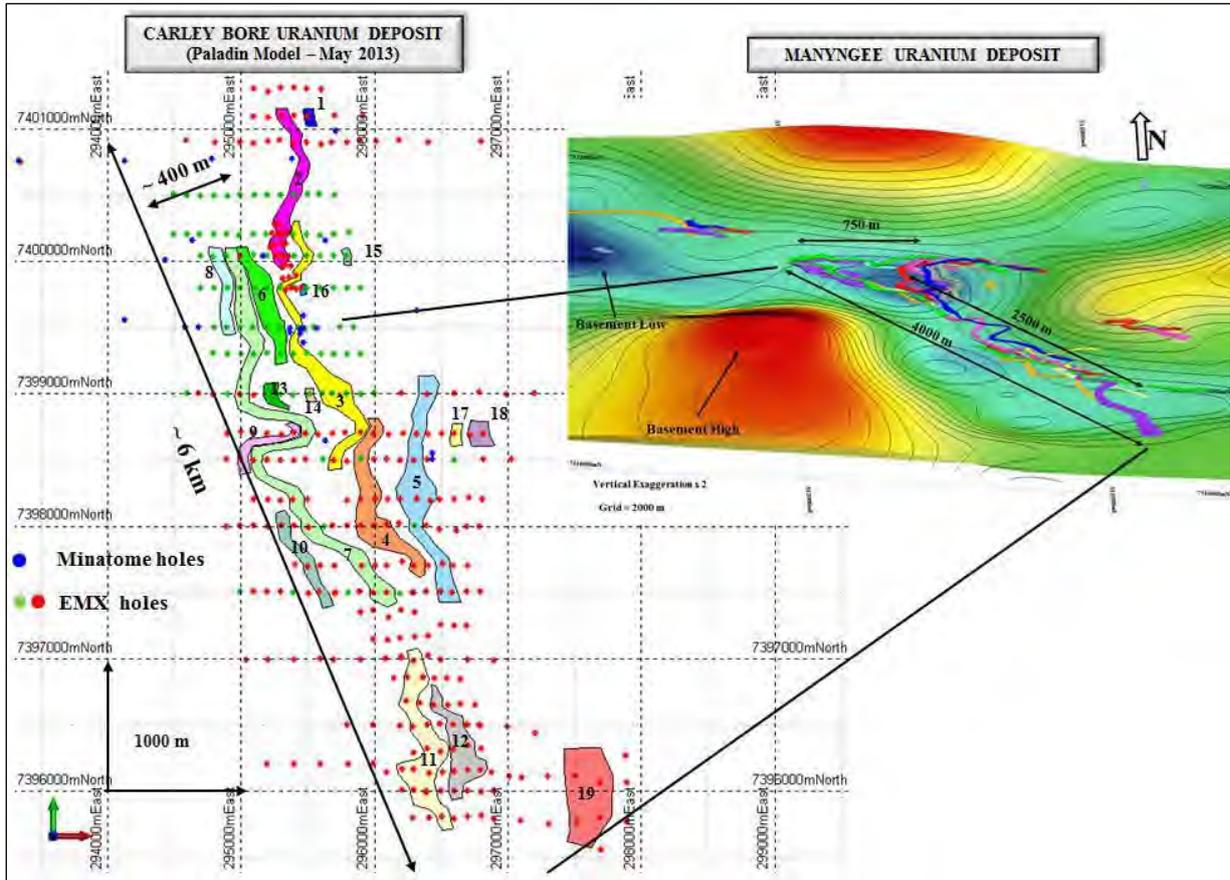


Figure 29: Size comparison between Carley Bore deposit  
 Note: Resource outline with Inferred Resource zones defined by Paladin and Manyingee uranium deposit (from Corbin, 2015).

## 6.5 Exploration and Mining History

### 6.5.1 Manyingee

In 1974, Total Mining Australia Pty Ltd (Total Mining, later Afmeco Mining and Exploration Pty Ltd) and its joint venture partners discovered uranium mineralisation in the northern part of the Carnarvon Basin, near a topographic feature called Nanyingee Hills.

The discovery was the result of a regional study, commencing in 1973, in which the Archaean basement and the Lower Proterozoic/Middle Proterozoic unconformity at the margin of the Carnarvon Basin was explored.

The Manyingee Project was held under various tenures by Total Mining from 1973 until the acquisition of the project by Paladin in 1998. During that period, approximately 400 holes were drilled and, in 1985, Total Mining carried out a six-month field test of the in-situ method to extract uranium by solution from the buried deposit. The test indicated that the mineralisation at Manyingee is amenable to ISR, but did not achieve the economic objective set by Total Mining.

Rehabilitation and environmental monitoring continued until 1992 when rehabilitation and the results of the monitoring activities were reviewed by State Government agencies and approval given to plug and backfill monitoring boreholes.

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### 6.5.2 Carley Bore

Minatome Australia Pty Ltd (Minatome) and Total Mining commenced a regional exploration in 1979, with the objective of locating uranium mineralisation associated with roll-front type oxidation of reduced sandstone in the Cretaceous Birdrong Formation, which hosts the Manyingee deposit.

In 1979 and 1980, geophysical and drilling programs delineated a north-south aligned embayment in the pre-Cretaceous surface. It contains thick sequences of Birdrong sandstone and it is about 22 km long by 6 km across at its widest (southern) end. The sheltered embayment narrows and shallows towards the north and in the south, turns sharply westwards to connect with the Carnarvon Basin. West and south of the embayment, the Cretaceous sediments thicken westwards in an open coastal shelf environment.

In 1981, Minatome undertook a rotary drilling programme totalling 978 m (LYN-R-19 to 33) in order to delineate the paleogeography of the Cretaceous sediments particularly the Birdrong Sandstone and locate discrete oxidation levels within the Birdrong sandstone and hence any radiometric anomalies associated with the redox-type mineralisation.

The 1982 drilling program (LYN-R-34 to 48 for a total of 1,120 m) at Lyndon was set up to investigate the extension and the type of mineralisation intersected in rotary mud drillholes LYN-R-19-26-27 and 31 and to locate a possible roll-front type deposit in the inferred northeast-southwest channel associated with the secondary oxidation and the mineralisation intersected in LYN-R-27 area. The results confirm the existence of a sedimentary unit called green clay unit underlying the Birdrong Sandstone and which would be probably of Permian Age. It is often difficult to separate the Green Clay Unit and the Birdrong Sandstone in the north and the west, where they are both sandy units (downhole logs show very little contrast between the units).

The mineralisation discovered in 1981 occurs at the top of this unit at the contact with the oxidised Birdrong Sandstone. It appears fairly continuous and its geochemical and radiometric characteristics are typical of a redox interface uranium concentration. However, the *in situ* leaching exploitation of this mineralisation would be very problematic considering the very low permeability of the clay and silt where uranium occurs.

The 1983 drilling program was designed to test the hypothesis of mineralised tongue of secondary oxidation within the Birdrong Sandstone extending north-westerly from Carley well. It was also hoped to define a Cretaceous channel, which would help to confine the sandstone, and subsequently the secondary oxidation and so produce a more concentrated accumulation at the redox interface. Seven rotary-mud holes, totalling 501 m were drilled in the south of the Lyndon prospect to try to establish the presence of mineralised tongue of oxidation within the Birdrong Sandstone, possibly located within a channel.

Only an abbreviated tongue was discovered, located west and north of LYN-R-52, 51 and 54 but according to Minatome, it would be unlikely to find a significant accumulation of uranium at the front due to the limited volume of Birdrong Sandstone traversed by the oxidation tongue.

At the end of 1984, after years of regional investigation including Lyndon prospect (LYN-R-56 and 57), Total Mining relinquished its tenements. It was concluded that there was insufficient uranium moving through the system and, in particular, the oxidized Birdrong Sandstone unit, to form an economic concentration at the redox interface.

Carbon Energy Ltd restarted exploration in the area in 2006 and work was carried on by Energia Minerals Ltd continued once the Carley Bore prospect was acquired.

From 2007 to 2012, Energia Minerals Ltd undertook five drilling programs totalling 441 air-core (AC) holes for 30,618.8 m and 10 diamond/sonic holes for 675 m of core. The average depth is 69 m and the maximum depth is 129 m (94 m in average and 226 m maximum for Minatome).

## 6.6 Exploration by Paladin

### 6.6.1 Manyingee

The change of State Government in Western Australia in late 2008 resulted in the removal of uranium mining restrictions in Western Australia. Paladin has now reactivated the Manyingee Project and resource drilling commenced in August 2012 following the completion of heritage surveys and acceptance of a program of works. Up to two rotary mud drill rigs were on site and a total of 96 holes for 9,036 m of rotary mud and 242 m of PQ core were completed.

A total of 35 water bores were installed. Initial pump testing was carried out in November 2012 and monitoring of physical and chemical properties are continuing. The pump tests show permeabilities in the main mineralised aquifer sufficient for an ISR operation. The results will be used to develop an updated groundwater model for the Manyingee aquifer to be applied in any future ISR operations.

Preliminary metallurgical test results indicated that an alkaline leach solution under six bars of oxygen pressure (approximately equivalent to the depth of the mineralisation under the water table) will leach between 65% and 90% of the contained uranium.

At Spinifex Well, where previous explorers identified uranium mineralisation in the same strata which includes the Manyingee mineralisation, an AC drilling program was carried out in May to June 2010. In May and June 2011, this was followed up by a 5,009 m, 41-hole mud rotary drilling program. The drilling identified four redox fronts between 85 m and 120 m depth. Uranium mineralisation greater than 250 ppm  $U_3O_8$  over 0.5 m was intersected in 10 holes with the best intersection being 1.9 m at 1,300 ppm  $U_3O_8$ . The results are being evaluated for further future drilling.

#### *Paladin Strategy*

Paladin was planning to develop the project to a producing ISR uranium mine over a period of approximately four to five years. The mineralisation is contained in a highly porous and permeable sandstone, well underneath the water table, capped (shale) and underlain (basement) by impermeable rocks and as such, is amenable to solution mining techniques.

Following receipt of government approvals, a field leach trial, as well as more extensive metallurgical, hydrogeological testing and reserve drilling can be carried out. The data will be combined for a Feasibility Study and Environmental Impact Statement in order to apply for a uranium production permit.

Production rates of between 1.6 Mlb and 2.0 Mlb of  $U_3O_8$  pa are envisioned. The known mineralisation is expected to support a greater than 10-year mine life which is expected to be increased by regional exploration efforts.

## 6.7 Mineral Resources

CSA Global reviewed the resource models for Manyingee and Carley Bore. The Manyingee Mineral Resource estimate was undertaken by Paladin in May 2013. The Carley Bore Mineral Resource estimate was undertaken by Coffey, on behalf of Energia Resources, in February 2014.

No site visit has been conducted by CSA Global due to the blind nature of the deposits, the lack of drill samples on site, and the stage of the projects, it was thought that a site inspection was unnecessary.

The Mineral Resources reported in Table 32 are of sufficient quality and reasonableness, and are fit for use in valuation. Both Mineral Resource estimates have been reported in accordance with the JORC Code (2012 Edition).

Table 32: Mineral Resources for the Manyingee and Carley Bore deposits, Western Australia (Paladin, 2016)

| Deposit     | Cut-off criteria                      | Classification | Tonnes (Mt) | Grade (ppm U <sub>3</sub> O <sub>8</sub> ) | Contained metal (Mlb U <sub>3</sub> O <sub>8</sub> ) |
|-------------|---------------------------------------|----------------|-------------|--|--|
| Manyingee   | 250 ppm U <sub>3</sub> O <sub>8</sub> | Measured       | -           | -  | -  |
|             |                                       | Indicated      | 8.4         | 850  | 15.7   |
|             |                                       | Inferred       | 5.4         | 850  | 10.2   |
|             |                                       | Total          | 13.8        | 850  | 25.9   |
| Carley Bore | 150 ppm U <sub>3</sub> O <sub>8</sub> | Measured       | -           | -  | -  |
|             |                                       | Indicated      | 5.4         | 420  | 5.0  |
|             |                                       | Inferred       | 17.4        | 280  | 10.6   |
|             |                                       | Total          | 22.8        | 310  | 15.6   |

CSA Global concludes the following:

- CSA Global supports increasing the lower grade cut-off for the Manyingee and Carley Bore Mineral Resource estimates to 450 ppm.
- CSA Global has concerns over the Carley Bore Mineral Resource estimate, where impermeable and permeable material has not been domained separately, therefore part of the Mineral Resource estimate may not be recoverable. For this reason, CSA Global believes there is not sufficient confidence to report Indicated Mineral Resources, and all Mineral Resources for Carley Bore should be classified as Inferred Mineral Resources.

#### 6.7.1 Manyingee

Paladin reported the Manyingee Mineral Resource estimate in May 2013, classified as a combination of Indicated and Inferred Mineral Resources. The Mineral Resource estimate was reported in accordance with the JORC Code (2012 Edition). CSA Global supports the use of an increased minimum grade cut-off (450ppm U<sub>3</sub>O<sub>8</sub>) to reflect that a Mineral Resource should have potential for eventual economic extraction. Maintaining lower cut-off grades and not applying a minimum minin thickness whilst uranium commodity prices are low, adds a degree of risk to the resource estimate. Additionally, for potential ISR projects a “grade by thickness product” is recommended as a resource modelling approach.

A K factor of 1.5 was considered conservative taking into account the generally higher values observed and that a large proportion of the intersections are located in the most advanced parts of the roll-front mineralisation, which should show high positive disequilibrium.

Mineralised domains were digitised as two-dimensional (2D) strings, the model was generated based on good geological understanding. The sinuous nature of the roll-front deposit was well defined. In CSA Global’s opinion, the model is fit for purpose in ISR recovery mine planning.

Classification was undertaken based upon drillhole spacing and geological understanding.

**CSA Global offers the following comments on the eventual chance of economic extraction; the proposed method of recovery is ISR:**

- The geological domains are based on permeable material only, so it is suitable for ISR.
- Limited testwork has been undertaken in 1997, 2012 and 2013<sup>5</sup>; the following items were noted:
  - Acid leach may not be possible due to abundant carbonate cement (PLD, 2013)
  - Recovery issues were encountered due to a permeable oxide layer directly above the mineralised layer, which robbed leachate and re-deposited U mineralisation (PLD, 1997).

**Recovery was hindered by possible reprecipitation of U by organic material (PLD, 1997).**

<sup>5</sup> extensive testwork was carried out by Total in the 1980s, culminating in a field leach test.

**These matters should be further investigated by Field Leach Trials. CSA Global considers the Mineral Resource estimate to have reasonable chances for economic extraction.**

### 6.7.2 Carley Bore

CSA Global reviewed the resource model, data and mineralisation wireframes for Carley Bore in addition to the Energia, 2013 Scoping Study.

**Based on this review, CSA Global concludes the following:**

- **There remains uncertainty over the mineralisation model type – channel fill uranium deposit, in which case drill type and spacing is sufficient or roll-front deposit (Corbin, 2013).**
- **Densities have been derived using a very limited density data points (17).**
- **The model was classified based on data quality, sample spacing and domain continuity, with small Indicated portions being supported by drilling spaced less than 100 m by 100 m, surrounded by Inferred material.**
- **The three-dimensional (3D) mineralisation wireframes do not separate permeable and impermeable material. Given the recovery method planned for the deposit is ISR, this is a material concern. The lack of definition of permeability means there remains an unknown portion of the mineralised volume that may not be recoverable by ISR. A west-east transgressive change from sandstone hosted mineralisation to mudstone hosted mineralisation is observed. CSA Global concludes that recovery by ISR may reduce west-east as less permeable material is encountered.**
- **Post mineralisation faulting may disrupt the mineralised zones or permeable units, which could result in disruption of solvent pathways and possible dilution of lixiviant. This may also effect recovery of mineralisation and the volume of mineralised units.**
- **The upper and lower aquitards are not well modelled, the lack of definition of these aquitards may affect recovery.**
- **Overall, the understanding of the controls on the permeability of the mineralised material at Carley Bore is poor. The proportion of the Carley Bore resource that is recoverable by ISR is unquantifiable at present, this presents a high risk.**
- **For these reason, the Mineral Resource estimate requires a resource risk discount when considering the valuation of the asset.**

## 6.8 Exploration Potential

### 6.8.1 Regional Exploration and Consolidation

Uranium mineralisation has been found in palaeochannels, with very similar geology to Manyingee, at Spinifex Well by Paladin, Carley Bore by Energia Minerals and Bennett Well by CRA Exploration. Numerous palaeochannels at the edge of the Carnarvon Basin are waiting to be explored in the future to identify new uranium resources.

Paladin plans to expand the Manyingee resource base through regional exploration on Paladin licences as well as potential regional joint venture agreements or outright acquisition of other licences.

The deposit has substantial expansion potential and, if economic, has the potential to become a complementary “satellite” operation with Manyingee as the main processing hub.

### 6.8.2 Mineral Resources

In the review of Manyingee, a number of areas for potential growth of the Mineral Resources were noted.

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The abrupt pinch out of mineralisation at the north of the Carley Bore deposit seems to occur with no obvious change in oxidation, however to the west the Birdrong sandstone is almost completely absent, and what is present is very fine grained and would restrict ingress of oxidised fluids from the east. This pinch out may also be related to an increased flow of reduced fluids from the west, further limiting the oxidation potential of the restricted flow of oxidized fluids from the east and south.

In this context, several Minatome holes north of this “termination” are described as being radioactively anomalous (particularly LYNR55, located just 250 m north of the drilled area and LYNR34 and LYNR36 located some 2 km north of the CBR but on the eastern side of the palaeochannel). There is potential for the system to redevelop to the north.

High-grade intersections in LYAC0160 and LYAC0161 at the far south of the current drilling area appear to display a much higher carbonate content immediately beneath the mineralisation (up to 20% carbonate in several samples compared to typical values of  $\approx 0.61\%$  carbonate). This will have implications for viable processing options. It is not clear at this stage whether it will be the norm going further south and if so whether it is reflecting a change in the underlying Devonian geology or a change in cementation within the same host units.

## 6.9 Valuation

CSA Global’s review of Paladin’s Western Australian Mineral Assets has considered various resource estimates, resource evaluation studies and exploration data. The value of the Manyingee Project is based solely on the contained Mineral Resources, as they extend across all three mining leases. For the Carley Bore Project, CSA Global based the value of this project on its contained Mineral Resources and surrounding exploration tenure.

On 20<sup>th</sup> June 2017, the Government of Western Australia re-implemented a ban on uranium mining on all future granted mining leases. At the same time, it also stated that it will not stand in the way of projects that have been granted State Ministerial approval. Both the Manyingee and Carley Bore projects are yet to gain Ministerial Approval for development and therefore they are subject to this ban. For this reason, CSA Global has applied a 25% jurisdiction factor discount to the Technical valuations to reflect the likely market discount. This factor has been chosen as a suitable discount based on the judgement of the CSA Global; and is not based on an empirical analysis of transaction values in different jurisdictions.

### 6.9.1 Previous Valuations

CSA Global is aware that a large independent international advisory firm (“the Firm”) was engaged by Paladin and its creditors to prepare an independent assessment of the Fair Market Value of certain assets of Paladin as of 1<sup>st</sup> February 2017. The assets considered included the Manyingee and Carley Bore Projects.

The Firm concluded that the market value of the Manyingee Project was within the range US\$30 million to US\$36 million and the Carley Bore Project was within the range US\$7.75 million to US\$12.5 million. No preferred values within the ranges were stated.

In 2013, CSA Global was engaged by Energia Minerals Limited (Energia) to prepare an independent assessment and market valuation of the Mineral Assets of Energia as of 26 April 2013, which included the Carley Bore Mineral Resource and surrounding exploration tenure. CSA Global concluded that the market value of the Carley Bore Project at that time was within the range A\$9.3 million to A\$28.1 million (US\$9.0 million to US\$27.3 million) with a preferred value of A\$22.7 million (US\$22.0 million).

Since the time of that valuation there has been a substantial reduction in uranium price, a negative sentiment against uranium assets in the market, and in WA a change in government to a party that opposes any new uranium mines.

## 6.9.2 Comparable Transactions Valuation

### Mineral Resources

The value of the Manyingee and Carley Bore deposits was evaluated by analysis of comparative market transactions of ISR projects in Australia. Five recent transactions involving ISR projects within Australia were identified; one was excluded from further analysis as it was for an operating ISR uranium mine and was considered too advanced in comparison to the Manyingee and Carley Bore deposits, a second transaction was excluded as it was terminated before completion. Table 33 presents the summary statistics of the remaining transactions identified, showing the implied price in US\$/lb U<sub>3</sub>O<sub>8</sub> at the time of the transaction and the normalised price per pound of U<sub>3</sub>O<sub>8</sub> using the June 2017 average spot price of US\$20.79/lb.

Table 33: Comparable transactions data of Australian ISR uranium Mineral Resources

| Statistic | Implied (US\$/lb U <sub>3</sub> O <sub>8</sub> ) | Normalised (US\$/lb U <sub>3</sub> O <sub>8</sub> ) |
|-----------|--|---|
| Minimum   | 0.107  | 0.087   |
| Maximum   | 0.636  | 0.363   |
| Mean      | 0.415  | 0.246   |
| Median    | 0.502  | 0.287   |

Based on the above analysis, and by exercising professional judgement, CSA Global selected a range of US\$0.20/lb to US\$0.30/lb U<sub>3</sub>O<sub>8</sub> and a preferred value of US\$0.25/lb U<sub>3</sub>O<sub>8</sub> to apply to the Manyingee deposit which comprises both Indicated and Inferred Mineral Resources. The preferred factor of US\$0.25/lb is based on rounding the mean value of the transactions. The low factor (US\$0.20/lb) and high factor (US\$0.30/lb) are based on CSA Global's professional judgement in selecting a range of 20% above and below the preferred value.

Based on our professional judgement, a range of US\$0.16/lb to US\$0.24/lb U<sub>3</sub>O<sub>8</sub> and a preferred factor of US\$0.20/lb U<sub>3</sub>O<sub>8</sub> was applied to the Carley Bore deposit. A lower preferred factor (US\$0.16/lb) than that selected for Manyingee (US\$0.20/lb) was assigned to Carley Bore, as there is lower confidence in the resource model due to the lack of definition of permeable and impermeable material, giving rise to risks relating to potential leaching and recovery issues. In addition, Carley Bore has a significantly lower grade than Manyingee. Similarly to the Manyingee range, CSA Global has exercised professional judgement in selecting a range of 20% above and below the preferred value, and selected a low factor of US\$0.16/lb and a high factor of US\$0.24/lb.

Based on the findings of the resource review detailed in Section 6.7 of this report, CSA Global is of the opinion that there is a level of risk in the current Mineral Resources for both Manyingee and Carley Bore, and we have addressed this risk by applying a 20% discount to the valuation of each project, as an appropriate means of dealing with the resource risks identified, since this approximates the likely quantum of resource reduction associated with the identified risks should the resources be re-estimated taking into account the issues identified in our technical assessment. The size of the discount has been determined following review of preliminary resource updates being prepared by Paladin that address material issues identified independently by CSA Global and discussed in Section 6.7.

The different ranges reflect the differences in the quality, confidence and size of the Mineral Resources (Table 34).

Table 34: Valuation factors applicable to the Manyingee and Carley Bore Mineral Resources

| Mineral Resource | Low (US\$/lb) | Preferred (US\$/lb) | High (US\$/lb) |
|------------------|---------------|---------------------|----------------|
| Manyingee        | 0.2           | 0.25                | 0.3            |
| Carley Bore      | 0.16          | 0.20                | 0.24           |

A valuation range as indicated in Table 35 was derived for Paladin's Western Australian Resources. The valuation figures are undiscounted for resource risk and any additional market factors such as the recent ban on uranium mining in Western Australia.

Table 35: Undiscounted Valuations of the Manyingee and Carley Bore Mineral Resources

| Mineral Resource | U <sub>3</sub> O <sub>8</sub> (Mlb) | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|------------------|-------------------------------------|-------------|-------------------|--------------|
| Manyingee        | 25.9                                | 5.1         | 6.4               | 7.6          |
| Carley Bore      | 15.6                                | 3.1         | 3.9               | 4.7          |
| <b>Total</b>     | <b>35.9</b>                         | <b>8.2</b>  | <b>10.3</b>       | <b>12.3</b>  |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

To account for the resource risk and the ban on uranium mining, CSA Global has applied a 20% resource risk and a 25% jurisdiction factor discount to the values in Table 35. This reduced the valuation range to that shown in Table 36.

Table 36: Discounted valuations of the Manyingee and Carley Bore Mineral Resources

| Mineral Resource | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|------------------|-------------|-------------------|--------------|
| Manyingee        | 3.1         | 3.8               | 4.6          |
| Carley Bore      | 1.9         | 2.3               | 2.8          |
| <b>Total</b>     | <b>5.0</b>  | <b>6.2</b>        | <b>7.5</b>   |

Resource risk discount of 20% applied  
Jurisdiction risk discount of 25% applied

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

#### Exploration Tenure

The value of the Western Australia exploration projects was evaluated by analysis of comparative market transactions of Australian uranium exploration projects. Eleven transactions were identified; one extremely low value of US\$4/km<sup>2</sup> was excluded from further analysis for being an outlier. Table 37 presents the summary statistics of the remaining 10 comparable transactions, showing the implied price in US\$/km<sup>2</sup> at the time of the transaction and the normalised price per km<sup>2</sup> using the June 2017 average spot price of US\$20.79/lb.

Table 37: Comparable transaction data for Australian uranium exploration projects

| Statistic | Implied (US\$/km <sup>2</sup> ) | Normalised (US\$/km <sup>2</sup> ) |
|-----------|---------------------------------|------------------------------------|
| Minimum   | 124                             | 61                                 |
| Maximum   | 21,389                          | 14,661                             |
| Mean      | 5,706                           | 3,201                              |
| Median    | 3,045                           | 1,740                              |

One of the identified transactions is for one of Paladin's Carley Bore tenements to be valued (E08/1644), which transacted at a normalised value of US\$1,648/km<sup>2</sup>.

Based on the above analysis and CSA Global's professional judgement, a range of US\$200/km<sup>2</sup> to US\$2,000/km<sup>2</sup> and a preferred value of US\$1,600/km<sup>2</sup> was applied to the total area of the Carley Bore Project minus 10 km<sup>2</sup> to account for the area containing the Carley Bore Mineral Resource (Table 38).

The preferred factor of US\$1,600/km<sup>2</sup> is rounded from the previous transaction for part of the same tenure (US\$1,648/km<sup>2</sup>) and is similar to the median of the comparable transactions in Table 37. CSA Global has used professional judgement in selecting a high factor of US\$2,000/km<sup>2</sup>, which is the rounded average of the mean and median of the transaction set considered. CSA Global has exercised professional judgement in selecting a low factor (US\$200/km<sup>2</sup>) that acknowledges the low tail to the transactions, whilst eliminating the outlier value of US\$61/km<sup>2</sup>. In CSA Global's professional judgement, the range reflects the relatively early stage that the exploration is at, outside of the two areas where resources have been defined.

