

Cape Flattery Silica

30 November 2022 Capital Raise



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Metallica Minerals Limited (ASX: MLM)
A new economy minerals company

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Listing Rule & Competent Person Statements



ASX Announcements cited

The following ASX Announcements are cited in this presentation

1. ASX Release 7 April 2022 "Significant Increase in Measured & Indicated Resources at Cape Flattery Silica Project"
2. ASX Release 15 June 2021 "Mining Lease Application lodged for Cape Flattery Silica"
3. ASX Release 21 March 2022 "Cape Flattery Silica Pre Feasibility Study"
4. ASX Results 28 April 2022 "Positive Metallurgical test work results achieved at CFS"
5. ASX Release 10 November 2021 "Cape Flattery Silica Sand Project Production Target"
6. ASX Release 20 September 2022 "Drilling at the Western Areas Intersects High Purity Silica"

The statements in this presentation concerning Mineral Resource Estimates at the CFS Project are derived from ASX announcements 1, 3 and 5 above.

Listing Rule 5.23

The Company confirms that it is not aware of any new information or data that materially affects the information included in these original market announcements and, in the case of estimates of mineral resources or ore reserves and production forecasts and forecast financial information, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Statements concerning production targets and related financial information are derived from ASX announcements 3 and 5 above.

Listing Rule 5.19.2

The Company confirms that all material assumptions underpinning the production target and corresponding financial information continue to apply and have not materially changed.

Competent Person Statement

Cape Flattery Silica Western Area Exploration Results

The information in this report that relates to the Exploration Sampling and Exploration Results is based on information compiled by Mr Patrick Smith, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy.

Mr Smith is the owner and sole Director of PSGS Pty Ltd and is contracted to Metallica Minerals as their Exploration Manager. Mr Smith confirms there is no potential for a conflict of interest in acting as the Competent Person. Mr Smith has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Smith consents to the inclusion of this information in the form and context in which it appears in this release/report.

Cape Flattery Silica Sands Mineral Resource

The information in this report that relates to Mineral Resources at the Cape Flattery Silica Sand Project is based on information, geostatistical analysis and modelling carried out by Mr Chris Ainslie, Project Engineer – Mining & Quarrying. Mr Ainslie is an employee of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy. Mr Ainslie worked under the supervision of Mr Carl Morandy, Mining Engineer who is Managing Director of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy and Mr Brice Mutton, Senior Geologist who is an Associate of Ausrocks Pty Ltd and is a Fellow of the Australasian Institute of Mining & Metallurgy and a Fellow of the Australian Institute of Geoscientists. Ausrocks Pty Ltd have been engaged by Metallica Minerals Ltd to prepare this independent report and there is no conflict of interests between the parties.

Mr Mutton has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code). Mr Mutton consents to the inclusion in the report on the matters based on their information in the form and context in which it appears.

Cape Flattery Silica Sands Ore Reserves

The information in this report that relates to Ore Reserves at the Cape Flattery Silica Sand Project is based on information reviewed or work undertaken by Mr Carl Morandy. Mr Morandy is a Mining Engineer, the Managing Director of Ausrocks Pty Ltd and a Member of the Australian Institute of Mining and Metallurgy. Mr Morandy has relied on Metallica Minerals Limited for marketing, environmental, economic, social and government permitting. Ausrocks Pty Ltd have been engaged by Metallica Minerals Limited to prepare this independent report and there is no conflict of interest between the parties.

Mr Morandy has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the preparation of mining studies to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Ore Reserves (The JORC Code). Mr Morandy consents to the inclusion in the report on the matters based on their information in the form and context in which it appears.

Company Highlights



Metallica's 100% owned Cape Flattery Silica (CFS) has two high grade silica projects adjacent to existing mines in North Queensland



CFS East Project has defined a 46Mt Reserve of high purity Silica Sand₁ and a Mining Lease has been lodged



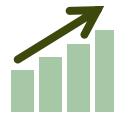
Metallurgical test results received to date suggest a high quality product. Acceptance testing has been positive with several significant potential customers ₂



PFS highlights **strong positive NPV, low Capex, low Opex and Reserve for 25 years production** ₃



The CFS project– located within the Port Limit of Cape Flattery **provides for transport options**



Booming production of Solar panels stimulates significant demand for high purity silica sand



MoU executed with Mitsui



CFS West Drilling to date has identified **very high purity silica sand** and a further drill program is planned

1. See ASX Release 7 April 2022 "Significant Increase in Measured & Indicated Resources at Cape Flattery Silica Project", 2. See ASX Results 28 April 2022 "Positive Metallurgical test work results achieved at CFS" 3. See ASX Release 21 March 2022 "Cape Flattery Silica PFS – confirms excellent economics, 4.



Metallica Minerals
is an Australian development
company focused on delivering
high purity silica sand to a
diversified global customer-
base.

LEGEND

- Cape Flattery land mass
- Coral Sea
- Cape Flattery EPM 25734
- Cape Flattery MLA 100284
- Cape Flattery Port limit
- Mitsubishi ML
- Diatrema MLA
- Diatrema infrastructure (road)
- Roads

17.5 km



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Corporate snapshot



Share Price

3.8c

(as at 29 November 2022)

Cash

\$3.0m

(as at 31 October 2022)

