



# Mayur Resources Limited

Cementing Its Place as a Nation-Building Partner: High-Quality Projects

Central Cement and Lime Project at its Core

**Initiation of Coverage**

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## Cementing Its Place as a Nation-Building Partner: High-Quality Projects

Mayur Resources Limited’s (MRL) long-term goal is to deliver shareholder value by becoming a crucial player in the nation building of Papua New Guinea (PNG). MRL’s high-quality diversified portfolio includes cement and lime, industrial and battery minerals, power generation, coal, and copper/gold projects. These present strong value-creating potential in a country with rich natural resources that still have significant scope for development. We also see potential upside from accessing markets throughout Asia Pacific and believe risks are somewhat mitigated by the diversified scope of the portfolio.

### Cement and Lime the Core – Import Replacement and Export Opportunity

The Central Cement and Lime Project (CCL Project) is MRL’s core asset. The CCL Project has a large-scale high-quality resource and a low cost base, and its locational advantage will give it the ability to replace all cement and lime imported into PNG as well as providing a cost-competitive alternative for importers of lime, clinker and cement in the Pacific and East and West Coast Australian cement and lime markets. With the Mining Lease recently granted (August 2020), all regulatory approvals are in place for the project and strategic partners have been shortlisted. MRL’s ability to engage a strategic equity and construction partner and execute offtake agreements with customers is the key to obtaining funding and commencing construction.

### Diversified Assets – Strong Options

MRL’s other projects of include the Orokolo Bay Industrial Sands (OBIS) Project and the Lae ‘Enviro Energy Park’ (EEP) power generation project. MRL has secured a JV partner, China Titanium Resources Holdings (CTRH), to fund up to US\$25m for a 49% stake in the OBIS entity. The OBIS Project has a Definitive Feasibility Study (DFS) completed with its key products being Construction Sands, Iron Sands Magnetite and Zircon. The EEP Project will serve PNG’s second-largest city of Lae and contribute to PNG’s drive to increase electrification while increasing reliability, reducing prices and importantly providing a low-cost bypass steam supply for industry.

### PNG – A Need for New Projects

PNG is a developing economy with an abundance of natural resources. PNG needs domestically extracted and manufactured fundamental inputs for nation building such as cement, steel, and power in order to competitively develop its industrial sector while reducing its reliance on expensive imports. PNG has demonstrated its ability to implement major projects and has a supportive government.

### Simplification – Copper Gold Assets to be Spun Out

MRL holds a prospective gold and copper exploration portfolio in PNG. MRL has entered into a transaction to both acquire additional assets and to spin out the expanded portfolio into a separate vehicle. The transaction will allow MRL to sharpen its focus on the CCL, OBIS and EEP, while accelerating the exploration and development of the copper gold portfolio. MRL intends to transfer the shareholding in the new company to MRL shareholders via an in-specie transfer.

### Valuation – A\$1.40 Per Share Using SOTP

We value MRL at A\$1.40 per share, fully diluted, using a sum-of-the-parts risk-weighted valuation.



Mayur Resources is an ASX-listed company focused on the development of natural resources in PNG. The asset portfolio spans cement, industrial minerals, power generation, coal, copper and gold.

Stock	MRL.ASX
Price	A\$0.41
Market cap	A\$74m

Company data	
Net cash (30/06/20)	A\$2.99
Shares on issue	179.14m
Options and Rights Outstanding	12.48m
Code ASX	MRL
Primary exchange	ASX

Next steps	
Strategic Partner for CCL Project	
Pilot Plant for OBIS Project	



## A Caveat: Effect of COVID-19 Pandemic

The recent events surrounding COVID-19 have had a material effect on the global economy, across all aspects of doing business both globally and within PNG. These events have placed risk on project timeframes, which may result in delays in completing some or all of the projects in a timely manner.

We have taken into consideration the delays already caused by COVID-19 however due to the continuing uncertainty still associated with COVID-19 there may be further delays in the projects and deliverables.

## Investment Thesis: A Compelling Offering for a Country in Need – Import Replacement, Export Revenue and Power Generation

MRL's CCL Project represents a high-quality limestone resource and has project advantages on multiple fronts. This project could eliminate the requirement to import cement and quicklime and an opportunity ultimately, once fully commissioned to supply international markets at competitive prices.

The OBIS Project has made substantial progress, having a completed DFS, secured its environment permit has a strategic partner, and strong potential to be a significant export earner.

Reliable, affordable, and sustainable power generation is key to economic development and is a core policy of the PNG government, which gives the EEP Project significant importance.

### Recent Achievements

- CCL - 19 August 2020 – Mining licence granted
- CCL - 11 March 2020 – Landholder agreements finalised
- OBIS – 11 September 2020 – DFS completed
- OBIS - 2 July 2020 – Maiden Ore Reserves
- OBIS - 28 March 2020 – Resources Upgraded
- OBIS - 21 March 2020 – Completion of construction camp for OBIS Project
- Depot Creek – 15 September 2020 – Resource Increase

### Potential Near-Term Catalysts and Timing

- CCL - Q4 2020 / Q1 2021 – Signing of strategic partner for Project
- CCL - Q4 2020 – Signing of offtake agreements – Australian cement and lime customers
- OBIS - Late 2020 / Early 2021 – Pilot project commencement for Project – Covid permitting
- EEP - Q4 2020 / Q1 2021 – PPA signing for Project
- Copper / Gold Assets Late 2020 – Acquisition and Spin Off
- Depot Creek - Early 2021 - DFS

### Valuation – Risked Sum-of-the-Parts NPV A\$1.40 Fully Diluted

We value MRL at A\$1.40 per share, fully diluted, using sum-of-the-parts risk-weighted valuation.

### Risks and sensitivities

#### Key risks for the company across all projects include:

- Delays in funding and/or strategic investor in projects
- Increases in capital costs
- Construction delays

#### Project-specific risks include:

- CCL Project: delay or non-completion of strategic partner agreement and product offtake agreements currently under negotiation
- OBIS Project: pilot plant delays or poor outcomes.
- EEP Project: delay or non-completion of Power Purchase Agreement (PPA).

#### Key sensitivities for our valuation are:

- Product pricing (cement, clinker, quicklime, industrial minerals, power)
- Operating and capital costs
- Exchange rate fluctuations (USD, AUD).

### Financials

With the announcement of the granting of the mining Licence for the CCL, funding is the key to project delivery, execution and the commencement of operations. MRL have identified and shortlisted strategic partners for the CCL Project and the EEP Project and has already secured a partner for the OBIS Project. For the CCL Project, the partners are most likely to invest into the project in return for equity and the right to the project construction with a targeted project capital structure of a 70/30 debt-to-equity ratio.

## MRL Overview – A Brief History

Mayur Resources Limited (MRL) is an Australia-based diversified mineral exploration, development and energy company operating since 2011. After operating as a private company, it was publicly listed on the ASX in September 2017, with an oversubscribed IPO raising \$15.5m.

MRL's strategy is to be the first mover and to build and develop a diversified asset base of resources and energy opportunities in Papua New Guinea (PNG), as MRL sees unique and unrealised potential in this market. Over the last 9 years MRL has built a portfolio of projects and has exposure to the following sectors:

- Lime and cement (CCL Project DFS completed in 2019)- PNG's first integrated lime/ clinker / cement plant
- Industrial mineral sands (OBIS Project DFS completed; pilot plant (scheduled construction late 2020 / early 2021)
- Power generation (EEP Project DFS completed in 2016)
- Coal exploration (drilling program commenced in 2014, drilling 6 holes across 1.2km of the Depot Creek deposit) with a further 45 shallow holes completed in 2019.
- Copper/gold (drilling program and a number of ground reconnaissance and mapping programmes have been conducted since IPO in 2017).

The OBIS has a funding partner while the CCL and EEP projects are significantly advanced with funding options being investigated, including strategic project level investors shortlisted. MRL is fully focused on PNG, and the company has built strong relationships with the government and local communities in which it operates.

## Operating in PNG – An Improving Place to Do Business, Right on Asia's Doorstep

### The Business Environment: Rich Resource Potential, Underdeveloped Infrastructure, Untapped Opportunities

#### Improved 'Ease of Doing Business' ranking

PNG has improved in the World Bank's 'Ease of Doing Business Index'<sup>1</sup>, rising 13 positions over the last four years. The index puts countries into four main categories with respect to ease of doing business: very easy, easy, medium and below average. PNG's ranking places it in the 'medium' category. Its current world ranking is 120 (out of 190), which places it below world averages but above other commodity-producing countries such as Argentina, Brazil and Laos.

#### Proven resource potential supported by business-friendly policy

PNG also has a well-established mining industry (that historically focussed on copper / gold) and energy sector and has proven mineral potential in one of the most geologically active and prospective regions in the world. It is home to the Exxon led US\$18b PNG LNG project, demonstrating the country's ability to establish large natural resource projects. The current PNG government is supportive of new projects, and the legislative environment is stable, with policy mechanisms (such as a competitive tax regime) that are favourable to mining and energy businesses.

#### Need for self-sufficiency in PNG likely to push the business forward

The country's manufacturing, infrastructure and electrification are all well below the standards of developed economies. In order for its economy to grow, PNG must become more self-sufficient in basic industrial sectors such as cement and lime, power and steel. The economy would benefit greatly from producing its own raw materials, energy and develop downstream processing rather than relying on expensive semi and finished imports. By doing this it will create more export earnings and will ensure a greater proportion of the population has consistent access to electricity. PNG has a strong connection to Australia-based companies and has provided a hospitable environment for establishing projects such as Oil Search (PNG LNG), Newcrest (Lihir, Wafi Golpu), St Barbara (Simberi Island, Tabar and Tatau Islands), and Pan Aust (Frieda River). Also, there are a number of international companies that have developed and continue to operate projects including Exxon (\$19bn PNG LNG), MCC (Ramu Nickel), and Harmony Gold (Hidden Valley) with their lease term and tenure honoured. French major Total S.A. is also planning a multi-billion-dollar LNG investment in the near future.

<sup>1</sup> <https://www.doingbusiness.org/en/data/exploreconomies/papua-new-guinea>

## The Political Environment: Welcoming and Promising, but Some Risks to Watch

### Political leadership have a positive view on MRL's projects

PNG's Prime Minister (and former Finance Minister) James Marape indicated during his election campaign that his priority is 'to fix the PNG economy'. A key objective for the PNG government is to remove the dependence on imports and provide a level of self-sufficiency in both building materials and energy. Since this government was established in May 2019, Marape and his party have welcomed MRL as part of the solution in meeting the new cabinet's nation-building agenda focused around import displacement, vertical integration and downstream processing. The use of in-country raw materials to diversify and mature PNG's economy, and projects such as the CCL, EEP and OBIS projects, can aid in achieving these goals.

PNG's PM has outlined his interest in encouraging smaller-scale resource projects in comparison to mega-scaled projects such as PNG LNG in a move to retain more royalties and benefits for the people of PNG. This would allow smaller companies such as MRL to build a stronger relationship with the nation and help align goals for both the company and the population of PNG.

Overall MRL appears to be viewed positively by PNG's politicians and population. MRL has ongoing relationships with the PM and senior cabinet ministers who have indicated their support of the new projects. From MRL's perspective, they look forward to the continued support of the government in order to aid in the timely execution of the projects. The EEP Project has attracted high-profile supporters including the Mining Minister, Environment Minister, Lands Minister, Planning Minister, Morobe Governor (the province where the EEP is located) and Gulf Governor (the province where the potential coal supply for the EEP is located). PNG's Energy Minister Hon. Kerenga Kua MP has been the driving advocate for the proposed 52.5MW development in Lae, which should help PNG meet its electrification target of 70% by 2030 (currently electrification is 13%), provide energy mix, redundancy for natural disasters and price competition.

### Political risks: objections to fossil fuels, potential higher royalties for future resource projects

Some questions have been raised around coal mining in PNG. The local member for the Kikori District in the Gulf Province (where MRL's proposed coal mine is located) opposes coal mining in his district, arguing for a cleaner alternative, although the Gulf Governor Hon. Chris Haiveta MP is a strong advocate and supporter of the development of MRL's coal resources in his province.

The new government has signalled its intent to negotiate a potential increase in royalties and other costs to be passed on to the company for future resource projects in PNG. The size or level of the changes is still yet to be indicated but the government has signalled that this will unlikely affect projects with already agreed terms.

## MRL's Projects: A Portfolio of Options – Cement the Core

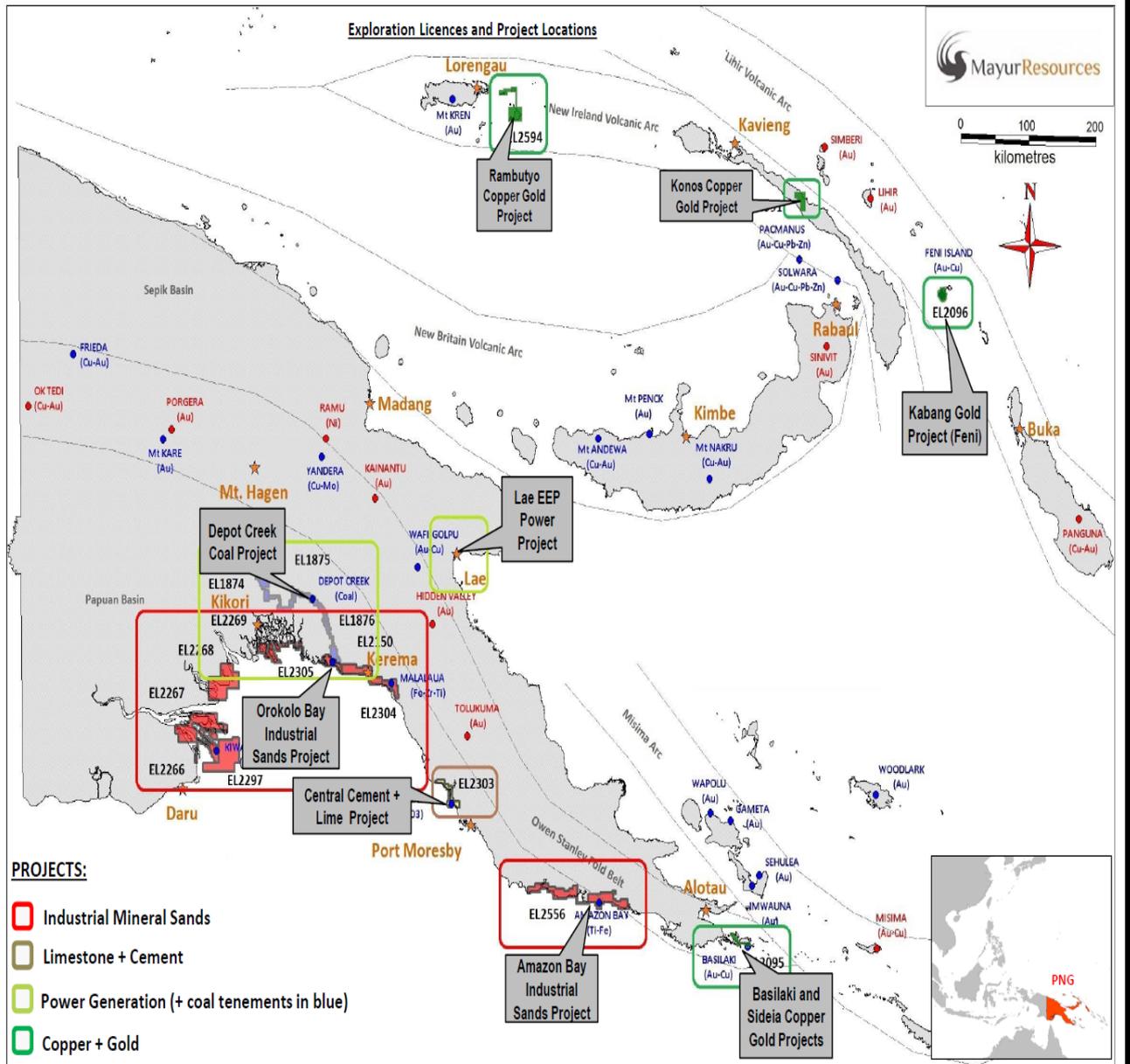
MRL's project suite presents a diversified portfolio of assets, reducing the inherent risk of all operations being in one developing nation (note that, while the portfolio of assets does spread operational, industrial sector and commodity risk, it does not limit sovereign risk). There are synergies between the projects, particularly the coal deposits providing input for the EEP Project and potentially as a fuel source for electricity and combustion for the CCL Project (which we view as the core asset of the company). The OBIS Project offers a different market and risk profile. Exhibit 1 outlines basic information on the company's portfolio of projects and shows the location of these projects in PNG.