The figures were then discounted by a further 25% jurisdiction factor due to the recent ban on uranium mining in Western Australia.

Table 38: Valuation of the Carley Bore exploration area

| Project                                 | Paladin equity | Area (km <sup>2</sup> ) | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|----------------|-------------------------|-------------|-------------------|--------------|
| Carley Bore                             | 100%           | 993                     | 0.2         | 1.6               | 2.0          |
| 25% discount for the uranium mining ban |                |                         | 0.2         | 1.2               | 1.5          |

CSA Global concludes that the value of the Carley Bore exploration tenure ranges from US\$0.2 million to US\$1.5 million with a preferred value of US\$1.2 million.

### 6.9.3 Yardstick Order of Magnitude Check

CSA Global used the Yardstick method as a order of magnitude check on the Manyingee and Carley Bore Mineral Resource valuations completed using comparable transactions.

For the Yardstick Order of Magnitude Check, CSA Global used US\$20.78/lb, the average U<sub>3</sub>O<sub>8</sub> spot price for June 2017.

In addition, CSA Global utilised the following commonly used Yardstick Order of Magnitude Check factors:

- Inferred Mineral Resources: 0.5% to 1% of spot price
- Indicated Mineral Resources: 1% to 2% of spot price
- Measured Mineral Resources: 2% to 5% of spot price.

Based on the findings of the resource review detailed in Section 6.7.1 of this report, CSA Global is of the opinion that there is a level of risk in the current Mineral Resources for Manyingee and Carley Bore, and we have addressed this risk by applying a 20% discount, as discussed in the Comparables section above.

A summary of the comparative valuations (normalised to June 2017 spot prices) based on Yardstick factors, for Manyingee and Carley Bore are presented in Table 39 and Table 40 respectively.

This method resulted in a valuation range of US\$2.6 million to US\$5.2 million, with a preferred value of US\$3.9 million for Manyingee and a valuation range of US\$1.0 million to US\$1.9 million, with a preferred value of US\$1.5 million for Carley Bore.

Table 39: Yardstick Order of Magnitude Check of Manyingee Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors% |           |           | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|--------------------|-----------|-----------|-------------|-------------------|--------------|
|   |                                     | Low                | Preferred | High      |             |                   |              |
| Indicated                               | 15.6                                | 1.0                | 1.5       | 2.0       | 2.6         | 3.9               | 5.2          |
| Inferred                                | 10.2                                | 0.5                | 0.75      | 1.0       | 0.9         | 1.3               | 1.7          |
| <b>Total</b>                            | <b>25.9</b>                         | <b>NA</b>          | <b>NA</b> | <b>NA</b> | <b>3.5</b>  | <b>5.2</b>        | <b>6.9</b>   |
| 25% discount for the uranium mining ban |                                     |                    |           |           | 2.6         | 3.9               | 5.2          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur. A 20% resource risk discount has been applied to the values prior to the 25% jurisdiction discount

Table 40: Yardstick Order of Magnitude Check of Carley Bore Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors (%) |           |           | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-----------------------|-----------|-----------|-------------|-------------------|--------------|
|   |                                     | Low                   | Preferred | High      |             |                   |              |
| Indicated*                              | 5.0                                 | 0.5                   | 0.75      | 1.0       | 0.4         | 0.6               | 0.8          |
| Inferred                                | 10.6                                | 0.5                   | 0.75      | 1.0       | 0.9         | 1.3               | 1.8          |
| <b>Total</b>                            | <b>15.6</b>                         | <b>NA</b>             | <b>NA</b> | <b>NA</b> | <b>1.3</b>  | <b>1.9</b>        | <b>2.6</b>   |
| 25% discount for the uranium mining ban |                                     |                       |           |           | 1.0         | 1.5               | 1.9          |

\*CSA Global notes in Section 6.7 it considers that for the valuation of the Carley Indicated material it should be treated as Inferred.

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

A 20% resource risk discount has been applied to the values prior to the 25% jurisdiction discount

The 20% resource risk factor addresses our view of the likely magnitude of the mineral resource, should the concerns we identified be addressed, and is related primarily to the cutoff at which the resources are reported. The appropriateness of the Carley Bore Indicated Resources are not considered in this factor. CSA Global view the risks and uncertainties due to not separating the sand and clay lithologies in the Carley Bore resource, which will have different permeabilities and will therefore vary greatly in their amenability to *in situ* leaching, to be material, and in CSA Global's professional judgement, the most appropriate manner in which to deal with this risk within the Yardstick method, is to treat the Carley Bore Indicated Resources as though they were Inferred Resources

Bearing in mind that the Yardstick is simplistic (i.e. it is very generalised and does not address project-specific value drivers but takes an "industry-wide" view), CSA Global considers that these results are broadly supportive of the valuations derived using the market approach, given that they are of the same order of magnitude, and there is a significant overlap in the ranges.

#### 6.9.4 Geoscientific Factor Method Check – Carley Bore Exploration Tenure

The Geoscientific Factor method was used as a Order of Magnitude Check on Western Australian exploration tenure valuations completed using comparable transactions.

The Geoscience method requires the consideration of those aspects of a mineral property, which enhance or downgrade the intrinsic value of the property. The first and key aspect of the Geoscientific Factor method described by Kilburn (1990) is the derivation of the Base Acquisition Cost (BAC) that is the basis for the valuation. Goulevitch and Eupene (1994) discuss the derivation of BAC. The BAC represents the average cost to identify, apply for and retain a base unit of area of tenement.

A BAC for Western Australian exploration licences has been estimated using the following data:

- Based on the Government of Western Australia's Department of Mines, Industry Regulation and Safety tenement database as of August 2017 and the West Australian mining code, it is determined that the average age of exploration licences in West Australia is four years, and the average size of these licences is approximately 72.6 km<sup>2</sup>.
- An average cost to identify an area of interest of A\$10,000 was chosen, as well as A\$20,000 for the cost of landowner notices, negotiations, legal costs and compensation.
- An application fee of A\$1,362/licence is payable
- The holding cost includes a rental of A\$44.7/km<sup>2</sup> per annum for the initial three years and A\$69.3/km<sup>2</sup> for the fourth year
- Western Australian mining law includes a minimum annual expenditure requirement of A\$333.33/km<sup>2</sup> for the initial three years and A\$500/km<sup>2</sup> for the fourth year.

Altogether, this gives a BAC for a Western Australian exploration licence of A\$1,675/km<sup>2</sup> (US\$1,274/km<sup>2</sup>), as shown in Table 41.

Table 41: Estimation of the BAC for Western Australian exploration licences

| Statistic  | Unit                     | Value  |
|--|--------------------------|--------|
| Average licence size   | km <sup>2</sup>          | 72.6   |
| Average licence age  | years                    | 4      |
| Application fee  | A\$ per licence          | 1,362  |
| Annual rent year 1-3   | A\$ per km <sup>2</sup>  | 44.7   |
| Annual rent year 4   | A\$ per km <sup>2</sup>  | 69.3   |
| Minimal annual expenditure Year 1-3                                    | A\$ per km <sup>2</sup>  | 333.33 |
| Minimal annual expenditure Year 4                                      | A\$ per km <sup>2</sup>  | 500    |
| Deemed cost of identification of a licence                             | A\$ per licence          | 10,000 |
| Costs of landowner notices, negotiations, legal costs and compensation | A\$ per licence          | 20,000 |
| Annual costs of local govt rates                                       | A\$ per licence          | 2,000  |
| BAC of average licence   | A\$ per km <sup>2</sup>  | 1,675  |
|  | US\$ per km <sup>2</sup> | 1,274  |

After considering the factors listed in Table 41, the Technical Value of Carley Bore exploration area was calculated.

As is required in applying this valuation method, a Market Factor of 20% was applied to the Technical Value to derive a Fair Market Value, which was consistent with the range of valuation factors obtained from the analysis of comparative transactions. CSA Global is of the view that this also adequately accounts for global market factors on an empirical basis.

The valuation figures were then further discounted by a jurisdiction factor of 25% due to the ban on mining uranium in Western Australia (Table 42).

Table 42: Valuation of Carley Bore exploration areas by the Geoscience Rating Factor method

| Area (km <sup>2</sup> )                 | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|----------------|-------------|-------------------|--------------|
| 1,003                                   | 100%           | 0.6         | 1.5               | 2.4          |
| 25% discount for the uranium mining ban |                | 0.4         | 1.1               | 1.8          |

#### 6.9.5 Summary of the Western Australian Valuations

CSA Global considers that the value of Paladin's Western Australian projects lies within the range shown in Table 43.

The valuation is primarily based on the values derived from comparative transactions with support from the Yardstick (Figure 30) and Geoscientific (Figure 31) valuation methods for valuing the Mineral Resources and exploration tenure respectively.

Table 43: Summary of the Western Australian Project valuations

| Project                        | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|--------------------------------|----------------|-------------|-------------------|--------------|
| Manyingee deposit              | 100%           | 3.1         | 3.8               | 4.6          |
| Carley Bore deposit            | 100%           | 1.9         | 2.3               | 2.8          |
| Exploration tenure             | 100%           | 0.2         | 1.2               | 1.5          |
| <b>Western Australia Total</b> | <b>100%</b>    | <b>5.1</b>  | <b>7.4</b>        | <b>9.0</b>   |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

CSA Global notes that the primary and cross check valuation approaches are broadly in alignment for the WA assets, with the yardstick spanning the comparables. In this case we have chosen the range of the comparables for our valuation opinion, based on professional judgement.

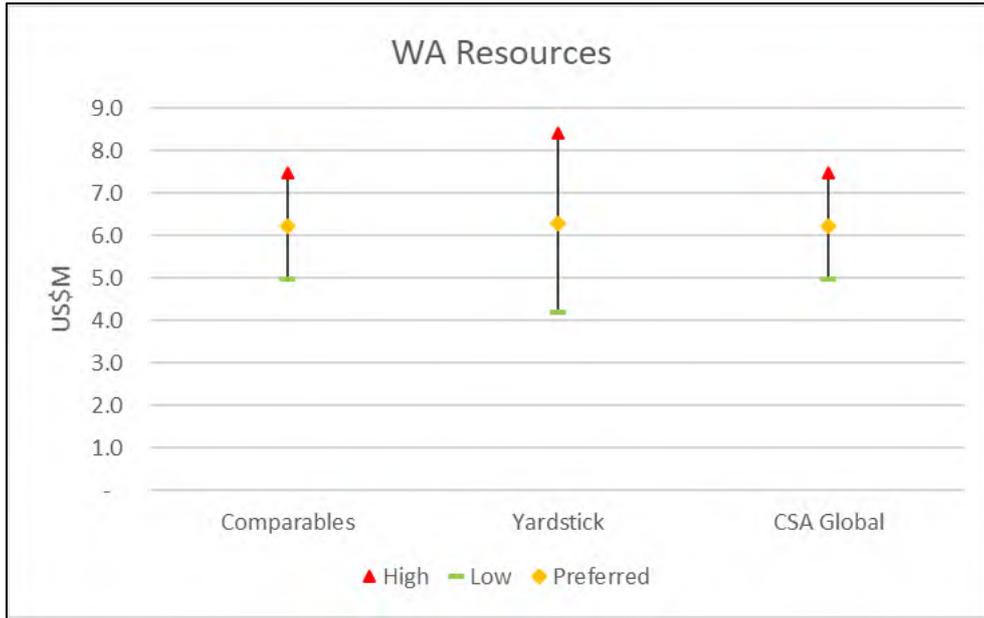


Figure 30: CSA Global opinion on the valuation range of Paladin’s WA Mineral Resources

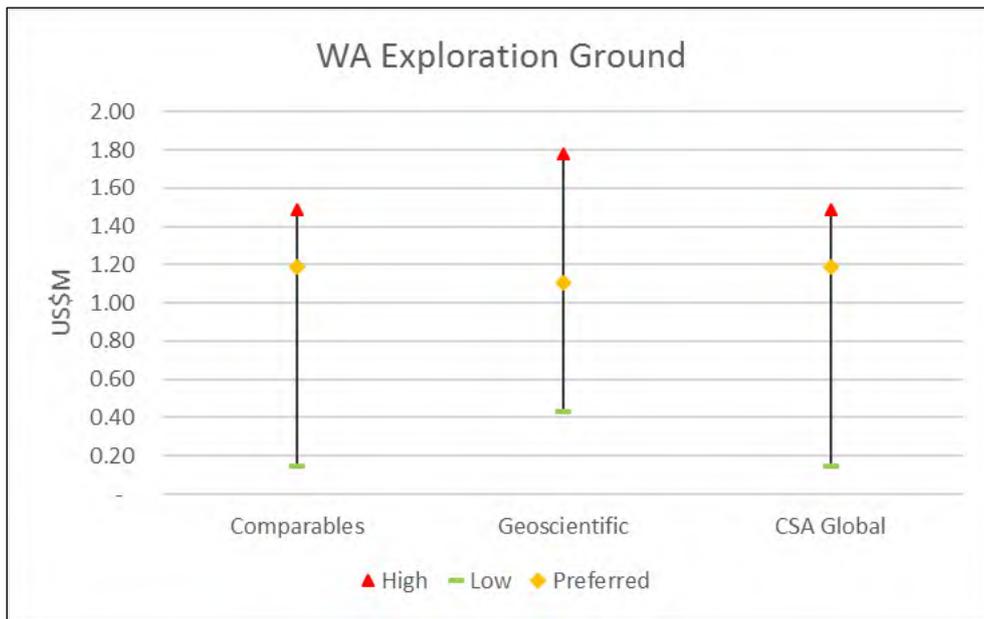


Figure 31: CSA Global opinion on the valuation range of Paladin’s WA exploration tenure

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# 7 Queensland Projects

## 7.1 Location and Access

Paladin’s uranium exploration and project development activities in Queensland are located 30 to 80 km north of Mount Isa in northwest Queensland (Figure 32 and Figure 34). Paladin also have base metal interests in this area. Mount Isa is a modern mining city located 900 km west of Townsville with a population of 25,000 and is serviced by daily air, rail and road transport.

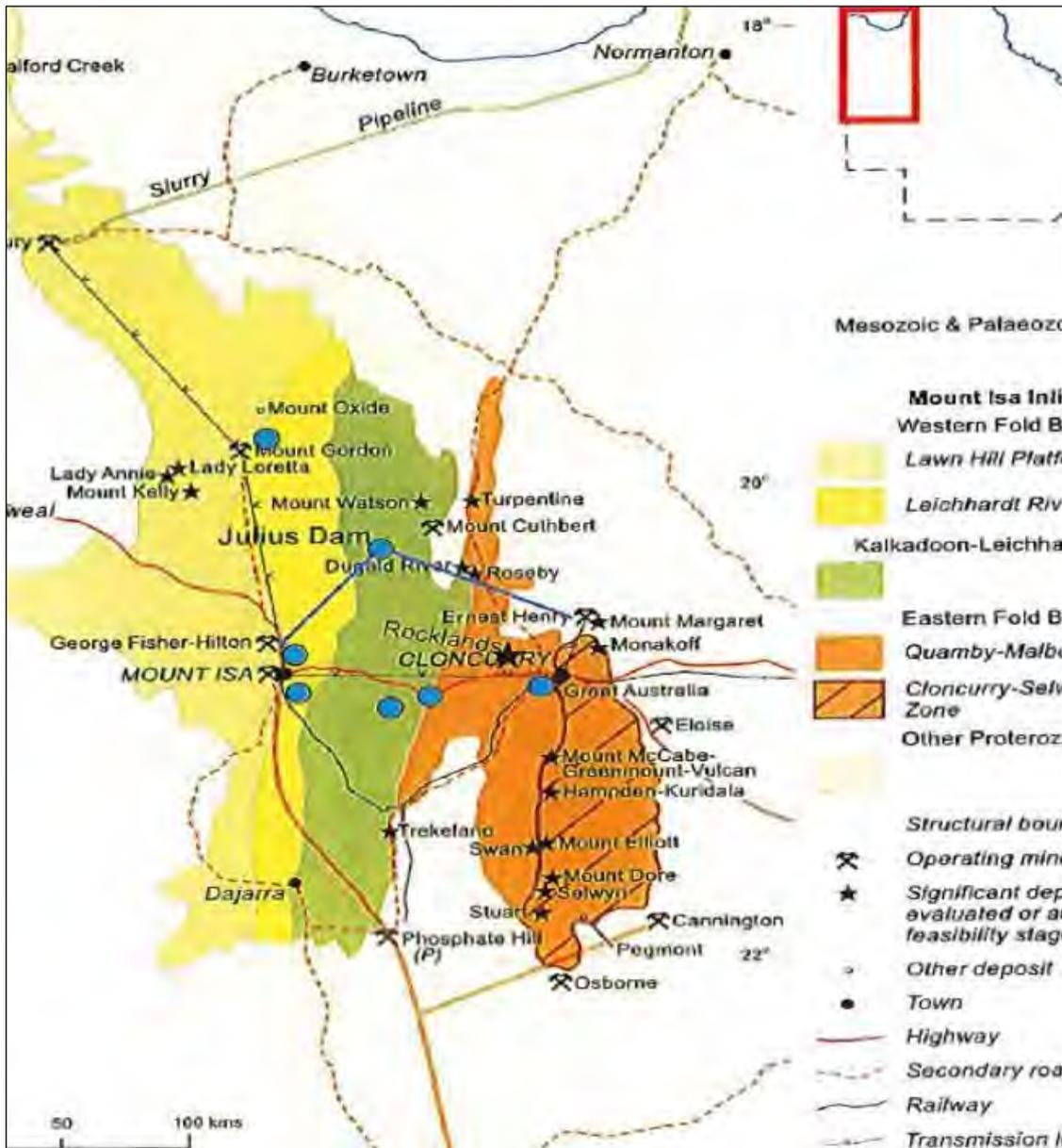


Figure 32: Simplified location and geological map of the Mount Isa region  
 Note: Shows Mount Isa Inlier with infrastructure and tectonostratigraphic provinces (from Derrick, 2008).

## 7.2 Mineral Tenure

The ownership structure of Paladin’s Queensland properties is shown in Figure 33.

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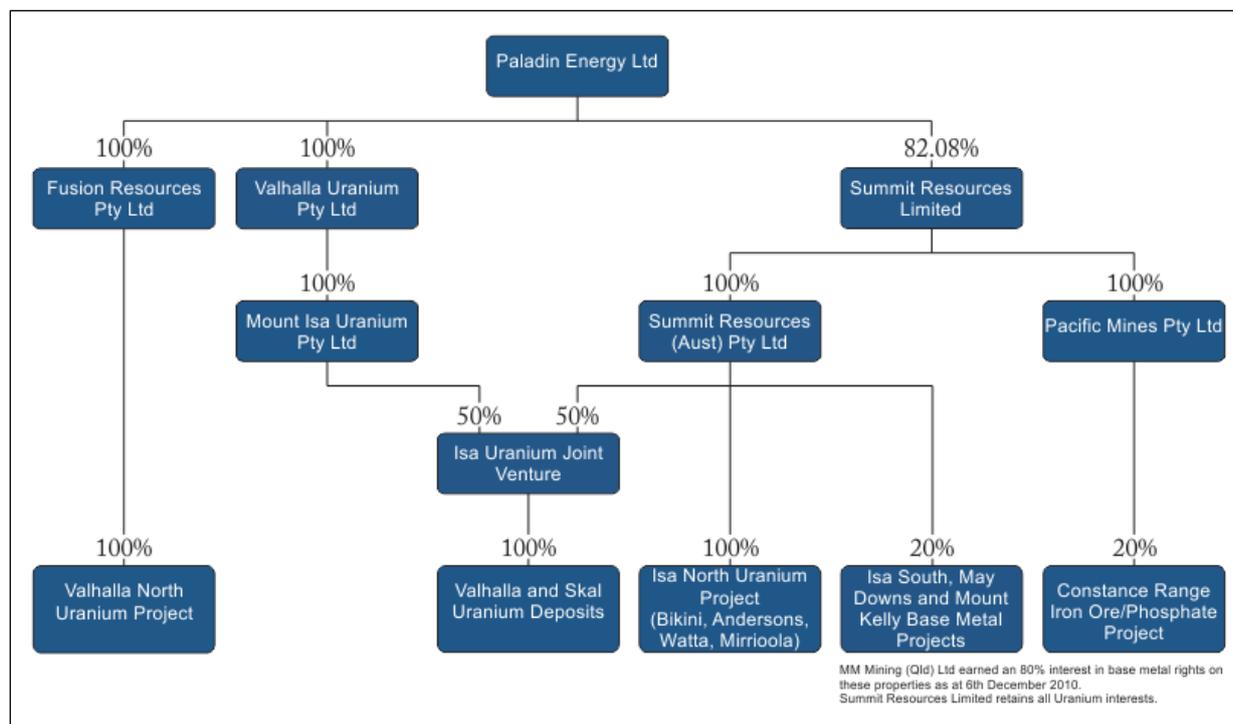


Figure 33: Ownership structure of Paladin's Queensland properties

Source: Paladin

The uranium tenements in the Mount Isa region are nearly contiguous and are held by Summit Resources (Aust) Pty Ltd (SRA) and Fusion Resources Pty Ltd (Fusion) (Figure 34, Table 44 and Table 45). Summit also has a uranium joint venture with Mount Isa Uranium Pty Ltd (Table 46) and base and precious metal joint ventures with AEON Metals Ltd (Table 48, Table 49, Table 50).

The following tables summarise the tenure held and joint venture entered into for the Queensland Uranium Projects.

Table 44: Isa North Uranium

| Granted tenement numbers | Registered holder | Tenement name | Date granted (application lodged) | Expiry date | Area (blocks) | Area (km <sup>2</sup> ) | Area (ha) |
|--------------------------|-------------------|---------------|-----------------------------------|-------------|---------------|-------------------------|-----------|
| EPM 17511                | SRA               | Andersons     | 06-Jan-10                         | 05-Jan-20   | 15            | 48.00                   |           |
| EPM 17513                | SRA               | Calton        | 06-Jan-10                         | 05-Jan-20   | 50            | 61.00                   |           |
| EPM 17514                | SRA               | Valhalla      | 06-Jan-10                         | 05-Jan-20   | 110           | 354.00                  |           |
| EPM 17519                | SRA               | Skal          | 06-Jan-10                         | 05-Jan-20   | 79            | 254.00                  |           |
| MDL 509                  | SRA               | Andersons     | 01-Sep-14                         | 31-Aug-19   |               |                         | 640.77    |
| MDL 510                  | SRA               | Valhalla      | 01-Sep-14                         | 31-Aug-19   |               |                         | 5,130.74  |
| MDL 511                  | SRA               | Watta         | 01-Sep-14                         | 31-Aug-19   |               |                         | 2,194.24  |
| MDL 513                  | SRA               | Skal          | 01-Sep-14                         | 31-Aug-19   |               |                         | 3,827.65  |
| Total                    |                   |               |                                   |             |               | 817.00                  | 11,793.39 |

Note: Summit Resources (Aust) Pty Ltd (SRA) 100% owned

Table 45: Valhalla North Uranium

| Granted tenement numbers | Registered holder | Tenement name    | Date granted (application lodged) | Expiry date | Area (blocks) | Area (km <sup>2</sup> ) | Area (ha)       |
|--------------------------|-------------------|------------------|-----------------------------------|-------------|---------------|-------------------------|-----------------|
| EPM 12572                | Fusion            | Greenstone Creek | 11-Jan-06                         | 10-Jan-21   | 15            | 48.00                   |                 |
| MDL 507                  | Fusion            | Duke Bateman     | 01-Sep-14                         | 31-Aug-19   |               |                         | 1,287.44        |
| MDL 508                  | Fusion            | Honey Pot        | 01-Sep-14                         | 31-Aug-19   |               |                         | 931.49          |
| <b>Total</b>             |                   |                  |                                   |             |               | <b>48</b>               | <b>2,218.93</b> |

Note: Fusion Resources Pty Ltd 100%

Application to transfer all the above tenements to Valhalla Uranium Limited (also 100% owned by Paladin) has been submitted.

Table 46: Isa Uranium Joint Venture

| Granted tenement numbers | Registered holder | Tenement name | Date granted (application lodged) | Expiry date | Area (blocks) | Area (km <sup>2</sup> ) |
|--------------------------|-------------------|---------------|-----------------------------------|-------------|---------------|-------------------------|
| EPM 17514 (pt)           | SRA               | Valhalla      | 06-Jan-10                         | 05-Jan-20   | N/A           | 17.24                   |
| EPM 17519 (pt)           | SRA               | Skal          | 06-Jan-10                         | 05-Jan-20   | N/A           | 10.00                   |
| <b>Total</b>             |                   |               |                                   |             |               | <b>27.24</b>            |

Note: Summit Resources (Aust) Pty Ltd (Manager) 50%, Mount Isa Uranium Pty Ltd 50%

The Isa Uranium Joint Venture applies to the defined Valhalla and Skal Joint Venture blocks only, and not to the surrounding ground that is also within EPMs (Exploration Permits for Minerals) 17514 and 17519. Mount Isa Uranium Pty Ltd is a wholly owned subsidiary of Valhalla Uranium Limited, itself held 100% by Paladin. See Figure 33 for Paladin ownership details.

CSA Global reviewed the status of the Mining licences using the Qld Department of Mines tenure website (<https://www.business.qld.gov.au/industries/mining-energy-water/resources/online-services/minesonlinemaps>) system on 24<sup>th</sup> November 2017. The tenements were all listed and noted as active. CSA makes no other assessment or assertion as to the legal title of tenements and is not qualified to do so.