Top 20
shareholders
hold **58%**
of Register

Ordinary Shares

670.7m

Debt

Nil

MLMOB Options

179.6m

\$0.06

Unlisted Options

21.7m

Market Cap

\$25.5m

Board & Management

Theo Psaros – Executive Chairman

Brad Sampson – Non-Exec Director

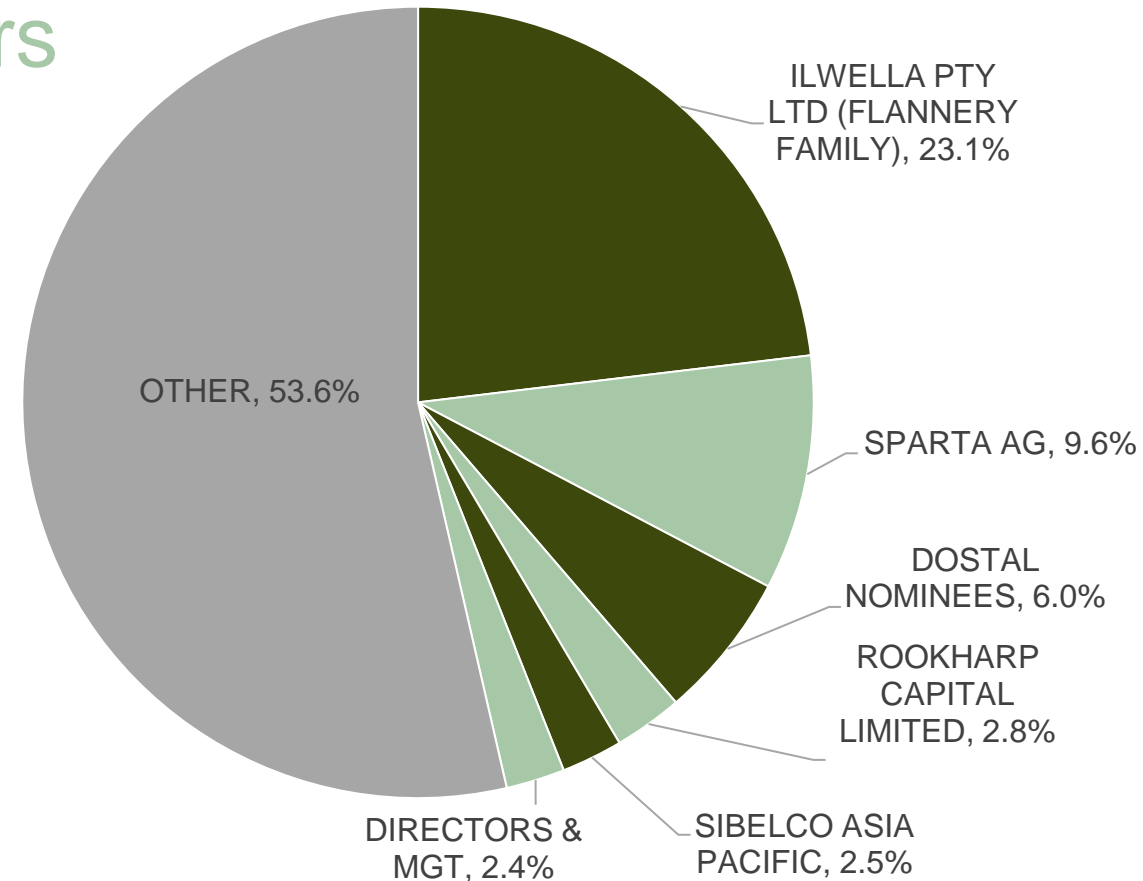
Mark Bojanjac – Non-Exec Director

Scott Waddell – CFO & Company Secretary

Sam Fisher – GM Commercial

Nicholas Villa – GM Cape Flattery Silica

Pat Smith – Geologist



Cape Flattery Silica Market drivers



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- > Silica sand is a key ingredient in glassmaking
- > High-quality silica sand is an essential raw material for the production of hi-tech glass in products such as:
 - » solar panels
 - » smartphones
 - » fibre optics
 - » tablets
 - » LED lighting
- > Increasing demand for high-grade silica sand underpinned by forecasted demand for high efficiency solar panels:
 - » global net zero objectives
 - » population growth and adoption of “screen” devices
 - » accelerating electrification
- > Readily accessible high quality Silica Sand is a finite resource that is in limited supply



What is going to drive value for MLM?



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- > CFS silica sand product is expected to be highly sought after by the strategically located Asian market
- > Silica is a 'critical' mineral and the Asian high quality silica sand market is expected to grow significantly
- > The project has low capex, very positive NPV and the payback period is short
- > ***Recognition that the project has a transport solution that is located within the Port Limit of Cape Flattery.***
- > The proximity of the project to its proposed 100% owned transport solution will minimise opex compared to other nearby projects,
- > Low capex project (A\$79.4m), very positive NPV (A\$290m) and the payback period is short (3.9 years)
- > Recent corporate activity in the Cape Flattery region highlights the growing interest in new projects that will deliver high quality silica sand to the booming Asian markets
- > Completion of key agreements with Traditional Land Owners.
- > Near-term value catalysts include:
 - » Offtake agreement (Q2 CY23)
 - » Environmental & Mining lease approvals (Q2 CY23)*
 - » Definitive Feasibility Study (Q2 CY23)*
 - » First Production (Q2 CY25)*



ESG

- > Adopting a low-impact approach to silica sand mining to minimise environmental impact
- > Environmental management at the Cape Flattery Silica project will be comprehensive
- > Key objectives include:
 - » minimising the operation's footprint (no tailings dam)
 - » protecting biodiversity
 - » responsible water use
 - » rehabilitating disturbed areas after disturbance
- > No chemicals will be used in production
- > Dust is minimised using slurry pipelines during mining activities.
- > Adopting progressive rehabilitation
- > Appropriate buffers, tree protection zones and offsets will be established
- > Additional seeding with preferred species will be undertaken.
- > Advanced Planning for Indigenous training, employment and new business opportunities



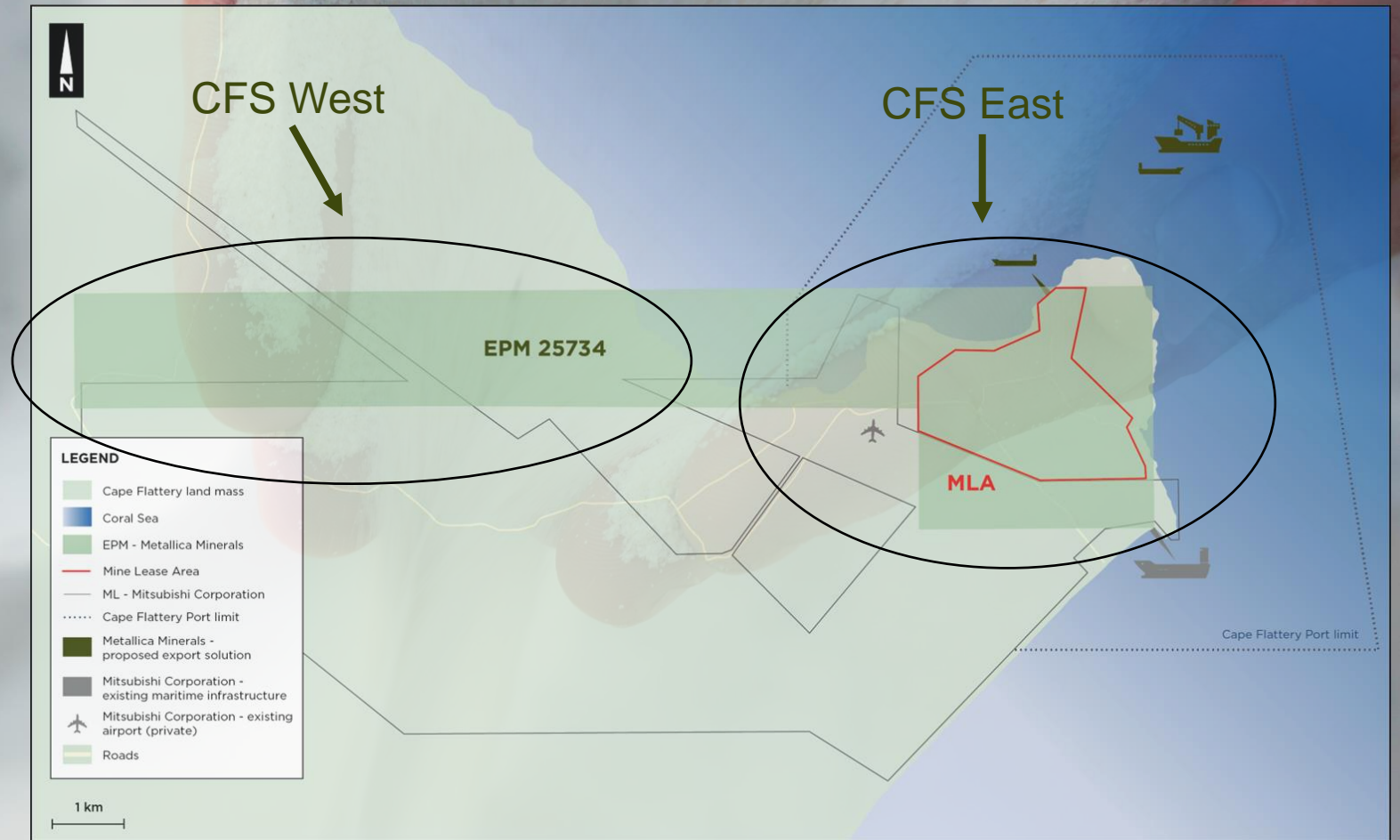
L-R John Deeral, Raynard Baru, Shailand Deeral-Rosendale, Stanton Thompson, Nicholas Villa (General Manger), Theo Psaros (Chairman), Tayna Yoren, Fabian O'Burns and Kenneth McLean – Dingall Clan representatives



