



## ASX Announcement

12 April 2018



### Battery Minerals Provide Upside for the Mulga Rock Project

#### Highlights

- **Potential upside to uranium value at Mulga Rock Project through base metal by-product credits from copper-zinc and nickel-cobalt mixed sulphide products**
- **High demand for battery minerals has driven base metal prices higher**
- **A previously proposed Mulga Rock base metals plant is economically attractive at current prices**
- **The base metals plant is expected to provide circa US\$4/lb U<sub>3</sub>O<sub>8</sub> by-product credit**
- **An updated assessment of the base metals plant to be completed in 2018**

Vimy Resources Limited (ASX:VMY) is pleased to announce a potential upside to uranium value at the Mulga Rock Project through base metal by-product credits.

The Definitive Feasibility Study (DFS) for the Mulga Rock Project in Western Australia (ASX 30 January 2018) confirmed the Project's robust financials and simple, low cost mining process. The project positions Vimy as Australia's next reliable and respected uranium producer.

The DFS investigated a stand-alone base metals plant, which formed part of the Mulga Rock Project Pre-Feasibility Study (PFS) released to the ASX on 17 November 2015. The base metals plant is designed to recover copper, zinc, nickel and cobalt as mixed sulphide by-products from the tailings of the uranium plant.

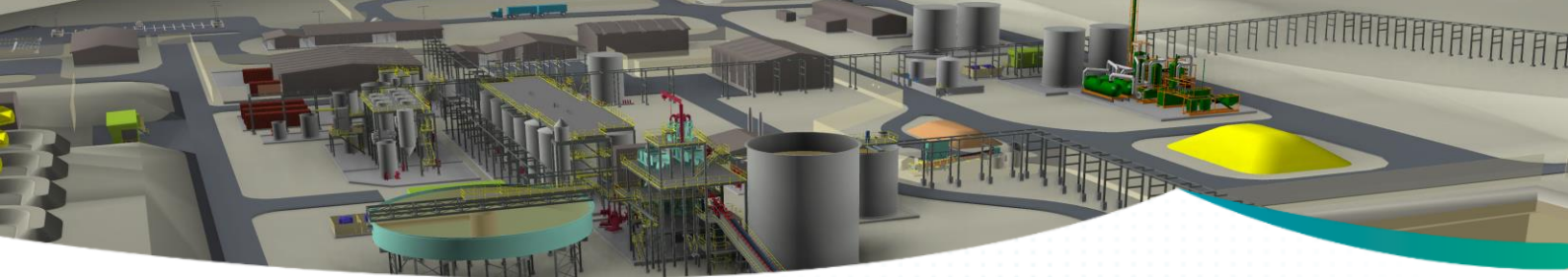
The DFS ultimately focused solely on uranium. However, growing demand for base metals prompted Vimy to review the viability of the base metals plant, with initial indications pointing to greatly improved economics.

At current base metal spot prices, obtained from the London Metal Exchange (LME) but otherwise using the same inputs and assumptions as used in the PFS, Vimy derives a base metals by-product credit of circa US\$4/lb U<sub>3</sub>O<sub>8</sub>.<sup>1</sup> The key metrics and price assumptions used for the PFS are summarised in Table 1.

Managing Director and CEO Mike Young said, "*Mulga Rock is first and foremost a uranium project that happens to have base metal by-products. However, it makes sense to re-examine the base metals plant given the strength in prices and growing demand for base and battery metals. It now appears that the base metals circuit has gone from break-even to a position of enhancing the already strong uranium economics of the Mulga Rock Project.*"

*"It appeals to my sense of irony that we could be producing the metals that make batteries as well as the fuel to charge them!"*

<sup>1</sup> This estimate of potential base metals by-product credit is based on the information presented in the ASX announcement entitled "Pre-Feasibility Study Reaffirms Mulga Rock Project as one of Australia's Leading Undeveloped Uranium Projects" released on 17 November 2015 ("PFS Announcement") (available to view on [asx.com.au](http://asx.com.au) ASX:VMY). Other than in respect of (i) base metal prices, and (ii) the potential for an increase in base metal grades and contained tonnes (arising from in-fill drilling discussed in the ASX announcement entitled "Significant Resource Upgrade – Mulga Rock cracks 90Mlbs" released on 12 July 2017, the Company confirms that the material assumptions underpinning the base metal estimates in the PFS Announcement continue to apply and have not materially changed.