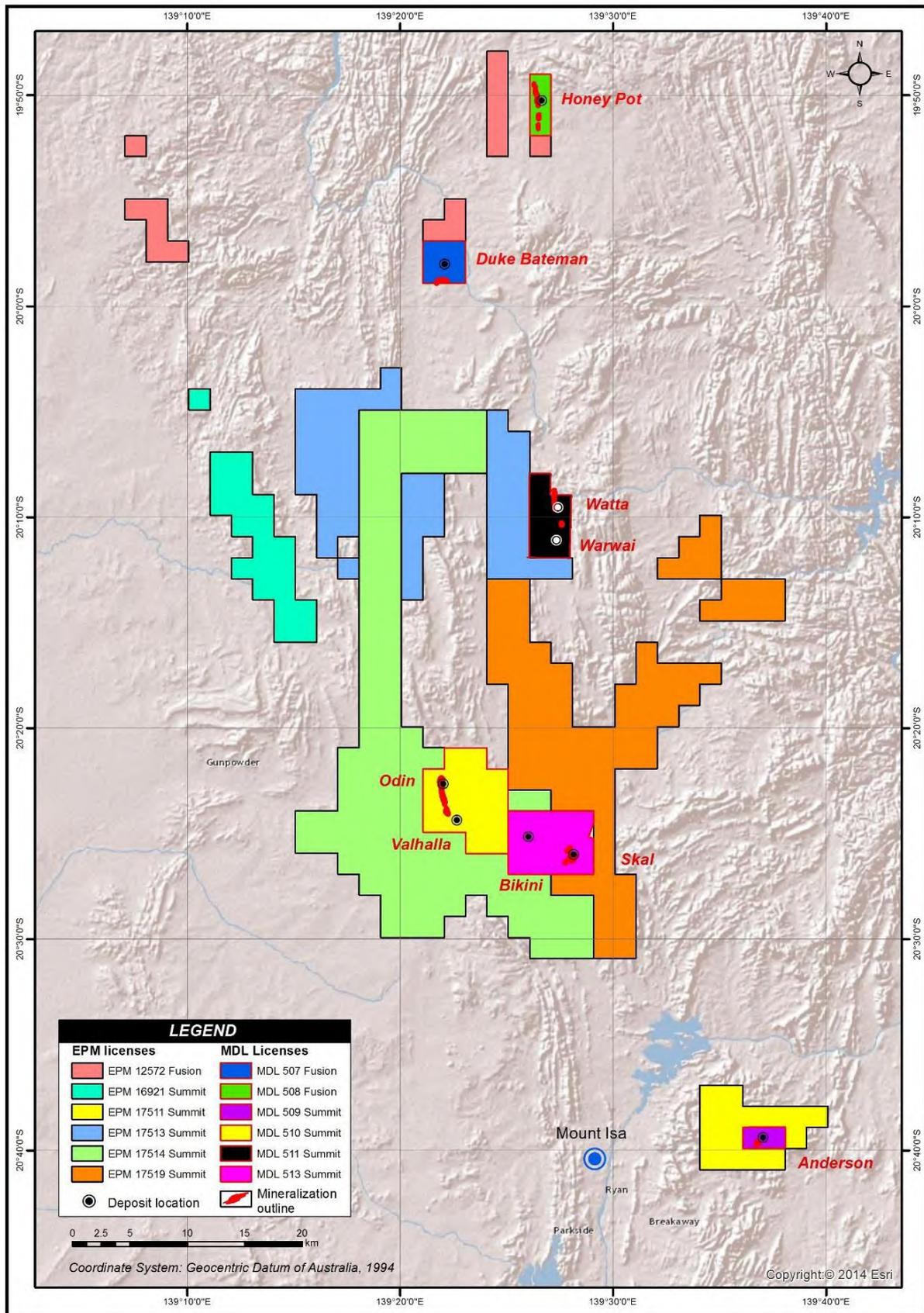


Figure 34: Mount Isa uranium deposits and tenements

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The following tables summarise the tenure held and joint ventures entered into for the base and precious metal rights.

Table 47: Isa South Base Metal Project

| Granted tenement numbers | Registered holder | Tenement name | Date granted (application lodged) | Expiry date | Area (blocks) | Area (km <sup>2</sup> ) | Area (ha) |
|--------------------------|-------------------|---------------|-----------------------------------|-------------|---------------|-------------------------|-----------|
| EPM 14040                | AML (SRA)         | Kahko         | 20-Apr-05                         | 19-Apr-18   | 7             | 23.00                   |           |
| EPM 14233                | AML (SRA/CTM)     | Mt Guide East | 20-Apr-05                         | 19-Apr-21   | 17            | 55.00                   |           |
| EPM 14821                | AML (SRA)         | Waverley      | 08-Jan-07                         | 07-Jan-18   | 25            | 81.00                   |           |
| EPM 15156                | AML (SRA)         | Rufus South   | 22-Mar-07                         | 21-Mar-22   | 38            | 122.00                  |           |
| EPM 13412                | AML (SRA)         | Yappo         | 16-Dec-11                         | 15-Dec-21   | 20            | 64.00                   |           |
| EPM 13413                | AML (SRA)         | Rufus         | 16-Dec-11                         | 15-Dec-21   | 9             | 29.00                   |           |
| EPM 13682                | AML (SRA)         | Wonomo        | 16-Dec-11                         | 15-Dec-21   | 43            | 138.00                  |           |
| <b>Total</b>             |                   |               |                                   |             |               | <b>512</b>              |           |

Note: Aeon Metals Limited (AML) has farmed in to earn 80%. Summit Resources (Aust) Pty Ltd 20% (and Centaurus Metals (CTM)), Aeon Metals Limited 80% (Manager).

Table 48: May Downs Base Metal/Gold Project

| Granted tenement numbers | Registered holder | Tenement name   | Date granted (application lodged) | Expiry date | Area (blocks) | Area (km <sup>2</sup> ) | Area (ha) |
|--------------------------|-------------------|-----------------|-----------------------------------|-------------|---------------|-------------------------|-----------|
| EPM 11897                | AML (SRA)         | May Downs       | 07-Jul-04                         | 06-Jul-18   | 16            | 52.00                   |           |
| EPM 11898                | AML (SRA)         | May Downs South | 07-Jul-04                         | 06-Jul-18   | 18            | 58.00                   |           |
| <b>Total</b>             |                   |                 |                                   |             |               | <b>110.00</b>           |           |

Note: Aeon Metals Limited has farmed in to earn 80%. Summit Resources (Aust) Pty Ltd 20%, Aeon Metals Limited 80% (Manager).

Table 49: Mount Kelly Copper Gold Project

| Granted tenement numbers | Registered holder | Tenement name  | Date granted (application lodged) | Expiry date | Area (blocks) | Area (km <sup>2</sup> ) | Area (ha) |
|--------------------------|-------------------|----------------|-----------------------------------|-------------|---------------|-------------------------|-----------|
| EPM 14694                | AML (SRA)         | Mt Kelly South | 19-Oct-05                         | 18-Oct-18   | 4             | 13.00                   |           |
| <b>Total</b>             |                   |                |                                   |             |               | <b>13.00</b>            |           |

Note: Aeon Metals Limited has farmed in to earn 80%. Summit Resources (Aust) Pty Ltd 20%, Aeon Metals Limited 80% (Manager)

Table 50: Constance Range Base Metal Project

| Granted tenement numbers | Registered holder | Tenement name   | Date granted (application lodged) | Expiry date | Area (blocks) | Area (km <sup>2</sup> ) | Area (ha) |
|--------------------------|-------------------|-----------------|-----------------------------------|-------------|---------------|-------------------------|-----------|
| EPM 14712                | AML (PML)         | Constance Range | 21-Aug-06                         | 20-Aug-19   | 23            | 74.00                   |           |
| EPM 14713                | AML (PML)         | Stockyard Creek | 21-Aug-06                         | 20-Aug-19   | 19            | 61.00                   |           |
| EPM 14935                | AML (PML)         | Riversleigh     | 21-Aug-06                         | 20-Aug-18   | 20            | 64.00                   |           |
| EPM 15186                | AML (SRA)         | Gregory         | 23-Mar-07                         | 22-Mar-22   | 43            | 138.00                  |           |
| <b>Total</b>             |                   |                 |                                   |             |               | <b>337.00</b>           |           |

Note: Aeon Metals Limited has farmed in to earn 80%. Pacific Mines Pty Ltd (PML)/Summit Resources (Aust) Pty Ltd 20%, Aeon Metals Limited 80% (Manager).

### 7.3 Topography and Climate

Topography consists of a series of north-south undulating hills and broad plains at elevations of 360–400 m above sea level. The uranium deposits are situated in mostly flat terrain. Climate is semi-arid, sub-tropical with moderate vegetation cover (native grasses, spinifex, turpentine bush, gum trees) in lateritic soils and 300–400 mm of annual rainfall. The climate at in the Mount Isa region is characterised by hot summers with infrequent heavy rainfall due to thunderstorms, cyclones and the northern monsoon season. Winters are cool with occasional minimum temperatures below zero. Temperatures range from 5°C to 25°C in the winter and 25°C to 40°C in the summer.

Most of the rainfall falls in the humid summer months from December to March. The region is well drained by numerous creeks in the wet season that mostly flow northward into the Gulf of Carpentaria.

### 7.4 Local Infrastructure

All uranium resource areas are easily accessed by station tracks within a one-hour drive of Mount Isa. Valhalla is located approximately 1 km north off the sealed Barkly Highway which connects northwest Queensland to the Northern Territory.

### 7.5 Geology

#### 7.5.1 Regional Geology

The Mount Isa Inlier is a 400 km-long north-south elongated Proterozoic belt of strongly deformed and metamorphosed rocks in northwest Queensland.

The Inlier contains a diverse range of metal deposits, including lead-zinc-silver (Mount Isa type), copper, gold and uranium.

Two major Proterozoic tectonostratigraphic cycles are recognised in the Mount Isa Inlier:

- An earlier cycle represented by basement rocks metamorphosed and deformed during the Barramundi Orogeny (1900–1870 Ma)
- A later cycle, represented by cover sequences 1 to 3 (rift events) which was terminated by the Isan Orogeny (1.57 Ga).

Cover sequence 1 comprises mainly felsic volcanics, cover sequence 2 includes shallow water sediments and bimodal volcanic and cover sequence 3 is dominated by mostly fine-grained clastic sediments and carbonates. Large granitic batholiths were emplaced at ≈1860 Ma, 1800 Ma, 1740 Ma, 1670 Ma and 1500 Ma. Abundant mafic dykes of mostly gabbroic compositions range from 1900 Ma to 1100 Ma.

Extensional deformation during the second cycle was terminated by the compressional Isan Orogeny, which consisted of two main phases: D1 early thrusting and folding during north-south compression with localised basin inversion, and D2 upright folding, reverse faulting and dextral wrenching during east-west compression. Subsequent strike-slip faulting divided the region into several tectonostratigraphic belts:

- The Western Succession includes the Lawn Hill platform (carbonate rocks), Leichhardt River Fault Trough (mafic volcanic rocks and clastic sediments), and the Myally Shelf (clastic sediments and carbonate rocks)
- The Kalkadoon–Leichhardt Belt consists largely of granitic rocks and includes the main Kalkadoon–Leichardt Block and the smaller Ewen Block.
- The Eastern Succession is subdivided into the Mary Kathleen zone, the Quamby–Malbon zone and the Cloncurry–Selwyn zone.

Two basin inversion events are recorded in the Western Fold Belt, which contains the bulk of the region's uranium deposits: D1 north-south compression and inversion of east-west rift faults produced east-west axial planar foliations, and D2 east-west compression produced north-trending, shallowly plunging folds and

foliations. The latter event is related to the bulk of uranium mineralisation in the Mount Isa North area. During inversion, zones of anomalous strain and with local dilation occurred near normal faults and granitic plutons. An example of this is the northeast margin of the Sybella pluton along the Mount Isa and Hero fault zones.

The Leichhardt River Fault Trough is dominated by mafic volcanic rocks of the Haslingden Group that were deposited in an intercontinental rift setting. The Haslingden Group consists of sandstone and quartzite of the Mount Guide Quartzite unconformably overlain by basalts and interbedded clastic sediments of the Eastern Creek Volcanics (Blake and Stewart, 1992), dated at 1807–1710 Ma. A 6 km thick volcanic sequence was regionally metamorphosed to greenschist facies (calcite, chlorite and epidote). These rocks are strongly faulted and foliated, and bedding dips steeply west to near vertical. A total of 107 uranium occurrences have been recorded, including the Valhalla, Bikini and Skal deposits. Most of these occur in the Eastern Creek Volcanics and a few uranium prospects are located in the Leander Quartzite.

The Haslingden Group rocks were intruded by the Sybella Granite at 1670 Ma, resulting in extensive contact metamorphism of the Eastern Creek Volcanics. The Mount Isa Group unconformably overlies the Haslingden Group, and consists of carbonaceous and dolomitic siltstones, mudstones and shales. The 1655 Ma Urquhart Shale of the upper Mount Isa Group hosts the world class Mount Isa Cu and Pb-Zn-Ag deposits. The Mount Isa region was deformed during the Isan Orogeny from 1620 Ma to 1520 Ma, with at least three major deformation events. The D2 event was the most widespread with east-west compression producing north-south striking upright folds and north-south cleavage. A later D3 deformation produced northwest folds and ductile shears, and reactivation and dilation of older structures.

The Eastern Creek Volcanics are exposed over an area of 150 km north-south by 40 km east-west. They have a maximum thickness of 7 km. The sequence is divided into three members: Lower Cromwell Basalt, Lena Quartzite and Upper Pickwick Basalt. Basalt flows have a massive, fine to medium grained texture that fines upward into amygdaloidal zones and are locally capped by 2–4 m thick flow top breccias. Cenozoic alluvial deposits cover 40–60% of the region. The Valhalla deposit is covered by 2–30 m of laterite and saprolite, whereas Bikini and Skal crop out as low ridges and hills.

The Mount Isa North geology comprises dominantly north-south trending Eastern Creek Volcanics bounded by the northerly striking Mount Isa fault to the west and the Western fault to the east (see Figure 35) The north-south Hero fault is a major splay off the Mount Isa Fault. Strike lengths on these regional faults are 120 km for the Mount Isa fault, 40 km for the Hero fault and 50 km for the Western fault. Uranium occurrences mostly occur within 1–2 km of the major regional faults in sheared Eastern Creek Volcanics. Clastic rocks are rarely mineralised with uranium, except where interbedded with thick volcanic units. Competency contrasts between the sedimentary and volcanic rocks resulted in differential strain that created dilation zones for mineralising oxidized uraniferous fluids. The north-south Hero fault is a major splay off the Mount Isa Fault. Strike lengths on these regional faults are 120 km for the Mount Isa fault, 40 km for the Hero fault and 50 km for the Western fault. Uranium occurrences mostly occur within 1–2 km of the major regional faults in sheared Eastern Creek Volcanics. Clastic rocks are rarely mineralised with uranium, except where interbedded with thick volcanic units. Competency contrasts between the sedimentary and volcanic rocks resulted in differential strain that created dilation zones for mineralising oxidized uraniferous fluids.

Albitite-type uranium deposits and districts are located in Proterozoic rocks, particularly Orosirian rocks (1.8–2.05 Ga). The Mount Isa North district is located within a large expanse of Proterozoic rocks extending 2,000 km in a northwest-southeast direction from Darwin in the north to Mount Isa in the south. This terrane is exceptionally well endowed with base metal deposits as well as unconformity uranium deposits of the Alligator Rivers and Westmoreland Districts. The reasons for this extraordinary endowment are not fully understood, but probably include an unusually complex and protracted geological evolution involving numerous extension/inversion and compression events, repeated re-activation of major structures together with elevated heat flow.

7.5.2 Local Geology and Mineralisation: Uranium Deposits

The Paladin Mount Isa uranium deposits are classified as albitite-type (metasomatite is the preferred IAEA term). These uranium deposits are analogous to the Lagoa Real deposit in Brazil (which is one of the largest examples of this deposit type) and are also comparable to the Michelin, Rainbow and Jacques Lake deposits in Canada. The deposits are located in areas of high strain located in the vicinity of major regional faults.

A cluster of similar deposits occur to the north of the famous Mount Isa, Hilton and George Fisher Cu, Pb, Zn, Ag mines (Figure 35). The deposits are emplaced into metamorphosed basalts and interbedded clastic sediments of the Eastern Creek Volcanics during the D2 deformation. The source of the uranium is likely to be from U-enriched granitoids of Sybella batholith (e.g. Kitty Plains microgranite) (McGloin, 2012).

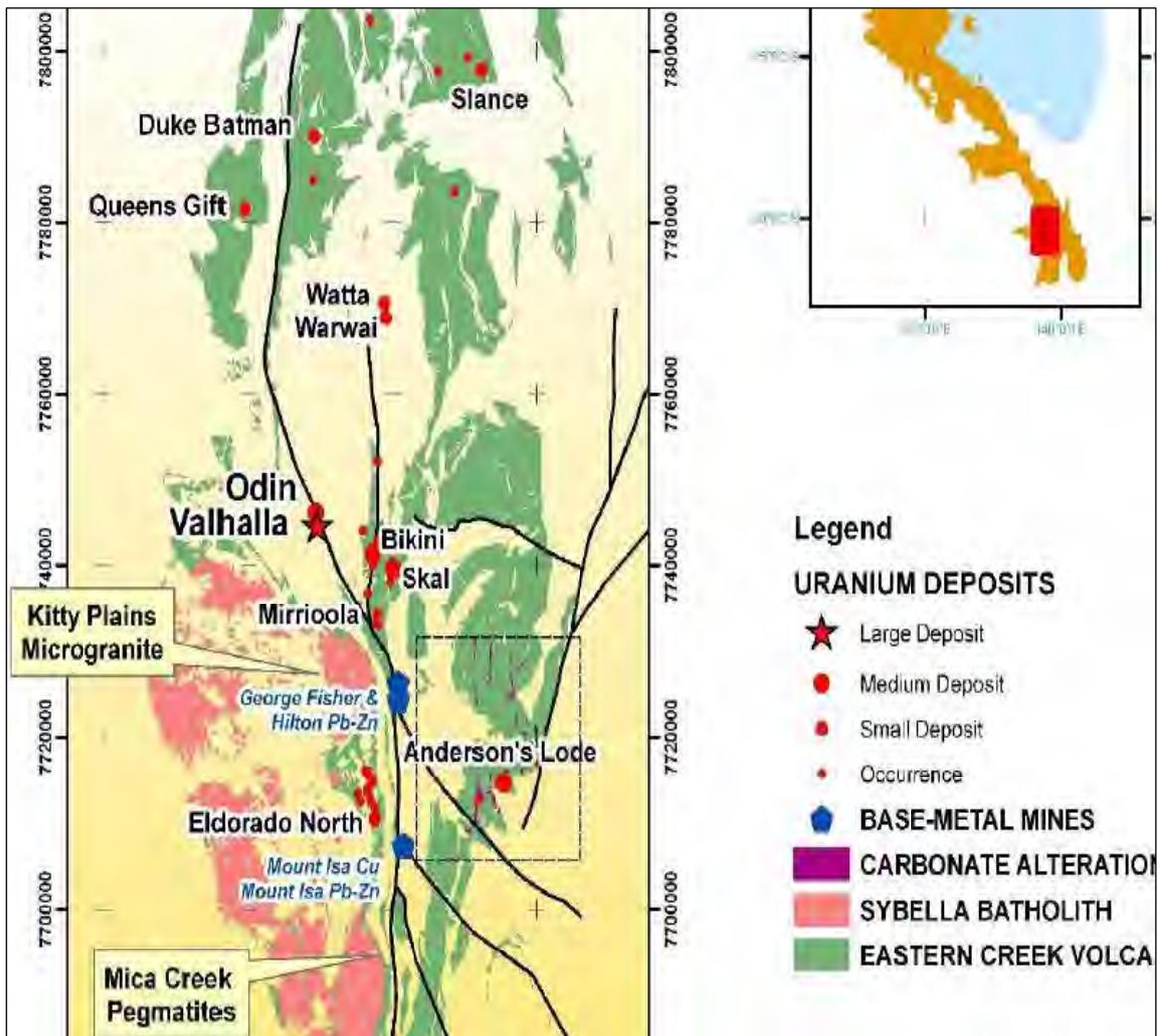


Figure 35: Simplified geology of the area north of Mount Isa  
 Note: Figure 35 shows the relationship of uranium deposits to the outcrop of the Eastern Creek Volcanics.

Valhalla Deposit

The Valhalla deposit is located 40 km north of Mount Isa. Uranium is hosted by interbedded and albitised metabasalts and siltstones of the Proterozoic Eastern Creek Volcanics (Figure 35) west-striking, sub-vertical, albitised shear zone that has been drilled over a length of 1.5 km west-striking, sub-vertical, albitised shear zone that has been drilled over a length of 1.5 km.

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Bedding strikes N30°W and dips 60-80°SW. Uranium is associated with a transgressive body of albitite that strikes at 20° to bedding. The intersection of bedding and the albitite has created a 40°S plunge to mineralisation. The main mineralised zone is up to 90 m wide, 1 km long and 650 m deep. In cross section, the deposit geometry is lenticular and nearly vertical with a 45°S plunge caused by the intersection of bedding with the shear zone.

There is a smaller mineralised zone, known as Valhalla South, located 700 m south of the main body, with dimensions of 400 m long, 30 m thick and 150 m deep.

#### *Odin Deposit*

The Odin deposit is located 1 km north of Valhalla. Odin was a blind discovery and is covered by 5–10 m of colluvium and saprolite. Drilling targeted a magnetic lineament and magnetic high postulated to be the northern extension of Valhalla.

Mineralisation has a strike length of 600 m and thickness of 10–40 m and is open down-dip to the east and down-plunge to the south. Bedding strikes N30°W but is rotated by a northeast-striking fault at the north end of Odin.

Odin is bound by the north-striking, near-vertical Valhalla fault which bends and flattens in a north-easterly direction. The Valhalla fault is sub-vertical and extends southward along the west edge of the Valhalla deposit. Odin has two mineralised geometries:

- Main, northern, zone striking N10-40°E and dipping 50-60°E
- Smaller southern zone striking north-south and dipping 65-85°E.

The footwall of the north zone is defined by strongly deformed chlorite schist that is tightly folded over widths of 1–3 m. Uranium mineralisation at Odin occurs in moderately foliated and albitised basalt with locally abundant magnetite. Mineralogy is similar to Valhalla, but with higher muscovite and carbonate contents.

#### *Skal Deposit*

The Skal deposits are located 8 km southeast of Valhalla, hosted in albitised shear zones that are transgressive to interbedded basalts and siltstones striking north-northeast and dip 60-70°W (Figure 36). A late northwest striking fault with 600 m of left-lateral displacement has separated the main orebody from Skal North.

Uranium mineralisation at Skal is generally between 5 m and 20 m thick, sub-vertical, and low grade (300–700 ppm), with southwest plunges defined by the intersection of north-striking, 50-60°SW-dipping siltstone-basalt contacts with northeast striking shear zones and brecciated quartz veins. Thicker mineralised zones are due to the host shear zones being more oblique to bedding.

Mineralisation mostly consists of deformed, brecciated, 1–5 m thick quartz veins with strongly foliated and albitised margins. Traces of late copper in veins and on fractures occur as primary chalcopyrite and secondary oxides.

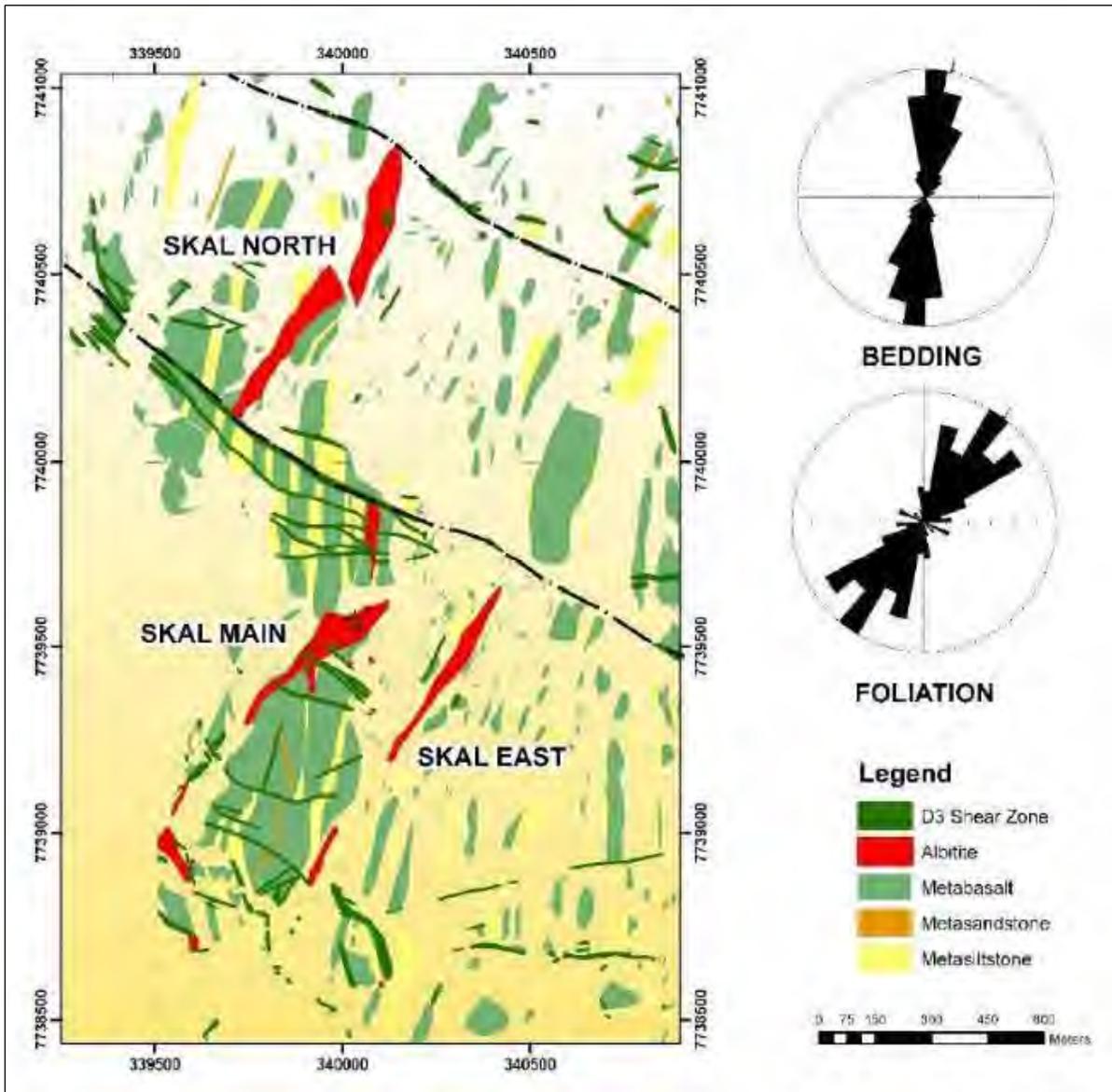


Figure 36: Geological map of the Skal deposits

**Bikini Deposit**

The Bikini Mineral Resource is located 8 km southeast of Valhalla and 4 km northwest of the Skal deposits. Radioactive albitite is exposed along a 1.3 km long by 200 m wide northeast striking zone of chlorite schist. The schist defines a shear zone containing numerous dismembered lenses of albitite, metasandstone and metabasalt. Rheological contrast between metasediment and metabasalts focused fracturing and fluid flow along the contacts. Bikini is truncated by sinistral north-west striking faults at both ends.

Uranium occurs in three *en echelon* northeast striking zones. The southwest zone (formerly named Pile) crops out prominently as a low hill with strongly albitised sandstone that rapidly thins at depth; the zone is about 100 m long by 15 m thick. The central zone comprises the bulk of mineralisation and is much thicker, being 700 m long and up to 100 m wide; it consists of multiple parallel, northeast trending thin but laterally continuous albitite lenses averaging 2 m thick and up to 20 m thick. Individual lenses vary considerably in length but on average are 140 m long with 300–600 ppm U<sub>3</sub>O<sub>8</sub> and up to 1,500 ppm U<sub>3</sub>O<sub>8</sub>. The northeast zone is 700 m long by 50 m wide.