Images taken during CFS East drilling programs in 2021



THE PROJECT AREAS



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CFS Project

Cape Flattery silica sand operation is on track for first production in June Quarter 2025*

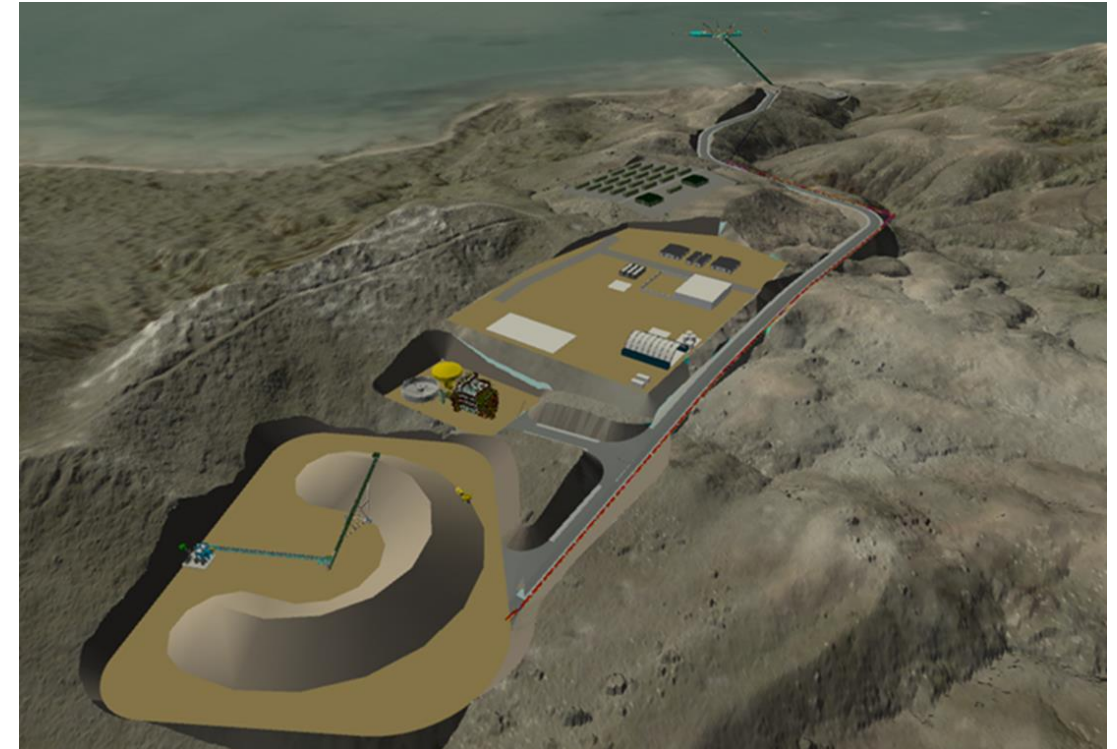
- > Strategic, 100%-owned, world-scale asset in a Tier-1 mining jurisdiction
- > **Growing demand from Asian buyers of high purity Silica**
- > PFS shows high-margin cashflows with **pre-tax IRR of 35%** and **average annual EBITDA of A\$38m**
- > **Projected revenue** for the 25 years of planned production is AUD\$2.2bn based on a price forecast of AUD\$63/tonne (PFS released March 22)
- > **MOU executed with Japanese trading giant Mitsui.** Other Asian buyers have been targeted.
- > Achievements to date:
 - » Reserve of 46mt @ 99.18% SiO₂%
 - » 144 holes drilled
 - » Metallurgical test work to date has been positive
 - » Granted Project of Regional Significance



**CFS TO GENERATE
~ 70 DIRECT JOBS DURING CONSTRUCTION &
~120 DURING OPERATIONS**



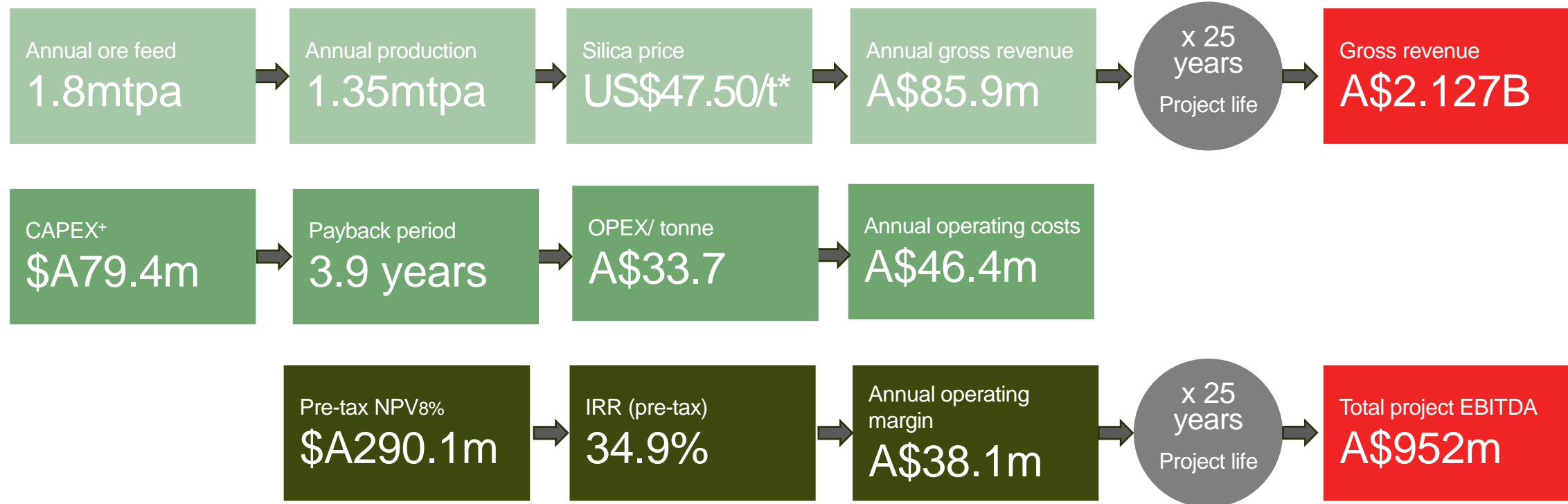
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Access to key site infrastructure, including:

- > Product stockpile
- > Processing plant and pad
- > Conveyor
- > Jetty infrastructure facility
- > Purpose-built accommodation facility.

