Wednesday,17 May 2023

BUY

Initiate

Merdeka Battery Materials (MBMA IJ)

A complete package for EV upstream

Last price (IDR)	775
Target Price (IDR)	**910**
Upside/Downside	**+17.4%**
Previous Target Price (IDR)	*n/a*

Stock Statistics

Sector	Basic Material
Bloomberg Ticker	MBMA IJ
No of Shrs (mn)	107,445
Mkt. Cap (IDRbn/USDmn)	83,697/5,648
Avg. daily T/O (IDRbn/USDmn)	177.6/12.0

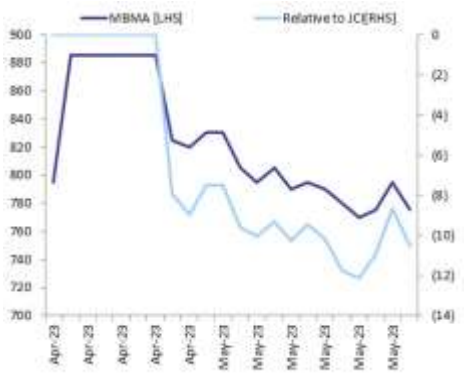
Major shareholders (%)

PT Merdeka Energi Nusantara	49.2
Garibaldi Thohir	11.1
Estimated free float	25.7

EPS Consensus (IDR)

	2022F	2023F	2024F
Danareksa	4.0	4.9	29.1
Consensus	n/a	n/a	n/a
Danareksa/Cons	n/a	n/a	n/a

MBMA relative to JCI Index



Source : Bloomberg

Merdeka Battery Materials (MBMA IJ) plans to pursue a vertically integrated operation that capable for converting nickel ore into more profitable feedstocks for use in EV batteries. MBMA potentially will become the only national company that owned majority ownership on HPAL project. Initiate coverage with A Buy and TP of IDR910.

Vertically integrated for EV upstream. Merdeka Battery Materials (MBMA IJ) plans to pursue a vertically integrated operation that capable for converting nickel ore into more profitable feedstocks for use in EV batteries. MBMA has partnered with Tsingshan group and CATL, which are leading global players in the value chain of strategic minerals and motor vehicle batteries, and JV partners, to develop pipelines of downstream expansion projects, such as the RKEF ZHN Smelter, HPAL factory, and AIM I Project.

The only national company with majority stakes on HPAL project. MBMA intends to have a majority ownership of 66% in their first HPAL project (HPAL 1). The company's ownership in the first HPAL during the construction phase is expected to be less than 50% and will be increased to 66% when the HPAL plant achieves positive EBITDA. The only national company that plan to have majority ownership in the HPAL project. The first HPAL plant is expected to process limonite nickel ore from the SCM Mine with a planned capacity of 20 ktpa Ni, which is divided into two phases of 60 ktpa each and is scheduled to start production in the second half of 2025.

Huge NPI capacity and able to convert into nickel matte. MBMA will have NPI RKEF with capacity of 88k tpa post the completion of ZHN smelter development. The company is also installed nickel matte converter to its CSID and ZHN smelters, and it is expected this converter will begin operational in 2024.

Initiate coverage with a BUY. We value MBMA using the sum-of-the-parts method with an enterprise value for each segment derived using the net present value of free cash flow by project life and a 10.3% WACC, and arrive at a TP of IDR910, offering 17.4% potential upside from the current share price. We believe MBMA could execute their project timely with the support of solid partners such as Tsingshan, CATL and Huayou.

Key Financials

Year to 31 Dec	2021A	2022F	2023F	2024F
Revenue (USDmn)	-	408	1,221	1,960
EBITDA (USDmn)	-	82	259	733
EBITDA Growth (%)	n/a	n/a	217	183
Net profit (USDmn)	-	28	37	214
EPS (USDcents)	-	3.9	5.1	29.5
EPS growth (%)	n/a	n/a	32	478
BVPS (IDRcents)	23.3	184.2	269.8	316.8
PER (x)	n/a	200.6	151.6	26.2
PBV (x)	38.0	4.2	2.9	2.4
EV/EBITDA (x)	n/a	89.4	24.5	8.9

Source : MBMA, Danareksa Estimates



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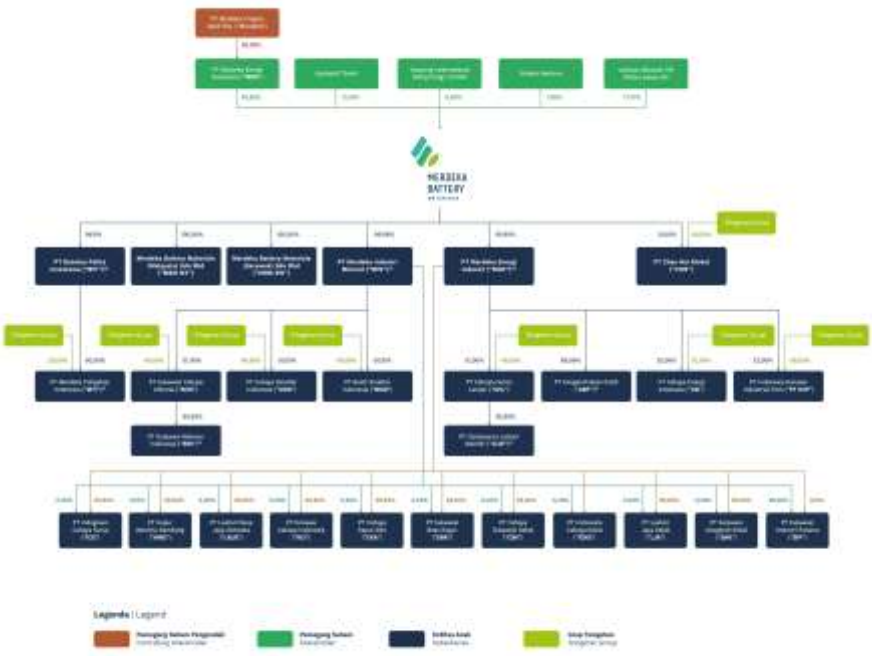
Investment Highlights

Vertically integrated for EV upstream

Merdeka Battery Materials (MBMA IJ) plans to pursue a vertically integrated operation that capable for converting nickel ore into more profitable feedstocks for use in EV batteries. MBMA has partnered with Tsingshan group and CATL, which are leading global players in the value chain of strategic minerals and motor vehicle batteries, and JV partners, to develop pipelines of downstream expansion projects, such as the RKEF ZHN Smelter, HPAL factory, and AIM I Project.

MBM owned 51.0% stake in one of the largest nickel mine, Sulawesi Cahaya Mineral, which is expected to be a low operating cost mine. As such, the company believes they could become a fully independent battery raw material producer using its own resources, and able to capture margins along the electric vehicle battery raw material value chain.

Exhibit 1. FeNi production volume (in tons)



Source: BRIDS, MBMA

The only national company with majority stakes on HPAL project

MBMA intends to have a majority ownership of 66% in their first HPAL project (HPAL 1). The company's ownership in the first HPAL during the construction phase is expected to be less than 50% and will be increased to 66% when the HPAL plant achieves positive EBITDA. The only national company that plan to have majority ownership in the HPAL project. The first HPAL plant is expected to process limonite nickel ore from the SCM Mine with a planned capacity of 20 ktpa Ni, which is divided into two phases of 60 ktpa each, and is scheduled to start production in the second half of 2025.