**Table 1: Mulga Rock Project base metals plant – key physical and financial metrics from the PFS**

	Key metric	Unit	PFS	
	Copper recovery	%	35	
	Zinc recovery	%	48	
	Nickel recovery	%	43	
	Cobalt recovery	%	38	
	Copper metal recovered	LOM tonnes	3,000	
	Zinc metal recovered	LOM tonnes	13,500	
	Nickel metal recovered	LOM tonnes	6,200	
	Cobalt metal recovered	LOM tonnes	2,550	
	Base metals plant direct	A\$ million	37.6	
	Base metals plant indirect	A\$ million	7.6	
	Growth allowance and contingency	A\$ million	6.8	
	Total base metals plant capital	A\$ million	52.0	
	<b>Base metal prices</b>	<b>Real US\$/t</b>	<b>Nov 2015 <sup>1</sup></b>	<b>Mar 2018 <sup>2</sup></b>
	Copper	US\$/t	5,095	6,556
	Zinc	US\$/t	1,821	3,266
	Nickel	US\$/t	9,940	12,903
	Cobalt	US\$/t	28,000	94,050

1. London Metal Exchange spot price quoted on 1 September 2015
2. London Metal Exchange spot price quoted on 27 March 2018

The base metal information in Table 1 above is extracted from ASX announcement entitled “Pre-Feasibility Study Reaffirms Mulga Rock Project as one of Australia’s Leading Undeveloped Uranium Projects” released on 17 November 2015 and is available to view on [asx.com.au](http://asx.com.au) ASX:VMY. Other than in respect of base metal prices the Company confirms that it is not aware of any new base metal information or data that materially affects the base metal information included in the original market announcement and, in the case of estimates of base metal Mineral Resources, that all material assumptions and technical parameters underpinning the base metal estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person’s findings are presented have not been materially modified from the original market announcement, other than in respect of base metal pricing.

All the prerequisite technical work for the base metals plant was undertaken as part of the DFS. When the base metals plant was evaluated during the DFS in September 2017, there was not sufficient economic justification to incorporate the plant. However, base metal prices, in particular cobalt, have continued to strengthen over the past six months warranting a re-assessment of the base metals plant. Figure 1 shows the percent distribution of the by-product revenue using the different base metal price decks.

The PFS used the spot copper, zinc, nickel and cobalt prices quoted by the LME at final market closing price quoted on 1 September 2015, on a flat, real Life-of-Mine basis. This release has used base metal prices obtained from the LME on 27 March 2018 and run through the PFS model as a sensitivity. All other inputs used in the PFS have remained unchanged. Based on current LME prices, the base metals by-product credit is equivalent to approximately US\$4/lb of recovered U<sub>3</sub>O<sub>8</sub> over the Life-of-Mine schedule presented in the PFS.