Pre-Feasibility Study outcomes¹



* The price assumption is for a 'low iron' silica sand product suitable for solar PV cover glass manufacturing (FOB-Cape Flattery Port)

+ Capital development costs include a 15% contingency (\$9.6m)

1. See ASX Release 21 March 2022 "Cape Flattery Silica PFS – confirms excellent economics"

Cape Flattery Silica West

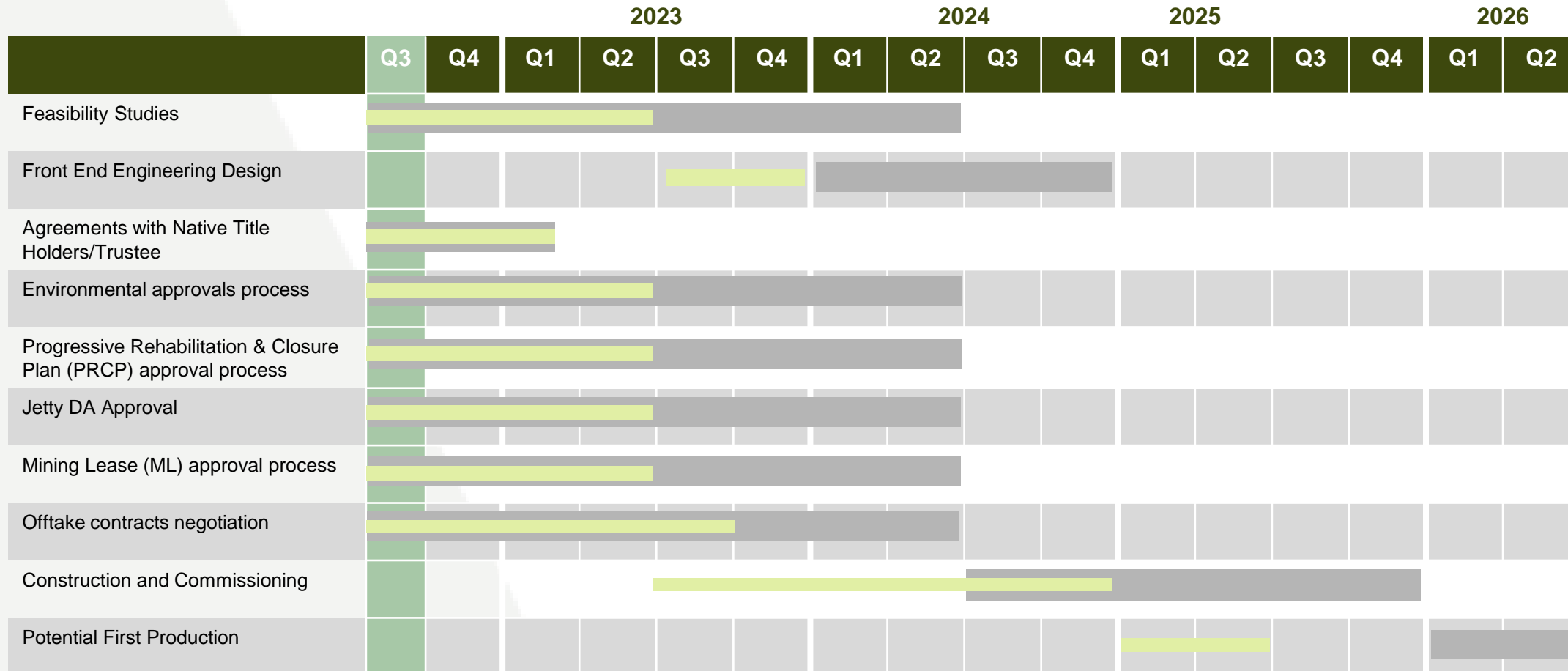
- > 25 hole hand auger program to a depth of 5m completed in August covering 13.6km² of tenure
- > Assay results for 16 of the 25-hole hand auger program intersected zones of very high purity silica sand grading over 99.0% SiO₂ and with low iron (< 500 ppm Fe₂O₃)
- > Inferred Resource planning underway



Indicative Development Timeframe*



- > While the workplan below assumes MLM’s Cape Flattery Silica Sands project will require the preparation of an environmental impact statement (EIS) under Environmental Protection Act 1994’ (ESR/2016/2167), management has received advice confirming its belief that it should be able to proceed under a site-specific application for an environmental authority (EA).
- > If this is confirmed, the time to production indicated in the workplan below will be reduced by approximately 12 months. Management expects to be able to confirm whether it will be required to proceed under an EIS or EA process by the end of calendar year 2022.



█ = timeline under an EA process
 █ = timeline under an EIS process

> *Timing expectations are based on current best estimates and are subject to change depending upon exploration and metallurgical success, government and third party approvals, market conditions and funding availability.

Opportunity for a Site Specific EA



- > An assessment against the 'Criteria for environmental impact statements (EIS) for resource projects under the Environmental Protection Act 1994' (ESR/2016/2167) was undertaken for the Project and found that the **criteria for an EIS associated with greenfield mining projects have not been triggered including:**
 - » no more than two million tonnes per year or more of run-of-mine (ROM) ore will be removed
 - » location is outside of coastal hazard areas and not under a flood plain
 - » commonly used and proven methods for extraction and processing of silica sand are proposed
 - » predicted impacts are predominantly of a short-term nature and have a low to moderate consequence on environmental values

- > Should a Site Specific Environmental Authority (EA) be granted, the timeline to production is estimated to be 12 months shorter with a reduction in Environmental Study costs of circa \$1m. In addition, we would not require to meet annual corporate costs for the additional 12 months timeframe. Funds saved will be applied to Final Engineering design and potential pre-construction expenditure.



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Offer Summary

Funding Summary



Uses	A\$m
CFS Feasibility Studies	4.2
CFS, EIS, Approvals & TLOs	2.2
CFS Marketing, Resource and Other	0.4
Other Projects	0.4
Working capital	1.8
Costs of the Offer	0.6
Total	9.6

Sources	A\$m
Placement	5.1
Entitlement Offer	4.5
Total	9.6

- > While the use of funds table above assumes MLM's Cape Flattery Silica Sands project will require the preparation of an environmental impact statement (EIS) under Environmental Protection Act 1994' (ESR/2016/2167), management has received advice confirming its belief that it should be able to proceed under a site-specific application for an environmental authority (EA).
- > If this is confirmed, it is the Company's intention to apply the approximately \$1 million which would have otherwise been allocated toward the preparation of an EIS, to final engineering design and potential pre-construction expenditure. Management expects to be able to confirm whether it will be required to proceed under an EIS or EA process by Q1 2023.