Upon completion, the first HPAL plant will use 20 mn wmt of limonite nickel by leveraging the MBM Group's large limonite nickel resources at the SCM Mine.

As an important first step regarding the first HPAL plant, on March 16, 2023, MBM signed a Term Sheet with Ningbo Brunp CATL for the development of HPAL 1a. Following successful commissioning and loan reimbursement to finance construction, the company's ownership in HPAL 1a will increase to 66%, with the remaining 34% owned by Ningbo Brunp CATL. While for the HPAL 1b, discussions are already in an advanced stage where the company will have 66% stakes.

At the same time, the company is currently discussing for its ownership with potential partner, we expect for the HPAL 2, MBMA ownership would be at 40%.

Exhibit 2. The HPAL projets is expected to be located in IKIP



Source: BRIDS, MBMA

Exhibit 3. HPAL Process



Source: BRIDS, MBMA

Huge NPI capacity and nickel matte conversion project

MBMA currently has 2 RKEF smelters with NPI output and already generate cashflow since last year, this two RKEF NPI smelters called BSI & CSI, both of this

smelter has nameplate capacity of 19k tpa. MBMA owned 51% stake in this smelters and the other 49% is owned by Tsingshan group. The RKEF CSID Smelter commissioned in November 2019 and began commercial operations in January 2020, where since operating, the production performance of the RKEF CSID Smelter has exceeded the aggregate installed production capacity of 19,000 tpa Ni. The RKEF CSID smelter produced small quantities of NPI in December 2019 after commissioning, but started recording revenue in January 2020.

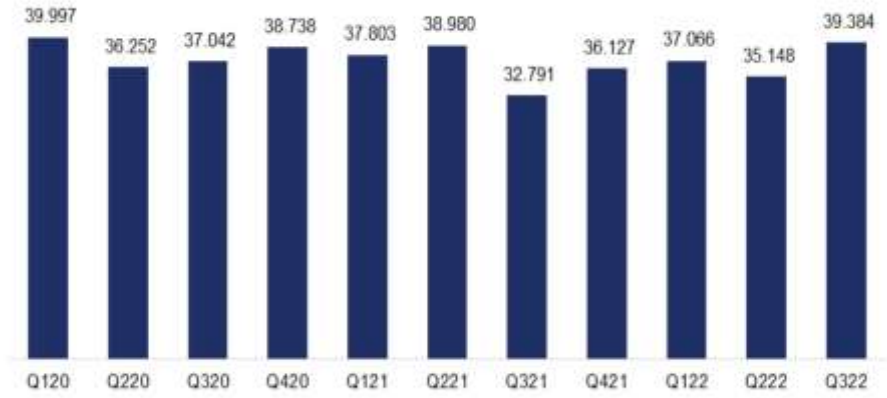
In 9M22, the CSID RKEF production at around 14,621 tons with cash cost at USD13,632/ton. We expect in 2022, CSID production will reach 19k tons assuming 100% utilization rate.

Exhibit 4. CSID RKEF



Source: MBMA

Exhibit 5. CSID quarterly production (in NPI tons)



Source: MBMA

The BSID RKEF Smelter is also an NPI production facility consisting of two RKEF production lines with installed production capacity and an operational cost structure similar to the RKEF CSID Smelter. This factory is also located within IMIP.

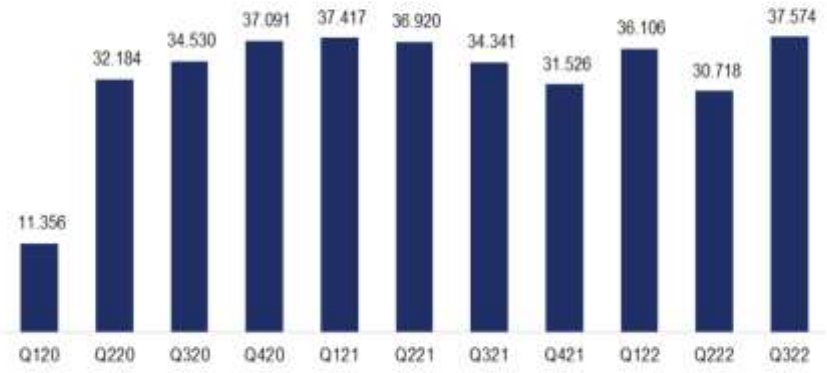
Exhibit 6. BSID RKEF



Source: MBMA

The BSID RKEF Smelter commissioned in February 2020 and began commercial operations in March 2020, where since operating, the production performance of the BSID RKEF Smelter has exceeded the aggregate installed production capacity of 19,000 tpa Ni.

Exhibit 7. BSID quarterly production (in NPI tons)



Source: MBMA

The third RKEF smelter is ZHN smelter which consists of four RKEF production lines and is located within IMIP, which is currently under construction. The RKEF ZHN smelter is targeted to commission in the second half of 2023. The design capacity for this smelter will be at 50k tpa. MBM owned 50.1% stake in this RKEF with the remaining being held by SHPL, subsidiary of Tsingshan.

Thus, when this ZHN RKEF smelter is operational, MBM will have NPI RKEF total capacity at 88k tpa.

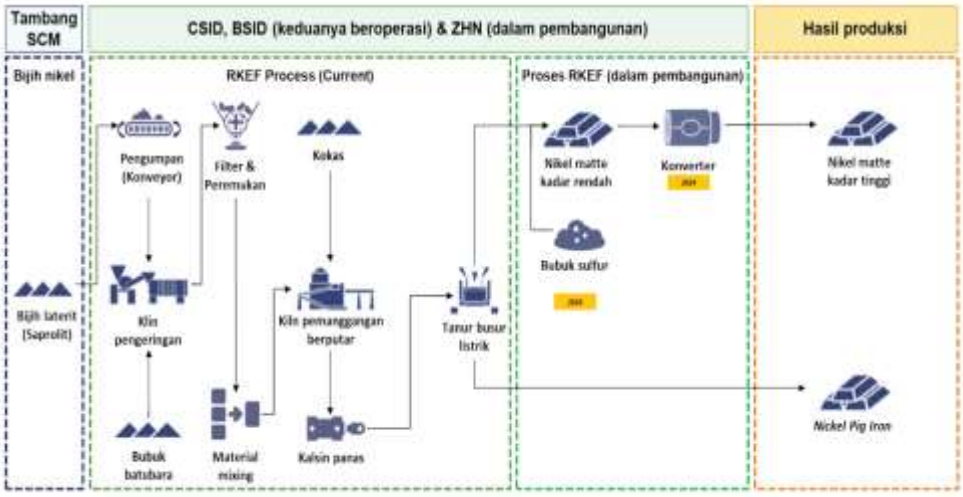
Exhibit 8. MBMA RKEF installed capacity (tpa Ni)



Source: MBMA

MBM plans to install nickel matte converter on its ZHN and CSI smelter, and the company expect this converter will begin operational in April 2024. Nickel matte has higher nickel content compared to NPI and it trades at a higher price compared to NPI. NPI currently trades at 30% discount of LME and after conversion to nickel matte, we expect the discount would narrow to just 20% of LME.