Exhibit 1 – Overview of MRL's Project Portfolio

Project	Project Description	MST Funding Assumption	Management of Project	Status
<b>Central Cement and Lime Project (CCL Project)</b>	Long-life, low-cost, cement, clinker and quicklime manufacturing plant for PNG consumption and nearby export markets, with large-scale, high-grade limestone deposits. JORC Resource of 382mt and 78mt Ore Reserve.	Funding to be 70% Debt / 30% Equity Strategic partner to invest in project to cover equity portion of project.	Strategic partner to construct, manage and operate project. MRL 50% shareholder in overseeing JV project company.	Mining Licence granted. Strategic partners shortlisted. Debt funding and offtake agreements signing in progress
<b>Orokolo Bay Industrial Sands Project (OBIS Project)</b>	Industrial sands (fine grain construction sands, iron sands, zircon and other valuable heavy minerals). JORC Resource of 209.5mt of VHM and 112.8mt of Construction Sands. A maiden Vanadium Titanomagnetite ore Reserve of 30.6 Mt announced July 2020.	Equity strategic partner to pay for capex of project to receive 49% economic interest. Remainder funded by debt.	Strategic partner to construct, manage and operate project. MRL 51% shareholder in overseeing JV project company.	Approvals obtained. Pilot plant under construction to produce 100Kt pa of product for market testing
<b>Enviro Energy Park Project (EEP Project)</b>	Vertically integrated domestic power project to provide power to address Lae's power shortages and be an integral part of the PNG government's goal of 70% electrification by 2030.	25 year power purchase agreement (PPA) with PNG power utility.	Operated by MRL appointed power plant management company, MRL in overseeing role	Environmental approvals to construct & operate obtained, final cabinet approval outstanding to authorise PNG Power to enter into PPA.
<b>Depot Creek Coal Mining Project (DCC)</b>	A coal JORC Resource of 11Mt Supply both the EEP and CCL Project with ~700ktpa of coal. Transporting the coal will use barges and trucks.	Final funding arrangements outstanding and to be completed	MRL managing	Infill drilling programme, upgrade PFS to a DFS by the end of 2020
<b>Kabang (Feni), Basilaki and Sideia Copper Gold Projects (Copper Gold), Rambutyo and Konos</b>	MRL is developing an exploratory prospective gold and copper portfolio in PNG. The company holds four gold exploration licenses and has collated and analyzed historic exploration data to verify the geological database. Feni has a JORC inferred Resource of 650koz and presents geologically as a Tier 1 target and is attracting interest from exploration companies.	Assets to be spun out via reverse take over and listed on TSX. End of year completion date. MRL to complete in specie transfer to MRL shareholders.	MRL managing	Further exploration and delineation of resources. Assessment of assets within MRL's portfolio
<b>Amazon Bay Project</b>	Industrial sand project located in the Amazon Bay within the Milne Bay province. The project hosts a significant potential for vanadium-rich titanomagnetite given the extensive amount of historic work completed by previous explorers over many years.	Final funding arrangements outstanding and to be completed	MRL managing	Advanced exploration project looking to compliment OBIS Project products.

Source: MST Estimates / MRL

Exhibit 2 – MRL’s Project Portfolio in PNG – with Other Major PNG Mining Projects



Source: MRL

## Valuation – CCL Project the Key Contributor

We value MRL at A\$1.40 per share on a fully diluted basis.

### Methodology: Sum-of-the-Parts Valuation to Capture Diverse Projects

MRL has a number of projects that contribute to its valuation. As a result, we have adopted a sum-of-the-parts valuation methodology (see Exhibit 3).

The key contributor to the valuation is the CCL Project, with meaningful contributions also from the OBIS and EEP projects. We have valued the CCL, OBIS and EEP projects on a risk-adjusted NPV basis.

We have assumed that on a periodical basis MRL will require equity capital to ensure the continuing function of the corporate and administration functions whilst the projects are being funded and developed.

Exhibit 3 – Sum-of-the-Parts Valuation for MRL (A\$1.40)

Project Valuation	Unrisked Equity A\$m Valuation	Risked Equity A\$m Valuation	Unrisked Equity A\$ Valuation	Risked Equity A\$ Valuation	MRL Equity Share of Project	% of Risked Project Equity Valuation	Valuation Methodology
Equity Value CCL Project	\$ 330.6	\$ 165.3	\$1.73	\$0.86	50%	57%	NPV <sub>10</sub> Project Risked
Equity Value OBIS Project	\$ 83.7	\$ 55.8	\$0.44	\$0.29	51%	19%	NPV <sub>10</sub> Project Risked
Equity Value EEP Project	\$ 85.4	\$ 42.7	\$0.45	\$0.22	70%	15%	NPV <sub>10</sub> Project Risked
Gold / Copper Assets	\$ 23.2	\$ 23.2	\$0.12	\$0.12	100%	8%	EV/Resource
Depot Creek Coal	\$ 6.3	\$ 6.3	\$0.03	\$0.03	100%	2%	\$/Tonne plus cost
<b>EQUITY VALUE PROJECTS</b>	<b>\$ 529.1</b>	<b>\$ 293.2</b>	<b>\$2.76</b>	<b>\$1.52</b>			
Add: Net Cash (30 June 2020)	\$ 3.0	\$ 3.0	\$0.02	\$0.02			
<b>EQUITY VALUE PRE SG&amp;A</b>	<b>\$ 561.5</b>	<b>\$ 296.2</b>	<b>\$2.78</b>	<b>\$1.54</b>			
SG&A	-\$ 27.0	-\$ 27.0	(\$0.14)	(\$0.14)			
<b>EQUITY VALUE MRL</b>	<b>\$ 534.5</b>	<b>\$ 269.2</b>	<b>\$2.64</b>	<b>\$1.40</b>			
Number of shares outstanding	179.14						
Number of unlisted shares (m)	12.48						
<b>Fully diluted Share Base (m)</b>	<b>191.62</b>						

Source: MST estimates

## Sensitivity Analysis

We have conducted a sensitivity analysis to assess the impact of changes in the risk weighting and/or discount rate on MRL's valuation. Our base case is highlighted, which assumes a various risk weighting across the three projects at a 10% discount rate (see Exhibit 4).

Exhibit 4 – Sensitivity Analysis of Risk Weighting (of CCL only) and Discount Rate on Valuation of MRL

		RISK FACTOR- CCL				
		10%	25%	50%	75%	100%
DISCOUNT RATE	8%	0.78	1.16	1.78	2.41	3.03
	9%	0.74	1.05	1.57	2.09	2.61
	10%	0.71	0.96	<b>1.40</b>	1.83	2.26
	11%	0.68	0.89	1.25	1.61	1.97
	12%	0.65	0.83	1.13	1.43	1.73

Source: MST estimates

## Key Assumptions Across All Projects

There are a number of key assumptions that are common to all the projects, detailed in Exhibit 5.

Exhibit 5 – Core Assumptions Across All Projects

<b>AUD/ USD</b>	0.73
<b>AUD/Kina</b>	2.35
<b>Discount Rate %</b>	10%
<b>Australian Inflation %</b>	2%
<b>PNG Inflation %</b>	2%
<b>Interest on Cash %</b>	2%
<b>Interest on Borrowings %</b>	5%
<b>PNG Royalty %</b>	2.25%
<b>Landowners Royalty %</b>	2%
<b>Straight-line Depreciation</b>	10 years
<b>Depreciation Rate%</b>	10%
<b>Taxation Rate %</b>	30%

Source: MST estimates

## Positive Catalysts for the Share Price and Valuation

MRL has a number of projects in progress, and as a result has numerous catalysts, outlined below.

### CCL – Key Catalysts

#### Signing a strategic partner

Signing of strategic partners for the CCL is crucial to obtaining funding and project commencement. A strategic partners will allow a smoother path to funding the project, enabling sufficient equity to be injected into the project so the remaining funding can be covered by debt. The strategic partners will also be targeted to provide management input, construction services and marketing opportunities, adding further value to the partnership.

#### Offtake agreements

Offtake agreements, particularly with Australian customers for the CCL Project, will represent affirmation of the projects' credentials and a major step forward in ensuring all the projects' production will be sold.

#### Final funding package

The finalisation of the funding for the projects will enable construction to begin. MRL has stated that it expects equity injections into the projects for a percentage share of the project. This would enable the remaining portion of the project to be funded by debt, meaning no further equity will be required from MRL shareholders.

#### Commencement of construction

The start of construction for the projects will represent a major de-risking event for MRL, placing the projects' timelines under MRL's control.

### OBIS – Key Catalysts

#### Land compensation process

A key hurdle to getting the project construction for the OBIS Project underway is to finalise the landholders' compensation packages. Finalising this process will ensure the local community is adequately compensated for land loss and disruption and that the projects can proceed. Although this process is not as onerous as Native Title in Australia, it can nevertheless be difficult and time consuming. The completion of land compensation will represent a major milestone for the project.

#### Commencement of Pilot Plant

The commencement of the pilot plant will be a key catalyst for the project as it will demonstrate ability to execute as well as begin the process of testing and improving the processes.

#### Commencement of Construction of Final Plant

The start of construction for the projects will represent a major de-risking event for MRL, placing the projects' timelines under MRL's control.

### EEP – Key Catalysts

#### Power Purchase Agreement (PPA)

The approval of the PPA will represent the underlying contract on which to deliver power and is to be approved by the PNG Government before the EEP Project can go ahead

#### Final funding package

The finalisation of the funding for the project will enable construction to begin. MRL has stated that it expects equity injections into the project for a percentage share of the project. This would enable the remaining portion of the project to be funded by debt, meaning no further equity will be required from MRL shareholders.

### General Catalysts

#### Political climate in PNG

PNG's political climate can be volatile, a common issue in developing economies. However, the current government appears supportive of MRL's projects and 'nation-building partner' strategy. Continued support for the projects and stable fiscal terms will be positive for MRL.

#### Exposure to international commodity prices and exchange rates

MRL's projects are exposed to commodity prices and exchange rates, which can be volatile, however can be favourable as well.

## Risks to the Share Price and Valuation

### CCL – Key Risks

#### Strategic partner issues

MRL is reliant on strategic partners for the CCL Project in order to fund it with minimum call on MRL shareholders. If strategic partners cannot be sourced for the project, funding will become difficult to obtain.

#### Offtake agreements not being secured

The CCL Project in particular depends on securing offtake agreements in the Australian market. Offtake agreements are often critical factors in securing debt finance.

#### Debt finance issues and/or delays

The securing of strategic partners is a crucial step in funding; however, there is a further risk that debt funding may not be able to be secured or may be prohibitively expensive.

#### Increases to capital costs

Increases to capital costs in projects have a direct negative valuation effect.

#### Re-positioning of supply sourcing by customers

The CCL Project is a low-cost project and offers competitive pricing into both the PNG and Australian markets. MRL is exposed to competitors matching or beating its pricing to attempt to squeeze the company out of the market.

### OBIS Project – Key Risks

#### Landholder agreements not being signed - OBIS Project

The OBIS Project requires landholder agreements to proceed. These negotiations can be difficult and could lead to time delays with the projects.

### EEP – Key Risks

#### Approval delays

Licence and regulatory approvals (particularly the EEP Project PPA) are crucial in progressing the projects to the next stage.

### General Risks

#### Tight Share Register and Lack of Liquidity

The share register of MRL is tightly held with 78% of shares in the top 20 shareholders, including 28% with the largest shareholder (CEO). The lack of liquidity in the stock may lead to large movements in the share price on small volumes of stock.

#### Multiple project delivery risk

MRL has several projects all being progressed at the same time. MRL is a small company and the expectation of delivery of multiple projects does represent a risk.

#### Exposure to international commodity prices and exchange rates

MRL's projects are exposed to commodity prices and exchange rates, which can be volatile.

#### Volatile shipping costs

MRL plans to manage its own shipping and will be exposed to shipping rates that are largely out of its control and that can be volatile. Higher-than-expected rates could reduce the competitiveness of MRL's products in export markets.

#### Country risk for PNG

Political risk tends to be higher in developing countries than in developed economies. The current government supports MRL's projects and 'nation-building' strategy but risks still exist regarding regulatory and fiscal change in particular.

## The Central Cement and Lime Project (CCL Project)

The CCL Project is located 25km from PNG's capital Port Moresby and is a long-life, low-cost, cement and quicklime manufacturing plant for PNG consumption and nearby export markets. We view this project as a Tier-1 asset. The project site is well placed to service both domestic demand and regional growth in the coming years.

The project is largely dependent on securing a strategic partner, with a number of parties shortlisted and undertaking due diligence (DD).

### CCL Project: Valuation and Sensitivity Analysis

#### Project timing

We have assumed that the CCL Project is funded and approved in FY2021 and that it is a two and a half-year build. We have assumed production commences in FY2024.

#### Valuation

The CCL Project represents 57% of our enterprise valuation. We have risked the project at 50%. This is a very large scale project, a strategic partner remains to be secured as well as final funding.

#### Strategic investor

We have assumed that the project is partly funded via a strategic investor and that the strategic investor will invest US\$120m for a 50% stake in the project.

#### Offtake agreements

We have assumed that MRL is able to execute offtake agreements with both PNG and Australian customers in order to sell the CCL Project's production (ex-spot contracts).

#### Assumed funding of the project

- Strategic partner acquires 50% of the project for US\$120m.
- The project will be funded 70% debt and 30% equity.
- The injection of the US\$120m will cover the 30% equity requirement.
- 70% debt shared 50/50 by MRL and JV partner.
- MRL will have a 50% interest in project cash flows.

Exhibit 6 – Funding Model – CCL Project US\$

Funding Model	US\$
<b>Total Estimated Capex</b>	<b>\$364,474,000</b>
<b>Funding Breakup</b>	
Equity Injection Strategic Partner to Obtain 50%	<b>\$120,000,000</b>
Debt Borrowing 70% of Total Project Cost	<b>\$255,131,800</b>
Total Funding Capacity	<b>\$375,131,800</b>
<b>MRL's Share of Debt</b>	<b>\$127,565,900</b>

Source: MST estimates, MRL

## Modelling assumptions for CCL Project

We outline our assumptions for the CCL Project in Exhibit 7. Our capital cost assumptions are in Exhibit 8.

### Exhibit 7 – Key MST Modelling Assumptions and Estimates – CCL Project

<b>Material Mined (tpa)</b>	3,100,000
<b>Clinker Production (tpa)</b>	825,000
<b>Cement Production (tpa)</b>	907,500
<b>Quicklime Production (tpa)</b>	198,000
<b>MST Estimate Cement Price (US\$/t) - CFR Australia</b>	\$65
<b>MST Estimate Clinker Price (US\$/t) - Australia Only CFR</b>	\$53
<b>MST Assumption Quicklime Price (US\$/t)</b>	\$115
<b>Risk Factor</b>	50%
<b>Tax Free Period (years)</b>	7
<b>Depreciation straight line</b>	10 years

Source: MST estimates

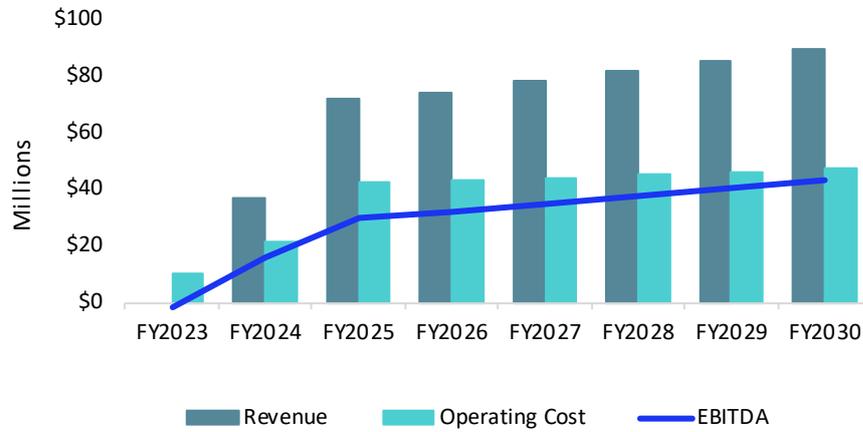
### Exhibit 8 - Capital Cost Assumptions – CCL Project US\$

<b>CCL PROJECT CAPEX ESTIMATES</b>	<b>FY2022</b>	<b>FY2023</b>	<b>TOTAL</b>
Quarry	\$4,820,000	\$4,820,000	<b>\$9,640,000</b>
Cement/Clinker Plant	\$90,580,000	\$90,580,000	<b>\$181,160,000</b>
Quicklime	\$9,960,000	\$9,960,000	<b>\$19,920,000</b>
Power Station	\$25,375,000	\$25,375,000	<b>\$50,750,000</b>
Wharf	\$27,465,000	\$27,465,000	<b>\$54,930,000</b>
Access Road	\$1,765,000	\$1,765,000	<b>\$3,530,000</b>
Fresh Water Supply	\$880,000	\$880,000	<b>\$1,760,000</b>
Owners Costs	\$4,825,000	\$4,825,000	<b>\$9,650,000</b>
<b>MST Cost Increase Allowance (10%)</b>	<b>\$16,567,000</b>	<b>\$16,567,000</b>	<b>\$33,134,000</b>
<b>Total Initial Capital</b>	<b>\$182,237,000</b>	<b>\$182,237,000</b>	<b>\$364,474,000</b>
<b>MRL Share 50%</b>	<b>\$91,118,500</b>	<b>\$91,118,500</b>	<b>\$182,237,000</b>

Source: MST estimates, MRL

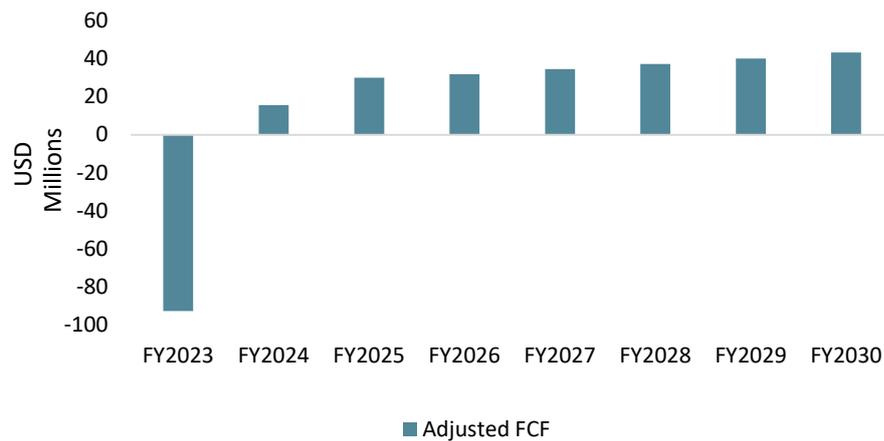
## Project production and free cash flow forecasts for the CCL Project

Exhibit 9 – CCL Project Revenue Profile and EBITDA (50% Basis) US\$M



Source: MST estimates

Exhibit 10 – Free Cash Flow Generation (MRL share 50%) US\$M



Source: MST estimates

## Sensitivity analysis for CCL Project

The key items that affect the valuation of the CCL Project are capital costs, operating costs, and prices for cement, clinker and quicklime. In Exhibits 11 and 12, we show the sensitivity of MRL's valuation to changes in these variables.

