



17 November 2015

# Pre-Feasibility Study Reaffirms Mulga Rock Project as one of Australia's Leading Undeveloped Uranium Projects

Vimy Resources Limited (**Vimy ASX: VMY**) is pleased to announce completion of the Mulga Rock Project (**MRP**) Pre-feasibility Study (**PFS**), undertaken by Amec Foster Wheeler Australia Pty Ltd (**Amec Foster Wheeler**) and AMC Consultants (**AMC**).

The PFS includes an economic evaluation and supports Vimy's view that the MRP is one of the best undeveloped uranium projects in Australia with a significant annual production and mine life. Key highlights from the Study include:

### MRP is an attractive deposit with long mine life and long term source of uranium

- MRP is the third largest undeveloped uranium deposit in Australia
- Total resource estimate of 65.6Mt at 520ppm U<sub>3</sub>O<sub>8</sub> for a contained 75.0Mlbs U<sub>3</sub>O<sub>8</sub>
- Life of Mine (LoM) of 17 years with an estimated total production of 50.4Mlbs U<sub>3</sub>O<sub>8</sub>
- 77% of the uranium mining inventory for first 5 years is from Indicated Resources

#### Low cash cost, robust financials

- C1 operating cost for LoM of US\$31/lb U<sub>3</sub>O<sub>8</sub> including by-product credits
- Robust pre-tax NPV<sub>10</sub> of A\$431M, 25% IRR and a 3.9 year payback at US\$65/lb U<sub>3</sub>O<sub>8</sub>
- Breakeven price of US\$50/lb U<sub>3</sub>O<sub>8</sub> (capital payback @ 10% discount rate)

#### Low risk and low cost mining process

- Simple open-pit mining operation up to a maximum depth of 74 metres
- Process plant to use low-cost acid leaching and resin-in-pulp
- Environmental approvals and permitting are well advanced
- Additional opportunities have been identified to further reduce operating and capital costs, which will be incorporated into the DFS currently underway

#### **Cautionary Statement:**

The Company advises that the Pre-feasibility Study referred to in this announcement is based on lower-level technical and preliminary economic assessments, and does not yet support a statement of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the PFS will be realised. The Production Target referred to in this announcement is partly based on Inferred Mineral Resources (which comprise approximately 28% of the Inferred Resource mined during the project payback period of 7 years at the capital breakeven uranium price). There is a low level of geological confidence associated with the Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated or Measured Mineral Resources or that the production target or preliminary economic assessment will be realised.



Managing Director Mike Young said, "The team has once again delivered a great result for Vimy. Mulga Rock is a robust and large uranium deposit with simple geology, mining and metallurgy. We are well positioned to ride the wave of demand for uranium as the world turns towards cleaner energy sources.

"We are proud that Mulga Rock will deliver enough uranium fuel to offset the equivalent of 50 Mt of  $CO_2$  emissions per year or 9% of Australia's total  $CO_2$  emissions. We are truly *Mining a Cleaner Tomorrow.*"

## **Physical and Financial Summary**

A summary of the key physical and financial parameters for the MRP is provided in Table 1. A flat exchange rate of A\$1.00:US\$0.7019 has been assumed across the entire project life for the PFS. An all-in capital breakeven uranium price has been calculated for the project and is used as the foundation for metal price sensitivities.

The PFS results confirm the potential for the MRP to produce 3 Mlbs per annum of uranium concentrate over a 17 year mine life.

Life of Mine (LoM)	17.1 years					
Nameplate Run-of-Mine (ROM)	2.65 Mtpa					
ROM Uranium Grade (Years 1-10)	601 ppm U <sub>3</sub> O <sub>8</sub>					
ROM Uranium Grade (LoM)	515 ppm U <sub>3</sub> O <sub>8</sub>					
Average Strip Ratio LoM (waste tonne / ore tonne)	15.8					
Overall Metallurgical Recoveries						
Uranium	85.3%					
Copper	35%					
Zinc	48%					
Nickel	43%					
Cobalt	38%					
Annual Production – Uranium as U <sub>3</sub> O <sub>8</sub>	3.00 Mlbs U <sub>3</sub> O <sub>8</sub>					
Process plant and infrastructure capital costs	US\$254M					
Mine pre-strip cost (additional to process plant and infrastructure)	US\$33.6M					
Uranium (C1) Opex Years 1-10 (after by-product credits)	US\$27.80/lb U <sub>3</sub> O <sub>8</sub>					
Uranium (C1) Opex Years 1-10 (before by-product credits)	US\$31.50/lb U <sub>3</sub> O <sub>8</sub>					
Uranium (C1) Opex LoM (after by-product credits)	US\$31.34/lb U <sub>3</sub> O <sub>8</sub>					
Uranium (C1) Opex LoM (before by-product credits)	US\$33.91/lb U <sub>3</sub> O <sub>8</sub>					
All-in breakeven price (after by-product credits)	US\$49.87/lb U <sub>3</sub> O <sub>8</sub>					
Exchange Rate A\$:US\$	0.7019					
WA Royalty	5%					
Resource Capital Fund VI (RCF VI) Royalty	1.15%					
Project NPV <sub>10</sub> at US\$65/lb U <sub>3</sub> O <sub>8</sub> (inclusive of Royalties, pre-tax)	A\$431M					
Project IRR at US\$65/Ib U <sub>3</sub> O <sub>8</sub> (inclusive of Royalties, pre-tax)	25.1%					
Payback from start of production	3.9 years					