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### *Anderson's Lode Deposit*

The Anderson's Lode (usually shortened to Andersons) uranium deposit is located 40 km southeast of Valhalla and 15 km northeast of Mount Isa. Uranium mineralisation is scattered over a strike length of 1.5 km and includes the Andersons, Father's Day and Neo prospects.

Andersons has a compact, tabular geometry with dimensions of 200 m east-west, 30 m north-south and is up to 200 m deep. There is one main zone and three smaller zones, all hosted in metasandstone. Andersons is bound to the west by a 50 m-wide, N10°E-striking gabbro dyke.

The Anderson's orebody is an fluor apatite rich variant of the albitite-type mineralisation. It is also unusual for the district in that most uranium is hosted in metasediment rather than metabasalt.

### *Watta and Warwai Deposits*

The 3 km long, north-south striking Watta-Narpajin-Warwai uranium system is located 28 km north-northeast of Valhalla and 65 km north of Mount Isa. It is the northernmost of the Summit uranium Mineral Resources and the only Mineral Resource not hosted in Eastern Creek Volcanics.

Low-grade uranium mineralisation is hosted in strongly fractured and hematite-stained quartzite, sandstone, siltstone and minor basalt dykes. Lithology strikes north-south and dips 60–85°W. Broad structural zones are observed over widths of 20–100 m, characterised by dense fracturing, shearing, microfolding and mylonitisation over a strike length of 3 km.

The locally named 30 m-thick Watta Quartzite consists of laminated quartzite and sandstone with 3–10 mm thick beds.

Mineralisation at Watta strikes north-south and dips 60–85°W and is characterised as thin lenses over lengths of 100–450 m, widths of 1–10 m and vertical depths up to 150 m. The western margin of mineralisation is defined by a north-south fault that juxtaposes fresh Leander Quartzite against the fractured and faulted mineralised zone. At Warwai two north-south mineralised lenses 1–5 m wide occur over lengths of 240 m. Basalt dykes are thicker than at Watta and contain thin mineralised albite-hematite veins that contain the highest uranium grades (600–800 ppm U<sub>3</sub>O<sub>8</sub>).

A Mineral Resource has not been estimated for Narpajin due to low uranium grades and small tonnage.

### *Mirrioola Deposit*

Mirrioola is located 1 km south of the Bikini deposit, and has a very similar geology and style of mineralisation. Uranium occurs in three northeast-striking zones over widths of 3–15 m: Mirrioola North, Mirrioola North Extension, and Mirrioola South. The mineral resource occurs entirely at Mirrioola North, which consists of five major mineralised zones ranging in length from 30–80 m and width from 3–10 m.

The host rocks are foliated basalts and interbedded siltstones of the Eastern Creek Volcanics. Bedding strikes N40°E and dips 75–80°SE. Hydrothermal alteration is characterised by pervasive Na-Ca-Fe metasomatism, with albite, calcite, dolomite, hematite and magnetite enrichment. The north end of the Mirrioola system is truncated by a sinistral strike-slip fault that offsets it 800 m from Bikini.

### *Honey Pot Deposit*

The Honey Pot uranium deposit, discovered in 2007, is located 62 km northeast of Valhalla and 100 km north of Mount Isa (Figure 35). Regional geology consists of east-west striking basalt and purple siltstone close to the fold axis of a regional, north-plunging anticline. The region is cut by several 1–2 km thick north-south-striking gabbro dykes. Low-grade, 1–5 m thick, sub-vertical uranium mineralisation is focused over a 2 km north-south strike length along the albitised and brecciated margins of quartz veins in basalt.

Helicopter radiometric data suggest a secondary splay that trends N20°E, oblique to the main north-south trend. The rocks are weakly foliated and weakly albitised. The quartz vein is truncated and displaced by

several left-lateral N20°E to N40°E-striking faults in the central area and by northwest-striking faults at the north end. Outcrop at Honey Pot is about 10% and the southern end is concealed by a 1 km-long corridor of colluvium. South of the colluvium is a small southern extension of Honey Pot known as Sunshine. Erratic uranium mineralisation at Sunshine occurs within three pods in foliated and albitised basalt over north-south strike lengths of 20–50 m and widths of 5–10 m.

#### *Duke Batman Deposit*

The Duke Batman uranium deposit, discovered in 1954, is located 45 km north of Valhalla and 85 km north of Mount Isa. Regional geology consists of north-south-striking basalts with interbedded siltstone, located 10 km east of the north-northeast-striking Mount Gordon fault. Siltstone interbeds are notably absent at the Duke Batman deposit. Basalt flows strike north-south; a way-up direction to the west is indicated by top flow basalts. Structural controls to mineralisation at Duke Batman are variable with mostly north-south and northwest-striking shear zones and brecciated quartz veins. Mineralised conduits strike N20°E and east-west. Ground magnetic data show destruction of the dominant north-south structural grain by a diffuse east-west zone that coincides with the strongest mineralisation. Late faulting reactivated the north-northeast faults to offset mineralised zones adjacent to the Duke and Batman shafts. The strongest area of uranium mineralisation is covered by 0.5–2 m of colluvium to produce a partly concealed radiometric anomaly. The most robust portion of the resource is focused along two sub-parallel N80°E trending, 80°S-dipping fault zones in silicified, hematitic, magnetite-rich and calcite-veined basalt.

Foliation and albitisation are weak in comparison to Valhalla, although hematite alteration, brecciation and silicification are locally strong. Ground magnetics and drilling indicate that a strong N70°W-striking limonitic fault truncates the northern edge of the resource. A major N10°E-striking fault is also inferred to truncate the east edge of Duke Batman under the Gunpowder Road. Geochemistry shows no Na enrichment, whereas Zr, P, Sr and Y are elevated. High chlorite content in the sheared basalts is inferred to have acted as a reductant and precipitation mechanism for the uraniferous fluids.

### **7.6 Uranium Exploration History**

Drilling on Summit and Fusion tenements in the Mount Isa region can be subdivided into four campaigns (1,492 holes for 255,655 m):

- Historical drilling, from 1959 to 1970, mostly by QML and AGIP (361 holes, 41,104 m)
- 1996–1998 drilling by the Summit/Resolute JV (31 holes, 7,831 m).
- 2007–2008 drilling by Fusion Resources (147 holes, 18,924 m)
- 2005–2011 by Paladin and Summit (953 holes, 187,796 m).

Historical drilling (pre-2000) for uranium in the Isa North region was conducted at all Paladin managed resources except Honey Pot and Odin, which were discovered in 2007 and 2010 respectively. Historical drilling was mostly conducted by QML between 1959 and 1970. AGIP drilled a number of mostly core holes in 1974. A small number of core holes were drilled in the mid-1950s by Australasian Oil Exploration Limited at Andersons and Mount Isa Mines Limited at Skal.

### **7.7 Uranium Exploration Drilling by Paladin (Summit)**

From 2005 to 2011, Summit drilled 953 resource definition drillholes on its Mount Isa deposits (507 RCP and 446 DD). Table 51 shows how these holes were distributed across deposits. Only holes drilled on those deposits with Mineral Resource estimates are shown. Diamond core drillholes were mostly NQ2 sized with RCP or HQ diamond core pre-collars.

Valhalla drilling also included two large diameter PQ diamond holes (85 mm) for metallurgical testwork and seven HQ holes (63.5 mm) for geotechnical analysis. Drill sites are rehabilitated within six months after drilling.

Table 51: Drillhole metre tally for Paladin and Summit (2005–2011)

| Deposit     | RC metres | RC holes | DD metres | DD holes | Total metres |
|-------------|-----------|----------|-----------|----------|--------------|
| Valhalla    | 45,032    | 156      | 24,575    | 108      | 69,606       |
| Odin        | 16,925    | 80       | 5,646     | 48       | 22,571       |
| Skal        | 22,381    | 124      | 16,874    | 111      | 39,255       |
| Bikini      | 14,704    | 92       | 15,280    | 68       | 29,984       |
| Andersons   | 3,642     | 24       | 7,270     | 45       | 109,12       |
| Watta       | 686       | 1        | 1,160     | 13       | 1,846        |
| Honey Pot   | 1,866     | 14       | 1,380     | 11       | 3,246        |
| Mirrioola   | 855       | 2        | 4,791     | 26       | 5,645        |
| Duke Batman | 2,126     | 14       | 2,605     | 16       | 4,730        |
| Total       | 108,217   | 507      | 79,579    | 446      | 187,796      |

## 7.8 Uranium Exploration Potential

Uranium exploration potential in the Mount Isa region is considered very good and is expected to add to Paladin's resource base. At the time of writing, the Queensland State Government are maintaining a moratorium on Uranium exploration in Queensland. Should the moratorium be lifted, CSA Global would see further exploration potential in the Valhalla-Honey Pot corridor of covered Eastern Creek Volcanics where prospectivity is considered highest.

## 7.9 Local Geology and Mineralisation: Base and Precious Metals Deposits

*Information sourced from the Summit Resources Ltd Quarterly Report for Period Ended 30 June 2004, Quarterly Report for Period Ended 30 June 2005 and Aeon Metals Ltd Annual Report 2016.*

Summit Resources explored for Proterozoic Isa style base metal and iron oxide copper-gold (IOCG) copper gold deposits along major long lived deep seated fractures (the Mount Isa Paroo, Great Western, May Downs, Mount Clarke and Termite Range faults). Targeting studies carried out on historical mapping and database files have revealed the presence of hundreds of kilometres of strike extensions of unmapped and unexplored rock formations which host the known Mount Isa orebodies.

### 7.9.1 Isa South

The Isa South Project area is located along the southern extensions of the Mount Isa Fault Zone adjacent to the southern margin of the Mount Isa mining lease. The project area covers 25 km of the southern extension of the May Downs Fault, 100 km of the Mount Isa Paroo Fault system as it trends towards the Georgina Basin cover rocks further south and over 150 km of northwest splay faults. These faults are known to control the emplacement of numerous base metal resources and mines to the north including the Mount Isa copper and lead-zinc mines. Priority targets within the Isa South Project area include Mount Annable, Waverly and Mount Guide prospects.

### 7.9.2 May Downs

The May Downs tenements are centred 35 km west of Mount Isa, and they cover a series of Proterozoic gold workings along the May Downs Fault structure. On EPM 11897 (May Downs), exploration emphasis has been focused on locating gold mineralisation along the 10km Golden Fault (part of the regional May Downs Fault zone) where gold anomalous stream sampling and rock chip analyses are coincident with a number of small historical gold workings. The potential for gold mineralisation in shale sequences along the Golden Fault structure was drill tested in 2005. Several holes intersected narrow zones of anomalous gold generally

associated with elevated copper values. On EPM 11898 (May Downs South), at Carters Ridge, down hole geochemistry has indicated anomalous copper in silica dolomite alteration with similarities to Mount Isa.

### 7.9.3 *Mount Kelly South*

The target at Mouth Kelly South is copper gold mineralisation in middle Proterozoic shales along northwest trending fault structures. Aeon Metals reported that satellite imagery and geophysical survey data was acquired for the area. A review of all previous exploration was planned with follow-up field mapping and geochemical sampling to delineate drill targets.

### 7.9.4 *Constance Range*

The Constance Range EPMs are found north and southeast of the Century zinc mine in Queensland. The primary exploration target is copper mineralisation in the middle Proterozoic Termite Range Formation and zinc mineralisation in the shales of the Lawn Hill Formation (host to the Century zinc mine). The mid Proterozoic Termite Range, Lawn Hill and Mullera Formations are the equivalent of the Mine Sequence shales which Summit and Aeon are exploring 240 km further south at Mount Isa.

## 7.10 **Base and Precious Metal Exploration Potential**

Based on the limited information available, CSA Global notes that desktop studies of historical reports, geophysical surveys, geological mapping and surface geochemical surveys have identified a number of significant base metal, copper and gold anomalies which require further drill targeting.

In the Isa South Project area, numerous VTEM anomalies have been modelled and ranked for drill testing. In the Constant Range Project, exploration is at an early stage, but the tenements have copper, gold and zinc-lead-silver mineralisation potential.

CSA Global considers that all the base and precious metal granted tenements areas have good exploration potential.

## 7.11 **Mineral Resources**

### 7.11.1 *Overview*

CSA Global briefly reviewed the Mineral Resource estimates for the Mount Isa region, comprising Valhalla, Skal, Odin, Bikini, Andersons, Watta, Warwai, Mirrioola, Duke Batman and Honey Pot. The Mineral Resource models for Valhalla and Odin were reviewed in Datamine, along with the drillholes supporting those models, whilst a desktop study of the Mineral Resource and due diligence reports was done for the other deposits.

The Mineral Resource estimates were reported by Paladin between 2010 and 2012, and were reported in accordance with the JORC Code (2004) and NI 43-101 (Princep, 2013). CSA Global offer their opinions for the Paladin Mineral Resource estimates in order to provide guidance to the Valuations estimated as part of this report.

The Paladin Mineral Resource tabulations are presented in Table 52.

CSA Global note the following key findings:

- There appears to be an appropriate level of geological understanding of the deposits, supporting the Mineral Resource classification levels.
- Drilling and sampling since 2007 has been of diamond core, to industry standards, although QC of drill samples was too infrequent. Gamma probing was done on all holes and no disequilibrium issues were noted.

- The interpretation of the mineralisation domain at Valhalla appears to be slightly at odds with the geological description of the host lithologies and structural controls. The impact of this, if true, cannot be determined without further geological modelling.
- The classification of the Mineral Resources used the “spotted dog” approach which uses the grade interpolation outputs to control classification, and removes the Competent Person’s oversight in determining what and how the block model volumes are classified. This has resulted in some Measured resources at deep elevations at Valhalla, which CSA Global contend should be re-classified as Indicated due to the wider spaced drilling.
- Density values were calculated from diamond core samples, with limited discussion provided by Paladin.
- CSA Global supports the use of a higher cut-off grade in the estimates, a reflection of the lower U<sub>3</sub>O<sub>8</sub> price in 2017 compared to early 2013.

Table 52: Mineral Resources, Mount Isa projects

| Deposit                 | Measured    |            |             | Indicated   |            |             | Inferred    |            |             |
|-------------------------|-------------|------------|-------------|-------------|------------|-------------|-------------|------------|-------------|
|                         | Mt          | Grade ppm  | Mlb         | Mt          | Grade ppm  | Mlb         | Mt          | Grade ppm  | Mlb         |
| Valhalla                | 16.0        | 819        | 28.9        | 18.6        | 840        | 34.4        | 9.1         | 643        | 12.9        |
| Skal                    | -           | -          | -           | 14.3        | 640        | 20.2        | 1.4         | 519        | 1.6         |
| Odin                    | -           | -          | -           | 8.2         | 555        | 10.0        | 5.8         | 590        | 7.5         |
| Bikini                  | -           | -          | -           | 5.8         | 497        | 6.4         | 6.7         | 493        | 7.3         |
| Andersons               | -           | -          | -           | 1.4         | 1449       | 4.5         | 0.1         | 1693       | 0.4         |
| Watta                   | -           | -          | -           | -           | -          | -           | 5.6         | 404        | 5.0         |
| Warwai                  | -           | -          | -           | -           | -          | -           | 0.4         | 365        | 0.3         |
| Mirrioola               | -           | -          | -           | -           | -          | -           | 2.0         | 555        | 2.4         |
| Duke Batman             | -           | -          | -           | 0.5         | 1370       | 1.5         | 0.3         | 1100       | 0.7         |
| Honey Pot               | -           | -          | -           | -           | -          | -           | 2.6         | 700        | 4.0         |
| <b>Total</b>            | <b>16.0</b> | <b>819</b> | <b>28.9</b> | <b>48.8</b> | <b>718</b> | <b>77.2</b> | <b>34.0</b> | <b>563</b> | <b>42.2</b> |
| Attributable to Paladin | 14.6        | 819        | 26.4        | 43.8        | 719        | 69.4        | 29.9        | 568        | 37.4        |

Note: Cut-off grades: Valhalla U<sub>3</sub>O<sub>8</sub> >230 ppm, all others >250 ppm.

### 7.11.2 Valhalla, Skal and Odin

Paladin prepared Mineral Resource estimates for the Valhalla, Skal and Odin deposits using drillhole data from several drill programs dating back to 1959. The deposits were re-drilled by Summit between 2007 and 2011, with all bore holes radiometrically probed following completion of each hole. The eU<sub>3</sub>O<sub>8</sub> data were used to estimate grades into the Mineral Resource models where insufficient chemical assays were available (the equivalent uranium grades are used by preference in the estimates to maintain consistency of value within the resource). The radiometric probes were quality control checked each day prior to use, and calibrated annually in a certified test pit. Paladin noted a 10% and 6% over-call of XRF assays against radiometric probe data, but the other deposits showed minimal difference. Paladin concluded that disequilibrium in the Mount Isa uranium deposits is not of material concern.

The Mount Isa uranium deposits occur as structurally-controlled lenses of uranium mineralisation in zones of enhanced foliation slightly oblique to bedding. Mineralisation occurs along a 350° striking, sub-vertical shear zone, with the intersection of bedding and shearing creating a 40°S plunge to mineralisation. Paladin interpreted the mineralisation domains to reflect the geological models using a 100 ppm eU<sub>3</sub>O<sub>8</sub> lower cut-off.

Paladin constructed block models for each deposit using block sizes of 10 m (E) by 10 m (N) by 10 m (RL). CSA Global considers these to be too small for the typical drill spacing of 40 m by 40 m. Paladin estimated  $eU_3O_8$  grade into the domained blocks using multiple indicator kriging (MIK) followed by a volume-variance correction. Significant differences in variogram sills and directions between adjacent variogram bins might induce “order relation” problems during grade interpolation, however CSA Global believes the impact will be on local block estimates with no significant differences expected in global tonnages and grades. The variograms modelled for each MIK bin do not appear to reflect the structural controls interpreted to exert control on mineralisation as discussed earlier, and this would have impacted upon the resultant distribution of interpreted block grades. CSA Global believes that the structural controls of mineralisation should have been reflected in the variogram models.

A 30 m (maximum) thickness of saprolitic cover on the top of the mineralisation was not sampled for density and a value of  $2.4 \text{ t/m}^3$  was assigned, based upon the Competent Person’s knowledge of the Mount Isa geology. CSA Global recommends drill core from the weathered zone be sampled for density calculations. CSA Global believes the assigned density values for the Mineral Resource are reasonable for the lithological units.

The Mineral Resource models were classified by Paladin according to the guidelines of JORC (2004), however they used a “spotted dog” approach. The Valhalla model was classified in part as Measured based upon number of samples and drillholes used per block estimate. Whilst the classification of a Mineral Resource is the opinion of the Competent Person, and is a subjective exercise, CSA Global express caution with the classification of Measured category to Valhalla. Whilst the geological controls are well understood, the geological model supporting the Mineral Resource model does not fully reflect those controls, particularly the geostatistical analyses (including variography) and insufficient density data. CSA Global also note that Measured resource blocks tend to cling to the halos of drillhole traces. The deeper parts of the Mineral Resource model are less well supported by drill density than the upper elevations and should not, in CSA Global’s opinion, be classified as Measured. Disequilibrium studies by Paladin (Princep, 2013) suggest the Mineral Resource estimate under-calls the  $U_3O_8$  content by up to 10%, due to using  $eU_3O_8$  grades exclusively for grade interpolation. However, Paladin have commented that in their opinion, the grade differences are more likely to be caused by “change of support” effects rather than by disequilibrium (pers. comm. Princep, Nov.2017). This potential error accounts for most of the allowable error in estimated grade for Measured Mineral Resources.

**CSA Global concludes the Mineral Resources are fit for the purposes of valuation, however for the valuation recommends applying a discount to the Measured Mineral Resource at Valhalla. Likewise, CSA Global concludes that a discount be used to account for higher cut-off grades not being applied as the uranium price dropped.**

### 7.11.3 Mount Isa – Other Deposits

CSA Global reviewed Princep (2013) to form a judgement on the veracity of the other Mineral Resources reported in Table 52. Whilst model files were provided to CSA Global for Duke Batman and Honey Pot, these were not reviewed due to time constraints.

The geological interpretations were based upon a lower limit of 100 ppm  $eU_3O_8$  and modelled to industry standards. Paladin interpolated grades into the Bikini, Andersons and Duke Batman Mineral Resources using MIK, whilst ordinary kriging was used for the other Mineral Resource estimates. A brief review of statistical analyses, variography and grade interpolation revealed no material flaws in Paladin’s processes.

Density values were calculated from diamond core sample billets using the water immersion technique, although Paladin provide limited information regarding this testwork. The assigned density values for the fresh rock volumes appear to be reasonable with respect to the host lithologies.

The block models were classified based upon number of samples and drillholes used per block estimate, with due consideration also given to QAQC of samples, geological interpretation and number of bulk density samples available. A spotted dog methodology was used, similar to the other Mount Isa and Aurora (Canada) Mineral Resource estimates. The MIK models were classified as a combination of Indicated and Inferred, while the ordinary kriged Mineral Resource estimates were classified as Inferred.

**CSA Global concludes the Mineral Resource estimates are fit for the purposes of valuation.**

## 7.12 Valuation

Based on the review of Paladin's Queensland projects, CSA Global concluded that varying discounts for the Valhalla, Skal and Odin projects are necessary to deal with the resource risks identified.

In 2015, the Government of Queensland re-implemented a ban on uranium mining. All Queensland projects are subject to this ban. For this reason, CSA Global has applied an additional 25% discount to the Technical valuations to reflect the likely market discount due to the ban on uranium mining.

### 7.12.1 Previous Valuations

CSA Global is aware that a large independent international advisory firm ("the Firm") was engaged by Paladin and its creditors to prepare an independent assessment of the Fair Market Value of certain assets of Paladin as of 1<sup>st</sup> February 2017. The assets considered included the Mount Isa Project.

The Firm concluded that the fair market value of Paladin's 50% direct ownership interest in the Mount Isa Project, which includes the Valhalla, Skal and Odin Mineral Resources was within the range US\$26.5 million to US\$39.5 million. No preferred value within the range was stated.

### 7.12.2 Comparable Transactions Valuation

#### Mineral Resources

The value of Paladin's Queensland Mineral Resources was evaluated by analysis of comparative market transactions of Australian, Canadian and USA uranium projects (excluding ISR projects and those with an average resource grade >1% U<sub>3</sub>O<sub>8</sub>). Table 53 presents the summary statistics of the 12 transactions identified (in green in Appendix 2), showing the implied price in US\$/lb U<sub>3</sub>O<sub>8</sub> at the time of the transaction and the normalised price per pound of U<sub>3</sub>O<sub>8</sub> using the June 2017 average spot price of US\$20.79/lb.

Table 53: *Comparable transactions for Australian, Canadian and North American U<sub>3</sub>O<sub>8</sub> Mineral Resources*

| Statistic | Implied US\$/lb U <sub>3</sub> O <sub>8</sub> | Normalised US\$/lb U <sub>3</sub> O <sub>8</sub> |
|-----------|---|--|
| Minimum   | 0.025   | 0.012  |
| Maximum   | 3.378   | 1.455  |
| Mean      | 0.750   | 0.392  |
| Median    | 0.353   | 0.257  |

Based on the data summary in Table 53 and our professional judgement, CSA Global selected a range of US\$0.20/lb to US\$0.30/lb U<sub>3</sub>O<sub>8</sub> and a preferred value of US\$0.25/lb U<sub>3</sub>O<sub>8</sub> to apply to the Valhalla, Skal, Odin and Bikini deposits which all contain >10 Mlb of U<sub>3</sub>O<sub>8</sub>.

With the exception of the Valhalla deposit, all have Mineral Resources classified as Indicated. Valhalla also has Measured Mineral Resources.

The preferred factor of US\$0.25/lb is based on rounding the mean value of the transactions. The low factor (US\$0.20/lb) and high factor (US\$0.30/lb) are based on CSA Global's professional judgement in selecting a range of 20% above and below the preferred value. CSA Global selected a slightly lower range of US\$0.16/lb to US\$0.24/lb U<sub>3</sub>O<sub>8</sub> and a preferred value of US\$0.20/lb U<sub>3</sub>O<sub>8</sub> to apply to the Andersons, Watta, Warwai,

Mirrioola, Duke Batman and Honey Pot deposits. These resources are smaller, each containing approximately 5 Mlb or less of  $U_3O_8$ , with only Andersons and Duke Batman having Indicated Mineral Resources, with the other resources classified as Inferred. The preferred value of US\$0.20/lb is has been selected as appropriate as it is below the median value for the transaction set, in recognition of the relatively small size of these resources. Using our professional judgement, CSA Global has selected high and low values to reflect a range of 20% above and below the preferred value.

The two different ranges reflect the differences in the quality, confidence and size of the individual declared resource base. The preferred valuation factor is close to the median (normalised) value in Table 54, due to the mean being skewed by one transaction.

In addition, CSA Global understands that conceptual to bench-scale processing solutions have been developed for these deposits, but these processing solutions have not as yet been demonstrated at commercial scale. Therefore, CSA Global has chosen valuation factors from the lower portion of the transaction ranges.

Table 54: Valuation factors applicable to the Queensland Mineral Resources

| Mineral Resource  | Low (US\$/lb) | Preferred (US\$/lb) | High (US\$/lb) |
|---|---------------|---------------------|----------------|
| Valhalla, Skal, Odin, Bikini                                | 0.20          | 0.25                | 0.30           |
| Andersons, Watta, Warwai, Mirrioola, Duke Batman, Honey Pot | 0.16          | 0.20                | 0.24           |

For the reasons detailed in Section 7.11 of this report, in summary overcalls noted between gamma equivalent U and XRF results; potential resource methodology issues relating to variography and geological interpretation; use of assumed density values; resource classification issues, and potential disequilibrium effects, CSA Global conclude that further discount factors are necessary to address the project-specific resource risks identified in the review. CSA Global believe that a 10% discount is appropriate for the Valhalla and Skal deposits, and a 15% discount is appropriate for the Odin deposit. No further discount is deemed necessary to address specific resource risks for the other deposits. These discounts are considered an appropriate means of dealing with the resource risks identified, since this approximates the likely quantum of resource reduction associated with the identified risks should the resources be re-estimated taking into account the issues identified in our technical assessment. The size of the discount has been determined following review of preliminary resource updates being prepared by Paladin that address material issues identified independently by CSA Global and discussed above.

Application of the selected factors resulted in a valuation range of US\$23.7 million to US\$35.6 million, with a preferred value of US\$29.7 million (Table 55), prior to consideration of Queensland-specific market factors.