Exhibit 11 – Sensitivity Analysis – CCL Clinker Price and Cement Price (US\$/t) – MRL Valuation Sensitivity

		CEMENT PRICE				
		55	60	65	70	75
CLINKER PRICE	43	1.20	1.23	1.27	1.31	1.35
	48	1.26	1.30	1.33	1.37	1.41
	53	1.32	1.36	<b>1.40</b>	1.43	1.47
	58	1.38	1.42	1.46	1.50	1.53
	63	1.44	1.48	1.52	1.56	1.60

Source: MST estimates

Exhibit 12 – Sensitivity Analysis – CCL Operating and Capital Costs – MRL Valuation Sensitivity

		CAPITAL COST				
		-10%	-5%	0%	5%	10%
OPERATING COST	-10%	1.54	1.52	1.49	1.47	1.44
	-5%	1.49	1.47	1.44	1.42	1.39
	0%	1.45	1.42	<b>1.40</b>	1.37	1.35
	5%	1.40	1.37	1.35	1.32	1.30
	10%	1.35	1.33	1.30	1.28	1.25

Source: MST estimates

### Current Status/Next Steps: Definitive Feasibility Study Complete, Approvals in Place; Strategic Investor and Offtake Agreements to be Finalised

MRL completed a definitive feasibility study (DFS) in January 2019 relating to the construction of the CCL Project, which will be PNG’s first vertically integrated quicklime, clinker and cement plant. This project is based on two large-scale, high-quality limestone deposits near Port Moresby. The CCL Project DFS forecast output of 1.65Mtpa of clinker, 198ktpa of quicklime, and 907.5ktpa of cement grinding capacity to supply domestic and export markets at an estimated capital cost of US\$331m. The DFS estimated a construction timetable of two years and a project life of 30 years.

The project hosts over 380Mt of limestone JORC resources and a maiden JORC reserve of 78Mt.

With the recent granting of the mining licence, the final milestone in the statutory permissions and approvals process has been met and the project is now construction ready, with construction bids received.

#### Key next steps for the project

##### Signing of project strategic partner

MRL’s preferred operating model for the CCL Project is to have a strategic investor invest in the project. MRL’s preferred level of equity in the project for the strategic investor is circa 50%. The strategic investment has several key requirements:

- Injection of equity into the project, reducing MRL’s debt requirements and covering the entirety of the equity portion funding of the project (70% debt/30% equity)
- Provision of EPC services and performance guarantees to enable project development
- Market insights and assistance with customer offtake finalisation
- Assisting in the execution of the debt funding plan for the project, which KPMG has compiled.
- The strategic partners have been shortlisted by KPMG and will continue the DD process once Covid related travel restrictions have been lifted.

The signing of a strategic investor will be a major milestone for the project and will represent a large step to having the project fully funded.

##### Finalisation of product offtake agreements

The finalisation of offtake agreements, particularly with Australia-based clinker and cement customers, is another important step in the development of the project. Binding offtake agreements are preferable although not essential for the project to go ahead. The agreements give potential strategic partners added confidence to the legitimacy of the CCL’s markets. MRL commissioned a Big 4 accounting firm to validate MRL’s market assumptions.

##### Award of EPC, design and engineering contracts

The awarding of these contracts effectively represents the start of the construction of the project. As stated above, MRL plans to have the strategic investor tied directly into the development and construction of the project.

##### Finalisation of project financing arrangements (including strategic investor)

Funding is planned to be 70% debt and 30% equity. The strategic partner will cover the equity portion of funding, which will assist in attaining the debt portion. Signing of offtake agreements will also contribute significantly to obtaining full debt funding.

Potential for early lime kiln start

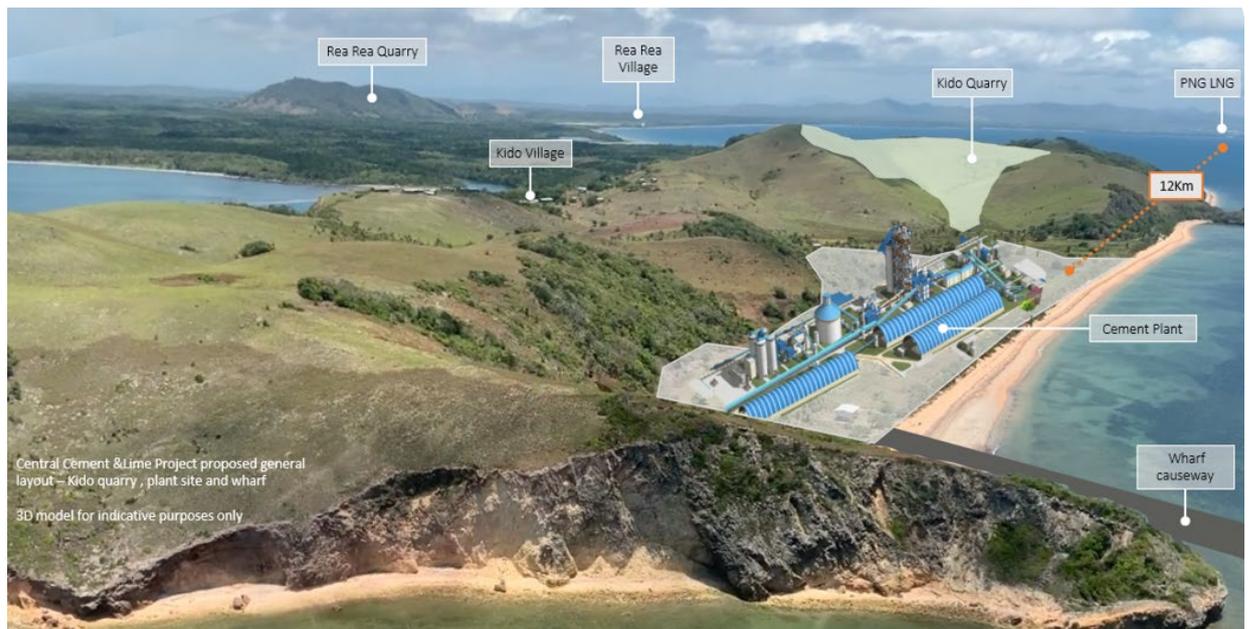
MRL has the option to commence with a small quarry to support raw feed requirements for its 600 tpd lime kiln. This approach would have lower upfront capex and earlier cash flow generation. MRL would seek funding independent of a strategic equity partner for this option.

Exhibit 13 – CCL Project Located Near Port Moresby



Source: MRL

Exhibit 14 – CCL Project – Quarry, Plant and Wharf Layout



Source: MRL

## Why Build a Cement and Lime Plant in PNG? High-Quality Resources, Coastal Location, Proximity to Markets and Import Replacement

MRL is strongly positioned to be one of the lowest-cost quicklime, clinker and cement producers in the Asia-Pacific region, with a significant freight advantage into the local and Australian markets. The company will aim to displace higher-cost clinker and cement imports into the Australian market.

### Freight advantage to lead to competitive exports

The CCL Project freight advantage in shipping quicklime, clinker and cement to Australia is considerable. Shipping times are half of those from the next major port, Jakarta and one third of shipping times from Japan and China. This cost advantage means MRL can land lime, clinker and cement into Australia at a lower price than other importers. The impact of the International Maritime Organisation (IMO) 20/20 regulation on bunkers is likely to further enhance the CCL Project's freight advantage.

### High-quality deposits and access to raw materials and labour underpin the project

High-quality coastal limestone deposits with ~96% of the resource at surface underpin the project. The deposits sit 25 km from Port Moresby with direct access to deep water for ocean-going vessels. Within 7 km of the deposits is the PNG LNG project, enabling gas to be considered as one of the future fuel sources. The integrated clinker, cement and quicklime plant will be constructed next to the deposits, thus keeping transport operating costs low from the limestone quarry (see Exhibits 13 and 14 for project quarry locations).

In addition, MRL has direct control of other cement raw materials (iron, silica, clay, coal) and has access to a competitive labour force.

### Aligned with stated government objectives, multiple economic and community benefits

The company's strategy for building the CCL Project aligns with the PNG government's desire to diversify the country's extractive industries and have more secondary processing occurring domestically with downstream, vertical integration to retain value-adding activities in the country. Currently, there are no clinker or integrated cement production plants in PNG, with all supply imported from Asia. The project will replace imports of clinker, cement and quicklime by producing sufficient quantities to supply PNG domestic demand. The project has a significant freight distance advantage over PNG's current supply source and offers a substantial price benefit to PNG customers. As a single supplier to PNG, it is in MRL's interest to keep prices well below those of imports to ensure no alternative supplies take away its market share.

The CCL Project will provide many benefits to PNG communities and to the broader economy with MRL estimating:

- Over 1,000 construction jobs and 300 full-time operational jobs
- Royalties of over 100 million Kina (US\$30m) over the project's life
- Corporate tax of over 5 billion Kina (US\$1.5 billion) over the life of the project
- Landholder business opportunities and contracts
- Access to water, power and roads for landholders
- Improved health and educational services to local landholders, supplied by the project.

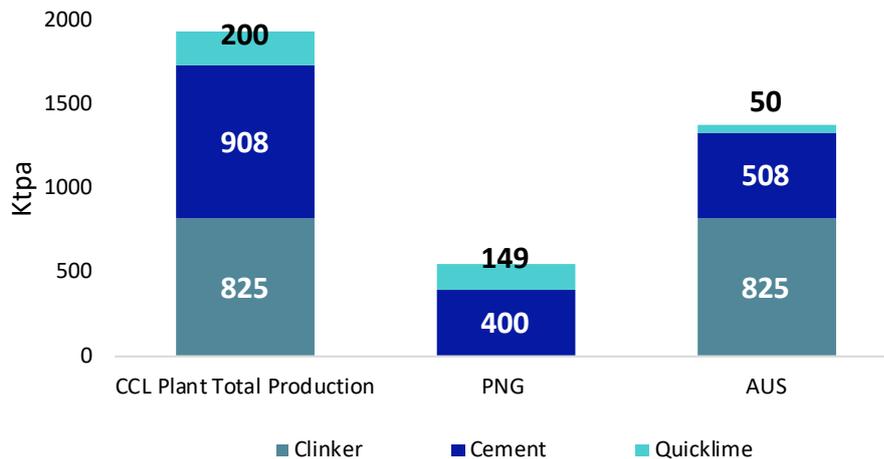
## What Will the CCL Project Produce?

Exhibit 15 – CCL Project DFS Initial Products and Production Targets

Product	Description / Specification	Volume (tpa)	Target Market
<b>Clinker</b>	Material that is suitable for low alkali cement manufacture according to AS 3972-2010	825,000	<b>Export</b> (Australian East Coast)
<b>Cement</b>	Material that meets AS 3972-2010	907,500	<b>Domestic (PNG) and Export</b> (Australian East Coast)
<b>Quicklime</b>	Material that meets AS 1672.1 (Lime for Building)	198,000	<b>Domestic (PNG) and Export</b> (Australian East Coast)

Source: MRL

Exhibit 16 – CCL Project Production Targets and Target Markets (Ktpa)



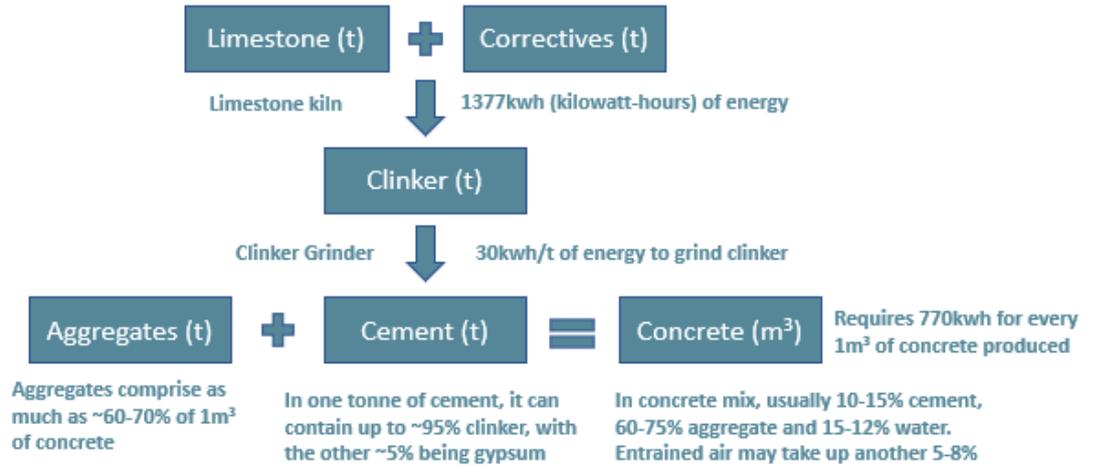
Source: MRL

### Clinker and cement

Clinker is an intermediate step in the production of cement. Clinker is produced from limestone combined with alumina and silica (correctives). Cement is produced by grinding clinker with other active ingredients into a fine powder. Cement can contain 85-95% clinker, up to 5% gypsum and up to 15% admixtures. The CCL will produce a low alkali product, leading to a quality advantage.

The CCL Project will produce 1.6Mtpa of clinker. Of that 1.6Mtpa, 825ktpa of clinker is planned to be exported to Australia with the other half used to produce 907.5ktpa of powdered cement.

Exhibit 17 – CCL Project – Process – Limestone to Concrete



Source: MST / MRL

### Quicklime

Quicklime is used extensively in the recovery of gold and silver. Lime also has a wide range of other uses, including the stabilisation of road pavements, agriculture, Ph correction, water treatment, paper whitening and many others.

The CCL Project will produce 198ktpa of quicklime. Of that 198ktpa, 149ktpa is planned to be sold within PNG with the remaining planned to be exported to Australia.

## CCL Project Markets: Import Replacement for PNG; Market Opportunity for Australia

### Where are the CCL Project's markets?

Cement is core to the construction industry and the development of infrastructure. Currently PNG is 100% dependent on imports for its cement supply (via imported clinker and imported cement). The CCL Project will be able to replace all the imported products, with 44% (400ktpa) of its planned 907.5ktpa cement production, at a much lower price for customers. The majority of PNG's quicklime is imported from Thailand, and it is anticipated the CCL Project will replace a significant part of that volume.

MRL plans to sell all its clinker production and the remaining cement and quicklime production into the Australian/Pacific market, where MRL's low cost base and significant freight advantage will allow it to be competitive in terms of both price and lead time.

### The PNG cement market: replacing PNG's cement imports

Import data estimates current clinker and cement demand in PNG at ~260ktpa as given by import data. The actual amount is most likely to be higher due to unreported imports, mainly from Japan, China and Vietnam. In PNG, there is only one clinker grinding facility in the city of Lae on PNG's northern coast (nothing in Port Moresby) with ~140ktpa of imported clinker processed. The other 120ktpa is imported cement.

PNG cement consumption based on official imports is ~30kg of cement consumption per capita compared to other developing countries at ~250-600kg, offering substantial growth opportunities within PNG.

Freight has a significant impact on the cost of the delivered product, given the heavy weight of cement. A local presence represents a significant advantage over importing competitors. Cost competitiveness is also driven by greater access to low-cost materials, increased scale in production, higher fuel and power efficiency, and lower labour costs.

Importing clinker and grinding it into cement in PNG is an expensive process due to high freight costs from small shipments and high power grid energy costs; this proximity play and having access to its own captive cheap energy will give MRL a cost advantage over PNG's only cement grinding facility. Demand for cement in PNG has largely been driven by large resource projects. The approval and subsequent construction of projects such as PNG LNG and Wafi-Golpu are likely to significantly increase demand for cement.

In addition, the PNG government recently announced "Connect PNG". A 20-year plan to build a PNG wide road network connecting the major regions of the country. The programme has 20 billion Kina approved "in principal". The fruition of this programme will substantially increase demand for cement.