#### **Table 1: Key Physical and Financial Metrics**

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## **Mulga Rock Project**

The Mulga Rock Project (**MRP**) lies approximately 240km east-northeast of Kalgoorlie and is situated on two granted Mining Leases (ML39/1080 and ML39/1081). Vimy holds title to approximately 757 square kilometres of exploration ground across the MRP surrounding the Mining Leases.

The project comprises two distinct mining centres, Mulga Rock East (**MRE**) and Mulga Rock West (**MRW**), which are approximately 20 km apart (Figure 1). The MRP has been extensively drilled with 2,640 aircore and RC holes completed within the resources for a total combined depth of 162,013 metres. In addition, 583 diamond holes have been completed across the project for total 25,121 metres of core. The resources have mostly been closed out by drilling in all directions and a current infill drilling program is underway to increase the confidence of the Mineral Resource Estimates.

Vimy engaged Amec Foster Wheeler and AMC to undertake a Pre-Feasibility Study to assess the development of the MRP. Amec Foster Wheeler has undertaken sufficient engineering to develop Class  $IV^1$  capital and operating cost estimates to an accuracy of ±25%.

This release presents the key physical and financial results from the PFS and is based on Mineral Resource Estimates released to the ASX on 17 September 2015.

## Geology

The MRP has regular geology across all deposits comprising carbonaceous clastic sediments, associated with a palaeochannel and its tributaries, containing accumulations of uranium and base metal. The carbonaceous lacustrine and estuarine sediments have been strongly oxidised to a typical depth of 40 metres with the uranium and base metals being enriched in horizontal zones just below the reduction-oxidation ("redox") boundary. The uranium, and most of the base metals mineralisation, is very fine grained and disseminated, mostly amorphous, and adsorbed on the organic matter.



#### Figure 1: Location and regional geology of the Mulga Rock Uranium Deposits

<sup>&</sup>lt;sup>1</sup> Amec Foster Wheeler has prepared a Class IV capital estimate in accordance with American Association of Cost Engineering (AACE).



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A detailed explanation of geology, mineralisation and resource estimation methods at MRP is provided in the Executive Summary in the release to the ASX titled "*Significant Resource Upgrade for Mulga Rock Uranium Project*" and dated 20 April 2015. The release also details the very positive results that infill drilling had on the resource estimate at Ambassador.

## **Mineral Resource Estimate**

### **Uranium Resource**

The MRP has a total Mineral Resource Estimate of 65.6Mt at 520ppm  $U_3O_8$  for a contained 75.0Mlbs  $U_3O_8$ . Infill drilling is currently underway at Ambassador, Emperor and Shogun aimed at further increasing the confidence level of the current resource to support the Definitive Feasibility Study.

Table 2 provides a summary of the overall MRP Mineral Resource Estimate and was provided to the ASX on 17 September 2015.

Deposit / Resource	Classification	Cut-off Grade (ppm U <sub>3</sub> O <sub>8</sub> )	Tonnes (Mt)	U₃O₅ (ppm) <sup>5</sup>	U₃Oଃ (MIb)
Mulga Rock East					
Princess	Indicated	150	1.3	690	1.9
Princess	Inferred	150	2.5	380	2.1
Ambassador	Indicated	150	13.2	750	21.7
Ambassador	Inferred	150	16.1	460	16.3
Sub-Total			33.1	580	42.0
Mulga Rock West					
Emperor	Inferred	150	28.4	450	28.1
Shogun	Inferred	150	4.1	550	4.9
Sub-Total			32.5	460	33.0
Total Resource			65.6	520	75.0

#### Table 2: Mulga Rock Project Total Resource – 17 September 2015

The information in Table 2 above is extracted from ASX announcement entitled "Improved economics for the Mulga Rock Project increases the Mineral Resource Estimate" released on 17 September 2015 and is available to view on asx.com.au ASX:VMY. The Company confirms 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 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.