Exhibit 9. Process flow of RKEF



Source: MBMA

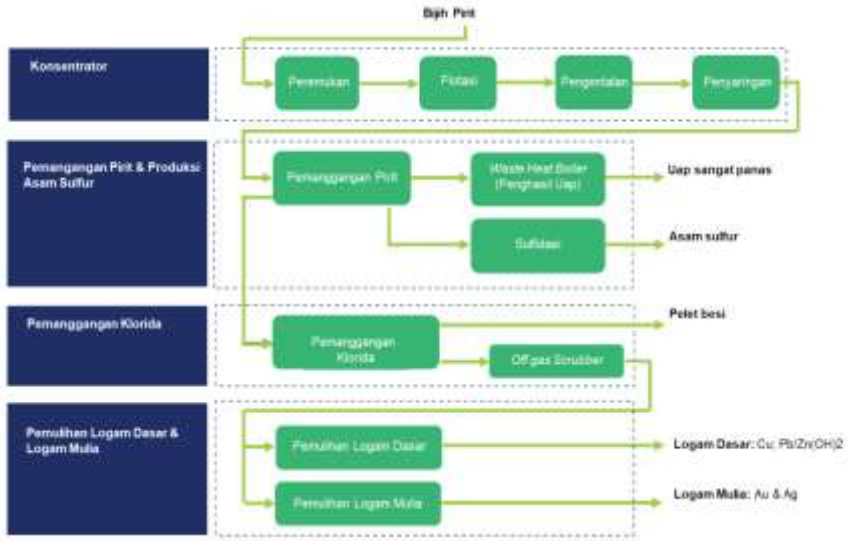
AIM project as a tool to seize massive HPAL development

AIM Project is expected to produce 1.2 mn tons of acid and 1.3 mn tons of steam which are two components that required for HPAL plant. Currently, the standby buyer of acid and steam of AIM project would QMB HPAL. The company expects this project will reach its full nameplate capacity at 2Q24. Aside of acid and steam, this facility will also produce iron pellets, copper cathode, gold and silver in 2Q24-1Q25.

The AIM I project is designed to process Raw Materials originating from MDKA's operations at the Wetar Copper Mine at a 1,060,000 tons per year. The plant will produce, among others, sulfuric acid, iron ore pellets, copper cathode, lead-zinc hydroxide, gold and silver. The concentrator will process pyrite ore to make pyrite concentrate for further processing in the downstream plant, which consists of two pyrite kilns, two waste heat recovery systems, two sulfuric acid plants, a base and noble metal recovery process, and a chloride gas recovery treatment system. Process design and flowchart development was undertaken by BGRIMM and is based on proven chloride roasting technology for metal recovery.

Based on BDA, this first plant is expected to achieve a production rate of 1.2 mtpa of sulfuric acid by 2024. After commissioning, the AIM I Project is expected to annually produce, among others: 1.2 mtpa of steam; 0.5 mn iron ore; about 17 ktpa of copper; about 16k ounces of gold per year; about 700 ktpa of silver; And about 7 ktpa of lead/zinc.

Exhibit 10. Process flow of AIM I Project



Source: MBMA

According to Wood Mackenzie, significant quantities of acid are required for the HPAL nickel plant expansion up to 2030. Considering the positive market trends, the MBM Group believes that there is potential to further expand AIM I's business by building additional plants.

Hold one of the largest nickel IUP in Indonesia

The MBM Group conducts nickel mining and processing operations at the SCM Mine, which is a globally significant nickel resource with a nickel content of more than 13 mn tons, which was originally owned by Rio Tinto. This resource is a large amount of nickel laterite deposits that can support multi-decade operations. The SCM mine is located in Morowali Regency, Central Sulawesi, Indonesia, which is approximately 50 km southwest of IMIP, and holds an IUP of approximately 21,100 hectares. SCM Mine obtained an IUP on November 18, 2019, which is valid for 20 years until September 2037, and can be renewed twice for a period of 10 years each.

Exhibit 11. SCM Resource Table

Sumberdaya mineral	Klasifikasi JORC	Bijih (juta DMT)	Ni (%)	Logam Ni (kt)	Co (%)	Logam Co (kt)
Limonit > 0,7% Ni *in-situ* Sumberdaya Mineral	Terukur	6,6	1,15	76	0,11	7
	Tertunjuk	209,4	1,10	2.307	0,11	232
	Tertera	664,5	1,08	7.175	0,09	620
	Total	**880,5**	**1,09**	**9.558**	**0,10**	**859**
Saprolit > 1,2 < 1,6% Ni *in-situ* Sumberdaya Mineral	Terukur	2,5	1,39	35	0,03	1
	Tertunjuk	38,7	1,39	537	0,03	13
	Tertera	97,7	1,39	1.354	0,03	33
	Total	**138,9**	**1,39**	**1.926**	**0,03**	**47**
Saprolit > 1,6% Ni *in-situ* Sumberdaya Mineral	Terukur	1,6	1,86	30	0,04	1
	Tertunjuk	31,4	1,92	601	0,04	13
	Tertera	86,6	2,00	1.728	0,04	38
	Total	**119,6**	**1,97**	**2.359**	**0,04**	**52**
Komposit Limonit Saprolit	Terukur	10,7	1,32	141	0,08	9
	Tertunjuk	279,5	1,23	3.445	0,09	258
	Tertera	848,8	1,21	10.257	0,08	691
	Total	**1.139,0**	**1,22**	**13.843**	**0,08**	**958**

Source: MBMA

MBMA has signed agreement with Huayou Cobalt, which is the one of the main nickel-cobalt-manganese cathode suppliers in China, which is the main battery component. Huayou Cobalt is currently building a feed preparation plant (FPP) at the SCM Mine and will purchase limonite nickel produced from the SCM Mine through HNC. Huayou Cobalt is currently also building a slurry pipe (along the haul road) to distribute limonite nickel to its HPAL factory at IMIP. Huayou Cobalt also operates an HPAL factory in Indonesia. SCM will sell both saprolite and limonite, with its first delivery schedule in March 2023 (72k tons saprolite). The company expect will begin to deliver limonite to Tsingshan-Huayue HPAL plant through dedicated slurry pipeline in June 2023 at 250k tons.