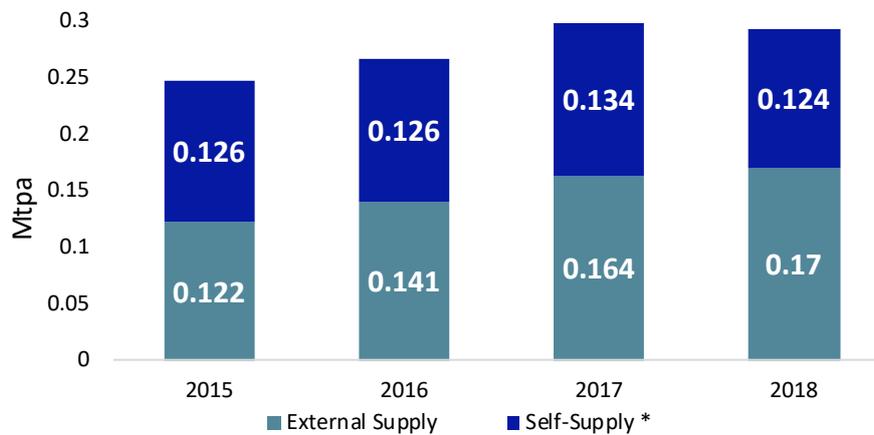
We note that there is a strong relationship between increased GDP and cement consumption as economies mature.

### The PNG quicklime market: location and quality advantage

75% (150ktpa) of the CCL Project's quicklime production will be sold in PNG to existing gold and nickel producers who are currently importers of quicklime. PNG demand for quicklime is approximately 300ktpa, meaning ~50% of PNG quicklime demand could be supplied by the CCL Project. Local customers will benefit from similar advantages from domestically produced quicklime as with cement: a freight advantage over importing competitors, superior access to low-cost materials, increased scale in production, higher fuel and power efficiency, and lower labour costs driving cost competitiveness.

A number of existing projects such as Ramu Nickel have not been factored by MRL as a potential customer of the CCL. Inclusion of such projects could support kiln expansions. Any new gold projects such as Wafi-Golpu or expansions to existing projects are likely to significantly increase the demand for quicklime. These have not been factored into our valuation.

Exhibit 18 – PNG Quicklime Demand, 2015–2018 (Mtpa)



Source: MRL

\*Self-supply includes Porgera, Hidden Valley and Ok Tedi

### Clinker and cement export to Australia: a very competitive offering

MRL aims to gain a market share of ~18-20% of Australian clinker imports and ~28-33% of cement imports. The Australian industry’s shift from domestically produced clinker and cement to imports, as well as MRL’s focus on becoming one of Asia’s lowest-cost producers of clinker and cement and its geographical advantage, sets up MRL to penetrate the Australian markets.

**Clinker:** MRL targets to export 100% of the CCL Project’s clinker production (825ktpa) to Australia, supplying ~20% of imported clinker demand. The clinker market in Australia was around 9.6Mt in 2018, with 5.4Mt domestically produced and 4.2Mt imported (see Exhibit 21). Clinker imports have grown, up 15% pa from 2012 to 2018, as a result of the closure of clinker kilns due to environmental concerns of old plants, rising energy costs and ageing kilns operational costs. In addition, increased competition from larger-scale kilns in Southeast Asia has further driven the closure of smaller and less efficient domestic kilns. Investment in new lime kilns is unlikely due to high capital costs and build time. This represents a significant potential market for MRL, which is positioned to take advantage of a fundamental/structural change in Australian industry – where there is an industry shift towards more imports of clinker and cement.

**Cement:** Australian cement demand is estimated at around 11.6Mtpa (see Exhibit 22). Of that, 6Mt of cement is domestically produced by key players such as Cement Australia, Adelaide Brighton and Boral, using fully integrated plants. The balance of cement is imported predominantly from Japan, Taiwan, China and Thailand, either in powder form or as clinker that is then ground in Australia.

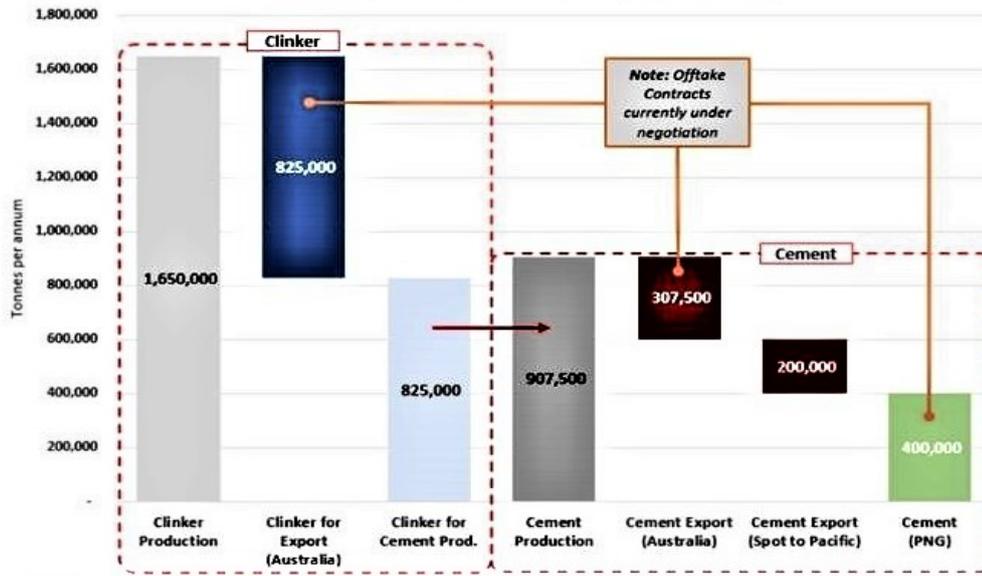
Capturing a ~28-33% share of Australian cement imports will require displacing a range of international suppliers. Australian cement imports and production grew an average of 4% pa from 2012 to 2018, driven in part by growth in residential, infrastructure and other construction.

MRL plans to gain market share in Australia using its geographical advantage, aiming to export 308ktpa of the CCL Project’s cement production to the Australian market. The remaining 200ktpa will be sold via the spot market in the Pacific region. MRL will predominantly target the east coast demand centres of Brisbane, Sydney and Melbourne. The project’s location, only an average of 6 days’ sailing from Australia’s largest demand markets, represents a significant freight advantage over other Asian suppliers (which are at an average of 19 days’ sailing—see Exhibit 20). The shorter sailing time also represents a considerable benefit for customers by providing a shorter ordering window, allowing more efficient inventory management and further cost savings.

MRL may also benefit from the IMO 20/20 introducing new sulphur regulations to reduce sulphur oxide emissions from ships, which will likely increase current freight rates.

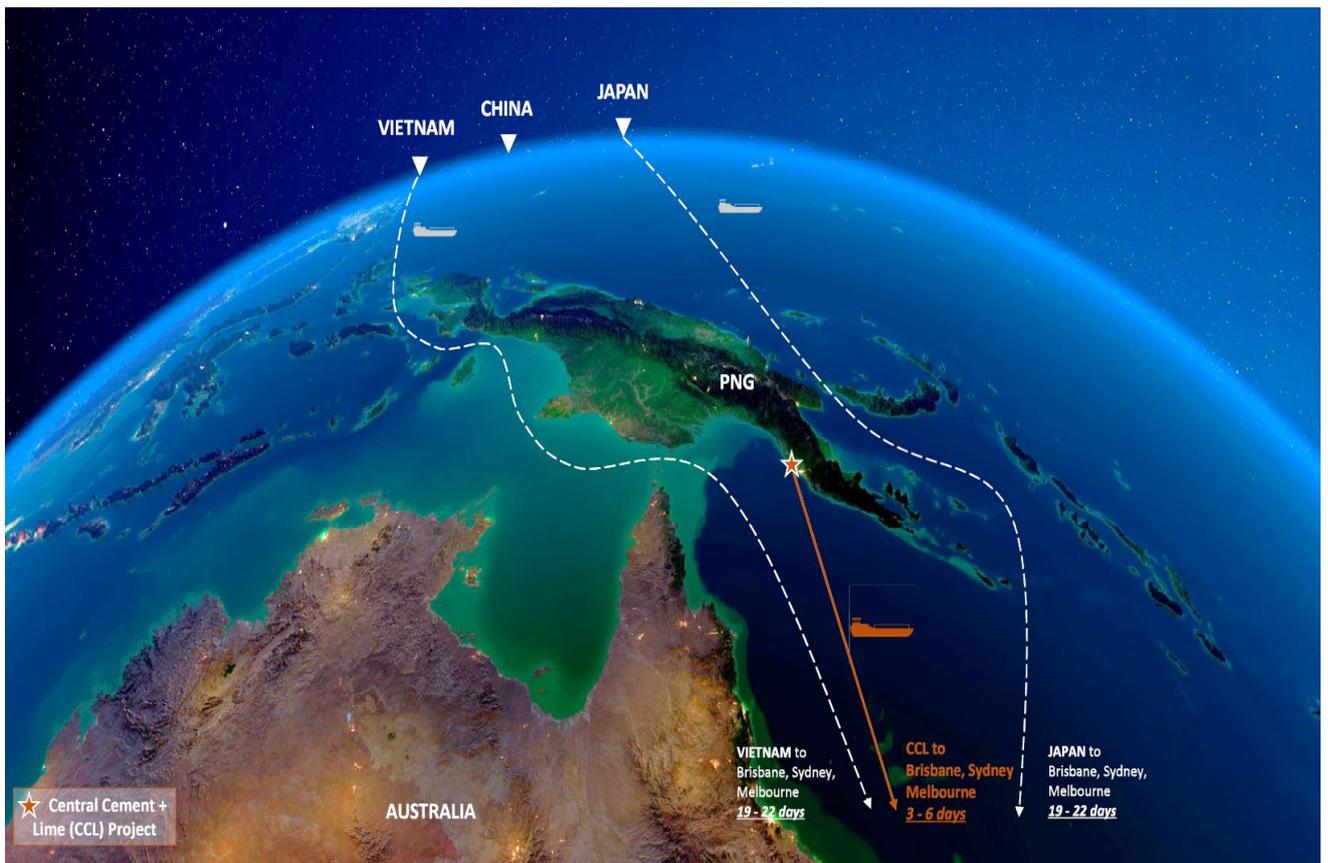
**Offtake agreements:** MRL is in negotiation with Australian, Pacific and PNG cement and clinker customers for offtake agreements. The offtake agreements represent an important step in the development of the CCL Project and subject to MRL’s discussions with potential strategic partners and their assessment of the market opportunity may not need to be secured pre-FID.

Exhibit 19 – CCL Project Clinker and Cement Production and Marketing



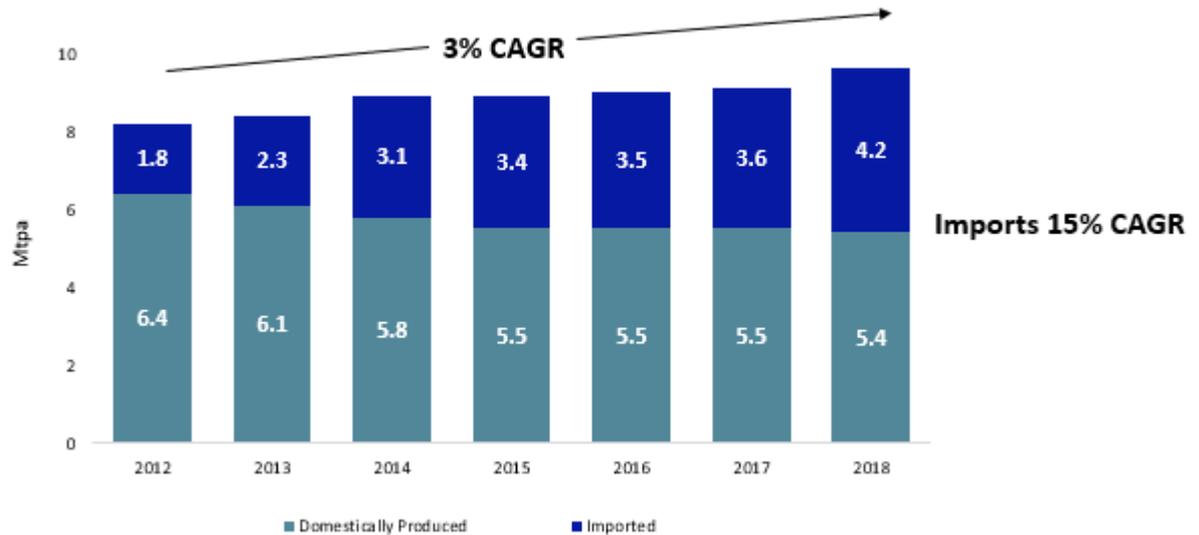
Source: MRL

Exhibit 20 – CCL Project Shipping Times to Australia Compared with Other Suppliers



Source: MRL

Exhibit 21– Australian Clinker Demand, 2012–2018: Growing Trend Towards Imported Clinker in Australia (Mtpa)



Source: MRL

Exhibit 22 – Australian Cement Demand, 2012–2018: Steadily Growing, With Imports Increasing (Mtpa)



Source: MRL

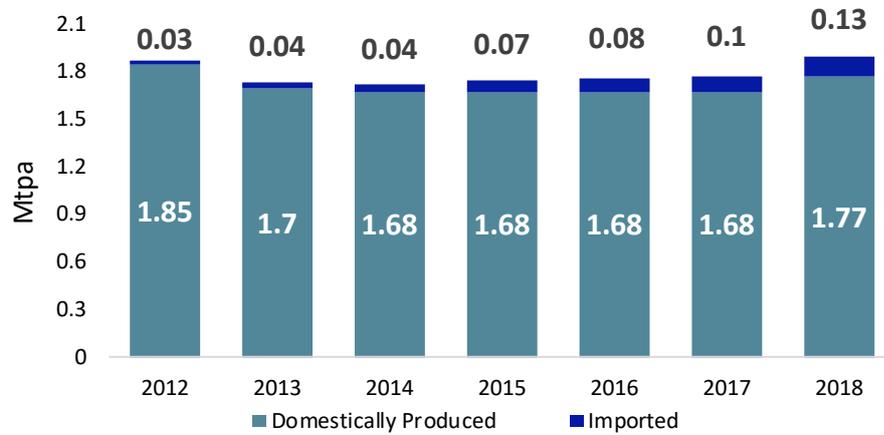
**Quicklime to Australia and Pacific Islands – Opportunities Abound**

Of the CCL Project’s quicklime production, 25% (50ktpa) will be exported to Australia. MRL’s proposed exports of lime to Australia represent a small fraction of the total Australian market, meaning that there is a significant opportunity to grow the business via staged expansions of addition quicklime kilns and capturing a larger share of the Australian market, particularly to the nearby Northern Territory and Queensland markets.

It should also be noted that Alcoa in Western Australia recently cancelled a 50-year local sourcing relationship with Adbri to move to quick lime imports. MRL will be well placed to compete for these imports once its project is up and running. MRL will also be in strong position to compete for supply to Alcoa’s near neighbour Worsley Alumina along with demand from the gold sector, water treatment and road stabilisation sectors. The greater the volume the greater leverage Mayur will have to implement economy of scale operational cost advantages and further reduce the export price into Australia.

Other potential opportunities for the CCL include Vale’s Goro Nickel (New Caledonia), which is a large consumer of limestone (circa 1mtpa). Given the proximity to New Caledonia CCL could provide a competitive solution. The acidification of lakes, streams and rivers are an increasing environmental concern, the addition of lime has proven to be an effective way to restore waterway health.

Exhibit 23 – Australian Quicklime Demand, 2012–2018 (Mtpa)



Source: MRL

## Reserves and Resources

### Reserves

The CCL Project has a Maiden Ore Reserve of 78Mt of limestone and a 14Mt Maiden Mineral Resource for correctives to support the 30-year project, with a quarrying rate of 3.1 Mtpa with zero strip ratio. Given the size of the resource, reserves are only limited by the 30-year mine plan as approved, rather than being constrained by resource availability.

### Mineral resource estimate

The mineral resources for the project total 382Mt of limestone. The project is a high-grade long-life resource.

## Mining and Processing

### Mining

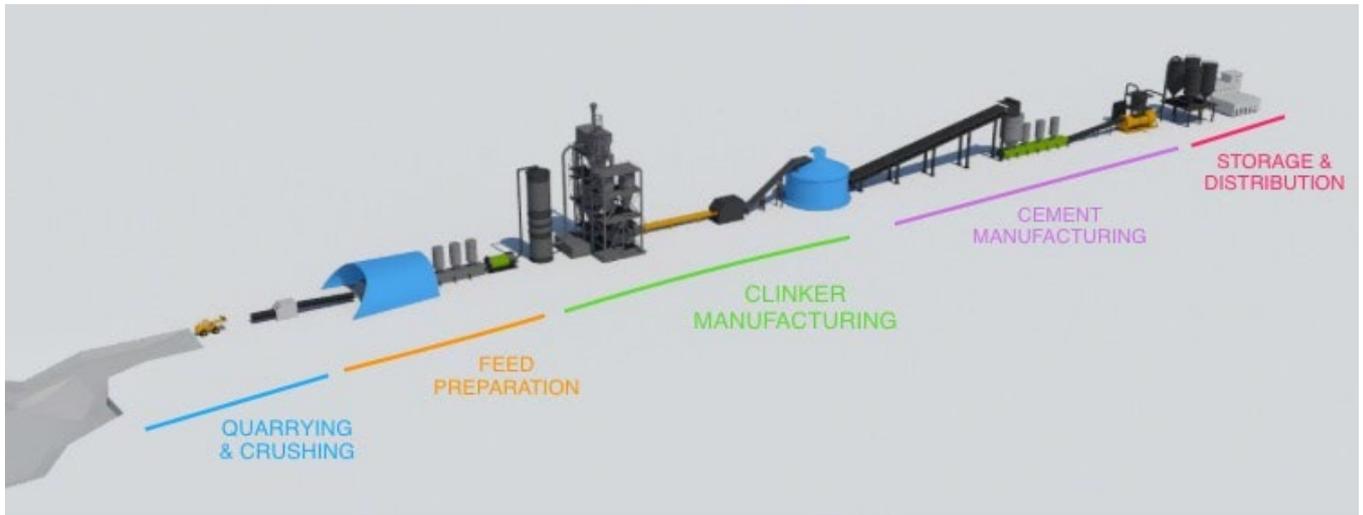
The mining method is based on conventional open pit quarrying. The project is akin to a quarrying operation, as the limestone reserve areas are two large, homogeneous hills. The correctives mineral resource area is a low rise of colluvial hills which has an outcrop extent greater than a 15km strike length.