## Base Metal By-Product Resource

The Mulga Rock East uranium deposit also contains a base metal (**BM**) Mineral Resource (Table 3) which was released to the ASX on 17 September 2015. Base metals will be recovered during the processing of the uranium ore, but economic extraction of BM independent of uranium is unlikely. Mulga Rock West has not been assessed for base metals due to lack of data in previous drill programs, but this will be rectified in future exploration programs.

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#### Table 3: Base Metal Resource Estimate – Mulga Rock East

Deposit / Resource	Tonnes (Mt)	Cu (ppm)	Zn (ppm)	Ni (ppm)	Co (ppm)	Sc (ppm)			
Mulga Rock East – tonnes and grade									
Princess - Indicated	1.3	750	1270	440	210	60			
Princess - Inferred	2.5	270	510	250	140	20			
Ambassador - Indicated	13.2	330	1330	600	250	30			
Ambassador - Inferred	16.1	160	320	310	170	20			
Total	33.1	260	770	430	200	25			

Deposit / Resource	Classification	Cu (kt)	Zn (kt)	Ni (kt)	Co (kt)	Sc (kt)			
Mulga Rock East – contained metal									
Princess	Indicated	0.9	1.6	0.6	0.3	0.07			
Princess	Inferred	0.7	1.3	0.6	0.4	0.04			
Ambassador	Indicated	4.4	17.5	7.9	3.3	0.35			
Ambassador	Inferred	2.6	5.2	5.1	2.7	0.33			
Total		8.6	25.6	14.2	6.7	0.80			

The information in Table 3 above is extracted from ASX announcement entitled "Improved economics for the Mulga Rock Project increases the Mineral Resource Estimate" released on 17 September 2015 and is available to view on asx.com.au ASX:VMY. The Company confirms 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 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.

### **Resource Optimisation and Mining**

### **Block Model Optimisation**

Block model optimisation was performed on the current Mineral Resource models. The optimisation was done using commodity prices, processing costs and metal recoveries as provided in this PFS. A mine schedule was generated from the optimisation with total material movements (ore and waste) and calculated metal grades on a diluted basis. Where available, the BM elements were taken into account during optimisation and included in the mine schedule.

The mine study was based on regularised blocks  $10m \times 10m \times 1m$  in thickness in order to simulate diluted smallest mining units (**SMU**) for scheduling. In bulk waste zones, waste cells were combined to form  $50m \times 50m \times 5m$  units. These blocks were used to establish the final optimised pit shells. Pit designs were then developed using geotechnical data obtained during the Scoping and Pre-feasibility Studies. Figure 2 shows the final pit designs for the Princess and Ambassador deposits.

A yearly mine production schedule was generated using the optimisation pit shells and resultant pit designs. The optimised diluted Mineral Inventory is provided in Table 4. Approximately 78% of the current Mineral Resource Estimate has been incorporated into the mineable inventory.



The mine schedule proposes that Princess is mined first with ore being stockpiled prior to commissioning the process plant. This enables a sterilised pit void to be established for use as an inpit tailings facility. Mining then commences at Ambassador in Year 2 and continues through to Year 13. The Shogun deposit then supplements the later part of Ambassador from Years 10 to 14. Finally mining at Emperor is anticipated to commence in Year 13, after the mineable inventory at Ambassador has been exhausted. Mining at the Emperor deposit continues through to Year 17.



Figure 2: Final pit designs for Princess and Ambassador. Note that a strip mining method will be employed and the pits are back filled as the mining front progresses

MRE is higher grade than MRW, containing 64% of the overall uranium metal in the Mineral Inventory, and includes a base metal resource estimate. Furthermore, the processing plant will be located near MRE and therefore costs for mining and processing ore from MRE in Years 1 to 10 are lower than the overall LoM costs and are emphasised in the operating costs presented in Table 1.

It should be noted that all mineralisation at Mulga Rock has been considered during the Pre-feasibility Study to date. While Inferred Mineral Resource components are of insufficient confidence for application of technical and economic parameters to be used for detailed planning in a Pre-feasibility Study, it should be noted that the study has identified a relatively long LoM, and in that sense, the current study combines both Pre-Feasibility and Scoping Study aspects. In the first 7 years of production, more than 72% of the contained uranium in mill feed is sourced from Indicated Resources and therefore Inferred Resource material does not determine the viability of the project. Over the current potential LoM, approximately 36% of the total contained uranium is being sourced from Indicated Resources. Infill drilling work is currently in progress at Ambassador, Shogun, and Emperor allowing continued maturation of the Mineral Resource and quantum of Indicated or better Mineral Resource categories.