Exhibit 12. Location assets



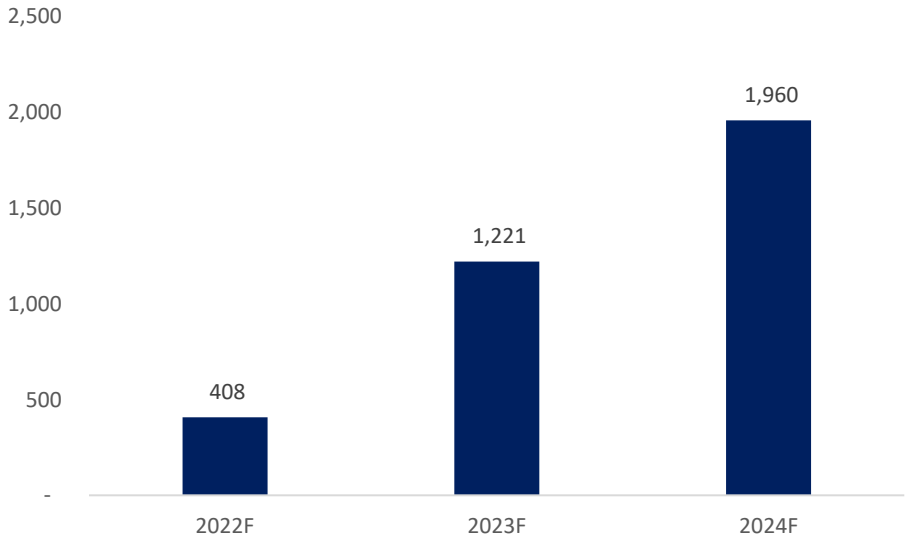
Source: MBMA

Financial Highlights

Expect revenue to improve significantly in 2024

MBMA revenue performance will significantly improve in 2024 due to several factors: ZHN begin operational in 2H23 with full impact contribution in 2024, the SCM limonite sales volume will also ramping up in 2024 as the slurry pipeline will completed in 2H23. As the 2022F revenue will only be contributed by its existing RKEF smelter, BSID & CSID, we expect it would be around USD408 mn. With the ZHN RKEF completed in 2H23 along with the SCM slurry pipeline, we expect MBMA revenue will improve to USD1.2 bn. In 2024, when SCM and ZHN fully operational and ramping up, the company revenue could reach USD1.9 bn.

Exhibit 13. Revenue Trend

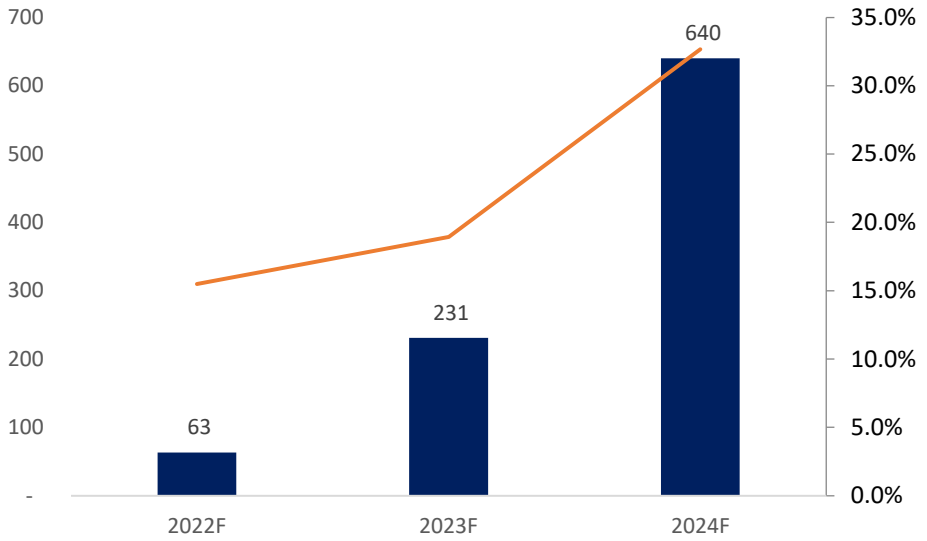


Source: MBMA, BRIDS

EBITDA improved albeit slight margins compression from lower ASP

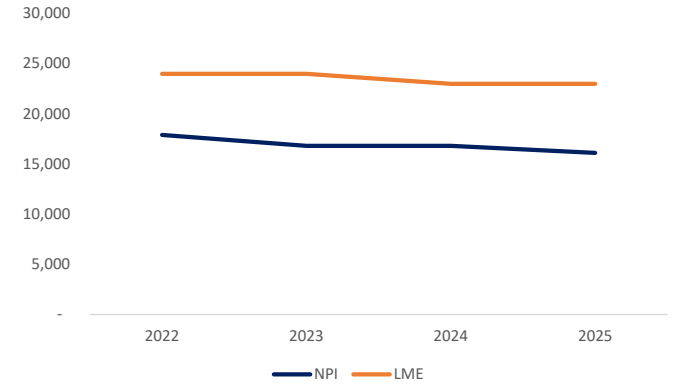
With the completion of the ZHN and SCM slurry pipeline in 2H23, we foresee MBMA EBITDA will reach USD640 mn in 2024 from previously just USD231 mn in 2022F. We also expect the company's EBITDA margin will also expand to 32.7% in 2024F from previously only 18.9%, the expanded margins in 2024 due to the ZHN RKEF smelter will reach its optimal production level in 2024, we expect this smelter could run at 100% utilization rate in 2024 onwards.

Exhibit 14. EBITDA and margin trend



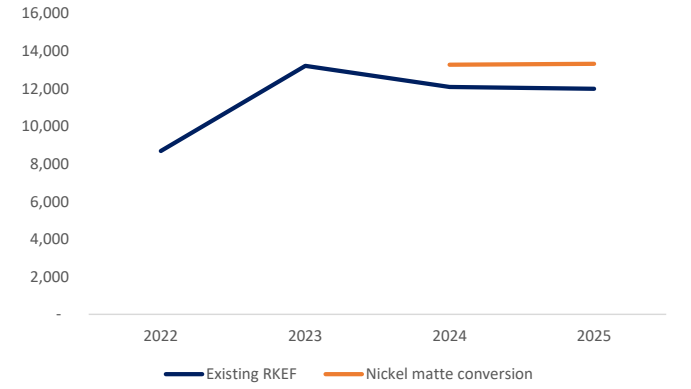
Source: MBMA

Exhibit15. NPI and LME Nickel ASP



Source: Nickel Institutue

Exhibit 16. Cash cost existing RKEF and nickel matte



Source: Nickel Institute

Net profit will begin to accelerate post HPAL completion in 2025

We believe the CAGR 2022F-2026F net profit at 83.9%, as the company's earnings will come from a low base in 2022 at around USD40 mn to USD697 mn in 2026 when its HPAL begin operational, we believe its first HPAL with capacity of 120k tons will be completed in 2025, and its HPAL 2 will begin operational at the end of 2026. This could bring the company's PE to decline significantly to just around 9.2x in 2026 from previously 195x in 2022F.

Valuation

Initiate coverage with a BUY. We value MBMA using the sum-of-the-parts method with an enterprise value for each segment derived using the net present value of free cash flow by project life and a 10.3% WACC, and arrive at a TP of IDR910, offering 17.4% potential upside from the current share price. We believe MBMA could execute their project timely with the support of solid partners such as Tsingshan, CATL and Huayou.