### Processing

The cement plant is divided into three parts:

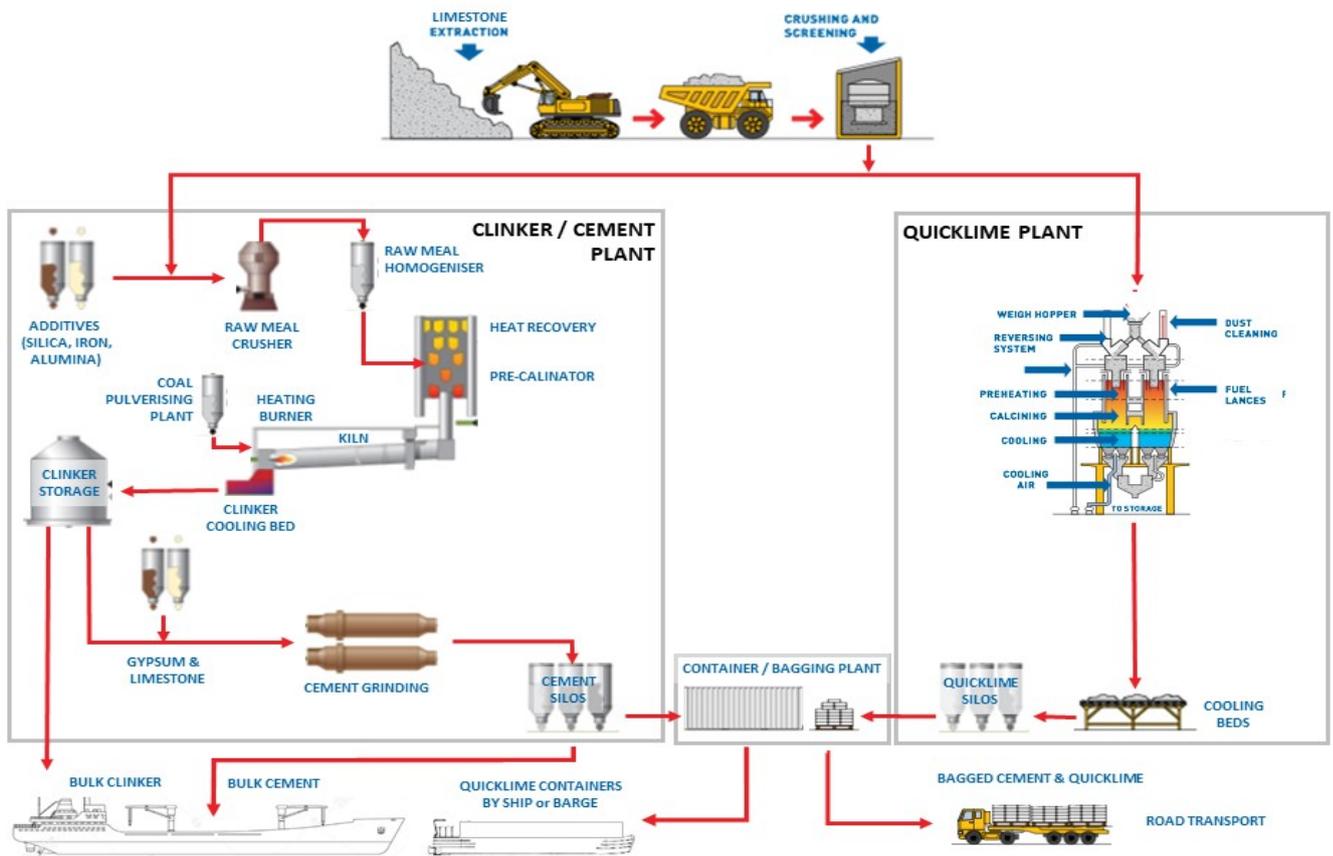
- Raw materials preparation area
- Main production area (involves a 5000t/d clinker kiln)
- Cement grinding and dispatching area

Exhibit 24 – Simplified Plant Layout for Clinker and Cement (for illustrative purposes only)



Source: MRL

Exhibit 25 – Central Cement and Lime Project Process Flow Diagram



Source: MRL

## Logistics

MRL's overall logistics facilitate a drastically reduced supply chain timeframe compared with other importers of the same products into Australia. MRL will initially ship clinker and cement in bulk carriers but, given the voyage distances, is considering the use of large pneumatic chartered cement vessels to service the demand centres of Darwin, Townsville and Mackay and (subject to economics compared to bulk vessels) potentially the demand centres of Brisbane and Sydney. The use of pneumatic vessels will enable low-cost powder cement import terminals to be established without the need for costly landside pneumatic pumping systems to be installed.

Shipping from PNG (see Exhibit 20) to Australia is considerably faster than it is from Asia, therefore it is easier to manage logistics. Shipping times are:

- 3 days' shipping to Townsville
- 5 days' shipping to Brisbane
- 7 days' shipping to Melbourne

We estimate shipping freight costs from PNG to be US\$8-10/t.

MRL will also have a freight advantage to existing lime users in PNG and the east coast of Australia. With MRL's competitive cost structure we expect they will be able to compete into the large Alumina and gold markets in Western Australia.

## Fuel and Freight Rates

With the introduction of new diesel and sulphur limits on international shipping, any negative impact on the market will make MRL more competitive in its delivery of products, not only in PNG but also in the Australian markets, due to its relatively close geographical location.

## The Orokolo Bay Industrial Sands (OBIS) Project – A Valuable Contributor – Definitive Feasibility Study (DFS) Completed

MRL is pioneering the development of an industrial and mineral sands portfolio in southern PNG. The company's flagship industrial minerals project is the OBIS Project, with a recently completed DFS and a JORC resource including 112.8Mt of industrial construction sand and 242.5Mt of Vanadium Titanomagnetite (Cut-off grade 5.25%Fe western deposit / 7.0% eastern deposit). The project also has a maiden Vanadium Titanomagnetite ore Reserve of 30.6 Mt.

The project is a joint venture with China Titanium Resources Holdings (CTRH), which will invest up to US\$25m for a 49% stake in the project. A pilot plant will now be completed upon Covid restrictions being lifted, we estimate that will be Q2/Q3 CY 2021, with an initial production capacity of 100,000tpa of iron ore sands.

The OBIS Project's products are detailed in Exhibit 26.

### Exhibit 26 – Products of the OBIS Project

Product	Description	Volume	Target Market	Offtake Status
<b>Construction Sands</b>	High quality fine grain sands for use in concrete, pavements and roadway construction	~1 Mtpa	Test works by Boral, Building and Construction Research & Consulting and Monier PNG For export to customers to Sydney or Singapore	2 x undergoing Due Diligence
<b>Titano-Magnetite</b>	A source of iron ore, also known as vanadium titanomagnetite "VTM" or iron sand concentrate	~0.4Mtpa	Japanese steel mills/ manufacturers in China/North Asia or traders	Offtake Agreement signed for 0.2Mtpa with major Chinese customer
<b>DMS</b>	Magnetite for use as Dense Media Separation (DMS) in coal washing - product will be in ground and transported to coal mines in QLD	~0.1Mtpa	Export to Mackay (Australia) Potential port sites identified at Port of Mackay	LOI x 4 Large scale miner/ coal processors
<b>VHMC</b>	A semi-processed zircon concentrate and other heavy minerals	~0.08Mtpa	For export to customers / trades in Asia (e.g. industrial sands processors in Hainan, China)	LOI with China Crude Processing Group

Source: MRL

## OBIS Project: Valuation and Sensitivity Analysis

### Project timing

We have assumed that the OBIS Project is funded and approved in FY2021 and that it is a two-year build. We have assumed production commences in FY2023.

### Valuation

The OBIS Project makes up 19% of our enterprise valuation. We have risked the project at 67%. We see this project as slightly lower risk than the CCL and EEP as it already has a strategic partner engaged and a DFS completed. There are still outstanding risks such as the mining licence and landholder agreements to be finalised.

### Strategic investor/funding of the project

- Strategic partner, China Titanium Resources Holdings (CTRH), has acquired 49% of the project for US\$25m.
- The injection of capital will effectively fund the capital cost of the project.
- CTRH will manage the project on behalf of the JV.
- Under this model, we have assumed that MRL will not be required to raise any equity from the market or its shareholders.

## Modelling assumptions for OBIS Project

We show our assumptions for the OBIS Project in Exhibit 27. Capital cost assumptions are in Exhibit 28.

### Exhibit 27 – Key Modelling Assumptions for OBIS Project

<b>Average Annual Production Average (tpa)</b>	1,508,000
<b>Life of Project (Years)</b>	15
<b>Titano-magnetite (US\$/t)</b>	\$59
<b>Magnetite for DMS Price (US\$/t)</b>	\$125
<b>Crude Zircon Price (US\$/%Zircon)</b>	\$15
<b>Construction Sand Price (US\$/t)</b>	\$28
<b>Risk Factor</b>	67%

Source: MST estimates

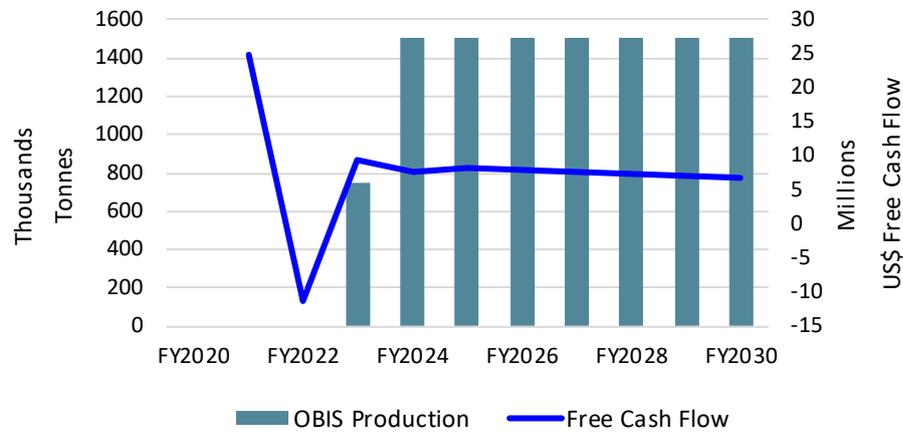
### Exhibit 28 – Capital Cost Assumptions for OBIS Project US\$

	<b>FY2022</b>
Mining	<b>\$623,000</b>
Mobile Equipment	<b>\$1,885,000</b>
Mineral Processing Equipment	<b>\$5,820,000</b>
Plant, Electrical & Instrumental	<b>\$2,444,000</b>
Wharves & Shiploading	<b>\$1,759,000</b>
Infrastructure	<b>\$7,604,000</b>
<b>MST Cost Increase Allowance (10%)</b>	<b>\$2,013,500</b>
<b>Total Initial Capital</b>	<b>\$22,148,500</b>
<b>MRL Share 51%</b>	<b>\$11,295,735</b>

Source: MST estimates, MRL

## Project production and free cash flow forecasts for the OBIS Project

Exhibit 29 – OBIS Project Production Profile (100% basis) and Free Cash Flow Generation (51% MRL Share Basis) US\$M



Source: MST estimates

## Sensitivity analysis for OBIS Project

The key items that affect our valuation of the OBIS Project are capital costs, operating costs and prices of industrial minerals. In Exhibits 30 and 31, we show the sensitivity of our overall valuation of MRL to changes in these variables.

Exhibit 30 – Sensitivity Analysis – OBIS Capital Costs and Operating Costs – MRL Valuation Sensitivity

		CAPITAL COST				
		-10%	-5%	0%	5%	10%
OPERATING COST	-10%	1.45	1.44	1.44	1.44	1.43
	-5%	1.42	1.42	1.42	1.42	1.41
	0%	1.40	1.40	<b>1.40</b>	1.39	1.39
	5%	1.38	1.38	1.37	1.37	1.37
	10%	1.36	1.36	1.35	1.35	1.35

Source: MST estimates

Exhibit 31 – Sensitivity Analysis – OBIS Pricing – MRL Valuation Sensitivity

		SALES VOLUME				
		-10%	-5%	0%	5%	10%
PRODUCT PRICE	-10%	1.27	1.30	1.33	1.36	1.39
	-5%	1.30	1.33	1.36	1.39	1.43
	0%	1.33	1.36	<b>1.40</b>	1.43	1.46
	5%	1.36	1.39	1.43	1.46	1.50
	10%	1.39	1.43	1.46	1.50	1.54

Source: MST estimates

## OBIS Project Current Status: DFS Completed; Two-Stage Development Planned

Exhibit 32 – OBIS Project Location



Source: MRL

A DFS has been completed on the OBIS Project. MRL plans to develop the plant in two stages:

### Stage 1: Pilot plant

This stage comprises the construction, commissioning and operation of a pilot scale bulk sample that is already environmentally and Mineral Resources Authority permitted to produce up to 100,000tpa of iron ore sands. Pre Covid the plant was due to be constructed in Q3 2020. Covid has delayed the project and we estimate that once Covid restrictions are lifted the pilot plant will take approximately 6 months to complete.

### Stage 2: Full-scale plant

Subject to the outcomes of the pilot plant bulk samples, this stage would expand the pilot plant to a total production capacity of around 1.5Mtpa.

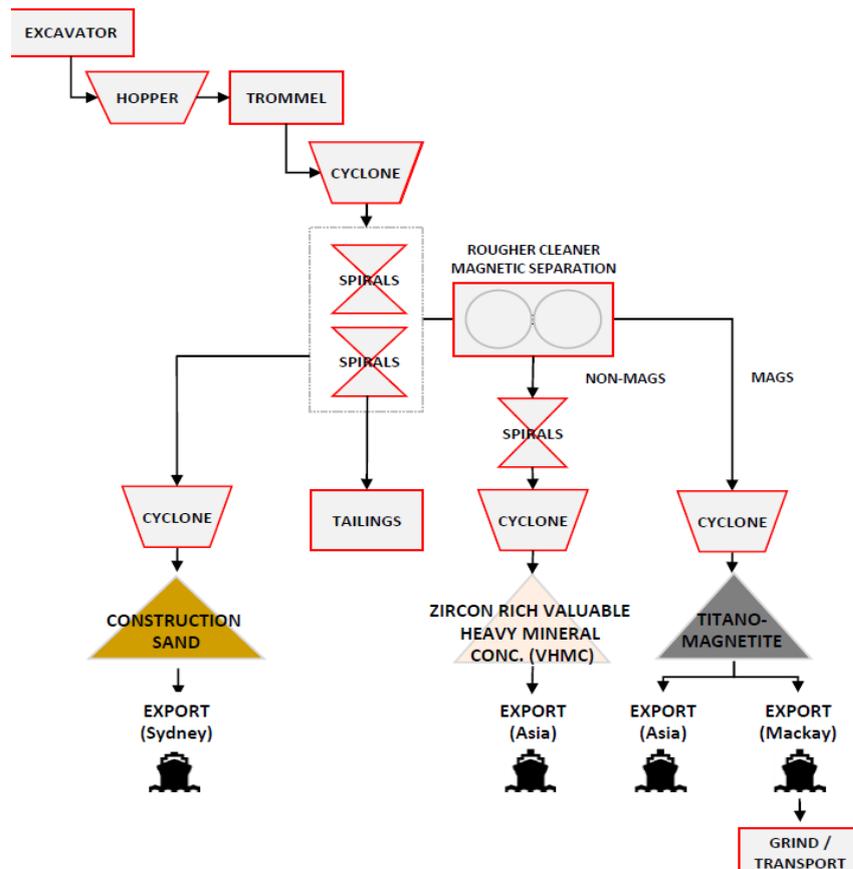
### Approvals for the project

- Exploration licence approved
- Permit to export up to 200,000t of material approved
- Final Mining licence (ML) to export up to 1.5Mtpa of product application submission to occur in Q3 2020
- Final Landholder agreements to be completed

## Mineral reserve and resource estimate

The mineral resources for the project include 112.8Mt of industrial sands, 242.5Mt of vanadium titanium magnetite (VTM) (57% Fe and 0.48 V<sub>2</sub>O<sub>5</sub>) and 107kt of zircon. A maiden Vanadium Titanomagnetite ore Reserve of 30.6 Mt announced July 2020 (refer appendix). The project has a high-grade long-life resource, and the processing of the mineral sands is straightforward—the various products will be produced via gravity separation and magnetic separation of naturally fine-grained material (see Exhibit 33).