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Deposit / Pits	Ore Tonnes (Mt)	Waste Tonnes (Mt)	U <sub>3</sub> O <sub>8</sub> (ppm)	Cu (ppm)	Zn (ppm)	Ni (ppm)	Co (ppm)
Mulga Rock East							
Princess	3.7	54	450	460	815	330	175
Ambassador	28.0	378	550 245 890 475		245 890		220
Sub-Total	31.7	432	535	270	885	460	215
Mulga Rock West							
Emperor	14.3	319	500	-	-	-	-
Shogun	5.8	69	445			-	-
Sub-Total	20.1	388	485	-	-	-	-
Total Inventory	51.8	820	515	270	885	460	215

#### Table 4: Optimised diluted Mineral Inventory as at November 2015

## **Mining Method**

The project consists of four separate mining areas over a total length of 30km with the individual deposits ranging in length from 3km to 8km. The ore zones are up to 22m thick at MRE and 11m at MRW. Uranium mineralisation is hosted by flat-lying, carbonaceous clastic sediments which are in turn overlain by weathered, oxidised sediments that range in thickness from 20m to 70m of waste overburden. Owing to the nature of the host rock and overburden, the majority of the mining will be done by free digging, with only a small requirement for drill and blast in silica-rich layers.

Mining will be by large-scale open pit. Due to the large lateral extent and horizontal geometry, Vimy is proposing to use both conventional truck and shovel, and highly mechanised "strip" mining techniques similar to those used in mineral sands or coal mining. Strip mining commences with the excavation of an initial slot to expose the ore, with the overburden placed in a surface landform. After mining the ore exposed by the first slot cut, a pit void is created which is then used to place the overburden from the next mining strip as the mining moves along strike. In general, mining advances one strip at a time with previously mined areas backfilled and rehabilitated. This mining method will result in a smaller environmental footprint at any given time and significant savings in rehabilitation costs.

The regular geometry of the operation, with a fixed distance to the waste dump, lends itself to a continuous mechanised waste haulage system. Two mobile in-pit crushing and conveying (**IPCC**) systems have been selected with a round pit conveying system suitable for establishment at the larger Ambassador and Emperor deposits to transport the waste from the advancing mining face to the waste dump areas. The conveyor system will be loaded by one of two diesel-electric shovels operating on separate benches. The overburden in the Princess and Shogun deposits will be mined by conventional truck and shovel.

Ore will be mined by a dedicated fleet of 90t trucks and a 200t class excavator.

### **Mining Costs**

Unit mining rates have been estimated by AMC using a combination of budget pricing, other recent Australian mining studies and diesel price of A\$0.90/L (Table 5). These unit rates are inclusive of labour, loading, haulage, fuel, equipment maintenance, drill and blast, grade control, dewatering, stockpiling, ancillary fleet, clearing and grubbing and development of temporary mine infrastructure.

Total annual mining costs have been calculated by multiplying the unit mining rates and the required material movements generated from the optimised block model mine schedule.

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AMC has estimated the pre-strip and initial mining to cost A\$2.12 per tonne. Once the strip mining method is established from Year 2 in the mine schedule, a mechanised waste haulage system reduces the waste strip costs in these areas to A\$0.77/t.

Mineralised ore will be mined using a smaller conventional mining fleet at a unit cost of A\$2.73/t.

#### Table 5: Unit mining rates used for MRP PFS

Mining Item	A\$/t ore
Bulk Waste Removal – Shovel and Convey	0.77
Bulk Waste Removal – Truck and Shovel	2.12
Ore Mining	2.73

## **Metallurgical Processing**

## **Beneficiation Process Plant**

The uranium mineralisation at Mulga Rock is not complicated in that the organic matter in the sediments has acted as a simple 'carbon filter' to trap uranium which has adsorbed onto the carbonaceous material or is present as ultra-fine grained uraninite  $(UO_2)$ . This process has been amplified by a supergene weathering process which has concentrated uranium mineralisation at the boundary between the oxidised, weathered sediments, and the reduced, unaltered sediments. This chemical boundary is known as a "redox" boundary. The "redox process", where uranium minerals precipitate at this boundary, is a common chemical mechanism in a majority of the world's known uranium resources.

The simple chemical process of deposition of the mineralisation means that extraction of the uranium is also simple. Acid will be used to simply desorb the uranium from the carbonaceous material before uranium is selectively extracted from solution.