Exhibit 17. Valuation

Assets	Valuation	Ownership	Adjusted ownership value
SCM	1,584	51%	808
BSI	583	50.1%	260
CSI	756	50.1%	334
ZHN	2,330	50.1%	1,030
IKIP HPL 1	5,149	66%	2,841
IKIP HPL 2	3,802	40%	1,233
AIM Project	398	80%	319
Total (USD mn)			**6,825**
Net Debt (USD mn)			269
Net Value (USD mn)			**6,556**
Equity value (IDR bn)			97,030
O/S Shares (in bn shares)			107
Equity Value (IDR/sh)			903
Target Price (IDR/sh)			**910**

Source: BRIDS, MBMA

Exhibit 18. Peers Comparison

	Market cap	PER (x)		EV/EBITDA (x)		PBV (x)		ROE (%)	
	(USDMn)	2023F	2024F	2023F	2024F	2023F	2024F	2023F	2024F
Metals mining									
Merdeka Copper Gold	6,643	45.92	30.61	17.20	12.23	5.20	4.37	10.73	13.74
Vale Indonesia	4,357	16.87	15.66	7.51	7.16	1.75	1.51	10.36	9.90
Aneka Tambang	3,392	12.84	11.27	7.86	6.65	1.96	1.77	15.07	15.50
Zheijiang Huayou Cobalt	12,949	11.35	8.45	8.54	6.60	2.58	1.91	25.51	25.01
Sumitomo Metal Mining	11,249	8.97	10.89	8.30	9.64	0.91	0.88	10.61	7.47
Nickel Mines Limited	1,815	5.94	6.98	4.44	4.10	1.03	0.95	20.89	18.00
CNGR Advanced Material	6,612	13.62	9.74	12.96	8.57	2.95	2.26	20.62	22.90
AGNICO EAGLE MINES LTD	25,740	30.15	25.59	8.93	8.34	1.46	1.44	6.07	6.34
NEWCREST MINING LTD	17,708	22.38	22.61	8.90	8.95	1.50	1.42	6.41	6.32
Average	**10,052**	**18.7**	**15.8**	**9.4**	**8.0**	**2.2**	**1.8**	**14.0**	**13.9**

Source: BRIDS, Bloomberg

Key Risks

Nickel price fluctuations

Current and future changes in the supply and demand for nickel, nickel products and other related products can affect nickel price trends. In recent years, market prices for nickel, nickel products and related products have fluctuated at various levels. Any significant reduction in the price of nickel, nickel products and related products could have an adverse and material impact on the company's business, financial condition, results of operations and prospects.

Significant reclamation, rehabilitation and mine closure liability risks

The government sets operational and reclamation standards for all aspects of open pit mining operations. The company has developed reclamation, rehabilitation and mine closure strategies for the company's concession areas. The reclamation process is carried out in stages. Mining expenses and liabilities for future cash disbursement estimates for reclamation, rehabilitation and closure have been recorded. As more disturbed areas are used for mining to increase production, the company also incurs new costs for future rehabilitation.

Regulation risks

The mining business is a very regulated business where the regulations are subject to further changes.

Company Profile

Merdeka Battery Materials holds a portfolio of high-quality business in the mineral strategic and EV battery value chain assets located in Central Sulawesi and South East Sulawesi, Indonesia. MBM consists of the following assets:

SCM (Sulawesi Cahaya Mineral) mine

(51.0% MBM; 49.0% Tsingshan)

Regarded as one of the world's largest resources in terms of contained nickel with approximately 13.8 mn tons of nickel (1.22% Ni grade) and 1.0 mn tons of cobalt (0.08% Co grade). The SCM mine was originally owned by Rio Tinto and is a large, shallow, low-cost open pit mine within a 21,100 hectare concession area. The SCM mine has rich nickel limonite resources, with the right mix of nickel limonite (77%) and nickel saprolite (23%). Nickel limonite ore is the raw material used in the production of Mixed Hydroxide Precipitate ("MHP") through High Pressure Acid Leach ("HPAL") processing technology which can then be converted into nickel sulphate for use in EV (electric motor vehicle) battery production;

Rotary Kiln-Electric Furnace (RKEF) smelters

(50.1% MBM, 49.9% Tsingshan)

Two operating nickel RKEF smelters (PT Cahaya Smelter Indonesia/CSI and PT Bukit Smelter Indonesia/BSI) producing Nickel Pig Iron (NPI) in Indonesia Morowali Industrial Park (IMIP). Each of CSI and BSI has a nameplate capacity of 19,000 tons of nickel in NPI per annum. A third smelter (PT Zhao Hui Nickle/ZHN) is currently under construction with an expected nameplate capacity of 50,000 tons of nickel in NPI per annum. MBM is planning to capture additional value downstream by modifying one of the lines at the existing RKEF smelters and installing converters to the ZHN smelter to enable the production of a high-grade nickel matte product;

Acid Iron Metal (AIM) project

A modern processing plant facility which will process high-grade pyrite feedstock from Wetar Copper Mine ownedy by MDKAto recover acid and steam for use in HPAL plants, in addition to producing other metals such as copper, gold and iron. The AIM project is owned by PT Merdeka Tsingshan Indonesia, a joint venture holding company which is owned 80% by MBM and 20% by Tsingshan;

Indonesia Konawe Industrial Park (IKIP)

A joint venture between MBM (32%) and Tsingshan (68%) to develop an approximately 3,500-hectares nickel industrial park, with a focus on HPAL processing technology for battery metals within the SCM concession area;

HPAL plants

MBM plans to develop two HPAL plants at IKIP and is currently progressing discussions with potential HPAL JV partners. The HPAL plants will provide MBM with further exposure to the strategic minerals and EV battery value chain. The HPAL plants are expected to process limonite ore from the SCM mine with a planned capacity of 120 ktpa Ni in form of Mixed Hydroxide Precipitate (MHP) each;

Other assets

include a ~50km dedicated haul road connecting the SCM mine and IMIP; and a 500-hectares limestone mining concession.

Supported by a strong and experienced management team

The company also has an experienced management team with decades of experience in the nickel industry and mining sector.

Board of Director

Position	Name	Description
President Director	 **Devin Antonio Ridwan**	**Devin Antonio Ridwan**, Indonesian citizen, born in 1974. Appointed as President Director of the company since 2023. He began his career as an Auditor at KAP Arthur Andersen (1996-1998) and KAP Pricewaterhouse Coopers (1998-2000) before joining PT Astra International Tbk (2004-2008) with his last position as Department Head-Corporate Planning & Strategy. He has also served as Director of PT Jingdong Indonesia Pertama (2015-2018), Director of PT Bumi Suksesindo (2017-2022), and PT Merdeka Mining Servis (2017-2022). Currently he also serves as Director of PT Provident Investasi Bersama Tbk., and President Commissioner of PT Hijau Energi Bersama. He has also held several positions in subsidiaries of the company. He earned a Bachelor of Economics degree majoring in accounting from the Indonesian Institute of Business and Informatics ("IBII") in 1996 and a Master of Applied Finance from Macquarie University in 2001. He has been a Chartered Financial Analyst ("CFA") since 2005.
Vice President Director	 **Jason Laurence Greive**	**Jason Laurence Greive**, Australian citizen, born in 1973. Appointed as a Vice President Director of the company since 2023. He has over 28 years of international mining experience. Previously, he worked at Barrick Gold Corporation with latest position as Regional Manager Environment & Sustainability (2005-2009), Executive General Manager Operations & Technical Services in Brockman Resources Limited (2009-2011), Nexus Minerals Limited with latest position as Managing Director (2011-2014), Evolution Mining Ltd with latest position as General Manager Operations (2014-2018), Chief Operating Officer in RTG Mining Inc (2018-2020), Director & Principal in Provident