Table 55: Undiscounted Queensland Mineral Resource valuations by comparable transactions

| Mineral Resource | $U_3O_8$ (Mlb) | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|------------------|----------------|----------------|-------------|-------------------|--------------|
| Valhalla         | 76.3           | 91%            | 12.5        | 15.6              | 18.7         |
| Skal             | 21.8           | 91%            | 3.6         | 4.5               | 5.4          |
| Odin             | 17.6           | 91%            | 2.7         | 3.4               | 4.1          |
| Bikini           | 13.7           | 82%            | 2.2         | 2.8               | 3.4          |
| Andersons        | 5              | 82%            | 0.7         | 0.8               | 1.0          |
| Watta            | 5              | 82%            | 0.7         | 0.8               | 1.0          |
| Warwai           | 0.3            | 82%            | 0.0         | 0.0               | 0.1          |
| Mirrioola        | 2.5            | 82%            | 0.3         | 0.4               | 0.5          |
| Duke Batman      | 2.3            | 100%           | 0.4         | 0.5               | 0.6          |
| Honey Pot        | 4              | 100%           | 0.6         | 0.8               | 1.0          |
| Total            | 148.5          | NA             | 23.7        | 29.7              | 35.6         |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

To account for Queensland's ban on uranium mining, CSA Global has applied a 25% discount to the values in Table 55.

This resulted in a discounted valuation range as shown in Table 56.

Table 56: Discounted Queensland Mineral Resource valuations by comparable transactions

| Mineral Resource | U <sub>3</sub> O <sub>8</sub> (Mlb) | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|------------------|-------------------------------------|----------------|-------------|-------------------|--------------|
| Valhalla         | 76.3                                | 91%            | 9.37        | 11.72             | 14.06        |
| Skal             | 21.8                                | 91%            | 2.68        | 3.35              | 4.02         |
| Odin             | 17.6                                | 91%            | 2.04        | 2.55              | 3.06         |
| Bikini           | 13.7                                | 82%            | 1.69        | 2.11              | 2.53         |
| Andersons        | 5                                   | 82%            | 0.49        | 0.62              | 0.74         |
| Watta            | 5                                   | 82%            | 0.49        | 0.62              | 0.74         |
| Warwai           | 0.3                                 | 82%            | 0.03        | 0.04              | 0.04         |
| Mirrioola        | 2.5                                 | 82%            | 0.25        | 0.31              | 0.37         |
| Duke Batman      | 2.3                                 | 100%           | 0.28        | 0.35              | 0.41         |
| Honey Pot        | 4                                   | 100%           | 0.48        | 0.60              | 0.72         |
| Total            | 148.5                               |                | 17.8        | 22.3              | 26.7         |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

#### Exploration Tenure

The value of Paladin's Queensland exploration tenure was evaluated by analysis of comparative market transactions of Australian uranium exploration projects. As was the case for the Western Australian projects, 11 comparable transactions were identified, with one extremely low value of US\$4/km<sup>2</sup> excluded from further analysis. Table 57 presents the summary statistics of the remaining transactions identified, showing the implied price in US\$/km<sup>2</sup> at the time of the transaction and the normalised price per km<sup>2</sup> using the June 2017 average spot price of US\$20.79/lb.

Table 57: Comparable transaction data of Australian uranium exploration projects

| Statistic | Implied (US\$/km <sup>2</sup> ) | Normalised (US\$/km <sup>2</sup> ) |
|-----------|---------------------------------|------------------------------------|
| Minimum   | 124                             | 61                                 |
| Maximum   | 21,389                          | 14,661                             |
| Mean      | 5,706                           | 3,201                              |
| Median    | 3,045                           | 1,740                              |

Various ranges and preferred values were applied to the total area of the Queensland exploration tenure of 1,864.2 km<sup>2</sup> (Table 58). The ranges and preferred values reflect CSA Global's view on the varying prospectivity of the tenements or potential strategic value of the tenements. CSA Global divided the exploration tenure into four groups based on the varying prospectivity or potential strategic value of the tenure.

In CSA Global's professional judgement, tenements that were considered highly prospective and or strategic were given a value range of \$5,000 to \$10,000/km<sup>2</sup> with a preferred value of \$7,500/km<sup>2</sup>. The tenements in this value range immediately surrounded the Valhalla and Skal Mineral Resources. Tenements given the value range of \$2,000 to \$5,000/km<sup>2</sup> with a preferred value of \$3,500/km<sup>2</sup> were considered very prospective and contained several uranium prospects ready for followup. Less prospective tenements had a range of \$200 to \$2,000/km<sup>2</sup>. CSA Global had applied two different preferred values, one of \$1,600/km<sup>2</sup> and one at \$800/km<sup>2</sup>, the preferred value differences were based on CSA Global's professional judgement as to which tenements were of average prospectivity or contain an early stage prospect (\$1,600/km<sup>2</sup>) or tenements with below average or little prospectivity (\$800/km<sup>2</sup>). These ranges and preferred values are based on an assessment of the comparative transactions and the prospectivity of the projects within those transactions.



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CSA Global has valued the Isa South, Mary Downs, Mt Kelly and Constance Range projects on Paladin's interest in the uranium rights of these joint ventures between Summit Resources and Aeon Metals. Apart from one EPM, Paladin has a 16% interest in all metals and 82% interest in uranium rights, for EPM 14233 Paladin has a 14% interest in all metals and 74% interest in uranium rights.

On the basis of the valuation factors applied in Table 58, CSA Global considers that the value of the Queensland exploration tenure ranges from US\$0.7 million to US\$3.1 million with a preferred value of US\$1.9 million (Table 58).

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Table 58: Queensland exploration tenure comparable transactions valuations

| Project                                 | Tenement   | Paladin equity | Area (km <sup>2</sup> ) | Valuation factors (US\$/km <sup>2</sup> ) |           |           | Valuation (US\$M) |             |             |
|---|------------|----------------|-------------------------|---|-----------|-----------|-------------------|-------------|-------------|
|   |            |                |                         | Low                                       | Preferred | High      | Low               | Preferred   | High        |
| Isa Uranium JV                          | EPM 17514* | 91%            | 17.2                    | 5,000                                     | 7,500     | 10,000    | 0.08              | 0.12        | 0.16        |
|   | EPM 17519* | 91%            | 10                      | 5,000                                     | 7,500     | 10,000    | 0.05              | 0.07        | 0.09        |
| Isa North Uranium                       | EPM 17511  | 82%            | 48                      | 200                                       | 1,600     | 2,000     | 0.01              | 0.06        | 0.08        |
|   | EPM 17513  | 82%            | 161                     | 200                                       | 1,600     | 2,000     | 0.03              | 0.21        | 0.26        |
|   | EPM 17514  | 82%            | 354                     | 2000                                      | 3,500     | 5,000     | 0.58              | 1.02        | 1.45        |
|   | EPM 17519  | 82%            | 254                     | 200                                       | 1,600     | 2,000     | 0.04              | 0.33        | 0.42        |
| Valhalla North                          | EPM 12572  | 100%           | 48                      | 200                                       | 1,600     | 2,000     | 0.01              | 0.08        | 0.10        |
| Isa South                               | EPM 14040  | 16%/82%        | 23                      | 200                                       | 800       | 2,000     | 0.00              | 0.02        | 0.04        |
|   | EPM 14233  | 14%/74%        | 55                      | 200                                       | 800       | 2,000     | 0.01              | 0.03        | 0.08        |
|   | EPM 14821  | 16%/82%        | 81                      | 200                                       | 800       | 2,000     | 0.01              | 0.05        | 0.13        |
|   | EPM 15156  | 16%/82%        | 122                     | 200                                       | 800       | 2,000     | 0.02              | 0.08        | 0.20        |
|   | EPM 13412  | 16%/82%        | 64                      | 200                                       | 800       | 2,000     | 0.01              | 0.04        | 0.10        |
|   | EPM 13413  | 16%/82%        | 29                      | 200                                       | 800       | 2,000     | 0.00              | 0.02        | 0.05        |
|   | EPM 13682  | 16%/82%        | 138                     | 200                                       | 800       | 2,000     | 0.02              | 0.09        | 0.23        |
| May Downs                               | EPM 11897  | 16%/82%        | 52                      | 200                                       | 800       | 2,000     | 0.01              | 0.03        | 0.09        |
|   | EPM 11898  | 16%/82%        | 58                      | 200                                       | 800       | 2,000     | 0.01              | 0.04        | 0.10        |
| Mt Kelly                                | EPM 14694  | 16%/82%        | 13                      | 200                                       | 800       | 2,000     | 0.00              | 0.01        | 0.02        |
| Constance Range                         | EPM 14712  | 16%/82%        | 74                      | 200                                       | 800       | 2,000     | 0.01              | 0.05        | 0.12        |
|   | EPM 14713  | 16%/82%        | 61                      | 200                                       | 800       | 2,000     | 0.01              | 0.04        | 0.10        |
|   | EPM 14935  | 16%/82%        | 64                      | 200                                       | 800       | 2,000     | 0.01              | 0.04        | 0.10        |
|   | EPM 15186  | 16%/82%        | 138                     | 200                                       | 800       | 2,000     | 0.02              | 0.09        | 0.23        |
| <b>Total</b>                            |            |                | <b>1,864.2</b>          | <b>NA</b>                                 | <b>NA</b> | <b>NA</b> | <b>0.95</b>       | <b>2.52</b> | <b>4.14</b> |
| 25% discount for the uranium mining ban |            |                |                         |   |           |           | 0.71              | 1.89        | 3.10        |

\*Part of EPM 17514 and EPM 17519 are subject to the 50/50 joint venture between Summit and Paladin and the remaining part is 100% Summit.

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

### 7.12.3 Yardstick Order of Magnitude Check – Mineral Resources

CSA Global used the Yardstick method as a Order of Magnitude Check on Queensland Mineral Resource valuations completed using comparable transactions.

For the Yardstick Order of Magnitude Check, CSA Global used US\$20.78/lb, the average U<sub>3</sub>O<sub>8</sub> spot price for June 2017.

In addition, CSA Global used the following commonly used Yardstick Order of Magnitude Check factors:

- Inferred Mineral Resources: 0.5% to 1% of spot price
- Indicated Mineral Resources: 1% to 2% of spot price
- Measured Mineral Resources: 2% to 5% of spot price.

The average U<sub>3</sub>O<sub>8</sub> price for June 2017 was used as a basic spot price for the Yardstick Order of Magnitude Check so that the results could be compared to the Comparative Transactions, which were normalised to this U<sub>3</sub>O<sub>8</sub> price.

For the reasons detailed in Section 7.11 of this report, CSA Global conclude that further discount factors are necessary to address the project-specific resource risks identified in the review. CSA Global believe that a 10% discount is appropriate for the Valhalla and Skal deposits, and a 15% discount is appropriate for the Odin deposit. The quantum of these individual discounts are based on the outcomes of CSA Global's technical assessments of the individual resources, and reflect the likely decrease in contained metal, should the resources be re-estimated so as to address our concerns. No further discount is deemed necessary to address specific resource risks for the other deposits.

In addition, as the Yardstick Order of Magnitude Check is based on declared resource categories, CSA Global used professional judgement in valuing the Valhalla Measured Resources using the factor for Indicated Resources to address our concerns on the classification of the Measured Resources, as detailed in Section 7.11.2 of this report.

A summary of the comparative order of magnitude crosscheck, which is based on Yardstick factors, for the individual Queensland Mineral Resources are presented in the following tables.

Table 59: Yardstick Order of Magnitude Check of Valhalla Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors% |           |           | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|--------------------|-----------|-----------|----------------|-------------|-------------------|--------------|
|   |                                     | Low                | Preferred | High      |                |             |                   |              |
| Measured*                               | 28.9                                | 1.0                | 1.5       | 2.0       | 91%            | 4.9         | 7.4               | 9.8          |
| Indicated                               | 34.5                                | 1.0                | 1.5       | 2.0       | 91%            | 5.9         | 8.8               | 11.8         |
| Inferred                                | 12.8                                | 0.5                | 0.75      | 1.0       | 91%            | 1.1         | 1.6               | 2.2          |
| <b>Total</b>                            | <b>76.3</b>                         | <b>NA</b>          | <b>NA</b> | <b>NA</b> | <b>91%</b>     | <b>11.9</b> | <b>17.8</b>       | <b>23.8</b>  |
| 25% discount for the uranium mining ban |                                     |                    |           |           |                | 8.9         | 13.4              | 17.8         |

\*CSA Global notes in Section 7.11 it considers that for valuation purposes the Measured material be treated as Indicated.

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

A 10% resource risk discount has been applied to the values prior to the 25% jurisdiction discount

Table 60: Yardstick Order of Magnitude Check of Skal Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors% |           |           | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|--------------------|-----------|-----------|----------------|-------------|-------------------|--------------|
|   |                                     | Low                | Preferred | High      |                |             |                   |              |
| Indicated                               | 20.2                                | 1.0                | 1.5       | 2.0       | 91%            | 3.4         | 5.2               | 6.9          |
| Inferred                                | 1.6                                 | 0.5                | 0.75      | 1.0       | 91%            | 0.1         | 0.2               | 0.3          |
| <b>Total</b>                            | <b>21.8</b>                         | <b>NA</b>          | <b>NA</b> | <b>NA</b> | <b>91%</b>     | <b>3.6</b>  | <b>5.4</b>        | <b>7.2</b>   |
| 25% discount for the uranium mining ban |                                     |                    |           |           |                | 2.7         | 4.0               | 5.4          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.  
A 10% resource risk discount has been applied to the values prior to the 25% jurisdiction discount

Table 61: Yardstick Order of Magnitude Check of Odin Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |           | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-------------------|-----------|-----------|----------------|-------------|-------------------|--------------|
|   |                                     | Low               | Preferred | High      |                |             |                   |              |
| Indicated                               | 10.0                                | 1.0               | 1.5       | 2.0       | 91%            | 1.6         | 2.4               | 3.2          |
| Inferred                                | 7.6                                 | 0.5               | 0.75      | 1.0       | 91%            | 0.6         | 0.9               | 1.2          |
| <b>Total</b>                            | <b>17.6</b>                         | <b>NA</b>         | <b>NA</b> | <b>NA</b> | <b>91%</b>     | <b>2.2</b>  | <b>3.3</b>        | <b>4.4</b>   |
| 25% discount for the uranium mining ban |                                     |                   |           |           |                | 1.7         | 2.5               | 3.3          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.  
A 15% resource risk discount has been applied to the values prior to the 25% jurisdiction discount

Table 62: Yardstick Order of Magnitude Check of Bikini Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |           | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-------------------|-----------|-----------|----------------|-------------|-------------------|--------------|
|   |                                     | Low               | Preferred | High      |                |             |                   |              |
| Indicated                               | 6.3                                 | 1.0               | 1.5       | 2.0       | 82%            | 1.1         | 1.6               | 2.2          |
| Inferred                                | 7.3                                 | 0.5               | 0.75      | 1.0       | 82%            | 0.6         | 0.9               | 1.2          |
| <b>Total</b>                            | <b>13.7</b>                         | <b>NA</b>         | <b>NA</b> | <b>NA</b> | <b>82%</b>     | <b>1.7</b>  | <b>2.6</b>        | <b>3.4</b>   |
| 25% discount for the uranium mining ban |                                     |                   |           |           |                | 1.3         | 1.9               | 2.6          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

Table 63: Yardstick Order of Magnitude Check of Andersons Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |           | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-------------------|-----------|-----------|----------------|-------------|-------------------|--------------|
|   |                                     | Low               | Preferred | High      |                |             |                   |              |
| Indicated                               | 4.6                                 | 1.0               | 1.5       | 2.0       | 82%            | 0.8         | 1.2               | 1.6          |
| Inferred                                | 0.4                                 | 0.5               | 0.75      | 1.0       | 82%            | 0.0         | 0.1               | 0.1          |
| <b>Total</b>                            | <b>5.0</b>                          | <b>NA</b>         | <b>NA</b> | <b>NA</b> | <b>82%</b>     | <b>0.8</b>  | <b>1.2</b>        | <b>1.6</b>   |
| 25% discount for the uranium mining ban |                                     |                   |           |           |                | 0.6         | 0.9               | 1.2          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

Table 64: Yardstick Order of Magnitude Check of Watta Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |      | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-------------------|-----------|------|----------------|-------------|-------------------|--------------|
|   |                                     | Low               | Preferred | High |                |             |                   |              |
| Inferred                                | 5.0                                 | 0.5               | 0.75      | 1.0  | 82%            | 0.4         | 0.6               | 0.8          |
| 25% discount for the uranium mining ban |                                     |                   |           |      |                | 0.3         | 0.5               | 0.6          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

Table 65: Yardstick Order of Magnitude Check of Warwai Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |      | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-------------------|-----------|------|----------------|-------------|-------------------|--------------|
|   |                                     | Low               | Preferred | High |                |             |                   |              |
| Inferred                                | 0.3                                 | 0.5               | 0.75      | 1.0  | 82%            | 0.0         | 0.0               | 0.1          |
| 25% discount for the uranium mining ban |                                     |                   |           |      |                | 0.0         | 0.0               | 0.0          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

Table 66: Yardstick Order of Magnitude Check of Mirrioola Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |      | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-------------------|-----------|------|----------------|-------------|-------------------|--------------|
|   |                                     | Low               | Preferred | High |                |             |                   |              |
| Inferred                                | 2.5                                 | 0.5               | 0.75      | 1.0  | 82%            | 0.2         | 0.3               | 0.4          |
| 25% discount for the uranium mining ban |                                     |                   |           |      |                | 0.2         | 0.2               | 0.3          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

Table 67: Yardstick Order of Magnitude Check of Duke Batman Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |           | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-------------------|-----------|-----------|----------------|-------------|-------------------|--------------|
|   |                                     | Low               | Preferred | High      |                |             |                   |              |
| Indicated                               | 1.6                                 | 1.0               | 1.5       | 2.0       | 100%           | 0.3         | 0.5               | 0.7          |
| Inferred                                | 0.7                                 | 0.5               | 0.75      | 1.0       | 100%           | 0.1         | 0.1               | 0.1          |
| <b>Total</b>                            | <b>2.3</b>                          | <b>NA</b>         | <b>NA</b> | <b>NA</b> | <b>100%</b>    | <b>0.4</b>  | <b>0.6</b>        | <b>0.8</b>   |
| 25% discount for the uranium mining ban |                                     |                   |           |           |                | 0.3         | 0.5               | 0.6          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

Table 68: Yardstick Order of Magnitude Check of Honey Pot Mineral Resources

| Resource category                       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Yardstick factors |           |      | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|-------------------------------------|-------------------|-----------|------|----------------|-------------|-------------------|--------------|
|   |                                     | Low               | Preferred | High |                |             |                   |              |
| Inferred                                | 4.0                                 | 0.5               | 0.75      | 1.0  | 100%           | 0.4         | 0.6               | 0.8          |
| 25% discount for the uranium mining ban |                                     |                   |           |      |                | 0.3         | 0.5               | 0.6          |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

Table 69: Summary of the Yardstick Order of Magnitude Checks of the Queensland Mineral Resources

| Resource       | U <sub>3</sub> O <sub>8</sub> (Mlb) | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|----------------|-------------------------------------|----------------|-------------|-------------------|--------------|
| Valhalla       | 76.3                                | 91%            | 8.9         | 13.4              | 17.8         |
| Skal           | 21.8                                | 91%            | 2.7         | 4.0               | 5.4          |
| Odin           | 17.6                                | 91%            | 1.7         | 2.5               | 3.3          |
| Bikini         | 13.7                                | 82%            | 1.3         | 1.9               | 2.6          |
| Andersons      | 5                                   | 82%            | 0.6         | 0.9               | 1.2          |
| Watta          | 5                                   | 82%            | 0.3         | 0.5               | 0.6          |
| Warwai         | 0.3                                 | 82%            | 0.0         | 0.0               | 0.0          |
| Mirrioola      | 2.5                                 | 82%            | 0.2         | 0.2               | 0.3          |
| Duketon Batman | 2.3                                 | 100%           | 0.3         | 0.5               | 0.6          |
| Honey Pot      | 4                                   | 100%           | 0.3         | 0.5               | 0.6          |
| <b>Total</b>   | <b>148.5</b>                        |                | <b>16.3</b> | <b>24.4</b>       | <b>32.5</b>  |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

Application of the Yardstick method as described above resulted in a Order of Magnitude Check range of US\$16.3 million to US\$32.5 million, with a preferred value of US\$24.4 million for the Queensland Mineral Resources.

Bearing in mind that this approach is simplistic (i.e. it is very generalised and does not address project-specific value drivers but takes an “industry-wide” view), CSA Global considers that these results are broadly supportive of those derived using the market approach, given that they are of the same order of magnitude, and there is a significant overlap in the ranges.

#### 7.12.4 Geoscientific Factor Method Check – Exploration Tenure

The Geoscientific Factor Method was used as a Order of Magnitude Check on Queensland exploration tenure valuations completed using comparable transactions.

The Geoscience method requires the consideration of those aspects of a mineral property, which enhance or downgrade the intrinsic value of the property. The first and key aspect of the Geoscientific Factor method described by Kilburn (1990) is the derivation of the BAC that is the basis for the valuation. Goulevitch and Eupene (1994) discuss the derivation of BAC. The BAC represents the average cost to identify, apply for and retain a base unit of area of tenement.

A BAC for a Queensland mineral exploration permit has been estimated using the following data:

- Based on the Government of Queensland’s Department of Natural Resources and Mines, tenement database as of August 2017 and the Queensland mining code, it is determined that the average age of mineral exploration permits in Queensland is 5.5 years, and the average size of these licences is approximately 97.4 km<sup>2</sup>
- An average cost to identify an area of interest of A\$10,000 was chosen, as well as A\$20,000 for the cost of landowner notices, negotiations, legal costs and compensation
- An application fee of A\$945/licence is payable
- The holding cost includes a rental of A\$50.17/km<sup>2</sup> per annum
- Queensland mining law doesn’t stipulate a minimum annual expenditure requirement, though informal discussions with the Department of Natural Resources and Mines indicate they operate on a rule of thumb of A\$500/km<sup>2</sup> each year

Altogether, this gives a BAC for the average Queensland mineral exploration permit of A\$1,755/km<sup>2</sup> (US\$1,335/km<sup>2</sup>), as shown in Table 70.

Table 70: Estimation of the BAC for Queensland mineral exploration permits

| Statistic  | Unit  | Value          |
|--|---|----------------|
| Average licence size   | km <sup>2</sup>                                     | 97.4           |
| Average licence age  | years   | 5.5            |
| Application fee  | A\$ per licence                                     | 945            |
| Annual rent year   | A\$ per km <sup>2</sup>                             | 50.17          |
| Minimal annual expenditure   | A\$ per km <sup>2</sup>                             | 500            |
| Deemed cost of identification of a licence                             | A\$ per licence                                     | 10,000         |
| Costs of landowner notices, negotiations, legal costs and compensation | A\$ per licence                                     | 20,000         |
| Annual costs of local govt rates                                       | A\$ per licence                                     | 2,000          |
| BAC of average licence   | A\$ per km <sup>2</sup><br>US\$ per km <sup>2</sup> | 1,755<br>1,335 |

After considering the factors listed in Table 70, the Technical Value of Paladin’s Queensland exploration areas was calculated.

A Market Factor of 20% was applied to the Technical Value to derive a Fair Market Value which was consistent with the market factor applied for the WA exploration ground.

CSA Global is of the view that this also adequately accounts for global market factors on an empirical basis. The valuation figures were then further discounted by a jurisdiction factor of 25% due to the ban on mining uranium in Queensland (Table 71). This factor has been chosen based on the professional judgement of CSA Global; and is not based on an empirical analysis of transaction values in different jurisdictions.

Table 71: Summary of Geoscientific Factor Method of Queensland exploration tenure

| Area (km <sup>2</sup> )                         | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|---|----------------|-------------|-------------------|--------------|
| 1,864.2   | Various        | 2.81        | 5.05              | 7.30         |
| Queensland 25% Jurisdictional Discount Included |                | 2.11        | 3.79              | 5.47         |

Note: The valuation has been compiled to an appropriate level of precision and minor rounding errors may occur.

CSA Global note that the valuation range derived using the Geoscience Factor Rating is significantly higher than the valuation range derived using the Comparative Transactions, although it is of the same order of magnitude, and the ranges of the two methods partially overlap. The Geoscience Rating Factor method does not consider the metallurgy of potential mineralisation that is the target of the exploration. As processing solutions have not as yet been demonstrated at commercial scale for the currently identified Mount Isa uranium deposits, CSA Global has exercised professional judgement in relying on the valuation range derived using the Comparative Transactions.

### 7.12.5 Summary of the Queensland Valuations

In its opinion, CSA Global considers that the value of Paladin's equity interest in various Queensland projects lies within the range US\$18.9 million to US\$30.3 million with a preferred value of US\$24.6 million (Table 72).

The valuation is primarily based on the values derived from comparative transactions with support from the Yardstick (Figure 37) and Geoscience Rating Factor (Figure 38) Order of Magnitude Check methods for valuing the Mineral Resources and exploration tenure respectively.

Table 72: Summary of the Queensland Project Valuations

| Project          | Mineral Asset      | Paladin equity | Low (US\$M) | Preferred (US\$M) | High (US\$M) |
|------------------|--------------------|----------------|-------------|-------------------|--------------|
| Isa Uranium JV   | Mineral Resource   | 91%            | 14.44       | 18.05             | 21.66        |
|                  | Exploration tenure |                | 0.09        | 0.14              | 0.19         |
| Isa North        | Mineral Resource   | 82%            | 2.94        | 3.67              | 4.41         |
|                  | Exploration tenure |                | 0.49        | 1.22              | 1.66         |
| Valhalla North   | Mineral Resource   | 100%           | 0.75        | 0.94              | 1.13         |
|                  | Exploration tenure |                | 0.01        | 0.06              | 0.07         |
| Isa South        | Exploration tenure | 82%*           | 0.06        | 0.25              | 0.62         |
| May Downs        | Exploration tenure | 82%            | 0.01        | 0.05              | 0.14         |
| Mt Kelly         | Exploration tenure | 82%            | 0.00        | 0.01              | 0.02         |
| Constance Range  | Exploration tenure | 82%            | 0.04        | 0.17              | 0.41         |
| Queensland Total |                    |                | 18.8        | 24.6              | 30.3         |

\*Paladin's ownership of Summit for these projects is 82%, but given the JV with Aeon, Paladin's effective equity in these projects is 16.4% with EPM14233 being 17.8% (Summit owning 20% and 18% respectively); given lack of materiality of these changes CSA Global has not further reduced the value from the 82% number above.

Note: The valuation has been compiled to an appropriate level of precision and minor rounding discrepancies may occur.

CSA Global notes that in valuing the resources for the Isa projects, the cross check method spanned the value range derived from the comparable transactions. This provided comfort that the primary method was delivering valid outcomes, and CSA Global chose to rely mostly on the market approach in determining our valuation.