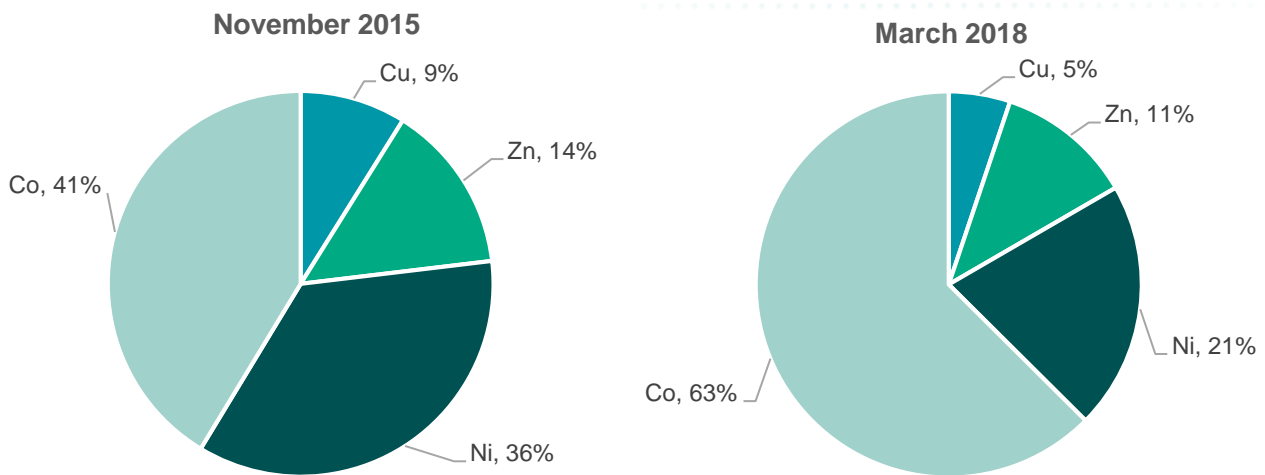
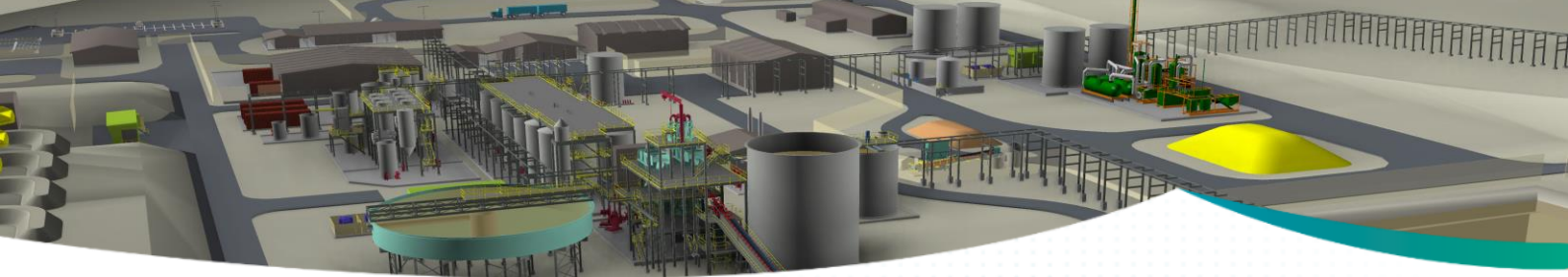


Figure 1: Percent distribution of by-product revenue from Mulga Rock Project base metals plant

### Base Metal Resource

The Mulga Rock East deposits of Ambassador and Princess contain appreciable quantities of copper, zinc, nickel and cobalt coincident with the uranium mineral resource. Table 2 provides the current base metal mineral resource estimate released to the ASX on 23 June 2016. The base metal mineral resource occurs entirely within the uranium mineral resource, as base metals outside of the uranium resource are unlikely to be mined.

Table 2: Mulga Rock Project Base Metal Resource (June 2016)

Deposit / Resource	Tonnes (Mt) <sup>2</sup>	Cu (ppm) <sup>1</sup>	Zn (ppm) <sup>1</sup>	Ni (ppm) <sup>1</sup>	Co (ppm) <sup>1</sup>
<b>Mulga Rock East – tonnes and grade</b>					
Princess - Indicated	1.3	750	1280	440	210
Princess - Inferred	2.5	270	500	250	140
Ambassador - Indicated	19.8	340	1340	630	310
Ambassador - Inferred	10.4	110	320	250	140
<b>Total</b>	<b>34.1</b>	<b>280</b>	<b>960</b>	<b>480</b>	<b>240</b>