Exhibit 33 – OBIS Project Process



Source: MRL

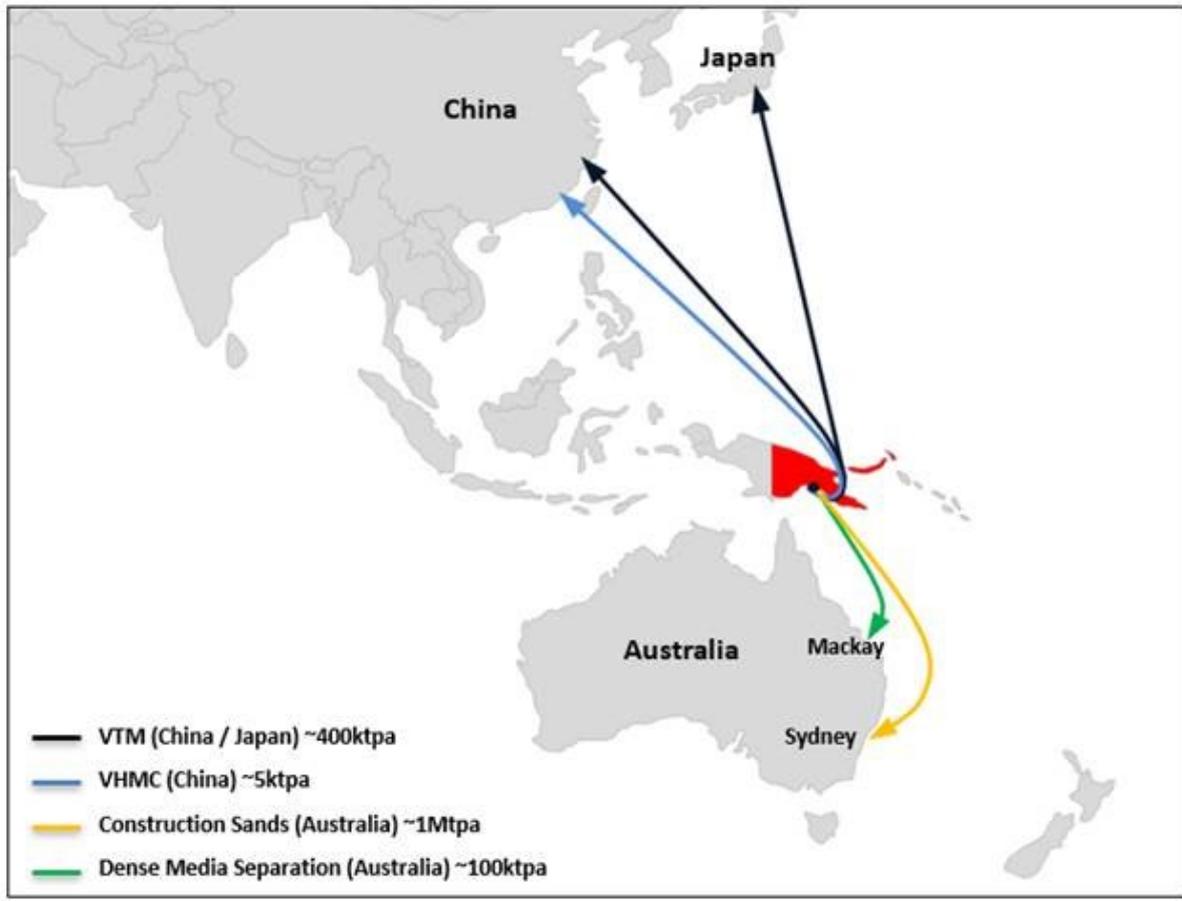
## Target markets for the products

The OBIS Project will target the steel/iron making markets of China and Japan for iron sand concentrate and building materials companies in Australia for construction sands and dense media separation (DMS) for coal washing plants in Queensland and NSW (see Exhibit 34).

The OBIS Project has potential of 500,000t of Iron Sands Magnetite (400,000 ear marked for Asian Steelmaking customers and 100,000 tonnes for Coal washing customers on the East Coast of Australia), with MRL having 200,000t under an offtake agreement with a specialised iron titanium pellet producer. MRL plans to sell 200,000t under spot or short-term contracts and 100,000t as ground magnetite to the coal industry for DMS use.

As with the CCL Project, MRL's freight advantage for DMS provision over other importers is a competitive advantage for the OBIS Project on the East Coast of Australia.

Exhibit 34 – Target Markets for OBIS Project’s Products



Source: MRL

### Next steps for the project

- Submission of Mining License Application
- Landholder agreements for full scale mining
- Pilot plant in production by Q2 2021 depending on Covid restrictions
- If pilot plant is successful, upgrade the facility to full-scale plant

### Additional Industrial Sands Project at Amazon Bay

MRL has another industrial sands project located in the Amazon Bay (in the Milne Bay Province). The project has significant potential for vanadium-rich titanomagnetite given the extensive work completed by previous explorers over many years. MRL estimates some \$30m has been spent on the project by the previous owners.

MRL views this project as an 'advanced exploration project' that will benefit from the expected demand growth in vanadium for use in vanadium redox flow batteries (VRFB) and advances in processing technologies to extract the valuable minerals of Iron, Titanium (TiO<sub>2</sub>) and Vanadium (V<sub>2</sub>O<sub>5</sub>).

There are a number of Vanadium companies listed on the ASX ranging in market capitalisation from \$6m to \$90m. MRL considers the TNG Ltd Mount Peake vanadium-titanium-iron project to be most analogous to the Amazon Bay Project. The TNG Ltd Project has a 160mt resource grading 0.28% Vanadium, 5.3% TiO<sub>2</sub> and 23% Fe. TNG Ltd has a market cap of \$84m.

## The Lae Enviro Energy Park (EEP) Project – Generating Valuation Upside

MRL is pioneering the development of an environmentally sustainable solution to PNG’s power generation problems via an ‘Enviro Energy Park’ (EEP) concept.

### EEP Project: Valuation and Sensitivity Analysis

#### Project timing

We have assumed that the EEP Project has a two-year build, and have the project beginning production in FY2024.

#### Valuation

The EEP Project makes up 15% of our enterprise valuation. We have risked the project at 50%. This is a large scale project with a relatively long lead time with final funding and power agreement to be finalised.

#### Funding of the project

We have assumed that MRL brings in a strategic investor for 30% of the project for US\$30m. The remainder of the project is funded by debt, of which MRL has 70%.

#### Modelling assumptions for EEP Project

Our modelling assumptions for the EEP Project are shown in Exhibit 35. Capital cost assumptions are in Exhibit 36.

Exhibit 35 – Key Modelling Assumptions – EEP Project

Annual Production (MW)	50
Lae Power Price (US\$/MWh)	\$157
Attributable Electricity Production (MWh)	156,000
Coal Price (US\$/MWh)	\$150
Coal Extraction Cost (US\$/t)	\$30
Coal Consumption (Tpa)	300,000
Risk Factor	50%

Source: MST estimates

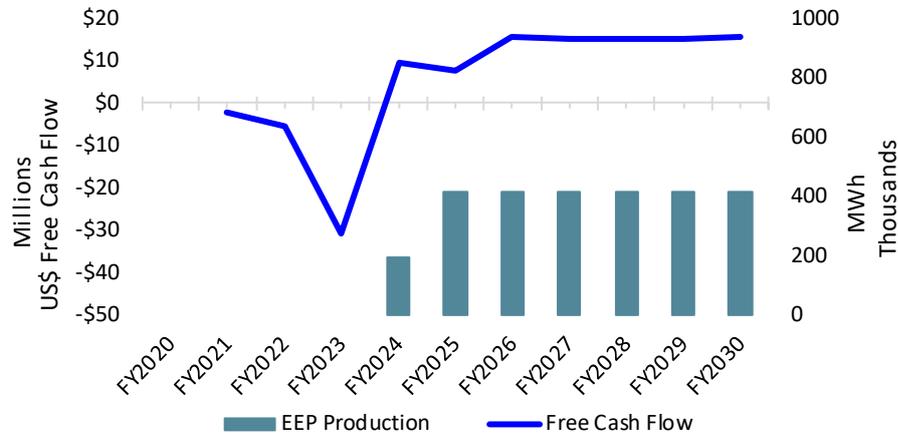
Exhibit 36 – Capital Cost Assumptions – EEP Project US\$

EEP PROJECT CAPEX ESTIMATES (US\$M)	FY2021	FY2022	FY2023	TOTAL
Site Preparation Costs	\$0	\$1,500,000	\$1,250,000	<b>\$2,750,000</b>
Technical Costs	\$2,303,268	\$121,225	\$0	<b>\$2,424,493</b>
EPC CAPEX	\$0	\$42,500,000	\$42,500,000	<b>\$85,000,000</b>
Construction CAPEX	\$0	\$6,516,965	\$6,516,965	<b>\$13,033,929</b>
<b>MST Cost Increase Allowance (10%)</b>	<b>\$345,490</b>	<b>\$8,330,983</b>	<b>\$8,275,299</b>	<b>\$16,951,772</b>
<b>Total Initial Capital</b>	<b>\$2,648,759</b>	<b>\$58,969,172</b>	<b>\$58,542,264</b>	<b>\$120,160,194</b>
<b>MRL Share 70%</b>	<b>\$1,854,131</b>	<b>\$41,278,420</b>	<b>\$40,979,585</b>	<b>\$84,112,136</b>

Source: MRL, MST estimates

## Project production and free cash flow forecasts for the EEP Project

Exhibit 37 – EEP Project Production Profile and Free Cash Flow Generation US\$M



Source: MST estimates

Exhibit 38 – Sensitivity Analysis – EEP Capital Costs and Operating Costs – MRL Valuation Sensitivity

		CAPITAL COST				
		-10%	-5%	0%	5%	10%
OPERATING COST	-10%	1.43	1.42	1.40	1.39	1.38
	-5%	1.42	1.41	1.40	1.39	1.38
	0%	1.42	1.41	<b>1.40</b>	1.38	1.37
	5%	1.41	1.40	1.39	1.38	1.37
	10%	1.41	1.40	1.39	1.38	1.36

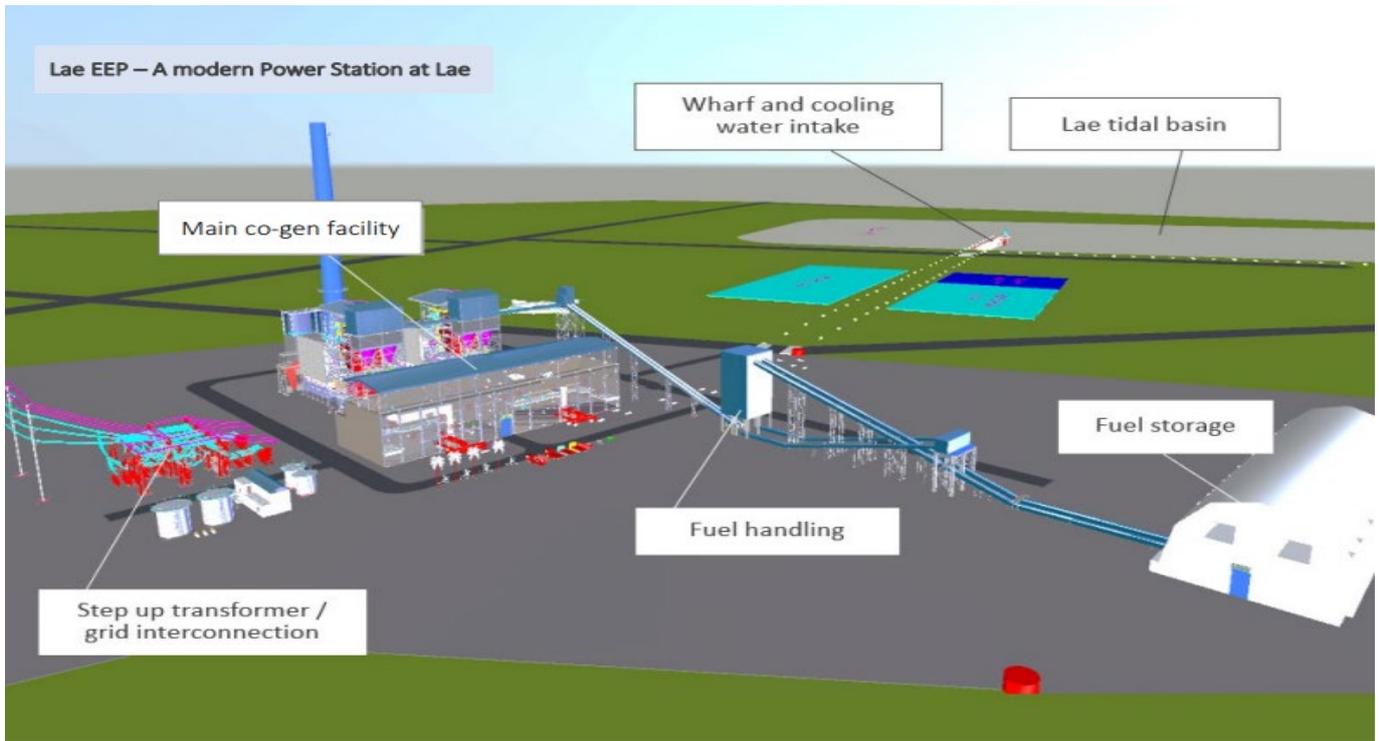
Source: MST estimates

Exhibit 39 – Sensitivity Analysis – EEP Energy Price and Discount Rate – MRL Valuation Sensitivity

		DISCOUNT RATE				
		8%	9%	10%	11%	12%
ENERGY PRICE	\$137	1.35	1.32	1.30	1.27	1.26
	\$147	1.41	1.38	1.35	1.32	1.30
	\$157	1.47	1.43	<b>1.40</b>	1.37	1.34
	\$167	1.53	1.49	1.45	1.41	1.38
	\$177	1.59	1.54	1.50	1.46	1.43

Source: MST estimates

Exhibit 40 – Project Design Plan



Source: MRL

Exhibit 41– Project Location



Source: MRL

## Project Status

MRL has completed a DFS on a vertically integrated domestic power project. The strategy of the project is to provide affordable, reliable and environmentally sustainable power to aid in unlocking economic development in PNG. The project will address Lae's power shortages (including its reliance on high-cost, significantly higher polluting diesel and heavy fuel oil generated power) and will be an integral part of the PNG government's goal of 70% electrification by 2030 (currently at 13%).

The project is planned to generate 52.5MW (net) of power and can be scaled to 200MW. The design includes the ability to use up to 50% renewable biomass in the boiler, with steam as a by-product. In addition, MRL has allocated for solar generation of up to 2MW which is readily expandable. MRL's own coal from the Depot Creek location is planned to be the coal source for the project, adding significant benefits to the economics of the plant. An average power tariff of US\$0.105 kWh is expected with further reductions offered for expansions beyond 50MW at circa US\$0.08 cents kWh. After the first 25 years of operation (which is the NPV valuation timeframe assumed), Mayur as part of its proposal has offered the remaining 15 year asset life of the power plant to be transferred free of charge to the PNG Government or Mayur is provided an extension and continues to operate for the remaining power plants life (remaining 15 years). Coal redundancy supply lines have been secured via Letters of Intent out of Indonesia and Australia with very similar low ash low Sulphur specification coal.

Mayur Power Generation has signed a number of Memorandum of Agreements (MOA) including with Kumul Petroleum Holdings Limited regarding the establishment of a 50/50 joint venture to develop PNG Energy Generation Solutions and signed another MOA with the Morobe provincial Government & Lae City Authority. In the later agreement the Morobe government will be provided 100% of the co-generated by product steam profits from the power stations first 52.5 Mw.

The plant has the flexibility to provide a mix of renewables and clean coal technology – designed to target a no-net increase in greenhouse gas but significantly improving air quality through the reduction of sulphur dioxides (SOx) and nitrogen oxides (NOx) and particular matter.

In addition to electricity generation, an added benefit of the EEP is that it will also generate steam as a by-product that can then be provided to local industry in Lae. Steam is used in Lae by groups such as Frabelle, Coca Cola and SP Brewery and to produce steam they currently are burning high cost and polluting diesel. The MOA also provides a framework whereby all profit from the steam sales will go to the Morobe Provincial Government. Based on the current steam loads in the vicinity of the Lae Western Tidal Basin, this should result in reducing steam costs to end users, such as the fisheries and food/beverage manufactures, by up to 50%.