There is a high content of barren sand within the mineralised sediments, therefore removal of the sand prior to leaching the ore is an important step for reducing throughput into the plant and therefore costs. The run-of-mine (**ROM**) ore is treated in the pit, at the point of excavation where it is crushed, then conveyed to a mobile beneficiation plant. The beneficiation process uses screens and a gravity circuit to separate uranium-bearing organic matter from the course-grained, silica sands and gravels. A commercial scale pilot test has demonstrated that approximately 65-72% of ore feed can be rejected for only a 4-5% loss of uranium (See ASX announcement, 14 July 2015). For design purposes for the PFS, it has been assumed that 60% of ROM feed is rejected during beneficiation for a 4% uranium loss.

The final beneficiated slurry, which has been subsequently upgraded in uranium by approximately 2.5 times the original head grade, is pumped to the main process plant for further treatment. This effectively means that the design ROM grade of 600 ppm  $U_3O_8$  is beneficiated to approximately 1,500 ppm prior to the process plant.

### Main Process Plant

The main process plant will receive beneficiated ore from the mine and then grind this feed to 80% passing 150µm using a SAG mill circuit. The milled ore is then leached for 4 hours at 60°C using sulphuric acid at an addition of 30kg acid per tonne of leach feed.

The leach discharge is then pumped to a resin-in-pulp (RIP) circuit where the slurry is contacted with an ion-exchange (IX) resin to recover the uranium present in solution. The RIP circuit has 8 contact stages and is analogous to a gold carbon-in-pulp circuit except resin is used instead of activated carbon.

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Uranium is then stripped from the resin and precipitated from solution using hydrogen peroxide to generate a final uranyl peroxide or "yellowcake" product. The final uranium product is washed, filtered and dried before being packed into steel drums for road transport via Kalgoorlie to Adelaide. Approximately 6 to 7 sea containers per month will be exported through the Port of Adelaide which has established infrastructure for the storage and shipping of yellowcake product.

## **Base Metal Recovery**

The slurry from the uranium RIP circuit is now barren of recoverable uranium but is further processed to recover the base metals still in solution. The slurry is 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 rendition of the plant is shown in Figure 3 and a schematic of the proposed process flow sheet is shown in Figure 4.



#### Figure 3: Design drawing of Mulga Rock process plant





Figure 4: Schematic of Mulga Rock process plant

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## **Capital and Operating Costs Estimate**

## **Operating Costs**

Amec Foster Wheeler has determined the operating cost at the design nameplate for the MRP is US31.65/lb U<sub>3</sub>O<sub>8</sub> at a uranium ROM grade of 600ppm U<sub>3</sub>O<sub>8</sub> before by-product credits (Table 6). Note that actual processing operating costs will vary due to differing uranium and base metal head grades being fed into the plant during the LoM.

Based on the fully diluted yearly mine schedule with an average LoM ROM grade of 515ppm  $U_3O_8$  it is estimated the operating cost will average US\$33.89/Ib  $U_3O_8$  before by-product credits.

The operating costs include costs associated with recovering the base metals remaining in solution after uranium extraction. These base metals are recovered and will be sold as two separate sulphide concentrates (Cu-Zn and Ni-Co) at assumed sale terms of 75% London Metal Exchange (LME) pricing. As they are precipitates and not float products, the sulphide concentrates will have a high metal content and free of deleterious elements.

Based on current base metal spot prices, the BM by-product credit is equivalent to US\$2.57 per lb of recovered  $U_3O_8$  over the current LoM schedule. However, only MRE has a current base metal Mineral Resource Estimate (Table 3) as base metals were not analysed during previous exploration drilling at MRW. This will be addressed in future exploration programs and given the identical geological setting between the deposits, it is not unreasonable to assume that recoverable base metals will be found at Mulga Rock West.

Table 6 provides a breakdown of the nameplate operating costs <u>at a design basis of 600ppm  $U_3O_8$  in ROM.</u>

Operating Items	Operating Cost A\$M p.a.	Operating Cost A\$/Ib U <sub>3</sub> O <sub>8</sub>	Operating Cost US\$/Ib U <sub>3</sub> O <sub>8</sub> <sup>2</sup>
Mining <sup>1</sup>	46.5	15.48	10.87
Uranium processing	52.0	17.33	12.17
Base metal processing	15.3	5.09	3.57
Products packaging and transport	2.7	0.91	0.64
Tailings	2.6	0.88	0.62
General and administration	16.2	5.40	3.78
Total operating costs	A\$135.3	A\$45.09	US\$31.65
By-product credit	A\$15.1	A\$5.03	US\$3.53
Net operating costs	A\$120.2	A\$40.06	US\$28.12

#### Table 6: Amec Foster Wheeler Nameplate Operating Cost Estimates

<sup>1</sup> Mining costs have been calculated based on LoM average according to the yearly mine schedule.