Equity Raising Overview



Offer size and structure	<ul style="list-style-type: none">• Fully underwritten equity raising of approximately A\$9.6 million consisting of a:<ul style="list-style-type: none">• Placement of approximately 145 million fully paid ordinary shares (“Shares”) at \$0.035 per Share (representing approximately 22% of issued capital) to raise approximately \$5.1 million (“Placement”) under Listing Rule 7.1 & 7.1A placement capacity; and• A 1 for 4.75 fully underwritten, non-renounceable Entitlement Offer (“Entitlement Offer”) to existing shareholders as of the Record Date of approximately 141 million fully paid ordinary shares (“Shares”) at \$0.032 per Share (“Offer Price”) to raise approximately \$4.5 million (representing approximately 21% of issued capital)• The Placement and Entitlement Offer are together referred to as the “Offer”.
Offer pricing	<ul style="list-style-type: none">• New shares under the Placement will be issued at a fixed price of \$0.035 (Placement Price) which represents a:<ul style="list-style-type: none">• 4.5% discount to theoretical ex-rights price (TERP)¹ of \$0.037 on 25 November 2022• 7.9% discount to the last traded price of \$0.038 on 25 November 2022• 6.7% discount to 5-day volume weighted average price (VWAP) of shares up to 25 November 2022• New shares under the Entitlement Offer will be issued at a fixed price of \$0.032 (Entitlement Offer Price) which represents a:<ul style="list-style-type: none">• 12.7% discount to theoretical ex-rights price (TERP)¹ of \$0.037 on 25 November 2022• 15.8% discount to the last traded price of \$0.038 on 25 November 2022• 14.7% discount to 5-day volume weighted average price (VWAP) of shares up to 25 November 2022
Entitlement offer	<ul style="list-style-type: none">• Only eligible shareholders with a registered address in Australia, New Zealand, Singapore and the European Union may take up their entitlements under the Entitlement Offer.• The Entitlement Offer is non-renounceable. There will be no value attributable to entitlements not taken up and those of ineligible shareholders under the Entitlement Offer.
Underwriting	<ul style="list-style-type: none">• The Offer is fully underwritten by Morgans Corporate Limited.
Ranking	<ul style="list-style-type: none">• New Shares issued under the Offer will rank equally with existing MLM shares from the date of issue.

1. The theoretical ex rights price includes shares issued under the Offer and shares issued as part of consideration. TERP is the theoretical price at which MLM's shares should trade at immediately after the ex date for The Offer based only on the last traded price and issuance of shares at the Offer Price in the Offer. TERP is a theoretical calculation only and the actual price at which MLM shares trade immediately after the ex date for The Offer may be different from TERP.

Equity Raising Timetable



Event	Date
Trading Halt	Monday, 28 November
Trading halt lifted – shares recommence trading on ASX	Wednesday, 30 November
Record Date for Entitlement Offer	Monday, 5 December
Settlement of Placement	Tuesday, 6 December
Allotment and commencement of trading of New Shares issued under the Placement	Wednesday, 7 December
Entitlement Offer opens and Retail Offer Booklet (including Entitlement and Acceptance Form) dispatched	Wednesday, 7 December
Entitlement Offer closes	Friday, 16 December
Announcement of results of Entitlement Offer	Wednesday, 21 December
Settlement of New Shares under the Entitlement Offer	Thursday, 22 December
Allotment and Trading of New Shares issued under the Entitlement Offer	Friday, 23 December

Pro Forma Balance Sheet



	Audited 30-Jun-22 \$ (Note 1)	Pro-forma Adjust to 31-Oct-22 \$ (Note 2)	Pro-forma Unaudited 31-Oct-22 \$ (Note 3)	Pro-forma Adjust Fund Raising \$ (Note 4)	Pro-forma Unaudited After Funding \$
Assets					
Current assets					
Cash and cash equivalents	5,259,695	-2,308,551	2,951,144	8,993,398	11,944,542
Trade and other receivables	59,525	-24,886	34,639		34,639
Total current assets	5,319,220	-2,333,437	2,985,783	8,993,398	11,979,181
Non-current assets					
Property, plant and equipment	100,105		100,105		100,105
Right-of-use assets	476,467		476,467		476,467
Exploration and evaluation	5,160,459	1,503,552	6,664,011		6,664,011
Other non-current assets	73,498		73,498		73,498
Total non-current assets	5,810,529	1,503,552	7,314,081	0	7,314,081
Total assets	11,129,749	-829,885	10,299,864	8,993,398	19,293,262
Liabilities					
Current liabilities					
Trade and other payables	838,600	-361,552	477,048		477,048
Lease liabilities	63,163		63,163		63,163
Employee benefits	39,713		39,713		39,713
Total current liabilities	941,476	-361,552	579,924	0	579,924
Non-current liabilities					
Lease liabilities	425,282		425,282		425,282
Provisions	3,842		3,842		3,842
Total non-current liabilities	429,124	0	429,124	0	429,124
Total liabilities	1,370,600	-361,552	1,009,048	0	1,009,048
Net assets	9,759,149	-468,333	9,290,816	8,993,398	18,284,214
Equity					
Issued capital	53,865,383		53,865,383	9,593,398	63,458,781
Reserves	590,844		590,844		590,844
Accumulated losses	-44,697,078	-468,333	-45,165,411	-600,000	-45,765,411
Total equity	9,759,149	-468,333	9,290,816	8,993,398	18,284,214

Note 1

The Metallica Minerals Statement of Financial Position at 30 June 2022 Reviewed has been extracted from the reviewed financial statements of Metallica Minerals for the half year ended 30 June 2022 as released to the ASX on 25 August 2022.

Note 2

The pro-forma adjustments for actual material changes subsequent to 30 June 2022 and up to 31 October 2022 comprise:

- Decrease of Cash and cash equivalents by \$1,503,552 due to expenditure on Exploration and evaluation assets and other overhead expenditure.
- A reduction to Trade and other payables to the value of \$24,886.
- General expenditure offset by income.

Note 3

The Unaudited pro-forma Statement of Financial Position at 31 October 2022 is based on the Metallica Minerals Statement of Financial Position at 30 June 2022 adjusted for material changes subsequent to that date including the items in Note 2.

Note 4

The pro-forma adjustments fund raising comprise a combination of the effect of the Placement and Offer including: estimated transaction costs of \$600,000 to be paid in cash and offset against the Accumulated Losses account. The costs of Placement are \$245,000; the cost of the Offer is \$355,000. The issue of [141,199,937] shares through the Offer and [145,000,000] shares through the Placement resulted in a total contribution to equity of \$9,593,398 and increased the cash held by \$8,993,398.