		Management Services Pty Ltd (2020) and Chief Operating Officer in Red 5 Limited (2020-2022). He holds a Bachelor of Science double degree in Extractive Metallurgy and Chemistry, from Murdoch University, Western Australia.
Director	 **Titien Supeno**	**Titien Supeno,** Indonesian citizen, born in 1972. Appointed as a Director of the company since 2023. She has over 20 years of human resource management. Previously, she worked at PT 3M Indonesia as Senior Marketing Analyst (1997-2001), various managerial positions at PT HM Sampoerna Tbk. (Phillip Morris International) (2001-2008), PT Anugerah Pharmindo Lestari (Zuelig Pharma Company) with latest position as Head of Human Capital (2009-2013) and Director of PT Mitra Pinashtika Mustika Tbk. (2013-2023). She currently serves as Commissioner at PT Mitra Pinashtika Mulia and PT Mitra Pinashtika Mustika Auto, Director of PT Merdeka Copper Gold Tbk. and Director of PT Sulawesi Cahaya Mineral (the company's subsidiary owns SCM Mine). She earned a Bachelor of Economics degree majoring in management in 1994 and a Masters in Management in 1996, both are from Trisakti University.

Board of Commissioner

Position	Name	Description
President Commissioner	 **Winato Kartono**	**Winato Kartono**, Indonesian citizen, born in 1971. Appointed as President Commissioner of the company since 2023. He was one of the founders of PT Merdeka Copper Gold Tbk. Previously, he worked at Citigroup with his last position as Head of Investment Banking Indonesia Citigroup Global Markets (1996-2004). Prior to joining Citigroup, he worked for Arthur Andersen and Bank Sumitomo Niaga in Jakarta. He has also served as Director of PT Provident Agro Tbk. (2006-2012), Commissioner of PT Tower Bersama Infrastructure Tbk. (2010-2022), and Commissioner of PT Provident Investasi Bersama Tbk. (2012-2022). Currently, he also serves as Commissioner of PT Provident Capital Partners since 2005, Commissioner of PT Provident Capital Indonesia since 2006, and Commissioner of PT GoTo Gojek Tokopedia Tbk. since 2023. He earned a Bachelor of Economics degree from Trisakti University in 1992.

Commissioner	 **Michael W.P. Soeryadjaya**	**Michael W.P. Soeryadjaya**, Indonesian citizen, born in 1986. Appointed as Commissioner of the company since 2023. He has extensive experience in mergers and acquisitions including involvement in the initial public offering of PT Saratoga Investama Sedaya Tbk, PT Mitra Pinasthika Mustika Tbk. and PT Merdeka Copper Gold Tbk. He has overseen various investments made by Saratoga, including PT Deltomed Laboratories, PT Famon Awal Bros Sedaya Tbk. (Primaya Hospital), and PT MGM Bosco Logistics. Currently he also serves as President Director of Saratoga since 2015, Director at PT Adaro Energy Indonesia Tbk. since 2022, and Commissioner of PT Samator Indo Gas Tbk since 2022. Previously he served as Director of Saratoga (2013-2015), Commissioner of PT Provident Investasi Bersama Tbk. (2015-2020), and Director of Merdeka (2014-2022). He earned a Bachelor of Administration degree from Pepperdine University, USA in 2008.
Independent Commissioner	 **Hasan Fawzi**	**Hasan Fawzi**, Indonesian citizen, born in 1970. Appointed as Independent Commissioner of the company since 2023. He began his career at PT Kliring Depository Securities Indonesia with his last position as Head of the System Development Department (1993-1997), then joined PT Kliring Penjaminan Efek Indonesia ("KPEI") with his last position as Head of the Information Technology Division (1997-2008), Director of the Indonesian Stock Price Appraiser (2008-2012), President Director of KPEI (2015-2018) and Director of Development of the Indonesia Stock Exchange (2018-2022). Currently he also serves as President Commissioner of PT Pefindo Credit Bureau and PT RHB Sekuritas Indonesia. He earned a Bachelor of Engineering degree from the Bandung Institute of Technology in 1993 and a Master of Business Administration degree from LIAE de Grenoble University, Universite Pierre Mendes, France in 2008 and a Masters in Management from the Faculty of Economics, University of Indonesia in 2008.

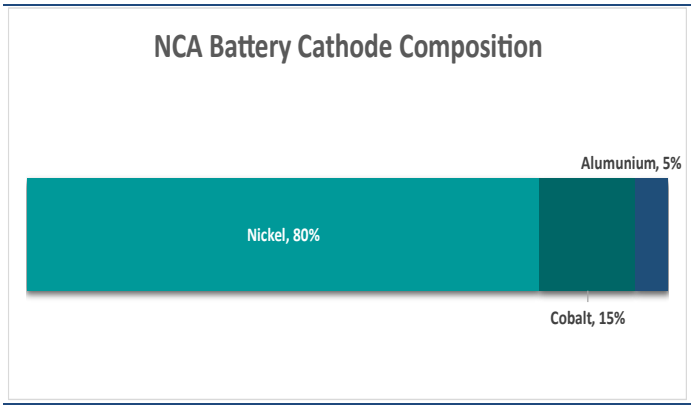
Industry review

Nickel as a battery source

Nickel (Ni) has long been widely used in batteries, most commonly in nickel cadmium (NiCd) and in the longer-lasting nickel metal hydride (NiMH) rechargeable batteries, which came to the fore in the 1980s. The major advantage of using nickel in batteries is that it helps deliver higher energy density and greater storage capacity at a lower cost. Further advances in nickel-containing battery technology mean it is set for an increasing role in energy storage systems, helping make the cost of each kWh of battery storage more competitive. It is making energy production from intermittent renewable energy sources such as wind and solar replace fossil fuels more viable.

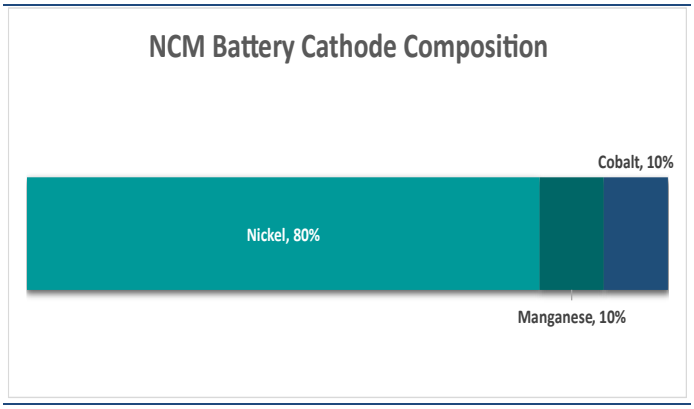
In tandem with this increasing market share, battery technology is also advancing, another reason why the proportion of nickel-containing Li-ion batteries in use is set to grow. Two of the most commonly-used types of batteries, Nickel Cobalt Aluminium (NCA) and Nickel Manganese Cobalt (NMC) use 80% and 33% nickel respectively; newer formulations of NMC are also approaching 80% nickel. Most Li-ion batteries now rely on nickel.