## Approvals for the project

- Environmental License, Environmental Management Plan and Air Assessment study have all been approved and endorsed from the Conservation and Environmental Protection Authority (CEPA) enabling construction and operation of the EEP
- Submitted a detailed Power Purchase Agreement (PPA) to the state-owned power entity at the written request of PNG Power
- Lease with PNG Ports Corporation Limited for approximately 27 hectares of land in the Lae Tidal Basin, a new world-class deep-water port facility, for the construction of the power station has been secured
- The potential plant site is located on government land and does not require landholder agreements

## Next steps for the project

- PPA to be approved by the PNG Government before the EEP Project can go ahead
- Funding of the project, either through debt or with a strategic investor (who have been shortlisted)
- Construction commencement (with bids already received), with a two-year construction period to full commissioning

## Coal, Copper/Gold and Vanadium Assets – Options to Create Further Value

### Coal Exploration

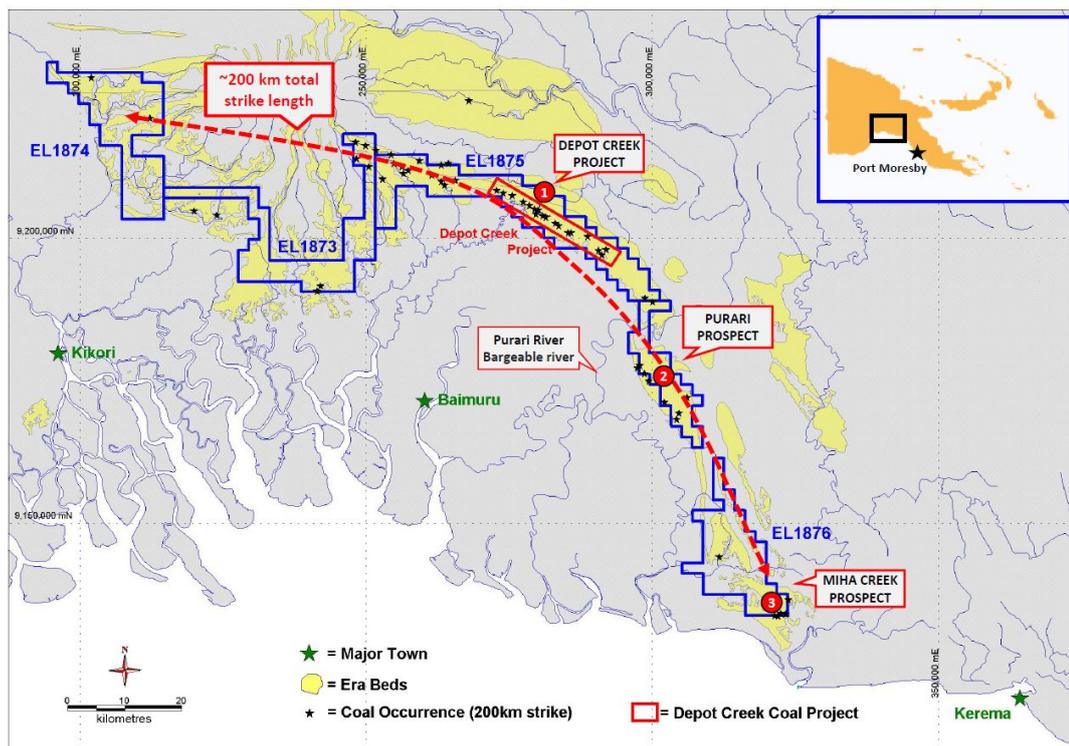
MRL holds tenements that cover the main coal-bearing geology in the Papuan Basin in southern PNG. Although there has been a long history of coal prospecting in the Gulf Province, coal mining has never been developed in PNG. The most advanced deposit in the portfolio is at Depot Creek, located in the Gulf Province, about 280km northwest of PNG’s capital city, Port Moresby. The JORC Resource has recently increased to 12.8Mt from 11.5Mt (PNG’s first JORC coal resource). Independent geologists have put out a +100 MT exploration target based upon the extensive coal intersections that are exposed at surface across Mayur’s tenements.

The continuity of the main coal seams has now been traced over a 10km zone.

MRL’s objective with its coal exploration projects is to vertically integrate clean coal resources with a modular power generation unit. The Depot Creek project will feed the 52.5MW EEP power station project for at least 25 years.

To supply both the EEP and CCL projects, ~700ktpa will need to be mined (~400ktpa to the CCL Project and ~300ktpa to the EEP Project). The coal will be transported by barge and truck. The coal has low sulphur and ash and does not require washing prior to transporting, with the project basically being outcrop strip mining.

Exhibit 42 – Depot Creek Project Location



Source: MRL

### Approvals for the project

- The mining project has obtained four exploration licences.

### Next steps for the project

- Upgrade PFS to a DFS by the end of 2020
- Upgrade some resources to reserves
- Continue drilling programs to assist with DFS and analyse further coal outcropping areas.

## Depot Creek Coal Valuation

We acknowledge the Depot Creek Coal deposit is of significant strategic value to MRL. It allows the option of feeding internal coal resources into the EEP Project and / or the CCL Project as the key input to power generation, it is an early stage project which requires further steps and further capital to enable it to become a supplier to either of the internal projects. It also needs to be taken into consideration that a coal mine has never been developed in PNG and there may be some additional work the company has to perform in order to obtain approvals.

We have given a nominal value for the resource on the project of A\$0.20 per tonne of resource and added the sunk costs, reflecting money already invested by MRL, estimated to be around \$US3m (A\$4m).

## Copper-Gold Projects – Consolidating and Spinning Out

### MRL Transaction to Spin Out Copper Gold Assets

MRL holds a prospective gold and copper exploration portfolio in PNG. The company currently holds four copper/gold exploration licences and has collated and analysed historic exploration data to verify the geological database. The company has copper/gold exploration licences in New Ireland Province (Feni Island project and Konos project Milne Bay Province (Sidiea/Basilaki projects), and Manus Province (Rambutyo project). Since its IPO in 2017, the company has completed a diamond drill program on Basilaki Island with a joint venture funding partner.

Mayur has previously flagged to the market that the assets will be spun off into a separate vehicle, and recently confirmed that it has reached an agreement to list its PNG copper and gold assets on the TSX Ventures Exchange via a Reverse Takeover (RTO). The transaction also involves the acquisition of additional copper gold assets. Mayur will acquire all the shares in Ballygowan Limited and Pacific Arc, two privately-owned companies that hold highly prospective gold assets in PNG including the Gameta and Wapolu projects on the Fergusson Islands (refer exhibit 43). The acquisition of the assets is in exchange for 30% of the vehicle that holds the entire Mayur Gold copper gold asset portfolio.

Planned for completion before the end of the year, the RTO with XIB|Capital Corp (TSX Venture: XIB.P) will seek to raise at least C\$5 million to provide funding to allow the assets to be advanced and for the “New Co” on the TSXv to have substantial news flow upon listing. Mayur shareholders will have indirect exposure (through Mayur’s shareholding) to the new entity that will be a dedicated copper and gold exploration and development play in a significantly prospective region.

Mayur have also indicated that subject to listing rules Mayur’s shareholding will ultimately be transferred to its shareholders through an in-specie distribution.

The first two years of activity will focus on progressing the Fergusson Islands assets towards cash flow and testing drill targets on Feni Island to replicate and enhance previous attractive copper and gold intercepts.

### The Assets of the “NewCo”

#### Larger copper-gold projects

- The Feni Project is located on an island in the Lihir volcanic arc which has prolific and proven mineralization and most notable for the world class Lihir (next island), Simberi mine and Panguna mine (Bougainville) discoveries. The project has an inferred epithermal gold JORC Resource of 650koz Au, with significant opportunity to expand this with further drilling being open in all directions. In addition to shallower epithermal gold, Feni also has porphyry copper potential with the potential feeder system / source of the gold yet to be discovered.
- Sidiea / Basilaki islands comprise two separate projects located within the same exploration licence, where exploration is targeting multi-phase porphyry systems. At Basilaki, previous drilling has identified low grade copper and gold in two separate zones, with further work planned.

#### Smaller copper-gold projects in the exploration stage

- Konos is a greenfield copper-gold skarn / porphyry project, located on New Britain island, adjacent to and surrounded by ground held by B2Gold. A geochemical sampling program has recently been completed (H2 2019) with a number of copper and gold anomalies requiring further follow up.
- Rambutyo is a greenfield copper / gold project with a possible collapsed caldera deposit at two major intersecting geological structures.

#### New Assets Acquired on Fergusson Island

- The Fergusson Island assets comprise three projects, two of which (Gameta and Wapolu), have had numerous technical studies completed on them and at Gameta, a publicly released (Dec 2010) JORC resource of 295koz Au.
- The Fergusson projects have had little work carried out in the last 10 years and are highly prospective. Substantial historical technical information is available for further analysis and project advancement.

#### Exhibit 43 – Fergusson Island Selected Historical Intersections

##### Gameta:

Drill hole	Interval (m)	Intercept (m)	Grade Au (g/t)
GRC 191	42-91*	49	4.1
GRC 002	3-43	40	3.3
GRC 037	8-34	27	5.9
GRC 044	0-20	20	3.3
GRC 055	23-38	15	4
GRC 045	12-23*	11	6.8
GRC 097	23-33*	10	10.5
GRC 108	15-23	8	7
GRC 180	42-49*	7	4.4
GRC 042	3-10	7	4
GRC 161	65-71	6	3

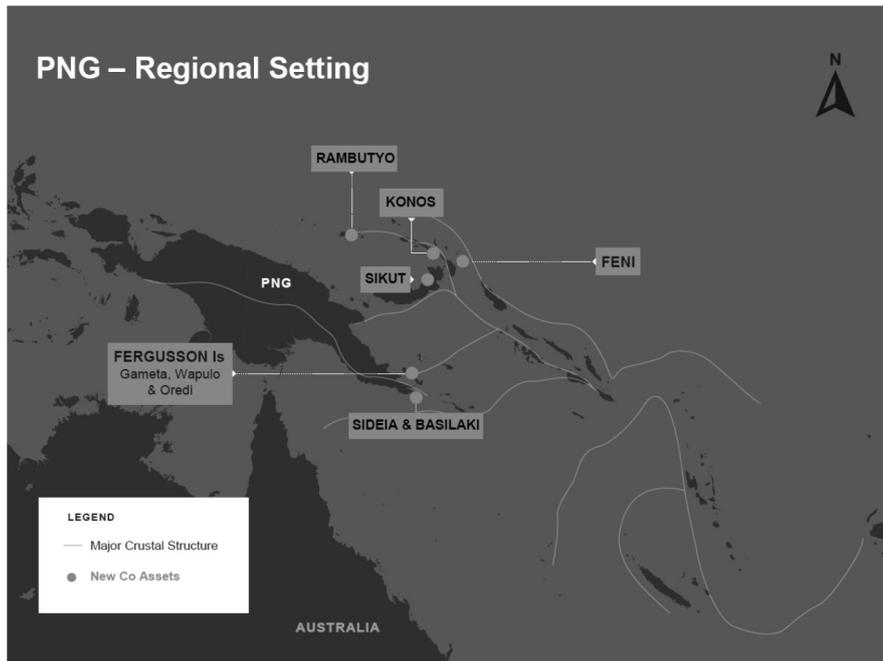
\* drill hole terminated in mineralisation

##### Wapolu:

Drill hole	Interval (m)	Intercept (m)	Grade Au (g/t)
WPA 163	2-15	13	3.2
WPA 134	8-18	10	4.3
WPD 042	2.5-5	2.5	10.2
WPD 091	9-14.6	5.6	4.2
WPA 036	0-10	10	5.9
WPA 072	6.7-14.4	7.7	4.3
WPA 020	22.7 28-7	6	4.3
UR 165	22-27	5	4.6
LVR 010	18-22	2	19.8

Source: GOA ASX release, Quarterly report 29 April 2005

Exhibit 44 – Copper Gold Assets Post Acquisition



Source: MRL

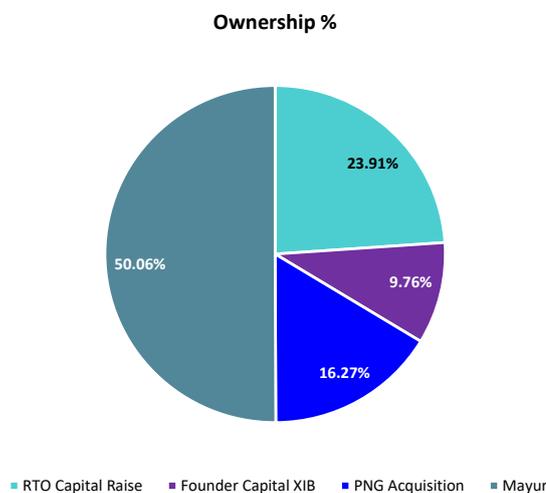
How the New Vehicle Will Look After the Spin Out of Assets – In-Specie Transfer to Follow

The transaction to spin out the copper gold assets is in 3 stages that are being transacted simultaneously. Mayur intend for the transaction to be complete by the end of CY2020.

- Purchase of Fergusson Island Asset
- Reverse Take Over of XIB| Capital Corp
- Capital raising by “New Co” of C\$5m

Post the completion of these transactions the shareholder structure of “Newco” is shown in Exhibit 44

Exhibit 45 – Ownership Structure of “NewCo”



Source: MRL

Mayur will initially remain the largest shareholder of New Co with its current intention to complete an in-specie distribution of its share’s to MRL’s current shareholders.

## Copper Gold Projects – Valuation – EV / Resource

The copper gold projects within Mayur's portfolio are at an early stage of development, and as such valuation on these assets is quite subjective. To ascertain an estimated value of the remaining assets we have simply looked at The Feni Project and its inferred gold resource of 650koz.

We have valued the resource at an EV/ resources multiple which is the average of comparable companies. We have assumed for the purposes of this valuation that MRL holds 100% of the assets and have not taken into account the recently announced acquisition of Fergusson Island assets and spin off of the copper gold assets. The transaction has several steps to complete and carries execution, regulatory and funding risk. We acknowledge the Fergusson Island have significant prospectivity and an existing resource and as such have the potential to add value to the portfolio. We will re-asses the valuation of the assets on completion of the transaction.

### Exhibit 46 - Copper Gold Comparable Companies

Copper Gold Asset Valuation	A\$'000
EV/Resource Comparable	\$23,151

COMPANY	EV / RESOURCES	RESOURCES (koz)	ENTERPRISE VALUE
Kingston Resources	19x	3213	60,500
Anova Metals	38x	1151	43,342
Theta Gold	20x	5800	116,600
Geopacific Resources	47x	1573	73,800
Kin Mining	108x	841	91,009
Sihayo Gold	58x	1585	92,668
Nusantara	26x	2314	60,557
Saturn Metals	92x	781	71,900
OreCorp	40x	3072	124,200
Prodigy Gold	30x	1010	30,300
Bardoc	31x	3022	95,000
Horizon Minerals	43x	1100	47,000
<b>Average</b>	<b>36x</b>	<b>2122</b>	<b>75,573</b>

Source: MST Est, Co. Information

## Financials – Projects to Generate Strong Cash Flow – But a Few Years in the Making

### Financial Statements

Exhibit 47 – Summary Financial Statements

Profit & Loss Statement A\$'000	FY19A	FY20E	FY21E	FY22E	FY23E	FY24E
<b>Revenue</b>	59	0	0	0	46,055	124,921
Operating Costs	(3,415)	(3,299)	(3,357)	(3,282)	(27,529)	(72,114)
<b>EBITDA</b>	<b>(3,356)</b>	<b>(3,299)</b>	<b>(3,357)</b>	<b>(3,282)</b>	<b>15,277</b>	<b>49,563</b>
D&A Expense	(19)	0	(2,962)	(2,962)	(4,499)	(40,203)
<b>EBIT</b>	<b>(3,375)</b>	<b>(3,299)</b>	<b>(6,320)</b>	<b>(6,245)</b>	<b>10,778</b>	<b>9,361</b>
Net Interest Expense	67	14	166	30	(3,318)	(6,515)
Tax	0	0	0	0	0	0
<b>NPAT (Reported)</b>	<b>(3,309)</b>	<b>(3,285)</b>	<b>(6,154)</b>	<b>(6,215)</b>	<b>7,460</b>	<b>2,846</b>
<b>NPAT (Underlying)</b>	<b>(3,309)</b>	<b>(3,285)</b>	<b>(6,154)</b>	<b>(6,215)</b>	<b>7,460</b>	<b>2,846</b>
<b>EPS (Reported)</b>	<b>(0.02)</b>	<b>(0.02)</b>	<b>(0.03)</b>	<b>(0.03)</b>	<b>0.04</b>	<b>0.02</b>
Balance Sheet A\$'000	FY19A	FY20E	FY21E	FY22E	FY23E	FY24E
Cash	2,800	2,857	1,483	2,793	21,556	41,840
Trade and Other Receivables	148	141	141	141	141	141
<b>Current Assets</b>	<b>2,948</b>	<b>2,998</b>	<b>1,624</b>	<b>2,934</b>	<b>21,697</b>	<b>41,981</b>
PP&E	31,101	35,463	30,266	219,564	391,601	352,351
<b>Non-Current Assets</b>	<b>31,101</b>	<b>35,463</b>	<b>30,266</b>	<b>219,564</b>	<b>391,601</b>	<b>352,351</b>
<b>Total Assets</b>	<b>34,050</b>	<b>38,462</b>	<b>31,890</b>	<b>222,498</b>	<b>413,298</b>	<b>394,332</b>
Trade and Other Payables	2,200	1,018	2,095	2,095	2,095	2,095
<b>Current Liabilities</b>	<b>2,200</b>	<b>1,018</b>	<b>2,095</b>	<b>2,095</b>	<b>2,095</b>	<b>2,095</b>
Borrowings	0	0	0	180,494	357,031	335,219
<b>Non-Current Liabilities</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>180,494</b>	<b>357,031</b>	<b>335,219</b>
<b>Total Liabilities</b>	<b>2,200</b>	<b>1,018</b>	<b>2,095</b>	<b>182,589</b>	<b>359,126</b>	<b>337,315</b>
Share Capital & Reserves	39,697	48,610	46,838	63,167	69,971	69,971
Retained Earnings	(8,564)	(11,849)	(17,726)	(23,941)	(16,481)	(13,636)
<b>Total Equity</b>	<b>31,850</b>	<b>37,444</b>	<b>29,795</b>	<b>39,909</b>	<b>54,172</b>	<b>57,018</b>
Cash Flow Statement A\$'000	FY19A	FY20E	FY21E	FY22E	FY23E	FY24E
<b>Operating Cash Flow</b>	<b>(2,709)</b>	<b>(3,299)</b>	<b>(3,357)</b>	<b>(3,282)</b>	<b>15,277</b>	<b>49,563</b>
PPE	(6,473)	(4,362)	(3,604)	(192,260)	(176,536)	(953)
<b>Investing Cash Flow</b>	<b>(6,473)</b>	<b>(4,362)</b>	<b>(3,604)</b>	<b>(192,260)</b>	<b>(176,536)</b>	<b>(953)</b>
Proceeds from shares / Sell down	309	8,926	5,557	16,329	6,804	0
Debt Raised (repaid)	0	0	0	180,494	176,536	(21,811)
Debt Repaid	(1,080)	(1,182)	0	0	0	0
Interest and Finance Costs	67	14	166	30	(3,318)	(6,515)
<b>Financing Cash Flow</b>	<b>(704)</b>	<b>7,758</b>	<b>5,723</b>	<b>196,853</b>	<b>180,022</b>	<b>(28,326)</b>
Net Increase/Decrease	(9,756)	97	(1,238)	1,310	18,763	20,285
Net Foreign exchange differences	23	93	0	0	0	0
Cash and Cash equivalents at period start	12,533	2,667	2,721	1,483	2,793	21,556
<b>Closing Cash Balance</b>	<b>2,800</b>	<b>2,857</b>	<b>1,483</b>	<b>2,793</b>	<b>21,556</b>	<b>41,840</b>

Source: MRL, MST estimates

## Environmental, Social and Governance (ESG)

ESG factors play an integral role in many investors' decision-making. We believe the key ESG issues that may affect MRL's business and share price relate predominantly to social issues. The company's projects can contribute positively to the economic welfare of PNG, however operating in a developing economy presents challenges, particularly in obtaining approvals, dealing with landholders and factoring in the potential of regulatory change.