Thank you



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APPENDIX

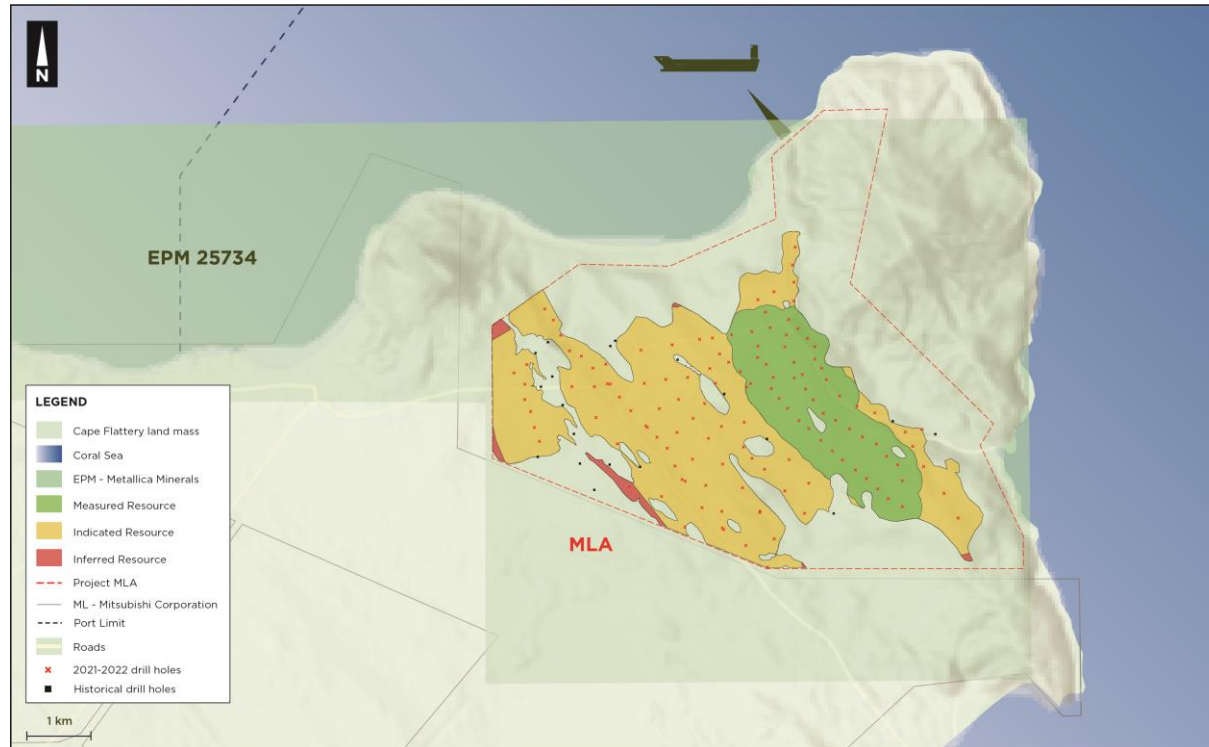


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JORC Resource₁ & Ore Reserve



Ore Reserve Category	Tonnage Mt	SiO ₂ %	Fe ₂ O ₃ %	TiO ₂ %	Al ₂ O ₃	LOI%	Waste Mt	Silica Sand Mm ³
Probable Reserve	46	99.18	0.12	0.14	0.11	0.19	2.6	28.76



- > High purity silica sand resource of 52.2Mt @ 99.18% SiO₂
- > 144 Drill holes completed
- > In-situ SiO₂ averages 99.2% at an 98.5% cut-off grade

Resource Category	Measured	Indicated	Inferred	Total
Silica Sand (Mt)	16.7	35.2	0.3	52.2
SiO ₂ (%)	99.29	99.15	99.26	99.18
Fe ₂ O ₃ (%)	0.10	0.13	0.14	0.12
TiO ₂ (%)	0.13	0.14	0.12	0.14
LOI (%)	0.17	0.19	0.23	0.18
Al ₂ O ₃ (%)	0.08	0.13	0.16	0.11
Density (t/m ³)	1.6	1.6	1.6	1.6
Silica Sand (Mm ³)	10.40	22.00	0.2	32.60

CFS Project – Distribution of the various Resource categories

See ASX Release 7 April 2022 “Significant Increase in Measured & Indicated Resources at Cape Flattery Silica Project”

Pathway to net zero



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- > The International Energy Agency (IEA) highlights reaching net zero by 2050 will be based largely on renewables, with solar power as the single biggest supply source.
- > IEA report states the pathway to net zero requires annual additions of solar PV to reach 630 gigawatts and wind power to reach 390 gigawatts by 2030.*
- > Together this is four-times the record level achieved in 2020.
- > For solar PV, this means installing the world's current largest solar park roughly every day.

*IEA, 2021: <https://iea.blob.core.windows.net/assets/4719e321-6d3d-41a2-bd6b-461ad2f850a8/NetZeroBy2050-ARoadmapfortheGlobalEnergySector.pdf>

CFS Project Benefits: a significant contributor to achieving Net Zero



- > CFS's 1.35 Mtpa production of high quality Silica sand could produce over 133 million 375W solar panels on the basis of 74% of the panel comprised of SiO₂
- > That's equivalent to 3.35 billion panels over a 25 year mine life at full production
- > With an assumed output of 4.0 kWh/day, those panels have the potential to generate over 41,312 TWh of renewable energy over their operating life (25 years)



Enough Silica to produce over **3.35 billion** solar panels



With the potential to generate over **41,312 TWh** of renewable energy

* Detailed analysis of energy production and emissions abatement opportunity carried out by Arche Energy using information derived from third parties, heuristics and assumptions.

Silica Sand Uses and Future Demand

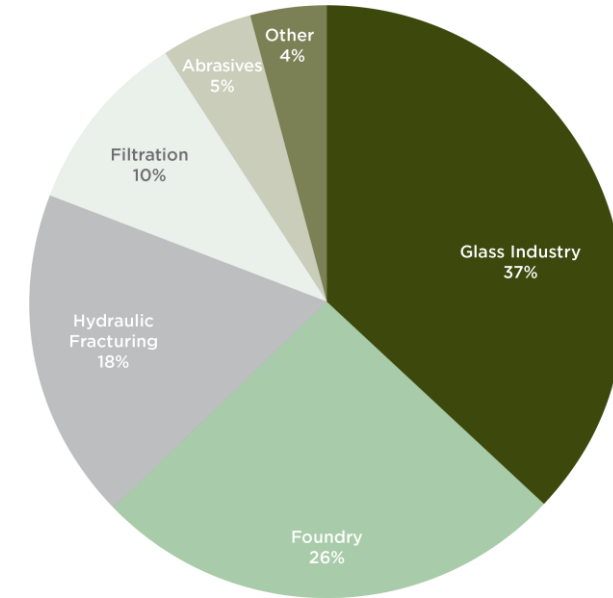


Silica sand is the key ingredient in construction glass and the glass for vehicle windscreens. Demand from the renewable energy sector continues to rise driven by solar panel manufacturers.

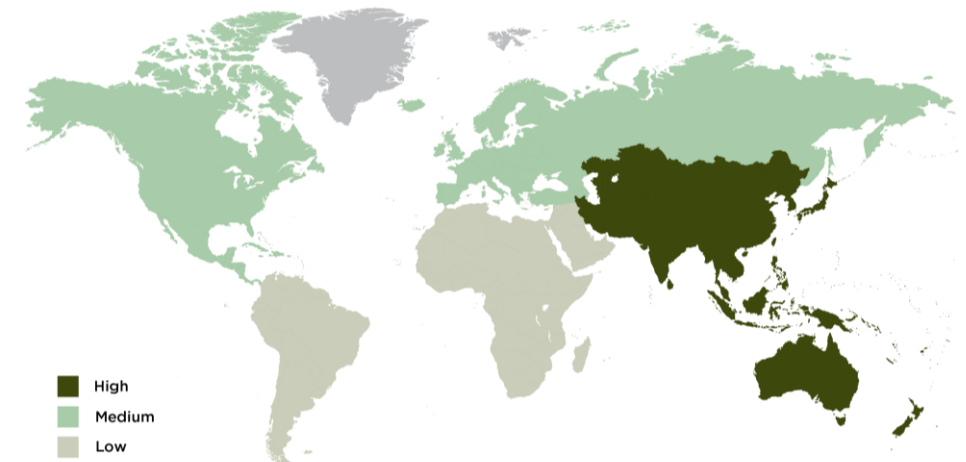
Growing Markets - Ultra Clean Glass

- Solar panels
- Smartphones
- Fibre optics
- Tablets
- LED lighting

- The global silica sand market was valued at US\$ 21.6 Billion in 2021.
- Global silica sand market to exhibit a CAGR of 7% during 2022-2027.
- Solar PV capacity has grown 20-fold over the past decade and forecast to triple in size over the next 10 years.