<sup>2</sup> Note operating costs quoted in US\$ have been calculated using an exchange rate of US\$1.00:A\$0.7019.

### **Capital Cost Estimate**

Amec Foster Wheeler has accounted for all associated infrastructure required to commence operation of the proposed project. Capital allowances have been included for mining infrastructure, HV power supply and distribution, access roads, accommodation and mess facilities, bore field for water supply, water treatment plant, sewage treatment plant, administration buildings, telecommunications, security, maintenance workshop, wash-down areas, fuel storage depot, emergency response facilities, airstrip and terminal.

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The estimated capital cost to build the processing plant and infrastructure at the MRP is US\$254M including a growth allowance and contingency of US\$42M. Capital breakdown by plant area is presented in Table 7 below.

An initial mine pre-strip capital cost of US\$33.6M has been estimated by AMC using the pit design for the Princess deposit at an overburden waste removal unit cost of A\$2.12/t. This amount is in addition to the process plant capital costs below.

The initial capital cost for the waste and ore mining fleets has been estimated by AMC to be US\$66M (AU\$94M). Vimy is currently assessing contracting strategies to determine whether the mining operation will be owner operator or a contractor miner. It is expected the mining equipment will be financed through the contract mining operator or under an equipment lease arrangement through the equipment supplier.

A detailed sustaining capital schedule has been developed by Amec Foster Wheeler and AMC to support the mine schedule and replace equipment as it reaches its maximum service life. The total sustaining capital over LoM is US\$113M. The main sustaining capital items include: relocation of the Ambassador beneficiation plant in Years 4 and 8, installation of a second beneficiation plant at Shogun in Year 9 to enable mining to commence the following year, expansion of the main process plant in Year 9 to accommodate the decrease in ROM head grade, the relocation of the Ambassador beneficiation plant to Emperor in Year 13, and the replacement of mining equipment as per the OEM's recommended service hours.

Power will be provided to the site via a third party Build-Own-Operate (**BOO**) facility using compressed natural gas via the Eastern Goldfields Pipeline. Commercial BOO power supply proposals have been obtained for the PFS. An option to use LNG is being investigated as an alternate fuel source to natural gas. Solar and/or wind energy will be assessed during the DFS for the accommodation village and water extraction borefield.

Operational personnel will work on a fly-in fly-out roster using a dedicated airstrip and terminal for the MRP. Site accommodation and mess facilities have been included for total workforce of around 330 personnel. Approximately 110 personnel will be required on each 12 hour shift working a 2 weeks on / 1 week off roster.

Capital Item	US\$M	A\$M
Mining Infrastructure	11.9	17.0
Process Plant	86.8	123.6
Process Plant Infrastructure	16.2	23.1
Project Infrastructure	34.5	49.1
First Fill / Spares / Misc.	15.8	22.5
Sub-Total Directs	\$165.2	\$235.3
Indirects	8.4	12.0
Growth Allowance	23.4	33.3
EPCM	23.3	33.2
Sub-Total Indirects	\$55.1	\$78.5
Owner's Costs	15.5	22.1
Contingency	18.3	26.1
TOTAL CAPEX	\$254.1	\$362.0

#### Table 7: MRP capital cost estimate for process plant and infrastructure



## **Project Financial Analysis**

## Exchange Rate and Base Metal Prices

Vimy has used the spot A\$/US\$ exchange rate on a flat LoM basis. The spot rate A\$1.00:US\$0.7019 was obtained from Bloomberg on 1 September 2015.

Vimy has utilised the prevailing spot copper, zinc, nickel and cobalt prices on a flat, real LoM basis. The spot metal prices were based on the final market closing price quoted by the LME on 1 September 2015 (see table below).

#### Table 8: Base case commodity prices

Basis	Copper Price	Zinc Price	Nickel Price	Cobalt Price
	US\$/t	US\$/t	US\$/t	US\$/t
Real \$	5,095	1,821	9,940	28,000

## **Project Economic Analysis**

Amec Foster Wheeler performed an economic and financial review of the MRP using a range of uranium price scenarios and spot base metal prices as described above. A discounted cash flow model has been developed with a valuation date of July 2016 coinciding with an expected decision to commence development in the second half of 2016.

Financial analysis of the project is based on a "100% equity" basis and the cost of capital is ignored. All results are inclusive of a 5% West Australian Royalty and a 1.15% RCF VI Royalty entitlement as part of a A\$30M funding package to Vimy as announced to the ASX on 17 August 2015. Results are on a pre-tax basis in A\$, unless stated otherwise. Financial modelling is inclusive of all capital items including mining fleet, mining pre-strip, process plant, project infrastructure and LoM sustaining capital.