### Environmental

Our assessment of MRL's environmental credentials falls into two categories:

- Environmental assessment of the projects
- Environmental assessment of MRL's key products.

All extractive industries and industrial processes have an impact on the environment—this is a direct impact in the case of the limestone and correctives mining. MRL has recognised the importance of environmental responsibility and is aiming to implement industry leading environmental practices within its projects.

### CCL Project

#### Environmental impact of the project

The CCL Project has several environmental issues it is required to manage. MRL has an Environmental Management and Monitoring Plan (EMMP) prepared, submitted and approved by the Conservation and Environmental Protection Authority (CEPA) in accordance with the requirements of the environmental permit. The EMMP provides a framework to manage identified environmental impacts and to implement measures in order to effectively avoid, reduce or offset these impacts. The framework will continue to be developed as environmental and social baseline information becomes available, the significance of potential impacts is determined, and the design process for the project continues.

The project's limestone and correctives mining have virtually zero stripping ratio, so do not require the management of waste rock. The mining process will however have an effect on the local environment via the removal of limestone ore. The area will need to be rehabilitated; however, given the region's climate, the vegetation will recover at a relatively rapid rate.

Cement manufacturing results in the release of CO<sub>2</sub> emissions both from the calcination (heating) of the limestone and by the fuels used in the process of running the kilns.

Cement production emits approximately 920kg of CO<sub>2</sub> for every 1000kg of cement produced. It is estimated that cement production represents approximately 1.5% of total global CO<sub>2</sub> emissions. It should be noted that the CCL Project will be the latest technology including the adoption of a waste heat recovery power generation plant and will be far more efficient and result in fewer emissions than many of the older kilns currently in production.

The CCL Project will increase the CO<sub>2</sub> emissions for PNG (current PNG CO<sub>2</sub> emissions are 0.5t – 1t per capita vs Australia at 16t per capita), however the benefits of this project to the economy will be significant with a partial offset by replacing imports.

### Environmental impact of the products

The CCL plant will produce three major products: quicklime, clinker and cement.

Overall, the products of the CCL plant can be considered to have a beneficial environmental impact. It should be noted that concrete (of which cement is an input) does contribute to environmental damage by creating hard surfaces.

**Quicklime** produced by the CCL plant will be used in the mining industry. The use of quicklime in the mining industry is environmentally beneficial as it prevents the dispersion of cyanide into the atmosphere. Another use of lime is in reducing the acidity content in water by introducing calcium and magnesium-rich minerals. This reduces concentrations of many trace elements.

**Clinker** is an intermediate used in the production of cement. As an intermediate product, clinker does not have a direct impact on the environment.

**Cement** is predominantly an intermediate product for the production of concrete. Concrete has some significant environmental impacts, including environmental damage to topsoil, and is used to create hard surfaces which contribute to surface runoff that may cause soil erosion, water pollution and flooding. Conversely, concrete is one of the most powerful tools for proper flood control, by means of damming, diverting, and deflecting flood waters, mud flows, and the like. Light-coloured concrete can reduce the urban heat island effect. Concrete recycling is increasing in response to improved environmental awareness, legislation, and economic considerations. Conversely, the use of concrete mitigates the use of alternative building materials such as wood, where significant issues exist due to deforestation. Concrete structures also last much longer than wood structures and deliver improvements in living standards, health and hygiene.

## OBIS Project

### Environmental impact of the project

The proposed industrial minerals project incorporates a simple onshore surface mining process, with the use of excavators and no requirement for blasting. As with the CCL Project, the process has virtually no waste material with tailings (sand) returned to the pit.

The processing of the ore makes use of basic gravity and low-intensity magnetic separators with no requirement for chemical processing.

Regarding waste, the project makes use of nearly all the economic resources mined, as the processing of the ore is a separation process. Any waste product is returned to the pit and rehabilitated.

The project has obtained full environmental approval.

### Environmental impact of the products

The project will produce four products:

- Construction sands
- DMS
- Titano-magnetite for steel making
- Valuable Heavy Mineral Concentrate (VHMC) including zircon and ilmenite.

These products are used in a variety of industries and for a range of uses including construction, steelmaking, tiles, and paint whose positive and negative environmental effects are variable.

## Lae EEP Energy Project

### Environmental impact of the project

The project aims to provide power via using a mix of renewables and clean coal technology – designed to target a no net increase in greenhouse gas and significant improvement in ambient air quality vs the current generation footprint (PNG, and particularly Lae, is currently heavily reliant on burning expensive diesel and fuel oil to generate electricity).

The environmental impact of this project, no matter the fuel source, would be an improvement on current diesel and fuel oil power generation in PNG. Coal if used as the sole fuel source will result in significant reductions in SO<sub>x</sub>, NO<sub>x</sub> and particulate matter emissions but will result in higher CO<sub>2</sub> emissions compared to gas or other renewables. The increase in CO<sub>2</sub> can, however, be offset by increasing the amount of biomass burned in the boiler, with MRL's boiler design likely to accommodate up to 50% biomass for coal substitution.

## Social

The social aspect of MRL's businesses is without question one of its key drivers. MRL's strategy is to take part in the social and economic development of PNG through the construction of 'nation-building projects'. PNG is a developing country and faces the attendant social challenges. PNG's government came to power in May 2019 and promised to extract greater benefits for the nation from its abundant energy and mineral resources.

Developing assets and operations in PNG presents MRL with some social issues and responsibilities that would not exist in more developed economies. MRL is in constant consultation with PNG's federal and relevant provincial governments to ensure the company's projects are in line with government policy and have obtained the necessary approvals.

MRL's 'licence to operate' obliges it to minimise any negative impacts of its projects for local landholders and to maximise social benefits. MRL is in negotiation with landholders impacted by the project in order to provide adequate compensation packages. The EEP Project is on government land and does not require any landholder compensation.

The social benefits to PNG from the project are numerous, and include:

- Job creation
- Royalties
- Corporate tax revenues
- Business opportunities and contracts for landholders
- Access to water, power and roads for landholders.

MRL ensures that safety is the highest priority. MRL aims to employ predominantly local staff, engages local contractors for most of its work, and pays its staff and contractors fairly.

## Governance

MRL's governance principles are documented in its Corporate Governance Statement. The company applies the ASX Corporate Governance Council Principles and Recommendations. MRL's current size means it does not fully comply with all the requirements, however we consider the board's size and structure to be appropriate for its current operations. As MRL's business grows and changes, the board structure will need to change, including more independent directors and directors with different skills.

In our opinion, the board's level of expertise and experience means the current board composition is appropriate for the company in its present stage of development and allows for the best use of the experience and expertise of its members. The size and make-up of the board is consistent with comparable companies on the ASX.

## Board of Directors

### **Rob Neale – Chairman and Non-Executive Director**

Rob Neale has over 45 years of operations and development experience in the resources sector and has extensive experience as a director and executive. He is the former MD and CEO of New Hope Corporation.

### **Paul Mulder – CEO and Managing Director**

Paul Mulder has 26 years of successful executive management experience across operations, project development and commercial including six years working for Hancock Prospecting Pty Ltd and 13 years in BHP's steel, coal and iron ore divisions.

### **Tim Crossley – Executive Director**

Tim Crossley has extensive experience as a director and mining executive, having operated some of Australia's largest mining businesses including roles as Deputy CEO of ASX-listed Gloucester Coal, and President and Chief Operating Officer (COO) at BHP Billiton's West Australian Iron Ore business.

### **Frank Terranova – Independent Director**

Frank Terranova is a Chartered Accountant with extensive experience as a director and executive for a wide range of Australian and international publicly listed companies, including Normandy Mining and Queensland Cotton Limited.

## Management – Major PNG and Industry Experience

MRL's management team has global experience in iron ore, mineral sands, copper, gold, coal, power generation and iron/steel making. The team's experience suited for the execution and delivery of complex and challenging projects in conjunction with its strategic partners. The management team has strong relationships with the government and landholders in PNG and is capable of working collaboratively with them.

Kevin Savory has recently been appointed as advisory to the board regarding the CCL. Kevin was formerly the CEO of the CCL. We consider it a necessity that MRL appoint a suitably qualified executive with experience in the cement industry to be the CEO of the CCL project to ensure the strategic partner will be acting in MRL's best interest.

In addition to CEO Paul Mulder and Executive Director Tim Crossley, other key management personnel include:

### **Kevin Savory – Advisory Board (Cement and Lime)**

Kevin Savory has 18 years of operational and commercial experience in the cement and construction materials sector in Australia and Asia Pacific and has experience within large global and Australian cement players.

### **Shawn Thompson – Chief Operating Officer**

Shawn Thompson brings a diversity of project experience that uniquely fits with the company's mix of projects and commodities. He has more than 30 years' experience in designing and delivering, from the ground up, power plant/energy, iron and steel, metals, mineral sands and infrastructure projects in South Africa, Saudi Arabia and New Zealand.

### **Rod Watt – Exploration Manager**

Rod Watt has 35 years of experience in exploration with demonstrated success in managing complex multi-commodity exploration projects in Australia and South East Asia (Papua New Guinea, Indonesia and the Philippines). Mr Watt specialises in project transition management from discovery through to Feasibility Studies and has extensive project and joint venture management experience.

### **Tom Charlton – Chief Geologist**

Mr Charlton is a geologist with over 25 years of mineral exploration experience. He has worked in PNG since 1997, working at the Department of Mines for 4 years on a World Bank project compiling PNG's geological database. Mr Charlton has worked for various private and publicly listed exploration companies. Mr Charlton has worked with the Company since its inception in 2011.

## Appendix: Detailed Resource and Reserve Tables

### Exhibit 48 – CCL Project Ore Reserves Estimate

Area	Reserves	Mt	CaO %	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	Na <sub>2</sub> O	LOI
Lea Lea	Probable	45	54	0.50	0.5	0.04	0.4	0.2	1.3	43
Kido	Probable	33	44	4.50	4.5	0.3	2.2	0.3	9.5	36
<b>TOTAL</b>		<b>78</b>								

Source: MRL

### Exhibit 49 – CCL Project Mineral Resource Estimate Details

#### MEASURED MINERAL RESOURCE ESTIMATE

Area	Category	CaO cut off %	Tonnes	CaO %	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %
Lea Lea	Measured	50%	61,000,000	53.4	0.6	1.65
Kido	Measured	50%	144,000,000	53.6	0.62	1.77
<b>TOTAL</b>	<b>Measured</b>	<b>50%</b>	<b>205,000,000</b>	<b>53.4</b>	<b>0.61</b>	<b>1.73</b>

#### INDICATED MINERAL RESOURCE ESTIMATE

Area	Category	CaO cut off %	Tonnes	CaO %	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %
Lea Lea	Indicated	50%	117,000,000	51.8	0.9	2.7
Kido	Indicated	50%	11,000,000	51.5	0.6	1.1
<b>TOTAL</b>	<b>Indicated</b>	<b>50%</b>	<b>128,000,000</b>	<b>51.8</b>	<b>0.9</b>	<b>2.6</b>
Area	Category	CaO cut off %	Tonnes	CaO %	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %
<b>East Lea Lea Correctives</b>	<b>Indicated</b>	-	14,000,000	1	13.6	74

#### INFERRED MINERAL RESOURCE ESTIMATE

Area	Category	CaO cut off %	Tonnes	CaO %	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %
Lea Lea	Inferred	48%	7,000,000	48.1	1.1	2.5
Kido	Inferred	48%	42,000,000	48.4	1	1.8
<b>TOTAL</b>	<b>Inferred</b>	<b>48%</b>	<b>49,000,000</b>	<b>48.3</b>	<b>1</b>	<b>1.9</b>

Source: MRL

## Exhibit 50 – OBIS Project Mineral Resource and Reserve Estimate by Product

Western							Fe Cut Off 5.25%			
Category	Mt	DTR%	Fe %	Ti %	Zircon ppm	DTR Mt	Fe Mt	Ti Mt	Zircon t	
Measured	1.64	4.08	11.35	1.94	712	0.17	0.19	0.03	1,170	
Indicated	70.1	6.82	9.13	1.17	508	4.78	6.4	0.82	35,587	
Inferred	137.8	5.43	8.19	1.02	454	7.48	11.28	1.4	62,622	
<b>TOTAL</b>	<b>209.54</b>	<b>5.93</b>	<b>8.53</b>	<b>1.08</b>	<b>474</b>	<b>12.42</b>	<b>17.87</b>	<b>2.25</b>	<b>99,379</b>	

## Construction Sands

Category	Mt
Indicated	38.6
Inferred	74.2
<b>TOTAL</b>	<b>112.8</b>

Eastern							Fe Cut Off 5.25%			
Category	Mt	DTR%	Fe %	Ti %	Zircon ppm	DTR Mt	Fe Mt	Ti Mt	Zircon t	
Indicated	7	5.7	9.33	1.44	923	0.4	0.65	0.1	6,500	
Inferred	26.5	5.2	9	1.39	911	1	2.39	0.37	24,400	
<b>TOTAL</b>	<b>33.5</b>	<b>5.32</b>	<b>9.07</b>	<b>1.4</b>	<b>921</b>	<b>1.4</b>	<b>3.04</b>	<b>0.47</b>	<b>30,900</b>	

## Construction Sands

Category	Mt
Inferred	86
<b>TOTAL</b>	<b>86</b>

## 2020 Ore Reserve Estimate

Category	Mt	DTR %	Fe %	Ti %	Zircon ppm	DTR Mt	Fe Mt	Ti Mt	Zircon t	Construction Sand Mt
Proved	1	13.99	14.01	2.46	900	0.14	0.14	0.02	900	-
Probable	29.6	11.36	12.22	1.69	682	3.36	3.62	0.5	20,200	15.2
<b>Total</b>	<b>30.60</b>	<b>11.45</b>	<b>12.28</b>	<b>1.72</b>	<b>689</b>	<b>3.51</b>	<b>3.76</b>	<b>0.53</b>	<b>21,100</b>	<b>15.2</b>

Source: MRL

## Exhibit 51 – Depot Creek Coal Project Inferred Resource Estimate

Depth (m)	Mt (in-situ)	RD % (g/cc) adb	RD (G/cc) in-situ	IM% (adb)	Ash % (adb)	VM% (adb)	FC% (adb)	TS% (ADB)	CV Kcal/kg (gar)
0-50	6.2	1.39	1.37	20.74	7.92	37.96	33.38	0.50	4720
50-100	3.6	1.40	1.38	20.4	9.44	37.28	32.88	0.61	4656
100-150	1.6	1.39	1.37	21.05	7.89	37.15	33.90	0.58	4729
150-200	0.01	1.36	1.35	22.48	4.53	37.46	35.53	0.39	4845
<b>TOTAL</b>	<b>11.50</b>	<b>1.40</b>	<b>1.37</b>	<b>20.77</b>	<b>8.02</b>	<b>37.75</b>	<b>33.46</b>	<b>0.54</b>	<b>4720</b>

Source: MRL

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