For the exploration assets, CSA Global notes that the cross check method, the geoscientific factor method (GFM), delivered a wider and higher valuation range than the comparables, although they were of the same order of magnitude, and the ranges did partially overlap. In CSA Global's experience this is generally the case, because the GFM takes a greater consideration of the potential exploration upside for a project.

However, in light of the negative market view of uranium assets, and the ban on uranium exploration and mining in Queensland, CSA Global consider the lower values deriving from the market approach to be a better representation as to the likely value of the project at the reference date.

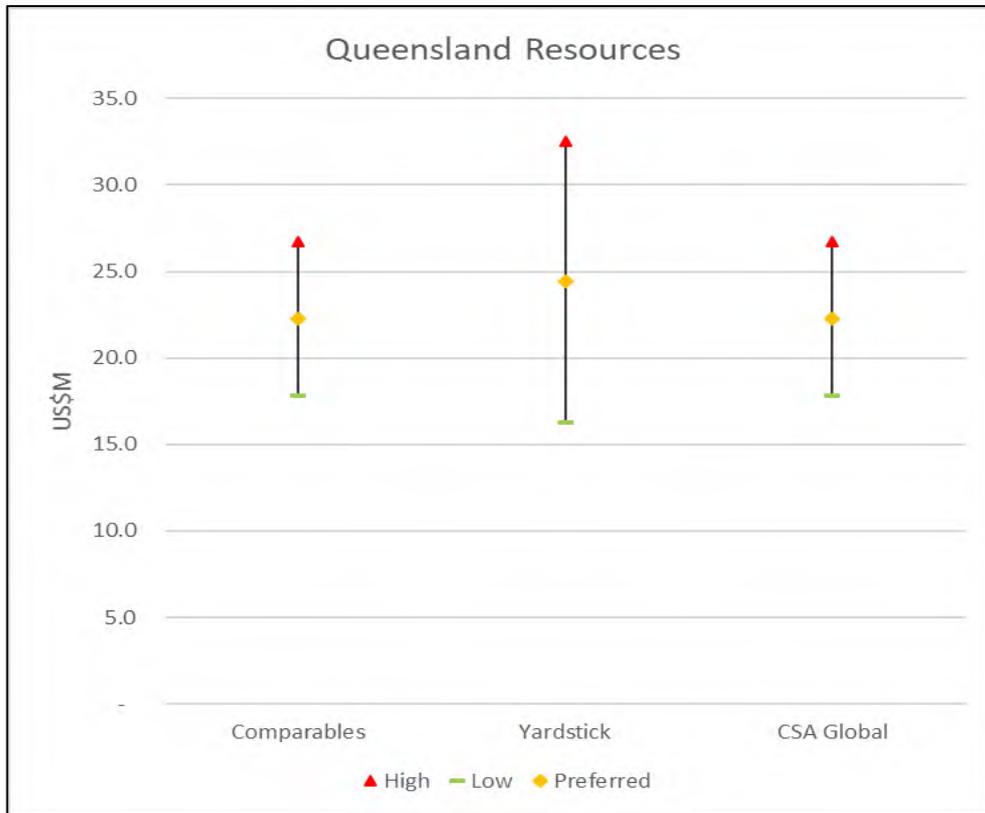


Figure 37: CSA Global opinion on the valuation range of Paladin’s interest in the Isa Mineral Resources

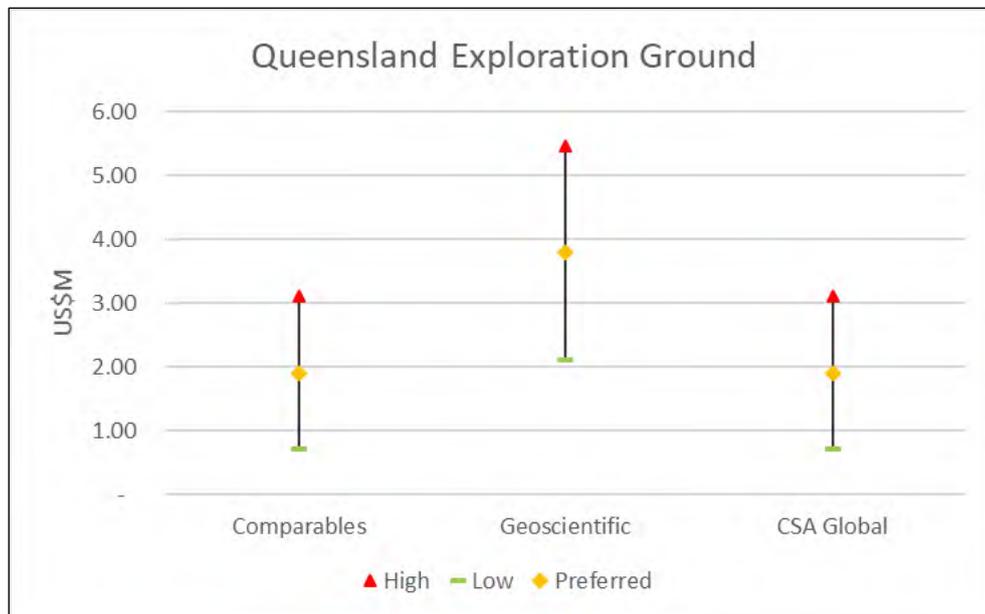


Figure 38: CSA Global opinion on the valuation range of Paladin’s interest in the Isa exploration tenure

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## 8 South Australian Projects

Paladin holds a 7.5% interest in the Reaphook Joint Venture which covers the rights to explore for, and develop all commodities other than uranium on a relatively small exploration licence in the north-eastern part of South Australia. The project hosts base metal mineralisation of a style that is similar to the Beltana zinc deposit to the west of the project and it may have potential for uranium mineralisation.

The Joint Venture is between Perilya Limited (Perilya) = 85%, Paladin Energy Minerals NL (PEM) = 7.5% and Signature Resources Pty Ltd (SIG) = 7.5%. Activity in relation to base metal exploration and development on the Reaphook Joint Venture is being conducted and fully funded by Perilya.

### 8.1 Location

The Reaphook Project is located near Lake Frome in the north-eastern part of South Australia (Figure 39).



Figure 39: Reaphook Project location in South Australia

### 8.2 Mineral Tenure

The granted exploration licence covers an area of 56 km<sup>2</sup> but is due to expire in late September 2017. No information was available on the plans to apply for an extension of term. The details of the tenure are summarised in Table 73.

Table 73: Reaphook Joint Venture

| Granted tenement numbers | Registered holder | Tenement name | Date granted (application lodged) | Expiry date | Area (blocks) | Area (km <sup>2</sup> ) | Area (ha) |
|--------------------------|-------------------|---------------|-----------------------------------|-------------|---------------|-------------------------|-----------|
| EL 5234                  | Perilya, PEM, SIG | Reaphook      | 27-Sep-07                         | 26-Sep-17   | 18            | 56.00                   |           |

### 8.3 Geology, Exploration and Mining History

High grade carbonate, phosphate and silicate lead and zinc mineralisation was reported at Reaphook Hill by Perilya in the early 2000s. Previous rock chip sampling returned values to 27% zinc and past drilling returned intersections to 18 m at 2.1% Zn.

The Wilkawillina Limestone Formation hosts the zinc mineralisation as scholzite ( $\text{CaZn}_2(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$ ) at Reaphook Hill. The geological setting and mineralisation style is similar to other discoveries made by Perilya elsewhere in the Adelaide geosyncline.

### 8.4 Exploration Potential

There appears to be exploration potential for carbonate-hosted base metal mineralisation or a possible higher grade temperature variant similar to the Beltana zinc deposit located to the west of the project. However, the phosphate and silicate style of mineralisation is a limiting economic factor.

The Reaphook Hill Project also has outcrops containing Tertiary on-lap sediments which provide some uranium exploration potential.

If warranted, geological mapping, soil sampling and alteration studies may be required to outline targets for further exploration.

### 8.5 Valuation

#### 8.5.1 Previous Valuations

CSA Global is aware that Ravensgate was engaged by Strategic Minerals Corporation NL who has 100% interest in SIG to prepare an independent market valuation of various projects in Queensland and South Australia, which included the Reaphook project as of 24 June 2014.

Ravensgate concluded that the market value of SIG's 7.5% direct ownership interest in the Reaphook Project was within the range A\$7,000 to A\$20,000 (US\$6,600 to US\$18,850) with a preferred value of A\$13,000 (US\$12,250).

#### 8.5.2 Valuation of South Australian Projects

CSA Global considers a lower value to that concluded by Ravensgate to be appropriate for Paladin's 7.5% interest in the Reaphook Project. This is because the tenement is due for expiry and the mineralisation style is of a type that can be difficult to process. Furthermore, the Manager of the Joint Venture is unlikely to invest effort to evaluate the potential for uranium mineralisation.

**CSA Global has therefore attributed a value range of US\$5,000 to US\$10,000 with a nominal preferred value of US\$5,000 as at the reference date.**

## 9 Royalty Interests

Antipa Minerals Limited (Antipa) entered into an agreement with Paladin, where Paladin would withdraw its existing exploration licence applications in the North Telfer region of Western Australia, which underlaid Antipa's applications.

Antipa issued shares to a value of A\$180,000 to Paladin and granted a 1% Net Smelter Royalty for the sale of minerals (other than uranium) produced from the acquired area.

### 9.1 Valuation

#### 9.1.1 Previous Valuations

CSA Global is not aware, nor have we been made aware, of any previous valuations completed on the North Telfer Royalty.

#### 9.1.2 Valuation

The North Telfer Project is an early stage exploration project without defined Mineral Resource or Ore Reserves. Due to the early stage of exploration it is inappropriate to estimate a value of 'potential future production' or the value of the associated 1% Net Smelter royalty.

**CSA Global therefore ascribes no market value for the royalty over the North Telfer Project in Western Australia at the reference date.**

## 10 Paladin Uranium Database

As noted on the Paladin website<sup>6</sup>, Paladin owns a substantial uranium database, compiled over 30 years of investigations by the international uranium mining house, Uranerzbergbau in Germany, incorporating all aspects of the uranium mining and exploration industry worldwide and including detailed exploration data for Africa and Australia.

Since acquiring this substantial uranium database, which consists of extensive collections of technical, geological, metallurgical, geophysical and geochemical resources, including resource evaluations, drillhole data, downhole logging data, airborne radiometric surveys results, open-file data, and photographic archives, the Company has maintained and expanded this valuable library of data.

The Paladin Uranium Database comprises a large compactus storage system holding a large collection of hardcopy data. The database primarily contains historical information generated up until the 1980s. The database represents a significant accumulation of information that would be difficult to cost-effectively compile again, and in many cases, may represent the only extant copy of the data.

### 10.1 Valuation

#### 10.1.1 Previous Valuations

CSA Global is not aware, nor has it been made aware, of any previous valuations completed on Paladin's Uranium Database.

#### 10.1.2 Valuation

While the database represents a very useful collection of information – representing a very substantial past exploration expenditure by a diverse range of companies – the difficulty of accessing this data because of the hardcopy format, the historical nature of the information, and the current depressed market interest in uranium, reduces the market value of the database.

**CSA Global believes the data may have a market value in the range of US\$10,000 to US\$50,000 and have elected to apply a nominal valuation of US\$30,000 to the uranium database at the reference date.**

<sup>6</sup> <http://www.paladinenergy.com.au/uranium-database> accessed 12/8/17

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## 12 Glossary

|                                      |   |
|--------------------------------------|---|
| Act                                  | the Australian Corporations Act 2001 (Commonwealth).  |
| Annual Report                        | a document published by public corporations on a yearly basis to provide shareholders, the public and the government with financial data, a summary of some terms ownership and the accounting practices used in this to prepare the report.  |
| cut-off grade (uranium)              | The lowest grade, in percent U <sub>3</sub> O <sub>8</sub> , of uranium ore at a minimum specified thickness that can be mined at a specified cost.   |
| exploration drilling                 | Drilling done in search of new mineral deposits, on extensions of known ore deposits, or at the location of a discovery up to the time when the company decides that sufficient ore reserves are present to justify commercial exploration. Assessment drilling is reported as exploration drilling.  |
| Exploration Results                  | has the meaning given in the current version of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Refer to <a href="http://www.jorc.org">http://www.jorc.org</a> for further information or for terms   |
| Feasibility Study                    | a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are not necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study. |
| <i>in situ</i> recovery mining (ISR) | The recovery, by chemical leaching, of the valuable components of a mineral deposit without physical extraction of the mineralized rock from the ground. Also referred to as "solution mining."   |
| Indicated Mineral Resource           | An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.           |
| Inferred Mineral Resource            | An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.   |
| Life-of-Mine Plan                    | a design and costing study of an existing or proposed mining operation where all Modifying Factors have been considered in sufficient detail to demonstrate at the time of reporting that extraction is reasonably justified. Such a study should be inclusive of all development and mining activities proposed through to the effective closure of the existing or proposed mining operation.   |
| long-term price                      | The price for product sold or purchased under contract for multiple deliveries beginning after one year.  |
| Measured Mineral Resource            | A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate  |

|   |   |
|---|---|
|   | techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.  |
| Member  | a person who has been accepted and entitled to the post-nominals associated with the AIG or the AusIMM or both. Alternatively, it may be a person who is a member of a Recognised Professional Organisation included in a list promulgated from time to time.   |
| mine design   | a framework of mining components and processes taking into account mining methods, access to the Mineralisation, personnel, material handling, ventilation, water, power and other technical requirements spanning commissioning, operation and closure so that mine planning can be undertaken.  |
| mine planning   | includes production planning, scheduling and economic studies within the Mine Design taking into account geological structures and mineralisation, associated infrastructure and constraints, and other relevant aspects that span commissioning, operation and closure.  |
| mineral   | any naturally occurring material found in or on the Earth's crust that is either useful to or has a value placed on it by humankind, or both. This excludes hydrocarbons, which are classified as Petroleum.  |
| mineral project                                       | any exploration, development or production activity, including a royalty or similar interest in these activities, in respect of Minerals.   |
| Mineral Resource                                      | A Mineral Resource is a concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.   |
| Mineral Resources                                     | has the meaning given in the current version of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Refer to <a href="http://www.jorc.org">http://www.jorc.org</a> for further information.   |
| mineralisation  | any single mineral or combination of minerals occurring in a mass, or deposit, of economic interest. The term is intended to cover all forms in which mineralisation might occur, whether by class of deposit, mode of occurrence, genesis or composition.  |
| mining  | all activities related to extraction of Minerals by any method (e.g. quarries, open cast, open cut, solution mining, dredging etc).   |
| mining industry                                       | the business of exploring for, extracting, processing and marketing Minerals.   |
| Modifying Factors                                     | is defined in the current version of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Refer to <a href="http://www.jorc.org">http://www.jorc.org</a> for further information.  |
| nuclear fuel  | Fissionable materials that have been enriched to such a composition that, when placed in a nuclear reactor, will support a self-sustaining fission chain reaction, producing heat in a controlled manner for process use.   |
| Ore Reserve   | A Ore Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.  |
| Preliminary Feasibility Study (Pre-Feasibility Study) | a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors that are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resources may be converted to an Ore Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study. |

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|                               |  |
|-------------------------------|--|
| Quarterly Report              | a document published by public corporations on a quarterly basis to provide shareholders, the public and the government with financial data, a summary of ownership and the accounting practices used to prepare the report.   |
| royalty or royalty interest   | the amount of benefit accruing to the royalty owner from the royalty share of production.  |
| Scoping Study                 | an order of magnitude technical and economic study of the potential viability of Mineral Resources. It includes appropriate assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can be reasonably justified.   |
| spot market (uranium)         | Buying and selling of uranium for immediate or very near-term delivery. It typically involves transactions for delivery of up to 500,000 pounds $U_3O_8$ within a year of contract execution.  |
| spot market price uranium (u) | Price for product sold or purchased in the spot market rather than under long-term contract.   |
| uranium (u)                   | The heaviest naturally occurring element (atomic number 92). It is metallic and slightly radioactive. Its two principally occurring isotopes are uranium-235 and uranium-238. Uranium-235 is indispensable to the nuclear industry because it is the only isotope existing in nature, to any appreciable extent, that is fissionable by thermal neutrons. Uranium-238 is also important because it absorbs neutrons to produce a radioactive isotope that subsequently decays to the isotope plutonium-239, which also is fissionable by thermal neutrons. |
| uranium concentrate           | A yellow or brown powder obtained by the milling of uranium ore, processing of in situ leach mining solutions, or as a by-product of phosphoric acid production.   |
| uranium deposit               | A discrete concentration of uranium mineralization that is of possible economic interest.  |
| uranium oxide                 | Uranium concentrate or yellowcake. Abbreviated as $U_3O_8$ .   |
| uranium project               | A specific piece of land with uranium reserves that is held for the ultimate purpose of economically recovering the uranium. The land can be developed for production or undeveloped.  |
| usage agreement               | Contracts held by enrichment customers that allow feed material to be stored at the enrichment plant site in advance of need.  |
| yellowcake                    | A natural uranium concentrate that takes its name from its colour and texture. Yellowcake typically contains 70 to 90 percent $U_3O_8$ (uranium oxide) by weight. It is used as feedstock for uranium fuel enrichment and fuel pellet fabrication.   |

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## Appendix 1: Valuation Approaches

Valuation of Mineral Assets is not an exact science; and a number of approaches are possible, each with varying positives and negatives. While valuation is a subjective exercise, there are a number of generally accepted procedures for establishing the value of Mineral Assets. CSA Global consider that, wherever possible, inputs from a range of methods should be assessed to inform the conclusions about the Market Value of Mineral Assets.

The valuation is always presented as a range, with the preferred value identified. The preferred value need not be the median value and is determined by the Practitioner based on their experience.

### Background

Mineral Assets are defined in the VALMIN Code as all property including (but not limited to) tangible property, intellectual property, mining and exploration Tenure and other rights held or acquired in connection with the exploration, development of and production from those Tenures. This may include the plant, equipment and infrastructure owned or acquired for the development, extraction and processing of Minerals in connection with that Tenure.

Business valuers typically define market value as “The price that would be negotiated in an open and unrestricted market between a knowledgeable, willing, but not anxious buyer, and a knowledgeable, willing but not anxious seller acting at arm’s length.” The accounting criterion for a market valuation is that it is an assessment of “fair value”, which is defined in the accounting standards as “the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm’s length transaction.” The VALMIN Code defines the value of a Mineral Asset as its Market Value, which is “the estimated amount (or the cash equivalent of some other consideration) for which the Mineral Asset should exchange on the date of Valuation between a willing buyer and a willing seller in an arm’s length transaction after appropriate marketing where the parties had each acted knowledgeably, prudently and without compulsion”.

Market Value usually consists of two components, the underlying or Technical Value, and a premium or discount relating to market, strategic or other considerations. The VALMIN Code recommends that a preferred or most-likely value be selected as the most likely figure within a range after taking into account those factors which might impact on Value.

The concept of Market Value hinges upon the notion of an asset changing hands in an arm’s length transaction. Market Value must therefore take into account, inter alia, market considerations, which can only be determined by reference to “comparable transactions”. Generally, truly comparable transactions for Mineral Assets are difficult to identify due to the infrequency of transactions involving producing assets and/or Mineral Resources, the great diversity of mineral exploration properties, the stage to which their evaluation has progressed, perceptions of prospectivity, tenement types, the commodity involved and so on.

For exploration tenements, the notion of value is very often based on considerations unrelated to the amount of cash which might change hands in the event of an outright sale, and in fact, for the majority of tenements being valued, there is unlikely to be any “cash equivalent of some other consideration”. Whilst acknowledging these limitations, CSA Global has identified what it considers to be comparable transactions that have been used in assessing the values to be attributed to the Mineral Assets.

## Valuation Methods for Exploration Projects

The choice of valuation methodology applied to Mineral Assets, including exploration licences, will depend on the amount of data available and the reliability of that data.

The VALMIN Code classifies Mineral Assets into categories that represent a spectrum from areas in which mineralisation may or may not have been found through to Operating Mines which have well-defined Ore Reserves, as listed below:

- **“Early-stage Exploration Projects”** – tenure holdings where mineralisation may or may not have been identified, but where Mineral Resources have not been identified.
- **“Advanced Exploration Projects”** – tenure holdings where considerable exploration has been undertaken and specific targets identified that warrant further detailed evaluation, usually by drill testing, trenching or some other form of detailed geological sampling. A Mineral Resource estimate may or may not have been made but sufficient work will have been undertaken on at least one prospect to provide both a good understanding of the type of mineralisation present and encouragement that further work will elevate one or more of the prospects to the Mineral Resources category.
- **“Pre-Development Projects”** – tenure holdings where Mineral Resources have been identified and their extent estimated (possibly incompletely) but where a decision to proceed with development has not been made.
- **“Development Projects”** – tenure holdings for which a decision has been made to proceed with construction or production or both, but which are not yet commissioned or operating at design levels. Economic viability of Development Projects will be proven by at least a Prefeasibility Study.
- **“Production Projects”** – tenure holdings – particularly mines, wellfields and processing plants - that have been commissioned and are in production.

Each of these different categories will require different valuation methodologies, but regardless of the technique employed, consideration must be given to the perceived “market valuation”.

The Market Value of Exploration Properties and Undeveloped Mineral Resources can be determined by four general approaches: Cost; Market; Geoscience Factor or Income.

### Cost

*Appraised Value or Exploration Expenditure Method* considers the costs and results of historical exploration.

The Appraised Value Method utilises a Multiple of Exploration Expenditure (MEE), which involves the allocation of a premium or discount to past expenditure through the use of the Prospectivity Enhancement Multiplier (PEM). This involves a factor which is directly related to the success (or failure) of the exploration completed to date, during the life of the current tenements.

Guidelines for the selection of a PEM factor have been proposed by several authors in the field of mineral asset valuation (Onley, 1994). Table 74 lists the PEM factors and criteria used in this Report.

Table 74: Prospectivity Enhancement Multiplier (PEM) factors

| PEM range | Criteria   |
|-----------|--|
| 0.2-0.5   | Exploration (past and present) has downgraded the tenement prospectivity, no mineralisation identified               |
| 0.5-1.0   | Exploration potential has been maintained (rather than enhanced) by past and present activity from regional mapping  |
| 1.0-1.3   | Exploration has maintained, or slightly enhanced (but not downgraded) the prospectivity                              |
| 1.3-1.5   | Exploration has considerably increased the prospectivity (geological mapping, geochemical or geophysical activities) |
| 1.5-2.0   | Scout drilling (RAB, air-core, RCP) has identified interesting intersections of mineralisation                       |
| 2.0-2.5   | Detailed drilling has defined targets with potential economic interest   |
| 2.5-3.0   | A Mineral Resource has been estimated at Inferred JORC category, no concept or scoping study has been completed      |
| 3.0-4.0   | Indicated Mineral Resources have been estimated that are likely to form the basis of a Prefeasibility Study          |
| 4.0-5.0   | Indicated and Measured Resources have been estimated and economic parameters are available for assessment            |

### Market

Market Approach Method or Comparable Transactions looks at prior transactions for the property and recent arm's length transactions for comparable properties.

The Comparable Transaction method provides a useful guide where a mineral asset that is comparable in location and commodity has in the recent past been the subject of an "arm's length" transaction, for either cash or shares.

For the market approach resources are not generally subdivided into their constituent JORC Code categories. The total endowment or consolidated *in situ* resources are what drives the derivation of value. Each transaction implicitly captures the specific permutation of resource categories in a project. There are too many project specific factors at play to allow any more than a consideration of price paid versus total resource base. Therefore, considering individual project resource permutations is neither practicable nor useful for this valuation approach. To that end CSA Global's discussion of the market approach is predicated on the consolidated resource base, to allow application of the method.

In an exploration joint venture or farm-in, an equity interest in a tenement or group of tenements is usually earned in exchange for spending on exploration, rather than a simple cash payment to the tenement holder. The joint venture or farm-in terms, of themselves, do not represent the Value of the tenements concerned. To determine a Value, the expenditure commitments should be discounted for time and the probability that the commitment will be met. Whilst some practitioners invoke complex assessments of the likelihood that commitments will be met, these are difficult to justify at the outset of a joint venture, and it seems more reasonable to assume a 50:50 chance that a joint venture agreement will run its term. Therefore, in analysing joint venture terms, a 50% discount may be applied to future committed exploration, which is then "grossed up" according to the interest to be earned to derive an estimate of the Value of the tenements at the time that the agreement was entered into.

Where a progressively increasing interest is to be earned in stages, it is likely that a commitment to the second or subsequent stages of expenditure will be so heavily contingent upon the results achieved during the earlier phases of exploration that assigning a probability to the subsequent stages proceeding will in most cases be meaningless. A commitment to a minimum level of expenditure before an incoming party can

withdraw must reflect that party's perception of minimum value and should not be discounted. Similarly, any up-front cash payments should not be discounted.

The terms of a sale or joint venture agreement should reflect the agreed value of the tenements at the time, irrespective of transactions or historical exploration expenditure prior to that date. Hence the current Value of a tenement or tenements will be the Value implied from the terms of the most recent transaction involving it/them, plus any change in Value as a result of subsequent exploration. Where the tenements comprise applications over previously open ground, little to no exploration work has been completed and they are not subject to any dealings, it is thought reasonable to assume that they have minimal, if any Value, except perhaps, the cost to apply for, and therefore secure a prior right to the ground, unless of course there is competition for the ground and it was keenly sought after. Such tenements are unlikely to have any Value until some exploration has been completed, or a deal has been struck to sell or joint venture them, implying that a market for them exists.

High quality Mineral Assets are likely to trade at a premium over the general market. On the other hand, exploration tenements that have no defined attributes apart from interesting geology or a "good address" may well trade at a discount to the general market. Market Values for exploration tenements may also be impacted by the size of the land holding, with a large, consolidated holding in an area with good exploration potential attracting a premium due to its appeal to large companies.

### *Geoscience Factors*

*Geoscience Factor Method (GFM)* seeks to rank and weight geological aspects, including proximity to mines, deposits and the significance of the camp and the commodity sought.

The Geoscience Factor (or Kilburn) method, as described by Kilburn (1990), provides an approach for the technical valuation of the exploration potential of mineral properties, on which there are no defined resources.

Valuation is based upon a calculation in which the geological prospectivity, commodity markets, and mineral property markets are assessed independently. The Geoscientific Factors method is essentially a technique to define a Value based upon geological prospectivity. The method appraises a variety of mineral property characteristics:

- Location with respect to any off-property mineral occurrence of value, or favourable geological, geochemical or geophysical anomalies
- Location and nature of any mineralisation, geochemical, geological or geophysical anomaly within the property and the tenor of any mineralisation known to exist on the property being valued
- Number and relative position of anomalies on the property being valued
- Geological models appropriate to the property being valued.

The Geoscientific Factor method systematically assesses and grades these four key technical attributes of a tenement to arrive at a series of multiplier factors (Table 76).