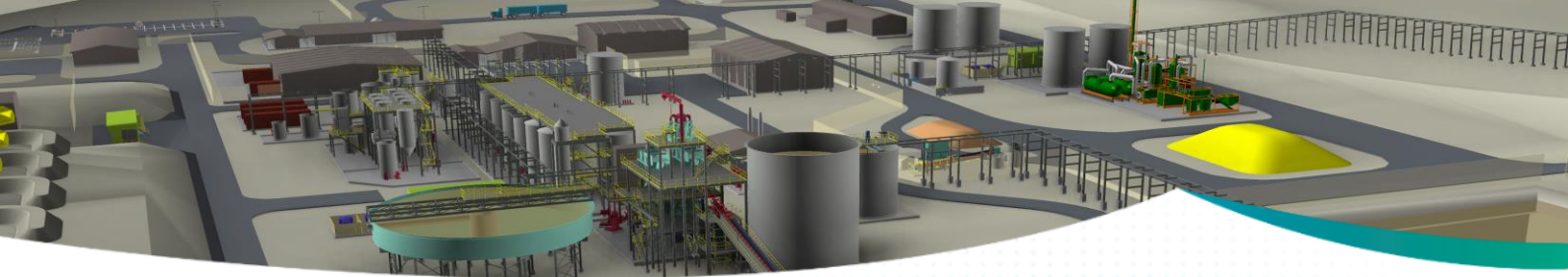
  

Deposit / Resource	Classification	Cu (kt) <sup>3</sup>	Zn (kt) <sup>3</sup>	Ni (kt) <sup>3</sup>	Co (kt) <sup>3</sup>
<b>Mulga Rock East – contained metal</b>					
Princess	Indicated	0.9	1.6	0.6	0.3
Princess	Inferred	0.7	1.3	0.6	0.4
Ambassador	Indicated	6.8	26.5	12.5	6.1
Ambassador	Inferred	1.2	3.3	2.6	1.5
<b>Total</b>		<b>9.6</b>	<b>32.7</b>	<b>16.3</b>	<b>8.2</b>

1. The base metal resource is contained wholly within the uranium resource. It is reported using the same cut-off grade of 150ppm U<sub>3</sub>O<sub>8</sub> with no additional base metal grade cut-offs applied.
2. t = metric dry tonnes; appropriate rounding has been applied and rounding errors may occur.
3. Metallurgical plant recovery factors are not applied to Total Metal content.

The information in Table 2 above is extracted from ASX announcement entitled “Significant Resource Upgrade for Mulga Rock Project” released on 23 June 2016 and is available to view on [asx.com.au](http://asx.com.au) ASX:VMY. Other than as outlined in the In-fill Drilling Announcement (discussed below) the Company confirms that it is not aware of any new base metal information or data that materially affects the base metal information included in the original market announcement and, in the case of estimates of base metal Mineral Resources, that all material assumptions and technical parameters underpinning the base metal estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person’s findings are presented have not been materially modified from the original market announcement.





The updated mineral resource provided in Table 2 is marginally higher in contained grade and metal tonnes than those reported in the PFS.

On 12 July 2017, Vimy announced a significant uranium resource upgrade for the Mulga Rock Project due mainly to an increase in uranium grade. This upgrade was attributed to an increase in drill hole density, a larger number of diamond drill holes informing the resource model and higher in-situ bulk ore densities. Therefore, the Company expects an increase in the base metal grades and contained tonnes for the same reasons. A new base metal resource will be completed as part of an updated study on the base metals plant.

Some base metal mineralisation exists outside of the uranium resource but is not included in the base metal resource at this time.

### Base metals plant (from the Pre-Feasibility Study)

The base metals will be recovered from the tailings of the uranium circuit and sold as two separate, precipitated sulphide concentrates (Cu-Zn and Ni-Co) at assumed sale terms of 75% LME pricing. The concentrates are metal sulphide precipitates and not flotation concentrates, therefore the sulphide by-products will have a high metal content.

Tailings from the uranium circuit, which are barren of recoverable uranium, will be further processed to recover the base metals present in solution. The slurry is initially neutralised to pH ~4.0 using limestone, resulting in a gypsum precipitate forming containing iron, aluminium and other impurities in the presence of the barren solids.