Table 9 shows the variance in NPV, IRR and project payback period for the different uranium prices. The all-in breakeven uranium price for the project is US50/lb U<sub>3</sub>O<sub>8</sub> using a discount rate of 10%. Uranium prices were selected based on the breakeven price then arbitrarily increasing increments of US10/lb U<sub>3</sub>O<sub>8</sub>.

Table 9 demonstrates that the all-in capital break-even cost is just above current term contract pricing and establishes Vimy as a strong leverage play to upside risk on uranium pricing.

		Uranium Price (US\$/Ib U₃O₀)									
Item	Unit	US\$49.87/lb	US\$55.00/lb	US\$65.00/lb	US\$75.00/lb						
NPV <sub>10</sub> (incl Royalties, pre-tax)	A\$ M	0	146	431	716						
IRR	%	10.0	15.7	25.1	33.6						
Payback	Years	7.2	7.2 5.6 3.9		3.0						

#### Table 9: Financial return at different uranium prices.

## **Uranium Market Commentary**

Although uranium prices have remained flat for the past 12 months, the underlying factors for pricing continue to develop in a positive manner. On the supply side the cancellation of the Ranger 3 Deeps project by ERA reinforces the current stagnation in primary supply development. Whilst on the demand side China's requirements continue to grow rapidly. Seven reactors have entered into operation in China so far this year and three new reactors commenced construction. Finalisation of components required for the AP1000 reactor should now result in the speedy completion of the existing AP1000 reactors under construction in China (4) and then the beginning of a new significant phase of construction that will include both coastal and inland sites. China also appears to be

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increasingly active on the export front, recently signing new deals with England, Argentina and Romania.

The IEA's World Energy Outlook 2015 suggests (under its central scenario) that nuclear power will grow by 86% between 2014 and 2040 reaching 12% of global electricity generation. This increase in power generation would require an additional 65,000tpa of uranium concentrate to meet that increase in demand. Over the longer term, contract prices for uranium will need to rise to a level that induces this additional supply – that level is expected to be well above US\$65/lb U<sub>3</sub>O<sub>8</sub>.

### **Uranium Sales Contracts**

It is Vimy's intention to explore long-term supply relationships with major nuclear power plant utilities. Therefore, the prices that Vimy is likely to obtain for its uranium concentrate would best be represented by long term  $U_3O_8$  contract prices, or a mix of long-term contract and spot prices.

Peninsula Energy (ASX:PEN) released a shareholder update to the ASX on 10 November which provided the details of their initial contracts signed for delivery in 2016 – 2020. One third of the contracted volume was struck at a weighted average price (**WAP**) of US\$73-75/lb U<sub>3</sub>O<sub>8</sub> and overall a WAP of US\$59/lb was achieved for the entire contracted volume, which is well above the current long term contract price.

Vimy will sell uranium as concentrate on a Free on Board basis (FOB) via the Port of Adelaide.

#### **Project Development Schedule**

The PFS has demonstrated that the Mulga Rock Project has no critical technical flaws, and the DFS is expected to be completed in Q4 CY2016. Providing for a positive outcome to the DFS, an investment decision to develop the MRP is expected to occur late in CY2016.

Infill resource drilling and process development are on critical path for the project development schedule. Drilling is currently underway at Ambassador and Shogun to increase the confidence level of the Resource Estimation. Drilling at Emperor will provide data to determine accurate disequilibrium factors there as well as base metal content.

In April 2015, Vimy released a significant upgrade to the Mineral Resource Estimate for Ambassador, which resulted in a 30% increase of the average uranium grade due to an increase in uranium disequilibrium. Drilling presently underway at Shogun and Emperor will quantify the uranium disequilibrium for these two deposits and the results are expected to show a similar increase to Ambassador.

Overburden removal is a key cost driver and overburden mining methods will be a key area of focus for the DFS. Two trial test pits are currently underway as part of the DFS work program and will assess the geotechnical characteristics of the overburden to aid with final equipment selection.

Amec Foster Wheeler has estimated a construction workforce of approximately 400 personnel on-site will be required with an engineering, procurement and construction schedule of 18 months following an initial 6 month Front End Engineering and Design (**FEED**) phase.

Work by Vimy, in association with ANSTO, has resulted in excellent progress to date in reducing acid consumption, and recovery of uranium from saline solutions. Pilot plant test work for the uranium flow sheet will commence in early 2016 to demonstrate the process flow sheet to provide firm design data for the DFS engineering.