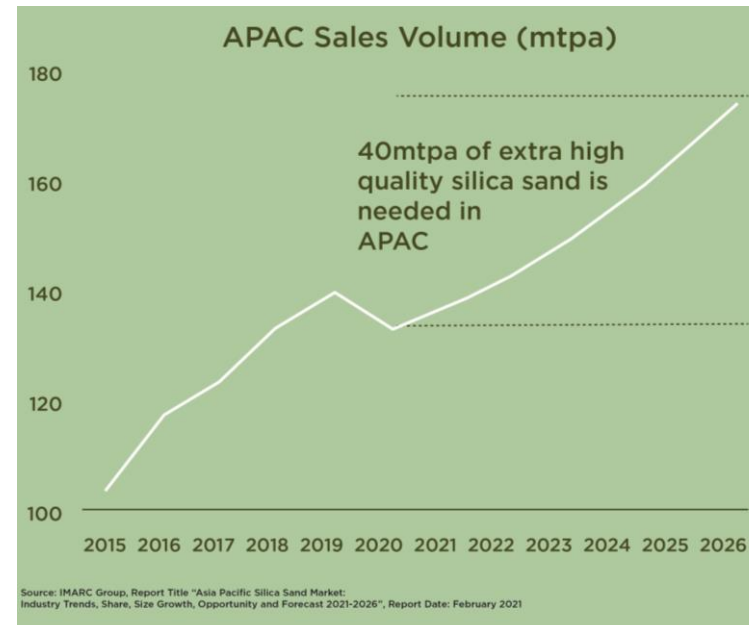
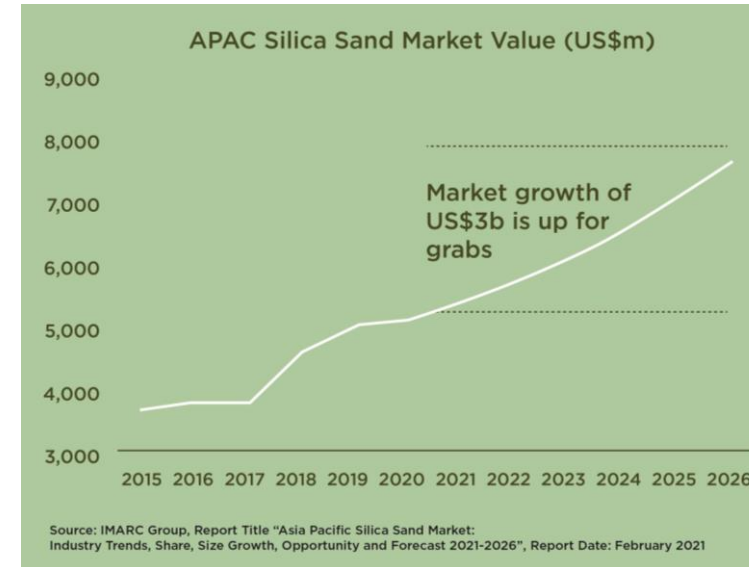
Silica Sand Market - Growth Rate by Region, 2022-2027



Source: Mordor Intelligence

Asia Pacific Demand Drivers

- Increasing population growth.
- Governments aiming for net zero-carbon emissions.
- Wood Mackenzie expects Indonesia to become the fastest growing solar PV market in Asia Pacific over this decade with forecast capacity expanding 28-fold to 8.5 GW by 2030.
- The top five Chinese solar glass producers had a 68.5% share of global market capacity in 2020.
- Asia-Pacific Region expected to remain the largest regional consumer of industrial sand – market reached US\$5.42 Billion in 2021.
- Looking forward, IMARC Group expects the Asia Pacific silica sand market to reach US\$ 8.17 Billion by 2027, exhibiting a CAGR of 7.28% during 2022-2027.