The base-metal containing solution is recovered using a counter current decantation (CCD) circuit and the solids discharged to tails. The recovered base metal solution is then contacted with sodium sulphide to produce separate copper-zinc and nickel-cobalt mixed sulphide, high-grade precipitates. These products are thickened, filtered, washed and packaged into 2 tonne bulk bags for final sale. A schematic of the base metals plant is shown in Figure 2.

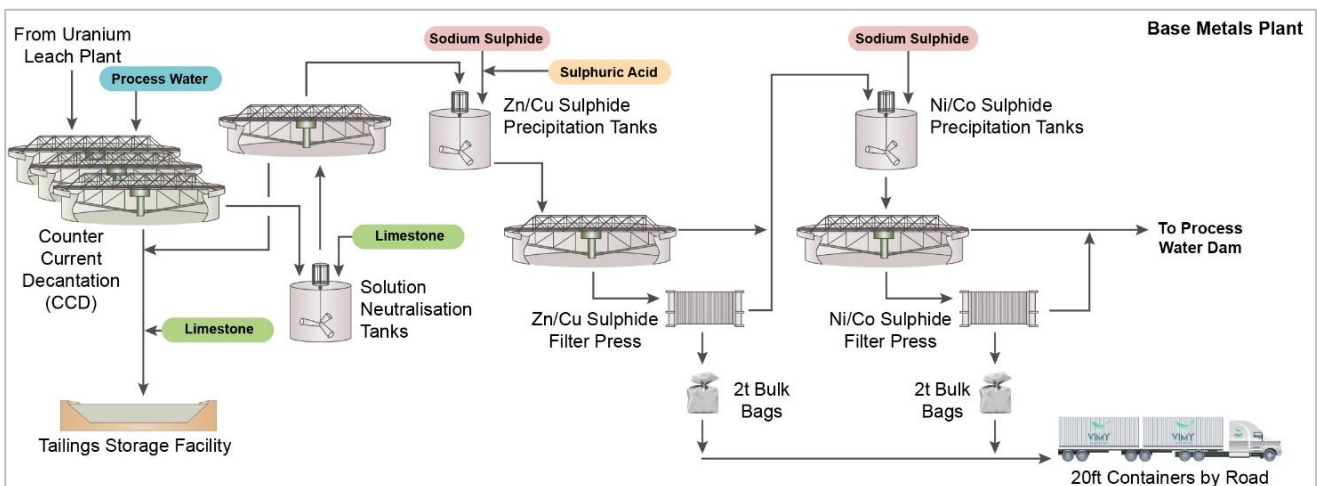
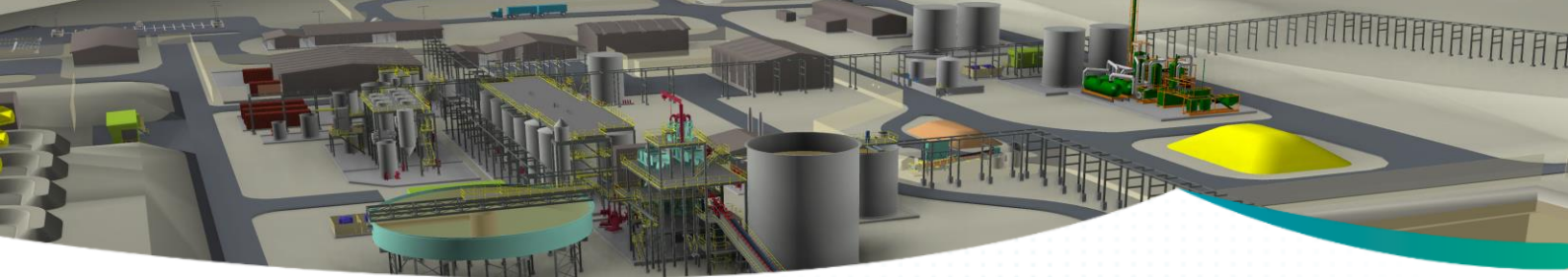