Exhibit 19. NCA Composition



Source: Nickel Institutue

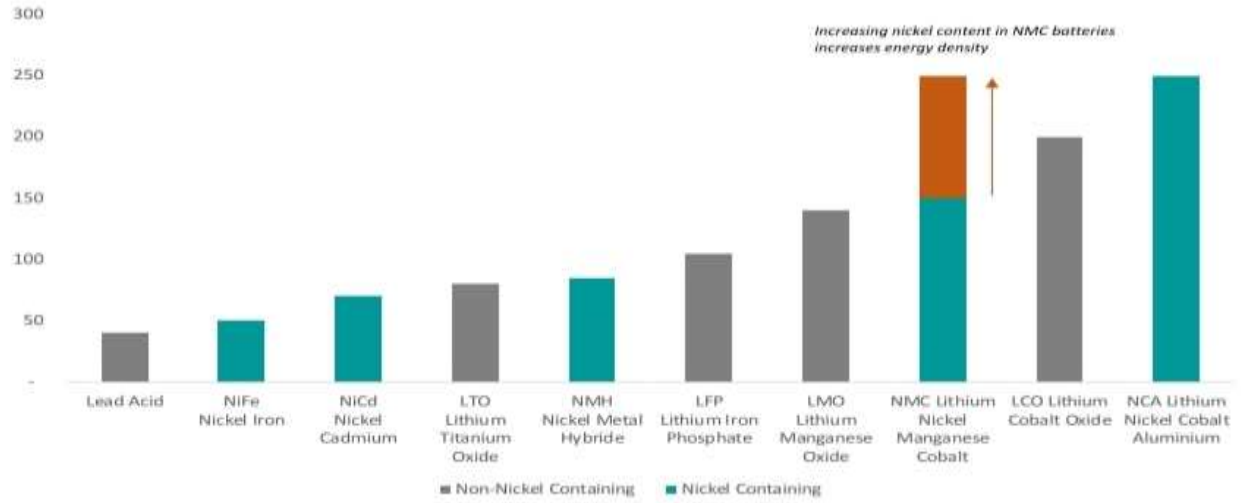
Exhibit 20. NCM Composition



Source: Nickel Institute

Li-ion batteries were incorporated into the next generation of electric cars, as their superior power density became critical for moving vehicles over long distances. Although electric vehicles (EVs) currently account for a relatively small proportion of global automobile stock, their market share is increasing and is forecast to continue to grow rapidly in the coming years. There are two classifications of batteries. Primary batteries are disposable, for single use; secondary batteries can be recharged and reused. Secondary batteries come in a number of varieties, such as the lead-acid battery found in automobiles, NiCd (Nickel Cadmium), NiMH (Nickel Metal Hydride) and Li-ion (Lithium ion). Nickel is an essential component for the cathodes of many secondary battery designs, including Li-ion.

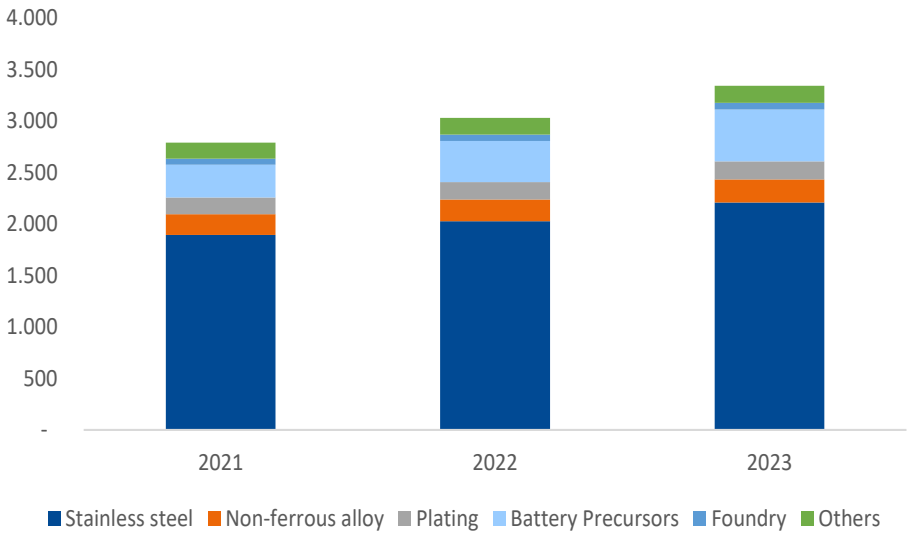
Exhibit 21. Nickel Containing Batteries



Source: Nickel Institute

Nickel, which is primarily used for the production of stainless steel, is already one of the world's most important metal markets at over USD20 bn in size. The additional future impact on the nickel market depends on battery demand and EV market penetration. Air pollution is the world's largest environmental health risk, according to the World Health Organization and the transportation sector is one of the largest polluters of CO2 emissions. Governments have begun responding by banning the sale of gasoline and diesel vehicles in UK, France, Norway, India and China in the long term. EVs currently constitute about 1% of auto demand – this translates to 70,000 tons of nickel demand, about 3% of the total market. As EV penetration goes up, nickel demand increases rapidly as well.

Exhibit 22. Nickel by first use



Source: BRIDS, Wood Mackenzie

Majority of today's nickel supply came from laterites

Even though much more nickel will be needed for lithium-ion batteries, most nickel in the global supply chain is not actually suited for battery production. Battery demand requires high grade nickel products to produce nickel sulphate.

Today's nickel supply comes from two different types of deposits:
• Class I (Nickel Sulphides): Higher grade, but rarer deposits that make up 37.5% of current production.
• Class II (Nickel Laterites): Low grade, bulk-tonnage deposits that make up 62.4% of current production.