The Basic Acquisition Cost (BAC) is an important input to the Geoscientific Factors Method and it is calculated by summing the application fees, annual rent, work required to facilitate granting (e.g. native title, environmental etc.) and statutory expenditure for a period of 12 months. Each factor is then multiplied serially by the BAC to establish the overall technical value of each mineral property. A fifth factor, the market factor, is then multiplied by the technical value to arrive at the fair market value.

The standard references on the method (Kilburn 1990, Goulevitch and Eupene 1994) do not provide much detail on how the market factor should be ascertained. CSA Global takes the approach of using the implied value range from our selected Comparable Transactions to inform the selection of a GFM market factor. Our

presumption is that the comparables are capturing the market sentiment, so any other valuation method should not be significantly different (order of magnitude).

This is achieved by finding the market factor that produces an average GFM preferred value per unit area for whole project (i.e. total preferred GFM value divided by the total area) that falls within the range of the comparables implied values per unit area. It is CSA Global's view that this adequately accounts for global market factors on an empirical basis. For example if the implied value range is \$100/km<sup>2</sup> to \$2000/km<sup>2</sup>, then the market factor should give an average GFM preferred value per unit area that falls within that range.

CSA Global generally would select a market factor (rounded to an appropriate number of significant digits) that gives a value closer to the upper end of the range (though this is the valuer's judgement call). This is because the GFM is a tool that addresses the exploration potential of a project and is best suited to informing the upper end of valuation ranges for a project.

### *Yardstick*

*The Rule-of-Thumb (Yardstick) Method* is relevant to exploration properties where some data on tonnage and grade exist may be valued by methods that employ the concept of an arbitrarily ascribed current *in situ* net value to any Ore Reserves (or Mineral Resources) outlined within the tenement (Lawrence 2001, 2012).

Rules-of-Thumb (Yardstick) Methods are commonly used where a Mineral Resource remains in the Inferred category and available technical/economic information is limited. This approach ascribes a heavily discounted *in situ* value to the Resources, based upon a subjective estimate of the future profit or net value (say per tonne of ore) to derive a rule-of-thumb.

This Yardstick multiplier factor applied to the Resources delineated (depending upon category) varies depending on the commodity. Typically, a range from 0.4% to 3% is used for base metals and PGM, whereas for gold and diamonds a range of 2% to 4.5% is used. The method estimates the *in situ* gross metal content value of the mineralisation delineated (using the spot metal price and appropriate metal equivalents for polymetallic mineralisation as at the valuation date).

The chosen percentage is based upon the valuer's risk assessment of the assigned JORC Code's Mineral Resource category, the commodity's likely extraction and treatment costs, availability/proximity of transport and other infrastructure (particularly a suitable processing facility), physiography and maturity of the mineral field, as well as the depth of the potential mining operation.

This method is not suited as a primary valuation method, and is mostly used as an order of magnitude crosscheck for the primary valuation method, which would normally be a market-driven method.

### *Income*

*The Income Approach* is relevant to exploration properties on which undeveloped Mineral Resources have been identified by drilling. Value can be derived with a reasonable degree of confidence by forecasting the cash flows that would accrue from mining the deposit, discounting to the present day and determining a net present value (NPV).

The Income Approach is not appropriate for properties without Indicated Mineral Resources.

### *Valuation Approaches by Asset Stage*

Regardless of the technical application of various valuation methods and guidelines, the valuer should strive to adequately reflect the carefully considered risks and potentials of the various projects in the valuation ranges and the preferred values, with the overriding objective of determining the "fair market value".

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Table 75 below shows the valuation approaches that are generally considered appropriate to apply to each type of mineral property.

Table 75: Valuation approaches for different types of mineral properties (VALMIN, 2015)

| Valuation approach | Exploration properties | Mineral Resource properties | Development properties | Production properties |
|--------------------|------------------------|-----------------------------|------------------------|-----------------------|
| Income             | No                     | In some cases               | Yes                    | Yes                   |
| Market             | Yes                    | Yes                         | Yes                    | Yes                   |
| Cost               | Yes                    | In some cases               | No                     | No                    |

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Table 76: Geoscientific Factor Ranking

| Rating | Address/Off-property factor   | On-property factor   | Anomaly factor   | Geological factor   |
|--------|---|--|--|---|
| 0.5    | Very little chance of mineralisation; Concept unsuitable to the environment                                   | Very little chance of mineralisation; Concept unsuitable to the environment                    | Extensive previous exploration with poor results   | Generally unfavourable lithology; No alteration of interest   |
| 1      | Exploration model support; Indications of prospectivity; Concept validated                                    | Exploration model support; Indications of Prospectivity; Concept validated                     | Extensive previous exploration with encouraging results; Regional targets                        | Deep cover; Generally favourable lithology/alteration (70%)   |
| 1.5    | Recon (RAB/AC) drilling with some scattered favourable results; Minor workings                                | Exploratory sampling with encouragement  | Several early stage targets outlined from geochemistry and geophysics                            | Shallow cover; Generally favourable lithology/alteration 50-60%                                       |
| 2      | Several old workings; Significant RCP drilling leading to advanced project                                    | Several old workings; Recon drilling or RCP drilling with encouraging intersections            | Several well-defined targets supported by recon drilling data                                    | Exposed favourable; Lithology/alteration  |
| 2.5    | Abundant workings; Grid drilling with encouraging results on adjacent sections                                | Abundant workings; Core drilling after RCP with encouragement                                  | Several well-defined targets with encouraging drilling results                                   | Strongly favourable lithology, alteration   |
| 3      | Mineral Resource areas defined  | Advanced Res Def. drilling (early stages)  | Several significant sub-economic targets; No indication of 'size'                                | Generally favourable lithology with structures along strike of a major mine; Very prospective geology |
| 3.5    | Abundant Workings/mines with significant historical production; Adjacent to known mineralisation at PFS stage | Abundant workings/mines with significant historical production; Mineral Resource areas defined | Several significant sub-economic targets; Potential for significant 'size'; Early stage drilling |   |
| 4      | Along strike or adjacent to Resources at DFS stage  | Adjacent to known mineralisation at PFS stage  | Marginally economic targets of significant 'size' advanced drilling                              |   |
| 4.5    | Adjacent to development stage project   | Along strike or adjacent to Resources at DFS stage   | Marginal economic targets of significant 'size' with well drilled Inferred Resources             |   |
| 5      | Along strike from operating major mine(s)   | Adjacent to development stage project  | Several significant ore grade co-relatable intersections   |   |

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## Appendix 2: Comparable Transactions – Resources

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## Kayelekera Comparables

Table 77: Transactions relevant to Kayelekera

| Transaction                                     | Project  | Country      | Date   | U <sub>3</sub> O <sub>8</sub> price (US\$/lb) | Buyer                       | Seller                                       | Equity | Synopsis   | Asset description   |
|---|--|--------------|--------|---|-----------------------------|--|--------|--|---|
| GoviEx acquisition of Zambian projects          | Chirundu, Kariba Valley, Northern Luangwa Valley | Zambia       | Mar-17 | 23.88   | GoviEx Uranium Inc          | African Energy Resources                     | 100%   | GoviEx will acquire African Energy's wholly owned Zambian subsidiaries, Muchinga Energy Resources Limited, which holds the Kariba Valley tenement, and Chirundu Joint Ventures Zambia Ltd., which holds the Chirundu tenements. In exchange, GoviEx will issue African Energy 3.0 million common shares of GoviEx and 1.6 million common share purchase warrants of GoviEx | The Chirundu mining licence covers two uranium deposits, Gwabe and Njame, containing JORC compliant mineral resources of 7.4Mlb of U <sub>3</sub> O <sub>8</sub> in the Measured and Indicated categories, plus 3.8Mlb U <sub>3</sub> O <sub>8</sub> in the Inferred category. The neighbouring Chirundu prospecting lease, as well as the Kariba Valley prospecting lease, were included and are prospective for Karoo uranium mineralisation. |
| Goviex acquisition of Denison African portfolio | Mutanga, Falea, Dome                             | Zambia       | Mar-16 | 28.70   | GoviEx Uranium Inc          | Denison Mines Corp.                          | 100%   | In March 2016, GoviEx acquired 100% of the African uranium assets of Denison, through the acquisition of Denison's wholly owned subsidiary Rockgate Capital Corp. GoviEx issued 56.1M shares and 22.4M consideration warrants to Denison.  | The projects acquired included the Mutanga project in Zambia (Feasibility - 49.2Mlbs U <sub>3</sub> O <sub>8</sub> ), the Falea project in Mali (Pre-Development - 30.8Mlbs U <sub>3</sub> O <sub>8</sub> ), and the early-stage Dome and Kaoko projects in Namibia.  |
| Bannerman consolidation of Etango               | Etango   | Namibia      | Nov-15 | 36.00   | Bannerman Resources Limited | Undisclosed                                  | 20%    | In November 2015, as part of its restructuring and ownership consolidation, Bannerman acquired the remaining 20% equity in the Etango Project by issuing approximately 123.4M new shares and paying A\$1 million in cash.  | The Etango Project had a completed optimisation Study on a previously-completed DFS study at the time of the transaction, with a resource base of 270Mlbs U <sub>3</sub> O <sub>8</sub> and a reserve base of 130Mlbs U <sub>3</sub> O <sub>8</sub> grading 195ppm, at a life-of-mine price of US\$75/lb U <sub>3</sub> O <sub>8</sub> .  |
| Government acquisition of stake in Husab        | Husab  | Namibia      | Nov-12 | 43.38   | Government of Namibia       | China Guangdong Nuclear Power Holding Co Ltd | 10%    | In November 2012, the Namibian Government, through the Government-owned Epangelo Mining Company, acquired a 10% stake in Swakop Uranium, which holds the Husab Project, for N\$1.882 billion.  | The Husab project was ready to begin construction. It had a resource base of approximately 512Mlbs U <sub>3</sub> O <sub>8</sub> , and a reserve base of 321Mlbs.   |
| Forsys consolidation of Namibplaas              | Namibplaas                                       | Namibia      | Oct-11 | 51.88   | Forsys Metals Corp.         | Etherlin Management Corp                     | 30%    | In October 2011, Forsys acquired the indirect 30% equity in Namibplaas that it did not already control from Etherlin by issuing 13 million new shares and 2 million share purchase warrants.   | The Namibplaas Uranium Project had Inferred Resources of 41.1Mlbs U <sub>3</sub> O <sub>8</sub> at an 80ppm cut-off grade.  |
| Peninsula acquisition of Ryst Kuil              | Ryst Kuil  | South Africa | Dec-12 | 43.38   | Peninsula Energy Ltd        | Areva N.C.                                   | 74%    | In December 2012, Peninsula announced the acquisition of Areva's South African uranium assets for US\$50M, consisting of an initial share consideration of US\$5M and a deferred cash or share consideration of US\$45M upon completion of a BFS on the projects and the securing of financing for 50% of the funding required to develop the projects.                    | The deal covered a 74% interest in 36 prospecting permits covering 5,600km <sup>2</sup> of the main uranium-molybdenum bearing sandstone channels in the Karoo Basin. It included the Ryst Kuil deposit, containing an Inferred Resource of 20 Mlb U <sub>3</sub> O <sub>8</sub> at a grade of 1000ppm.   |

Table 78: Analysis of transactions relevant to Kayelekera

| Transaction                                     | Country      | Date   | U <sub>3</sub> O <sub>8</sub> Price (US\$/lb) | Geology  | Stage           | Tons (Mt) | Grade (ppm) | Contained (Mlb) | Classification                          | Implied US\$/lb | Normalised US\$/lb <sup>#</sup> | Comment   |
|---|--------------|--------|---|----------|-----------------|-----------|-------------|-----------------|---|-----------------|---------------------------------|---|
| GoviEx acquisition of Zambian projects          | Zambia       | Mar-17 | 23.88   | Karoo    | Pre-Development | 18.7      | 272         | 11.2            | Measured, Indicated, Inferred           | 0.06            | 0.06                            | Includes exploration ground. Resource shells at US\$70/lb   |
| Goviex acquisition of Denison African portfolio | Zambia       | Mar-16 | 28.70   | Karoo    | Pre-Development |           |             | 80.0            | Measured, Indicated, Inferred           | 0.04            | 0.03                            | All-share transaction. Consideration warrants excluded.   |
| Bannerman consolidation of Etango               | Namibia      | Nov-15 | 36.00   | Alaskite | Feasibility     | 658.9     | 190         | 270.7           | Reserves, Measured, Indicated, Inferred | 0.08            | 0.04                            |   |
| Government acquisition of stake in Husab        | Namibia      | Nov-12 | 43.38   | Alaskite | Commissioning   | 583.0     | 400         | 511.7           | Reserves, Measured, Indicated, Inferred | 4.25            | 2.04                            | Exclude – project was being commissioned at time of transaction   |
| Forsys consolidation of Namibplaas              | Namibia      | Oct-11 | 51.88   | Alaskite | Pre-Development |           |             | 41.1            | Inferred                                | 0.62            | 0.25                            |   |
| Peninsula acquisition of Ryst Kuil              | South Africa | Dec-12 | 43.38   | Karoo    | Pre-Development | 9.1       | 1,000       | 20.0            | Inferred                                | 0.34            | 0.16                            | Could consider payment of US\$50M - \$1.62/lb. Second tranche of US\$45M highly contingent, with low confidence of the multiple hurdles being achieved. |

<sup>#</sup>Normalised to a U<sub>3</sub>O<sub>8</sub> price of US\$20.79/lb

### Comparables for WA, Qld and Labrador Assets

Australian and North American transactions are from similar market (similar risks, similar laws) so have not been separated geographically.

The principal determinants of comparability, at a high level, are the mining method applicable to the deposit, or grade or deposit type.

The WA projects are putative ISL projects and comparable transactions involve sandstone hosted deposits potentially amenable to ISL – these projects are shown in Tables 79 and 80 (by the orange highlight)

The other Paladin projects are all conventional mining projects, so the same commodity is more important than the precise deposit type

For the Qld and Labrador projects, the comparable transactions are the 12 transactions in the table with resource grades < 1% (highlighted in green)

Table 79: Australian, Canadian and US Uranium Resource transactions

| Transaction  | Project                           | Country   | Date   | U <sub>3</sub> O <sub>8</sub> price (US\$/lb) | Buyer                          | Seller                     | Equity | Synopsis  | Asset description  |
|--|-----------------------------------|-----------|--------|---|--------------------------------|----------------------------|--------|---|--|
| Paladin sale of non-core Australian exploration assets | Oobagooma, Angela/Pamela, Bigrlyi | Australia | Dec-16 | 20.25   | Uranium Africa Limited         | Paladin Energy Limited     | 100%   | In December 2016, Paladin announced the sale of a number of non-core Australian exploration assets to Uranium Africa for A\$2.5M.   | The assets included the Oobagooma and Angela/Pamela projects, Paladin's interest in the Bigrlyi project, and a number of historical applications for tenements in the Northern Territory.  |
| MGT proposed acquisition of Manyingee                  | Manyingee                         | Australia | Jul-16 | 25.45   | MGT Resources Ltd              | Paladin Energy Limited     | 30%    | MGT agreed to acquire an initial 30% interest in Manyingee for US\$10M cash, and to form a joint venture over the project with Paladin. MGT would then have the option to acquire an additional 45% of the Manyingee JV from Paladin for US\$20M cash, exercisable for 12 months following Manyingee JV's preparation of a plan to conduct a field leach trial for uranium extraction by in-situ recovery method  | The property comprises three mining leases covering 1,307 hectares. The deposit contains 15.6Mlbs Indicated Mineral Resources and 4.7Mlbs Inferred Mineral Resources at a 450ppm U <sub>3</sub> O <sub>8</sub> cutoff.   |
| Cape Lambert acquisition of Cauldron interest          | Yanrey                            | Australia | Jul-16 | 25.45   | Cape Lambert Resources Limited | Undisclosed seller         | 3%     | In July 2016, Cape Lambert paid A\$142,475 in cash to acquire an additional 2.2% interest in Cauldron from an undisclosed seller, in an off-market acquisition, with the shares subject to a six-month escrow period. This took Cape Lambert's interest in Cauldron to 18.21%.  | Cauldron held a portfolio of early stage uranium exploration projects, as well as the Yanrey-Bennet Well uranium deposit in Australia, which had a Indicated and Inferred Resource of 30.9 Mlb of U <sub>3</sub> O <sub>8</sub> .  |
| Energy Fuels acquisition of Roca Honda                 | Roca Honda                        | USA       | Mar-16 | 28.70   | Energy Fuels Inc               | Sumitomo Corporation       | 40%    | In March 2016 Energy Fuels acquired 40% interest in the Roca Honda project from Sumitomo, Energy Fuels will pay to Sumitomo (i) US\$1.0 million in cash; (ii) US\$1.5 million in common shares of the Company; and (iii) US\$4.5 million of cash upon the first commercial production of uranium from the Roca Honda Project  |  |
| Boss acquisition of Honeymoon                          | Honeymoon                         | Australia | Sep-15 | 36.38   | Boss Resources Limited         | Uranium One Inc            | 100%   | In September 2015, Boss entered into an agreement to acquire 100% of the issued share capital of Uranium One Australia which owns the Honeymoon Uranium Project. The consideration included a \$200,000 site access fee, an initial cash payment of \$2.442M, \$3M under a promissory note repayable within 24 months of completion, and \$4M under a promissory note issued and repayable within 48 months of completion. Contingent payment also included \$2M payable in cash and/or shares upon the later of restart of the operations with commercial production or 5 years of completion, and 10% of the net operating cash flow of the Honeymoon Project payable annually up to a maximum of \$3M. | The Honeymoon Uranium Project consists of 1 granted Mining Lease, 5 granted Exploration Licences, 8 Retention Leases and 2 Miscellaneous Purpose Licences. The Honeymoon mining infrastructure is located on ML6109 and hosts a high grade ISL Mineral Resource (1.44Mt at 0.21% U <sub>3</sub> O <sub>8</sub> ), having produced some 335t of U <sub>3</sub> O <sub>8</sub> from 2011 to 2012. Total resources for the project, hosted in the Honeymoon, Brooks Dam and East Kalkaroo deposits, is 5.29 Mt at 0.14% U <sub>3</sub> O <sub>8</sub> for 16.57 Mlb U <sub>3</sub> O <sub>8</sub> . |
| Quasar acquisition of Four Mile                        | Four Mile                         | Australia | Jul-15 | 35.50   | Quasar Resources Pty Ltd       | Alliance Resources Limited | 25%    | In July 2015, Alliance announced that it had accepted Quasar's revised purchase offer of A\$73.975M for the remaining 25% stake in the Four Mile Uranium Project.   | Four Mile was an operating in-situ leach uranium mine in the ramp-up phase of production.  |
| Paladin acquisition of Carley Bore                     | Carley Bore                       | Australia | Jun-15 | 36.38   | Paladin Energy Limited         | Energia Minerals Limited   | 100%   | In June 2015, Paladin paid A\$1.6 million in cash and issued 40 million shares to acquire a 100% interest in the Carley Bore project from Energia.  | The Carley Bore deposit contains an Indicated Resource of 5.0 Mlb U <sub>3</sub> O <sub>8</sub> grading 420ppm and an Inferred Resource of 10.6 Mlb U <sub>3</sub> O <sub>8</sub> grading 280ppm.  |
| Sinosteel acquisition of Crocker Well                  | Crocker Well                      | Australia | Jul-14 | 28.50   | Sinosteel Corporation          | PepinNini Minerals Limited | 40%    | In July 2014, Sinosteel agreed to acquire the remaining 40% ownership interest in Crocker Well from PepinNini for A\$2.3million.  | The Crocker Well deposit contained Indicated Resources of 8.2 Mlb U <sub>3</sub> O <sub>8</sub> and Inferred Resources of 3.5 Mlb U <sub>3</sub> O <sub>8</sub> .  |

| Transaction  | Project                 | Country   | Date   | U <sub>3</sub> O <sub>8</sub> price (US\$/lb) | Buyer                          | Seller                      | Equity | Synopsis   | Asset description   |
|--|-------------------------|-----------|--------|---|--------------------------------|-----------------------------|--------|--|---|
| FMG acquisition of Turee Creek                       | Turee Creek             | Australia | Jun-14 | 28.23   | Fortescue Metals Group Limited | Aldershot Resources Limited | 100%   | In June 2014, FMG exercised its option to acquire Aldershot's wholly-owned Turee Creek licence, and purchased the licence for A\$300,000. In June 2012, FMG paid Aldershot A\$250,000 for the exclusive right to evaluate the licence for a period of 2 years.   | Turee Creek had Inferred Resources of 0.55 Mlb U <sub>3</sub> O <sub>8</sub> .  |
| Skyharbour acquisition of Falcon Point               | Falcon Point, Yurchison | Canada    | May-14 | 28.25   | Skyharbour Resources Ltd       | Denison Mines Corp.         | 100%   | In May 2014, Skyharbour announced an agreement to acquire a 100% interest in the Way Lake and Yurchison Lake uranium projects from Denison. Consideration was \$20,000 cash and 2 million new shares. Denison would retain a 2% NSR in the projects, of which 1% may be purchased by Skyharbour for \$1 million.   | Both projects are located on the eastern flank of the Athabasca Basin. Way Lake covers 90,892 Ha and includes an Inferred Resource of 6.96 Mlb U <sub>3</sub> O <sub>8</sub> and 5.34 Mlb ThO <sub>2</sub> . Yurchison lake covers 12,660 Ha of prospective ground.   |
| Thundelarra divestment of Hayes Creek                | Hayes Creek             | Australia | Nov-13 | 36.08   | Unnamed company                | Thundelarra Exploration Ltd | 70%    | In November 2013, Thundelarra announced the sale of its 70% interest in Hayes Creek to an unnamed, unlisted Australian company. As consideration, Thundelarra would receive a mixture of cash (A\$650,000) and shares for an aggregate value of A\$1.5 million.  | The Hayes Creek project includes the high grade Thudersball deposit.  |
| Toro acquisition of Lake Maitland                    | Lake Maitland           | Australia | Aug-13 | 34.50   | Toro Energy Limited            | Mega Uranium Ltd            | 100%   | In August 2013, Toro acquired the Lake Maitland project from Mega Uranium by issuing 415 million shares. The acquisition included A\$1.5M in cash reserves as part of the Lake Maitland project.   | The Lake Maitland project consists of 8 exploration licences, 2 exploration licence applications, 3 prospecting licences, a granted mining lease and 5 miscellaneous licences, plus uranium rights in respect of a further 6 tenements. The project has a Resource of 22.3 Mlb U <sub>3</sub> O <sub>8</sub> at a 200ppm cut-off. |
| Deep Sea Capital acquisition of Central Mineral Belt | Central Mineral Belt    | Canada    | Jun-13 | 39.60   | Deep Sea Capital Ltd           | Bayswater Uranium Corp      | 100%   | In June 2013, Bayswater announced the sale of the Central Mineral Belt project to Deep Sea Capital for \$125,000.  | The Central Mineral Belt project had an Inferred Resource of 4.9Mlbs U <sub>3</sub> O <sub>8</sub> , with associated Mo and Rh.   |
| Cameco acquisition of Yeelirrie                      | Yeelirrie               | Australia | Aug-12 | 48.25   | Cameco Corporation             | BHP Billiton Group          | 100%   | In August 2012, BHP announced the sale of its wholly owned Yeelirrie uranium deposit to Cameco for US\$430 million.  | The undeveloped Yeelirrie uranium deposit contained   |
| Cameco acquisition of Millennium                     | Millennium              | Canada    | Mar-12 | 51.05   | Cameco Corporation             | Areva S.A.                  | 28%    | In March 2012, Cameco announced an agreement to purchase Areva's 27.94% interest in the Millennium project for \$150 million. This would make Cameco the majority owner of the project, with 69.9% equity ownership.   | The Millennium project is a proposed uranium mine located in the Athabasca Basin. The mineral claim consists of 590 Ha. The project contains Indicated Resources of 50.9 Mlb U <sub>3</sub> O <sub>8</sub> and Inferred Resources of 16.7 Mlb U <sub>3</sub> O <sub>8</sub> .   |
| Jourdan spinoff of Johann-Beetz                      | Johann-Beetz            | Canada    | Oct-11 | 51.88   | Gimus Resources Inc            | Jourdan Resources Inc       | 100%   | In October 2011, Jourdan transferred ownership of the Johann-Beetz project to its subsidiary in exchange for 3 million shares, at a deemed price of \$0.10 per share.  | The claims cover 1,538 Ha in Quebec. There is a historical (2009) Inferred Resource of 9.6 Mlb U <sub>3</sub> O <sub>8</sub> .  |
| Rio acquisition of Hathor                            | Roughrider              | Canada    | Oct-11 | 51.88   | Rio Tinto plc                  | Hathor Exploration Limited  | 100%   | In October 2011, Rio Tinto acquired all outstanding shares of Hathor Exploration by paying C\$4.70 in cash per share. Cameco initially made an unsolicited bid of C\$3.75 per share, and Rio initially offered C\$4.15 per share, before raising the offer to C\$4.70 per share.   | The Roughrider project comprises 3 mineral leases totalling 597 hectares, and contained a total resource of 57.9Mlbs U <sub>3</sub> O <sub>8</sub> , at an average grade of 4.7% U <sub>3</sub> O <sub>8</sub> . Hathor had released a Preliminary Economic Assessment just prior to the takeover bids.                           |
| Uranex divestment of Australian uranium assets       | Thatcher Soak           | Australia | Aug-11 | 49.13   | Shanghai Zhongfu Group         | Uranex Ltd                  | 100%   | In August 2011, Uranex signed a Heads of Agreement for the sale of 100% of its Australian uranium projects to a Chinese investor for A\$20 million. The amount would be paid within 90 days of August 22, 2011, and included a non-refundable deposit of A\$500,000 which was received by the company. In November 2011, Uranex received notice from Shanghai Zhongfu Group that it would not be proceeding with the previously mentioned sales transaction. | The projects included Bremer Basin, Thatcher Soak, and Alligator Rivers. Thatcher Soak had a 14Mlbs U <sub>3</sub> O <sub>8</sub> resource, whereas Alligator Rivers and Bremer basin were early stage exploration projects. Total tenement holding was 2,400km <sup>2</sup> .  |
| Valencia acquisition of Agnew Lake                   | Agnew Lake              | Canada    | Jul-10 | 45.63   | Valencia Ventures Inc          | Nyah Resources              | 100%   | In July 2010, Valencia announced the acquisition of the Agnew Lake project from Nyah for C\$1 million in cash and/or shares over a 12 month period, consisting of C\$500,000 upon closing, C\$250,000 in cash or shares 6 months after closing, and C\$250,000 in cash or shares 12 months after closing.  | The property encompasses the past producing Agnew Lake Uranium Mine, including substantial underground infrastructure in place. A historical (non-compliant) resource of 7.2Mlbs of U <sub>3</sub> O <sub>8</sub> was known at the time of the transaction.   |

Note: Transactions involving in-situ leach projects are highlighted.