Groundwater exploration has been very successful and a large, low saline borefield will provide sufficient quality and quantity of water for the entire mine life.

The Public Environmental Review (**PER**) process is well on track for final approval, expected in the Q3 CY2016. The PER document has been accepted by the Office of Environmental Protection Authority (**OEPA**) for assessment and will be released for public comment shortly.

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A broad project schedule is provided in Figure 5.

	2015	2016			2017				2018				
Activity	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
PER Approval													
Works Approval													
Resource Drilling and Ore Reserves													
Definitive Feasibility Study													
Investment Decision													
Engineering and Procurement													
Civils and Site Infrastructure													
Plant fabrication – offsite													
Plant fabrication – onsite													
Princess pre-strip													
Princess ore mining													
Commissioning													
Hand-over and first $U_3O_8$													

Figure 5: Project development schedule

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## **Cautionary Statement**

The PFS referred to in the report is based on low level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the PFS will be realised. There is a low level of geological confidence associated with the Inferred Mineral Resources and Exploration Target material and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised. The Company advises the PFS results and production targets reflected in this announcement are preliminary in nature as conclusions are partly drawn from Inferred Resources (which comprise approximately 28% of the Inferred Resource mined during the project payback period of 7 years at the capital breakeven uranium price and 40% of the total Life of Mine uranium Mineral Inventory). The PFS outputs contained in this report relate to 100% of the mine. The Company has concluded it has a reasonable basis for providing the forward looking statements included in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and in particular the appendix headed "Forward Looking and Cautionary Statements"

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## **Competent Person Statements**

The information in this announcement relates to the Exploration Results for the Mulga Rock Resource Estimate  $(U_3O_8)$ , Resource Database, Geology and Bulk densities are based on information compiled by Xavier Moreau, who is a Member of the Australian Institute of Geoscientists. Mr Moreau is a full time employee of Vimy Resources. Mr Moreau has experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken to qualify as Competent Persons as defined in the 2012 Edition of the JORC 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Moreau consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement relates to the Mulga Rock Mineral Resource estimates ( $U_3O_8$ ) is based on information compiled under the supervision of AMC Consultants as consultants to the Company and reviewed by Ingvar Kirchner an employee of AMC Consultants. Mr Kirchner consents to the inclusion, form and context of the relevant information herein as derived from the original resource reports. Mr Kirchner has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

The information in this announcement that relates to Process Design Criteria and associated mass balance is based on information compiled by Mr Deon van Tonder who is an employee of Amec Foster Wheeler and a Member of the Australian Institute of Mining and Metallurgy. The Process Design Criteria were derived from an evaluation of the Mulga Rock metallurgical test work completed by ANSTO and ALS Metallurgy between 2009 and 2015, and benchmarking against performance in similar uranium flow sheets. Mr van Tonder was a consultant to Vimy Resources during the PFS. Mr van Tonder has sufficient experience, which is relevant to the style of mineralization and type of deposit under consideration and to the activity, which he is undertaking to qualify as a Competent Person as defined in the JORC code. Mr van Tonder consents to the inclusion in the report of the matters based on his information in the form and context which it appears.

## **Forward Looking and Cautionary Statements**

Some statements in this report regarding estimates or future events are forward-looking statements. They include indications of and guidance on, future earnings, cash flow, costs and financial performance. Forward-looking statements include, but are not limited to, statements preceded by words such as "planned', "expected", "projected", "estimated", "may", "scheduled", "intends", "anticipates", "believes", "potential", "could", "nominal", "conceptual" and similar expressions. Forward-looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward-looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. Forward-looking statements may be affected by a range of variables that could cause actual results to differ from estimated results, and may cause the Company's actual performance and financial results in future periods to materially differ from any projections of future performance or results expressed or implied by such forward-looking statements. These risks and uncertainties include but are not limited to liabilities inherent in mine development and production, geological, mining and processing technical problems, the inability to obtain mine licences, permits and other regulatory approvals required in connection with mining and processing operations, competition for among other things, capital, acquisitions of reserves, undeveloped lands and skilled personnel; incorrect assessments of the value of acquisitions, changes in commodity prices and exchange rates; currency and interest rate fluctuations; various events which could disrupt operations and/or the transportation of mineral products, including labour stoppages and severe weather conditions; the demand for and availability of transportation services; the ability to secure adequate financing and management's ability to anticipate and manage the foregoing factors and risks. There can be no assurance that forward-looking statements will prove to be correct.

Statements regarding plans with respect to the Company's mineral properties may contain forward-looking statements. Statements in relation to future matters can only be made where the Company has a reasonable basis for making those statements.

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