Exhibit 23. Nickel Laterites



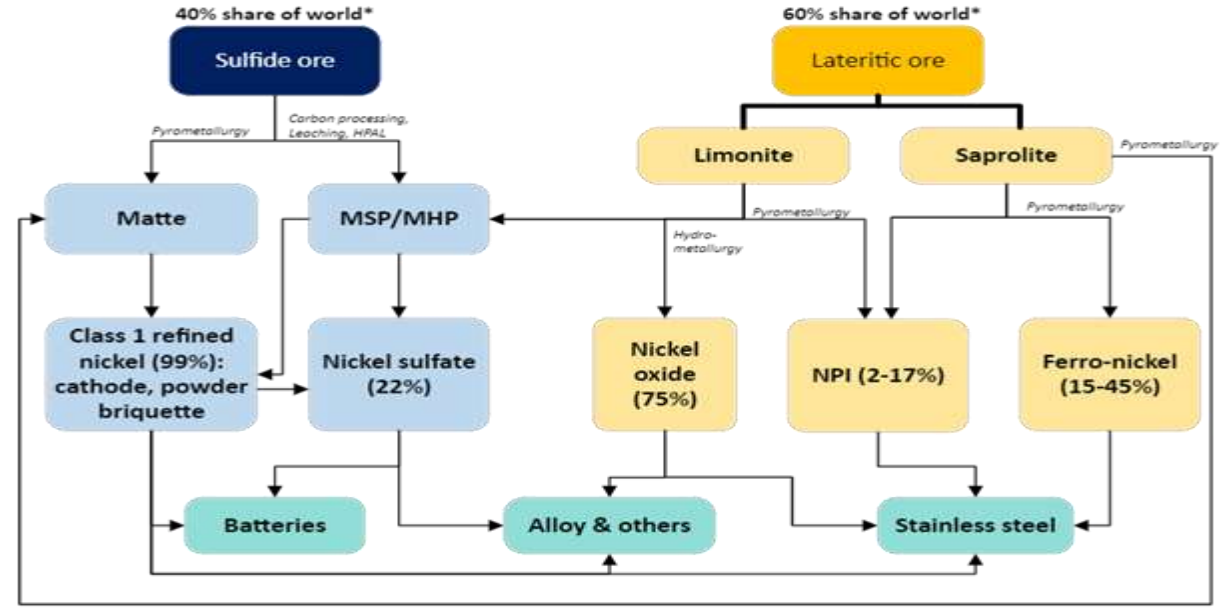
Source: Various

Exhibit 24. Nickel Sulfides



Source: Various

Exhibit 25. Nickel process flow sulfide vs laterite



Source: Nickel Institute

Indonesia has the largest global nickel deposits

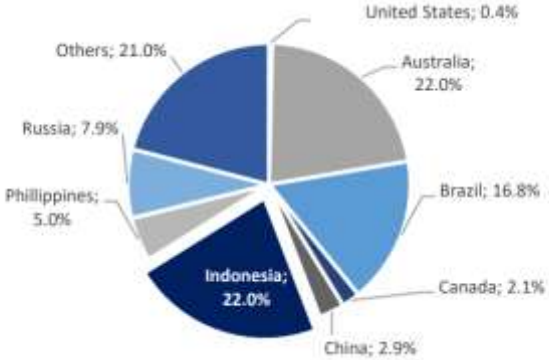
Indonesia is the largest global nickel mine producer with the largest nickel deposits. Based on the latest USGS report in January 2022, Indonesia is the largest global nickel producer with contribution of ~36.4% of total global production. The country is also one of those estimated to have the world's largest nickel reserves deposits (21mn tons of nickel content) with a contribution of ~22% to total global nickel reserves. This contribution is equal to the nickel reserves deposits owned by Australia. This makes it easier for Indonesia to obtain raw materials for producing electric vehicle batteries.

Exhibit 26. Indonesia the largest global nickel producer…



Source: USGS

Exhibit 27. … and has the largest global nickel deposits



Source: USGS

Nevertheless, our (Indonesia) nickel deposits is claimed as class II nickel deposits, or laterite resources, that are a good feedstock for Class 2 products used in steel production, it doesn't have sulfide ore resources, which in general are a good fit for producing Class 1 nickel.

Class II nickel deposits are used to produce nickel pig iron and ferronickel and are generally not suitable for use in batteries. However, state-of-the-art technology is now available which was designed to profitably process laterite with low grade nickel.

Not surprisingly, major mining companies see this as an opportunity. This, EV-inspired optimism has brought renewed interest over laterite nickel industry with new technology to process limonite ore, which previously treated as overburden, through High Pressure Acid Leach technology. Almost all of nickel play under our coverage has one or multiple HPAL projects on their pipeline, due to promise of sky high project IRR. The demand outlook of clean energy helps HPAL project to seem feasible today.

Exhibit 28. Income Statement

Year to 31 Dec (USDmn)	2021A	2022F	2023F	2024F
Revenue	**-**	**408**	**1,221**	**1,960**
COGS	-	(339)	(1,002)	(1,334)
Gross profit	**-**	**69**	**219**	**626**
EBITDA	**-**	**63**	**231**	**640**
Oper. profit	**-**	**49**	**194**	**603**
Interest income	-	-	-	-
Interest expense	-	(9)	(46)	(69)
Forex Gain/(Loss)	-	-	-	-
Income From Assoc. Co's	-	-	-	-
Other Income (Expenses)	-	-	-	-
Pre-tax profit	**-**	**40**	**149**	**534**
Income tax	-	(0)	(5)	
Minority interest	-	(12)	(106)	(304)
Net profit	**-**	**28**	**37**	**214**
Core Net Profit	**-**	**28**	**37**	**214**

Exhibit 29. Balance Sheet

Year to 31 Dec (USDmn)	2021A	2022F	2023F	2024F
Cash & cash equivalent	169	100	273	260
Receivables	-	83	67	107
Inventory	-	80	80	100
Other Curr. Asset	-	346	11	67
Fixed assets - Net	-	723	1,458	2,065
Other non-curr.asset	-	602	1,205	1,496
Total asset	**169**	**1,934**	**3,095**	**4,095**
ST Debt	-	-	6	18
Payables	-	58	58	170
Other Curr. Liabilities	-	69	45	45
Long Term Debt	-	368	921	1,453
Other LT. Liabilities	-	102	106	109
Total Liabilities	**-**	**597**	**1,136**	**1,795**
Shareholder'sFunds	169	810	1,325	1,362
Minority interests	-	527	633	938
Total Equity & Liabilities	**169**	**1,934**	**3,095**	**4,095**

Exhibit 30. Cash Flow

Year to 31 Dec (USDmn)	2021A	2022F	2023F	2024F
Net income	(0)	28	37	214
Depreciation and Amort.	-	14	37	37
Change in Working Capital	-	(384)	328	(4)
OtherOper. Cash Flow	-	0	(313)	(0)
Operating Cash Flow	**(0)**	**(341)**	**89**	**248**
Capex	-	(737)	(772)	(644)
Others Inv. Cash Flow	15	(905)	(290)	(290)
Investing Cash Flow	**15**	**(1,642)**	**(1,062)**	**(934)**
Net change in debt	-	472	562	546
New Capital	175	372	591	-
Dividend payment	-	-	-	-
Other Fin. Cash Flow	(21)	1,542	555	673
Financing Cash Flow	**154**	**1,913**	**1,146**	**673**
Net Change in Cash	**169**	**(70)**	**173**	**(13)**
Cash - begin of the year	0	169	100	273
Cash - end of the year	169	100	273	260

Exhibit 31. Key Ratios

Year to 31 Dec	2021A	2022F	2023F	2024F
Growth (%)				
Sales	n/a	n/a	199.2	60.5
EBITDA	n/a	n/a	216.5	183.0
Operating profit	n/a	n/a	296.4	209.9
Net profit	n/a	n/a	32.3	477.8
Profitability (%)				
Gross margin	n/a	16.9	17.9	32.0
EBITDA margin	n/a	20.1	21.2	37.4
Operating margin	n/a	12.0	15.9	30.8
Net margin	n/a	6.9	3.0	10.9
ROAA	n/a	1.5	1.2	5.2
ROAE	n/a	2.1	1.9	9.3
Leverage				
Net Gearing (x)	-	0.3	0.5	0.6
Interest Coverage (x)	n/a	9.3	5.7	10.7

Source : MBMA, Danareksa Estimates

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