Table 80: Analysis of Australian, Canadian and US Uranium Resource transactions

| Transaction  | Country   | Date announced | U <sub>3</sub> O <sub>8</sub> price | Geology      | Stage           | Mine type     | Tons (Mt) | Grade (ppm) | Contained (Mlb) | Classification                | % above Inferred | Implied US\$/lb | #Normalised US\$/lb | Comment   |
|--|-----------|----------------|-------------------------------------|--------------|-----------------|---------------|-----------|-------------|-----------------|-------------------------------|------------------|-----------------|---------------------|---|
| Paladin sale of non-core Australian exploration assets | Australia | Dec-16         | 20.25                               | Sandstone    | Pre-Development | Open pit      |           |             | 61.3            | Inferred                      | 0%               | 0.03            | 0.03                | Included exploration ground   |
| MGT proposed acquisition of Manyingee                  | Australia | Jul-16         | 25.45                               | Sandstone    | Pre-Development | In-situ leach | 13.8      | 850         | 25.8            | Indicated, Inferred           | 60%              | 1.29            | 1.06                | Deal terminated before it could be finalised, as it could not be financed.  |
| Cape Lambert acquisition of Cauldron interest          | Australia | Jul-16         | 25.45                               | Sandstone    | Pre-Development | In-situ leach | 38.9      | 360         | 30.9            | Indicated, Inferred           | 59%              | 0.11            | 0.09                | Adjacent to Manyingee - Assumes all value attributable to Resource, with negligible value to exploration projects |
| Energy Fuels acquisition of Roca Honda                 | USA       | Mar-16         | 28.70                               | Sandstone    | Feasibility     | Underground   | 2.46      | 4760        | 25.77           | Measured, Indicated, Inferred | 56%              | 0.24            | 0.18                |   |
| Boss acquisition of Honeymoon                          | Australia | Sep-15         | 36.38                               | Sandstone    | Production      | In-situ leach | 5.29      | 1400        | 16.57           | Indicated, Inferred           | 51%              | 0.50            | 0.29                |   |
| Quasar acquisition of Four Mile                        | Australia | Jul-15         | 35.50                               | Sandstone    | Production      | In-situ leach | 17.2      | 3180        | 120.4           | Measured, Indicated, Inferred | 27%              | 1.82            | 1.07                |   |
| Paladin acquisition of Carley Bore                     | Australia | Jun-15         | 36.38                               | Sandstone    | Pre-Development | In-situ leach | 22.8      | 310         | 15.6            | Indicated, Inferred           | 32%              | 0.64            | 0.36                |   |
| Sinosteel acquisition of Crocker Well                  | Australia | Jul-14         | 28.50                               | Alaskite     | Pre-Development | Open pit      | 18.8      | 280         | 11.6            | Indicated, Inferred           | 71%              | 0.46            | 0.34                |   |
| FMG acquisition of Turee Creek                         | Australia | Jun-14         | 28.23                               | Unconformity | Pre-Development | Open pit      | 0.5       | 500         | 0.55            | Inferred                      | 0%               | 0.51            | 0.38                |   |
| Skyharbour acquisition of Falcon Point                 | Canada    | May-14         | 28.25                               | Unconformity | Pre-Development | Open pit      | 10.4      | 300         | 6.8             | Inferred                      | 0%               | 0.10            | 0.07                |   |
| Thundelarra divestment of Hayes Creek                  | Australia | Nov-13         | 36.08                               | Unconformity | Pre-Development | Open pit      | 1.1       | 800         | 1.86            | Inferred                      | 0%               | 1.07            | 0.62                |   |
| Toro acquisition of Lake Maitland                      | Australia | Aug-13         | 34.50                               | Calcrete     | Pre-Development | Open pit      | 20.8      | 486         | 22.3            | Indicated, Inferred           | 93%              | 1.50            | 0.91                | Included A\$1.5M cash reserves  |
| Deep Sea Capital acquisition of Central Mineral Belt   | Canada    | Jun-13         | 39.60                               | IOCG         | Pre-Development | Open pit      | 5.06      | 440         | 4.9             | Inferred                      | 0%               | 0.02            | 0.01                | Considered a non-core asset when disposed   |
| Cameco acquisition of Yeelirrie                        | Australia | Aug-12         | 48.25                               | Calcrete     | Pre-Development | Open pit      | 36.6      | 1600        | 127.3           | Measured, Indicated           | 100%             | 3.38            | 1.46                |   |
| Cameco acquisition of Millenium                        | Canada    | Mar-12         | 51.05                               | Unconformity | Feasibility     | Underground   | 0.8       | 38070       | 67.6            | Indicated, Inferred           | 75%              | 7.97            | 3.24                |   |
| Jourdan spinoff of Johann-Beetz                        | Canada    | Oct-11         | 51.88                               | Alaskite     | Pre-Development | Open pit      | 17.5      | 250         | 9.6             | Inferred                      | 0%               | 0.03            | 0.01                | Claims subsequently allowed to lapse, due to moratorium on uranium mine development in Quebec.                    |
| Rio acquisition of Hathor                              | Canada    | Oct-11         | 51.88                               | Unconformity | Pre-Development | Underground   | 0.56      | 47280       | 57.9            | Indicated, Inferred           | 30%              | 10.68           | 4.28                |   |
| Uranex divestment of Australian uranium assets         | Australia | Aug-11         | 49.13                               | Calcrete     | Pre-Development | Open pit      | 28        | 220         | 13.6            | Inferred                      | 0%               | 1.51            | 0.64                | Transaction terminated by prospective buyer prior to completion. Included large exploration area.                 |
| Valencia acquisition of Agnew Lake                     | Canada    | Jul-10         | 45.63                               | Unconformity | Exploration     | Underground   | 8.1       | 400         | 7.2             | Historical                    | 0%               | 0.13            | 0.06                | Non-compliant historical resources associated with past-producing underground mine.                               |

\*Normalised to a U<sub>3</sub>O<sub>8</sub> price of US\$20.79/lb

Transactions involving in-situ leach projects highlighted in orange

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## Appendix 3: Comparable Transactions – Area

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Table 81: Comparative transactions relevant to Malawian exploration ground

| Transaction                                   | Project   | Country      | Date   | U <sub>3</sub> O <sub>8</sub> price | Buyer                  | Seller                   | Equity | Synopsis  | Asset Description   | Area (km <sup>2</sup> ) | Implied U\$/km <sup>2</sup> | Normalised U\$/km <sup>2</sup> | Comment  |
|---|---|--------------|--------|-------------------------------------|------------------------|--------------------------|--------|---|---|-------------------------|-----------------------------|--------------------------------|--|
| Peninsula acquisition of Ryst Kuil            | Ryst Kuil   | South Africa | Dec-12 | 43.38                               | Peninsula Energy Ltd   | Areva N.C.               | 74%    | In December 2012, Peninsula announced the acquisition of Areva's South African uranium assets for US\$50M, consisting of an initial share consideration of US\$5M and a deferred cash or share consideration of US\$45M upon completion of a BFS on the projects and the securing of financing for 50% of the funding required to develop the projects.   | The deal covered a 74% interest in 36 prospecting permits covering 5,600km <sup>2</sup> of the main uranium-molybdenum bearing sandstone channels in the Karoo Basin. It included the Ryst Kuil deposit, containing an Inferred Resource of 20 Mlb U <sub>3</sub> O <sub>8</sub> at a grade of 1000ppm.   | 5,600                   | 1,207                       | 578                            | Could consider payment of US\$50M - \$5,782/km <sup>2</sup> . Second tranche of US\$45M highly contingent, with low confidence of the multiple hurdles being achieved. Similar development stage |
| Metal Tiger acquisition of Pinewood portfolio | Pinewood portfolio  | Tanzania     | Nov-14 | 39.50                               | Metal Tiger plc        | Kibo Mining plc          | 50%    | In November 2014, Metal Tiger agreed to acquire a 50% interest in Kibo's Pinewood portfolio £1. Metal Tiger agreed to meet the expenses in relation to the licence renewal fees and other maintenance costs of the Pinewood Portfolio for a minimum of 1 year (estimated to be approximately US\$100,000) and up to a maximum of 3 years. Metal Tiger is to expend the first US\$800,000 under the JV in expenses and exploration.  | Kibo's Pinewood Portfolio consists of 43 licences, offers, applications and tenders with a combined surface area of 9,033km <sup>2</sup> . It covers uranium-prospective areas in the southern western corner of Tanzania.  | 9,033                   | 199                         | 105                            |  |
| GoviEx acquisition of Zambian projects        | Chirundu, Kariba Valley, Northern Luangwa Valley          | Zambia       | Mar-17 | 23.88                               | GoviEx Uranium Inc     | African Energy Resources | 100%   | Under the terms of the Transaction, GoviEx will acquire African Energy's wholly owned Zambian subsidiaries, Muchinga Energy Resources Limited, which holds the Kariba Valley tenement, and Chirundu Joint Ventures Zambia Ltd., which holds the Chirundu tenements. In exchange, GoviEx will issue African Energy 3.0 million common shares of GoviEx (the "Consideration Shares") and 1.6 million common share purchase warrants of GoviEx (the "Consideration Warrants"). | The Chirundu mining licence covers two uranium deposits, Gwabe and Njame, containing JORC compliant mineral resources of 7.4Mlb of U <sub>3</sub> O <sub>8</sub> in the Measured and Indicated categories, plus 3.8Mlb U <sub>3</sub> O <sub>8</sub> in the Inferred category. The neighbouring Chirundu prospecting lease, as well as the Kariba Valley prospecting lease, were also included. These properties are also prospective for Karoo uranium mineralisation. | 729                     | 974                         | 848                            | Similar development stage  |
| Karoo acquisition of Zambian portfolio        | North Luangwa Valley, Kariba Valley, Chirundu, Sinazongwe | Zambia       | Oct-13 | 34.50                               | Karoo Exploration Corp | African Energy Resources | 100%   | In October 2013, African Energy announced a binding letter of intent to sell its portfolio of Zambian uranium licences to Karoo for US\$2 million in cash and shares to the value of US\$500,000. The agreement was conditional, and African Energy announced in May 2014 that the transaction would not proceed.   | African Energy's Zambian uranium portfolio consisted of the North Luangwa Valley, Kariba Valley, Chirundu, and Sinazongwe projects. It covered a total area of 1637km <sup>2</sup> .  | 1,637                   | 1,527                       | 920                            | Transaction was terminated prior to completion.  |
| Karoo acquisition of Kalulu                   | Kalulu property   | Tanzania     | Aug-12 | 48.25                               | Karoo Exploration Corp | Tanzania Minerals Corp.  | 100%   | In August 2012, Karoo agreed to acquire the Kalulu property from Tanzania Minerals by issuing a total of 2 million shares and incurring expenditure of C\$750,000 over three years.   | The Kalulu Property consists of five contiguous prospecting licences covering a total area of 956.4km <sup>2</sup> , between the Ruvuma and Lindi Regions of Southern Tanzania.   | 956                     | 937                         | 404                            |  |

| Transaction              | Project | Country    | Date   | U <sub>3</sub> O <sub>8</sub> price | Buyer                | Seller                    | Equity | Synopsis   | Asset Description  | Area (km <sup>2</sup> ) | Implied U\$/km <sup>2</sup> | Normalised U\$/km <sup>2</sup> | Comment                            |
|--------------------------|---------|------------|--------|-------------------------------------|----------------------|---------------------------|--------|--|--|-------------------------|-----------------------------|--------------------------------|------------------------------------|
| Jacana earn-in to Mavuzi | Mavuzi  | Mozambique | Feb-11 | 69.63                               | Jacana Resources Ltd | North River Resources plc | 51%    | In February 2011, North River announced an agreement whereby Jacana could earn an initial 51% interest in the Mavuzi licences by spending at least US\$400,000 to complete at least 2,000m of drilling within 12 months. Jacana could then subsequently increase its interest to 70% by spending a further US\$1.5 million, and completion of a BFS would earn Jacana an 80% interest. | The Mavuzi licences cover 54,580 hectares in the Tete province of Mozambique, and include the Castro and Inhatobui targets and the previously producing Mavuzi and Castro mines. | 546                     | 1,437                       | 429                            | Similar size and development stage |

Table 82: Area-based Comparative Transactions for Paladin's Canadian ground holding

| Transaction  | Project                              | Date   | U <sub>3</sub> O <sub>8</sub> price | Buyer                         | Seller                     | Equity | Synopsis   | Asset description   | Area (km <sup>2</sup> ) | Implied \$/km <sup>2</sup> | Normalised \$/km <sup>2</sup> |
|--|--------------------------------------|--------|-------------------------------------|-------------------------------|----------------------------|--------|--|---|-------------------------|----------------------------|-------------------------------|
| Skyharbour acquisition of Falcon Point               | Falcon Point, Yurchison              | May-14 | 28.25                               | Skyharbour Resources Ltd      | Denison Mines Corp.        | 100%   | In May 2014, Skyharbour announced an agreement to acquire a 100% interest in the Way Lake and Yurchison Lake uranium projects from Denison. Consideration was \$20,000 cash and 2 million new shares. Denison would retain a 2% NSR in the projects, of which 1% may be purchased by Skyharbour for \$1 million. | Both projects are located on the eastern flank of the Athabasca Basin. Way Lake covers 90,892 Ha and includes an Inferred Resource of 6.96 Mlb U <sub>3</sub> O <sub>8</sub> and 5.34 Mlb ThO <sub>2</sub> . Yurchison lake covers 12,660 Ha of prospective ground. | 1,036                   | 658                        | 484                           |
| Deep Sea Capital acquisition of Central Mineral Belt | Central Mineral Belt                 | Jun-13 | 39.6                                | Deep Sea Capital Ltd          | Bayswater Uranium Corp     | 100%   | In June 2013, Bayswater announced the sale of the Central Mineral Belt project to Deep Sea Capital for \$125,000.  | The Central Mineral Belt project had an Inferred Resource of 4.9Mlbs U <sub>3</sub> O <sub>8</sub> , with associated Mo and Rh. It covered two contiguous blocks of claims, totalling approximately 128km <sup>2</sup> in area.                                     | 128                     | 944                        | 496                           |
| Nu Nova acquisition of Collins Bay Extension         | Collins bay Extension                | Jun-15 | 36.38                               | Nu Nova Energy Ltd            | Bayswater Uranium Corp     | 100%   | In June 2015, Nu Nova acquired the Collins Bay Extension project from Bayswater for C\$400,000 in cash.  | The project covers 37,330 hectares in the eastern portion of the Athabasca Basin.   | 373                     | 856                        | 489                           |
| Kivalliq acquisition of Hatchet Lake                 | Hatchet Lake                         | Feb-15 | 38.63                               | Kivalliq Energy Corporation   | Rio Tinto                  | 100%   | In February 2015, Kivalliq announced that it had agreed to purchase the Hatchet Lake uranium property from Rio Tinto for C\$220,000 in cash and a 2% NSR royalty.  | The project covers 13,711 hectares adjacent to the north-eastern margin of the Athabasca Basin.   | 137                     | 1,278                      | 688                           |
| Brades acquisition of 3 properties                   | Perron Lake, Manitou Falls, Cree Bay | Nov-14 | 39.5                                | Brades Resource Corp.         | Undisclosed                | 100%   | In November 2014, Brades announced the acquisition of 3 new properties. Consideration was C\$50,000 as a signing payment, issuance of 5 million common shares, and C\$50,000 on closing.   | The deal covered nine claims on three properties, with a total area of 23.486 hectares, in the northeastern Athabasca Basin region.   | 235                     | 2,167                      | 1,141                         |
| Athabasca acquisition of Wollaston NE                | Wollaston NE                         | Aug-14 | 31.5                                | Athabasca Nuclear Corporation | DG Resource Management Ltd | 100%   | In August 2014, Athabasca announced the acquisition of the Wollaston NE project for C\$50,000 in cash and 1.25 million shares at a deemed price of C\$0.06 per share.  | The project encompasses approximately 81,000 hectares in an underexplored region on the eastern side of the Athabasca Basin.  | 810                     | 142                        | 94                            |
| Cameco acquisition of 27 claims                      | 27 mineral claims                    | Feb-16 | 32.15                               | Cameco Corporation            | ALX Uranium Corp.          | 100%   | In February 2016, ALX sold 27 claims peripheral to its Hook-Carter property to Cameco for C\$170,000 in cash.  | The claims cover a total of 7,064 hectares within the Hook-Carter property, Athabasca Basin.  | 70.64                   | 1,777                      | 1,149                         |

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## Appendix 4: Geoscience Rating Factors

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Table 83: Western Australia exploration tenure Geoscience Factor Rating valuation

| Tenement                                      | Paladin equity | Area km <sup>2</sup> | Off Property |      | On Property |      | Anomaly |      | Geology |      | Valuation US\$M |             |             |
|---|----------------|----------------------|--------------|------|-------------|------|---------|------|---------|------|-----------------|-------------|-------------|
|   |                |                      | Low          | High | Low         | High | Low     | High | Low     | High | Low             | Preferred   | High        |
| E08/1644                                      | 100%           | 378                  | 1            | 1.5  | 1           | 1.5  | 1       | 1.5  | 1       | 1.5  | 0.10            | 0.29        | 0.49        |
| E08/1645                                      | 100%           | 377                  | 1            | 1.5  | 3           | 3.5  | 1       | 1.5  | 1       | 1.5  | 0.29            | 0.71        | 1.14        |
| E08/1646                                      | 100%           | 248                  | 1            | 1.5  | 3           | 3.5  | 1       | 1.5  | 1       | 1.5  | 0.19            | 0.47        | 0.75        |
| <b>Total</b>                                  |                | <b>1,003</b>         |              |      |             |      |         |      |         |      | <b>0.57</b>     | <b>1.47</b> | <b>2.37</b> |
| Western Australia 25% Jurisdictional Discount |                |                      |              |      |             |      |         |      |         |      | 0.43            | 1.10        | 1.78        |

Table 84: Queensland exploration tenure Geoscience Factor Rating valuation

| Project         | Tenement                               | Paladin equity | Area km <sup>2</sup> | Off Property |      | On Property |      | Anomaly |      | Geology |      | Valuation US\$M |             |             |
|-----------------|--|----------------|----------------------|--------------|------|-------------|------|---------|------|---------|------|-----------------|-------------|-------------|
|                 |  |                |                      | Low          | High | Low         | High | Low     | High | Low     | High | Low             | Preferred   | High        |
| Isa Uranium JV  | EPM 17514*                             | 91%            | 17.24                | 3            | 3.5  | 2           | 2.5  | 1       | 1.5  | 1.5     | 2    | 0.04            | 0.07        | 0.11        |
|                 | EPM 17519*                             | 91%            | 10                   | 3            | 3.5  | 2           | 2.5  | 1       | 1.5  | 1.5     | 2    | 0.02            | 0.04        | 0.06        |
| Isa North       | EPM 17511                              | 82%            | 48                   | 2.5          | 3    | 1.5         | 2    | 1       | 1.5  | 1.5     | 2    | 0.06            | 0.12        | 0.19        |
|                 | EPM 17513                              | 82%            | 161                  | 2            | 2.5  | 1.5         | 2    | 1       | 1.5  | 1.5     | 2    | 0.16            | 0.34        | 0.53        |
|                 | EPM 17514                              | 82%            | 354                  | 2.5          | 3    | 2           | 2.5  | 2       | 2.5  | 2.5     | 3    | 1.94            | 3.15        | 4.36        |
|                 | EPM 17519                              | 82%            | 254                  | 2.5          | 3    | 1.5         | 2    | 1.5     | 2    | 1.5     | 2    | 0.47            | 0.90        | 1.34        |
| Valhalla North  | EPM 12572                              | 100%           | 48                   | 2.5          | 3    | 1.5         | 2    | 1       | 1.5  | 1.5     | 2    | 0.07            | 0.15        | 0.23        |
| Isa South       | EPM 14040                              | 82%            | 23                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.01        | 0.01        |
|                 | EPM 14233                              | 74%            | 55                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.01        | 0.02        |
|                 | EPM 14821                              | 82%            | 81                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.02        | 0.04        |
|                 | EPM 15156                              | 82%            | 122                  | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.01            | 0.03        | 0.06        |
|                 | EPM 13412                              | 82%            | 64                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.02        | 0.03        |
|                 | EPM 13413                              | 82%            | 29                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.01        | 0.01        |
|                 | EPM 13682                              | 82%            | 138                  | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.01            | 0.04        | 0.07        |
| May Downs       | EPM 11897                              | 82%            | 52                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.01        | 0.03        |
|                 | EPM 11898                              | 82%            | 58                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.02        | 0.03        |
| Mt Kelly        | EPM 14694                              | 82%            | 13                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.00        | 0.01        |
| Constance Range | EPM 14712                              | 82%            | 74                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.02        | 0.04        |
|                 | EPM 14713                              | 82%            | 61                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.02        | 0.03        |
|                 | EPM 14935                              | 82%            | 64                   | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.00            | 0.02        | 0.03        |
|                 | EPM 15186                              | 82%            | 138                  | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 1       | 1.5  | 0.01            | 0.04        | 0.07        |
| <b>Total</b>    |  |                | <b>1,864.2</b>       |              |      |             |      |         |      |         |      | <b>2.81</b>     | <b>5.05</b> | <b>7.30</b> |
|                 | Queensland 25% Jurisdictional Discount |                |                      |              |      |             |      |         |      |         |      | 2.11            | 3.79        | 5.47        |

\*Part of EPM 17514 and EPM 17519 are subject to the 50/50 joint venture between Summit Resources and Paladin and the remaining part is 100% Summit Resources.

Table 85: Aurora exploration tenure Geoscience Factor Rating valuation

| Tenement     | Equity | Area (km <sup>2</sup> ) | Off Property |      | On Property |      | Anomaly |      | Geology |      | Valuation    |                   |              |
|--------------|--------|-------------------------|--------------|------|-------------|------|---------|------|---------|------|--------------|-------------------|--------------|
|              |        |                         | Low          | High | Low         | High | Low     | High | Low     | High | Low (US\$M)  | Preferred (US\$M) | High (US\$M) |
| 009415M      | 100%   | 10                      | 0.5          | 1    | 0.5         | 1    | 1       | 1    | 0.5     | 1    | 0.000        | 0.001             | 0.003        |
| 017206M      | 100%   | 43.75                   | 1.5          | 3    | 1           | 2    | 1.5     | 2    | 1.5     | 2    | 0.038        | 0.154             | 0.270        |
| 017214M      | 100%   | 10.5                    | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1       | 1.5  | 0.001        | 0.005             | 0.009        |
| 017221M      | 100%   | 25                      | 1            | 1.5  | 1           | 1.5  | 1       | 1.5  | 1       | 1.5  | 0.006        | 0.019             | 0.033        |
| 017286M      | 100%   | 47.5                    | 1            | 1.5  | 1           | 1.5  | 1.5     | 2    | 1       | 1.5  | 0.018        | 0.050             | 0.082        |
| 017288M      | 100%   | 36.25                   | 1            | 1.5  | 1           | 1.5  | 1.5     | 2    | 1       | 1.5  | 0.014        | 0.038             | 0.063        |
| 017289M      | 100%   | 30                      | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1       | 1.5  | 0.004        | 0.015             | 0.026        |
| 017290M      | 100%   | 9                       | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1       | 1.5  | 0.001        | 0.004             | 0.008        |
| 017292M      | 100%   | 34.25                   | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1       | 1.5  | 0.004        | 0.017             | 0.030        |
| 017299M      | 100%   | 32                      | 2            | 3    | 1.5         | 2    | 1       | 1.5  | 1       | 1.5  | 0.025        | 0.068             | 0.111        |
| 017300M      | 100%   | 15                      | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1       | 1.5  | 0.002        | 0.007             | 0.013        |
| 017301M      | 100%   | 13.5                    | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1       | 1.5  | 0.002        | 0.007             | 0.012        |
| 022145M      | 100%   | 42                      | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 0.5     | 1    | 0.001        | 0.009             | 0.016        |
| 022146M      | 100%   | 33.5                    | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 0.5     | 1    | 0.001        | 0.007             | 0.013        |
| 022147M      | 100%   | 24                      | 1            | 1.5  | 0.5         | 1    | 0.5     | 1    | 0.5     | 1    | 0.001        | 0.005             | 0.009        |
| 022148M      | 100%   | 53.75                   | 2.5          | 3    | 1.5         | 2    | 1       | 1.5  | 1.5     | 2    | 0.078        | 0.163             | 0.249        |
| 024459M      | 100%   | 10.75                   | 1            | 1.5  | 1           | 1.5  | 1       | 1.5  | 1       | 1.5  | 0.003        | 0.008             | 0.014        |
| 024461M      | 100%   | 16.25                   | 1            | 1.5  | 1           | 1.5  | 1       | 1.5  | 1.5     | 2    | 0.006        | 0.017             | 0.028        |
| 024462M      | 100%   | 14.5                    | 1            | 1.5  | 1           | 1.5  | 1       | 1.5  | 1       | 1.5  | 0.004        | 0.011             | 0.019        |
| 024463M      | 100%   | 22                      | 1            | 1.5  | 1           | 1.5  | 1       | 1.5  | 1.5     | 2    | 0.008        | 0.023             | 0.038        |
| 024688M      | 100%   | 12.75                   | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1       | 1.5  | 0.002        | 0.006             | 0.011        |
| 024697M      | 100%   | 34.25                   | 2            | 2.5  | 1           | 1.5  | 1       | 1.5  | 1.5     | 2    | 0.026        | 0.063             | 0.099        |
| 024932M      | 100%   | 31.5                    | 1            | 1.5  | 1           | 1.5  | 1       | 1.5  | 1       | 1.5  | 0.008        | 0.025             | 0.041        |
| 024940M      | 100%   | 63.5                    | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1       | 1.5  | 0.008        | 0.032             | 0.055        |
| 024946M      | 100%   | 31.75                   | 1            | 1.5  | 1           | 1.5  | 0.5     | 1    | 1.5     | 2    | 0.006        | 0.021             | 0.037        |
| 024986M      | 100%   | 41.25                   | 1            | 1.5  | 1           | 1.5  | 1.5     | 2    | 1       | 1.5  | 0.016        | 0.044             | 0.072        |
| 024988M      | 100%   | 5.75                    | 1            | 1.5  | 1.5         | 2    | 1.5     | 2    | 1.5     | 2    | 0.005        | 0.011             | 0.018        |
| 024993M      | 100%   | 11                      | 1            | 1.5  | 1           | 1.5  | 1       | 1.5  | 1       | 1.5  | 0.003        | 0.009             | 0.014        |
| <b>Total</b> |        | <b>755.25</b>           |              |      |             |      |         |      |         |      | <b>0.292</b> | <b>0.842</b>      | <b>1.392</b> |

Note: Tenements containing current Mineral Resources have been excluded, as they have not been valued using this method.

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