Figure 2: Base metal process flowsheet schematic



## Next steps

Vimy intends to complete an updated study on the base metals plant in 2018, which will include the following:

- The base metal mineral resource will incorporate the latest drilling data completed as part of the work program from the DFS;
- The base metals by-product production schedule will be revised using the updated resource model, DFS pit designs, and the DFS mining schedule;
- A review of the metallurgical flowsheet incorporating refinements to the process flowsheet identified during pilot plant testwork completed during the DFS;
- Metallurgical recoveries and reagent consumptions will be updated based on DFS pilot plant testwork;
- Capital and operating costs will be updated based on preliminary estimates completed as part of the DFS; and
- The economic model will be updated to incorporate long-term base metal price forecasts and mixed sulphide concentrate terms.

There must be a compelling business case to incorporate the base metals plant into the overall Mulga Rock Project to justify the additional project execution risk.

**Mike Young**  
**Managing Director and CEO**

Tel: +61 8 9389 2700

12 April 2018

## FORWARD-LOOKING STATEMENTS

*This announcement may contain some references to forecasts, estimates, assumptions and other forward-looking statements. Although the Company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions, it can give no assurance that they will be achieved. They may be affected by a variety of variables and changes in underlying assumptions that are subject to risk factors associated with the nature of the business, which could cause actual results to differ materially from those expressed herein.*



## About Vimy Resources

Vimy Resources Limited (ASX: VMY) is a Perth-based resource development company. Vimy's flagship project is the Mulga Rock Project, one of Australia's largest undeveloped uranium resources which is located 290km ENE of Kalgoorlie in the Great Victoria Desert of Western Australia.

Vimy also owns (75%) and operates the largest granted uranium exploration package in the world-class Alligator River uranium district, located in the Northern Territory. Vimy is exploring for large high-grade uranium unconformity deposits identical to those found in the Athabasca Basin in Canada.

### Directors and Management

The Hon. Cheryl Edwardes AM  
Chairman

Mike Young  
CEO and Managing Director

Julian Tapp  
Executive Director

David Cornell  
Non-Executive Director

Mal James  
Non-Executive Director

Andy Haslam  
Non-Executive Director

Dr Vanessa Guthrie  
Non-Executive Director

Ron Chamberlain  
Chief Financial Officer and Company Secretary

Tony Chamberlain  
Chief Operating Officer

Scott Hyman  
Vice President Sales and Marketing

Xavier Moreau  
General Manager, Geology and Exploration



### THE MULGA ROCK PROJECT

RESOURCE OF



U<sub>3</sub>O<sub>8</sub>



The creation of approximately  
**350 direct site jobs**  
IN WESTERN AUSTRALIA

Royalty and payroll tax  
payments of around

**A\$17m**

PER YEAR TO THE  
STATE GOVERNMENT

The amount of uranium produced  
when used in nuclear power plants to  
displace coal fired electricity would  
offset more than



**70 million tonnes**  
of carbon dioxide equivalent  
emissions which is  
**around 13%**  
of Australia's total greenhouse  
gas emissions.

For a comprehensive view of information that has been lodged on the ASX online lodgement system and the Company website please visit [asx.com.au](http://asx.com.au) and [vimyresources.com.au](http://vimyresources.com.au) respectively.

#### Principal Place of Business

Ground Floor  
10 Richardson Street  
West Perth WA 6005

Postal Address:  
PO Box 23  
West Perth WA 6872

T: +61 8 9389 2700  
F: +61 8 9389 2722  
E: [info@vimyresources.com.au](mailto:info@vimyresources.com.au)

ABN: 56 120 178 949

#### Share Registry

Computershare Investor Services

T: 1300 850 505 (within Australia)  
+61 3 9415 4000 (outside Australia)  
F: +61 3 9473 2500  
W: [www.computershare.com](http://www.computershare.com)  
E: [www.investorcentre.com/contact](http://www.investorcentre.com/contact)



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