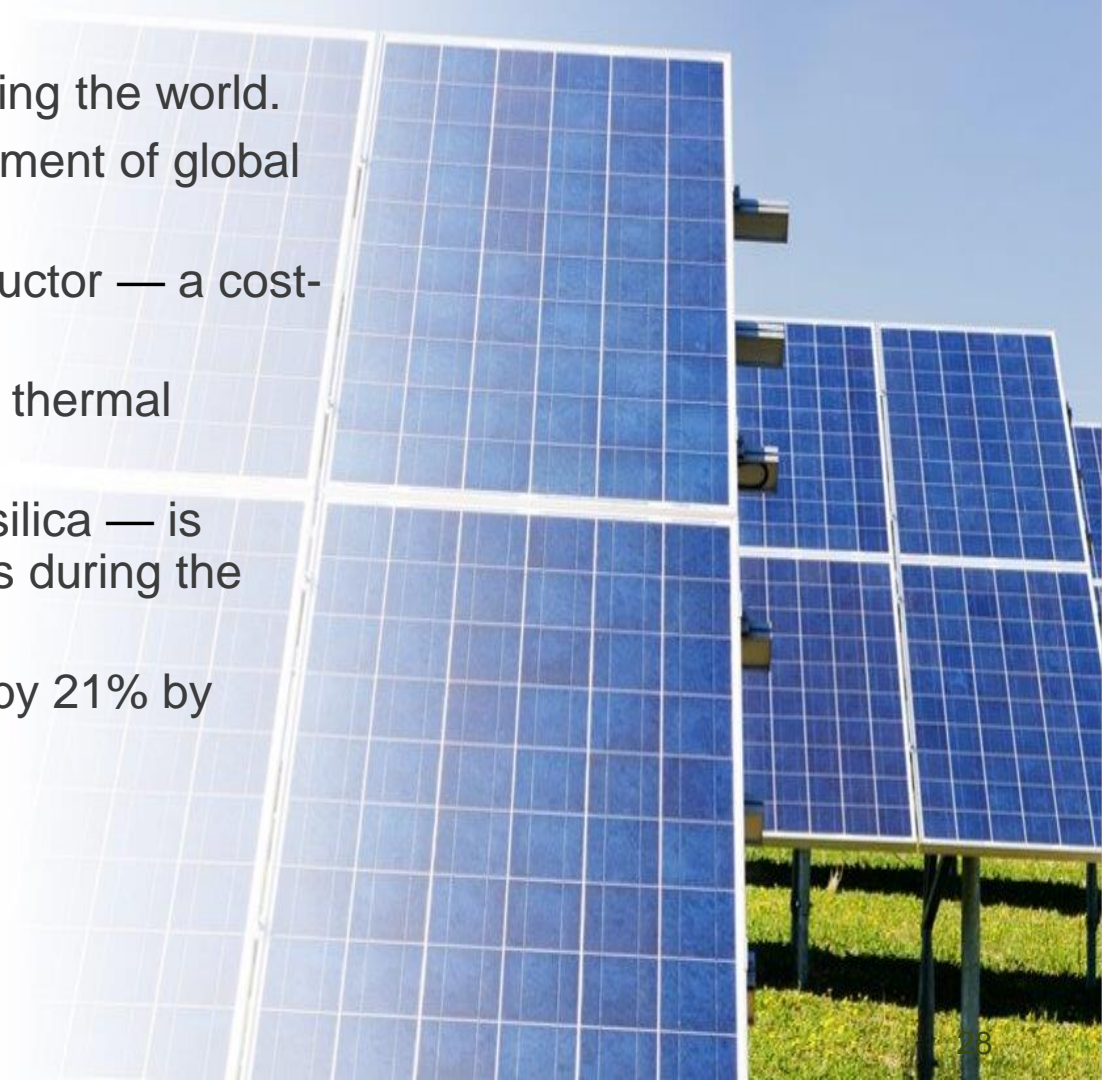


From silica to solar panels — our sand will help the transition to net zero

- > Global trend to move to net zero emissions by 2050.
- > Silica is a 'new economy' mineral and has a role in decarbonising the world.
- > As a key component of solar panels, it is critical in the development of global renewable energy.
- > Silica is used in more than 90% of solar panels as a semiconductor — a cost-efficient material with good energy efficiency.
- > It offers high corrosion resistance, long-term durability, optimal thermal expansion properties, good photoconductivity and low toxicity.
- > Every kilogram of polysilicon — a refined material made from silica — is expected to save more than 7,000 kilograms of CO2 emissions during the lifetime of a solar panel.*
- > Increased development of solar could reduce CO2 emissions by 21% by 2050.**

*SolarPower Europe/EPIA and WACKER analysis, 2017: <https://www.wacker.com/h/medias/7416-EN.pdf>

**IRENA, 2019: https://irena.org/-/media/Files/IRENA/Agency/Publication/2019/Nov/IRENA_Future_of_Solar_PV_2019.pdf



CFS: a significant emissions reduction opportunity



CAPE
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SILICA

- > The emissions intensity of a solar panel over its lifetime is around 40g CO₂-eq/KWh
- > The emissions intensity of a coal fired power station is around 900g CO₂-eq/KWh
- > The emissions reduction opportunity is the difference between emissions from coal fire power generation and those from solar panels over the life of those panels
- > This is in the order of 35,528 Mt of CO₂
- > *It is only natural that the Australian Government deems silica sand to be a critical mineral. In Queensland - a new economy mineral*



Equivalent to the annual emissions of **1.78 billion** households



Equivalent to the emissions of **7.7 billion** cars in a single year

* Detailed analysis of energy production and emissions abatement opportunity carried out by Arche Energy using information derived from third parties, heuristics and assumptions.

Board of Directors



Theo Psaros
Executive Chairman
Appointed 1 February 2019

Mr Psaros is an experienced Company Director and Executive. He has over 30 years of diverse global and local commercial experience in a number of business sectors and industries within multi-million dollar publically listed company, private companies and government departments.

Mr Psaros resource industry experience included a number of years as CFO and COO of MetroCoal Limited, Chairman of the Surat Basin Coal Alliance and a member of the industry group that assisted the Queensland Government Department of Natural Resources and Mines to prepare the 30 year strategic plan for the resources industry in Queensland (ResourcesQ).

Mr Psaros is a Chartered Accountant having previously worked for PwC and has worked in the regulatory industry in London. He is a Graduate of the AICD and has significant experience with capital raising and infrastructure development.



Brad Sampson
Non-Executive Director
Appointed 13 May 2021

Brad Sampson is a Brisbane based internationally experienced business leader, Director and mining professional with more than 30 years resources industry experience. He brings significant mine development and operating experience to the Metallica Board along with listed company governance experience across multiple international jurisdictions. Brad has experienced all aspects of mining operations, having worked in leadership roles through the entire cycle of exploration, development, operations and closure.



Mark Bojanjac
Non-Executive Director
Appointed 13 May 2021

Mark is a Perth based company Director with more than 25 years significant experience in ASX resource companies including those that have taken exploration projects into production. He is currently Executive Chairman of PolarX Limited (ASX: PXX), Non-executive Director of Kula Gold Limited (ASX: KGD). He was previously Non-executive Director and later Managing Director of Adamus Resources leading the transition of the company to a gold producer.

Management



Scott Waddell
CFO and Company Secretary
Appointed 1 February 2019

- > More than 28 years' resources experience gained through positions with Metro Mining Limited, Cape Alumina Limited, Anglo Coal and Rio Tinto Alcan.



Nicholas Villa
GM, Cape Flattery
Appointed 14 June 2021

- > More than 20 years' mining industry experience
- > Experience in Queensland resource project approvals processes including Environmental Studies and Native Title negotiations
- > Project Manager which delivered Metro Mining's Bauxite Hills mine in Northern Cape York to full production.



Sam Fisher
GM Commercial
Appointed 17 October 2022

- > Over 25 years' experience in dry bulk commodities marketing, infrastructure and logistics from strategy through to execution
- > 10 years' focused on Asian markets with strong focus on business development
- > Held leadership positions with New Hope Corporation and BHP



Pat Smith
Geologist
Appointed 1 February 2021

- > Geologist with 30 years' experience
- > Experience in silica sands, copper, gold, nickel, tin and tantalum
- > Worked as Exploration or Country Manager in Australia, Middle East, Africa and Kazakhstan and PNG



Hamish Manzi
Environmental Consultant
Appointed 1 February 2022

- > More than 20 years' experience in environmental, approvals, stakeholder engagement and sustainability services and solutions



Jeff Brown
Metallurgy Consultant
Appointed 1 February 2022

- > Over 25 years' experience in Mineral Sand mining and processing
- > Senior Metallurgist roles with Iluka and Sibelco

Project of Regional Significance



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News > Cape York

Cape poised for silica mine boom as project gets 'significant' status

An emerging Cape York silica miner could be granted a major water allocation after being deemed a state significant project by Queensland's Department of Regional Development.

Peter Carruthers [Follow](#)

@petercarruther1 2 min read March 9, 2022 - 6:00AM The Cairns Post



Quarry

Environmental News, Industry News, News

Metallica turns the tap on Cape Flattery silica sand project

HENRY BALLARD
25/02/2022, 12:27 pm 75

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STOCKHEAD

Mining • Silica



Mining

The world's gone silica and this sands player is hitting all the right notes with its new project

March 16, 2022 | Special Report

AUSTRALIA'S MINING MONTHLY

24 February 2022

Water for Metallica



METALLICA Minerals can tap into a 25,000 megalitre unallocated water reserve at Cape York in Queensland's Far North following the listing of the Cape Flattery silica sand project as a project of regional significance by the Department of Regional Development, Manufacturing and Water.

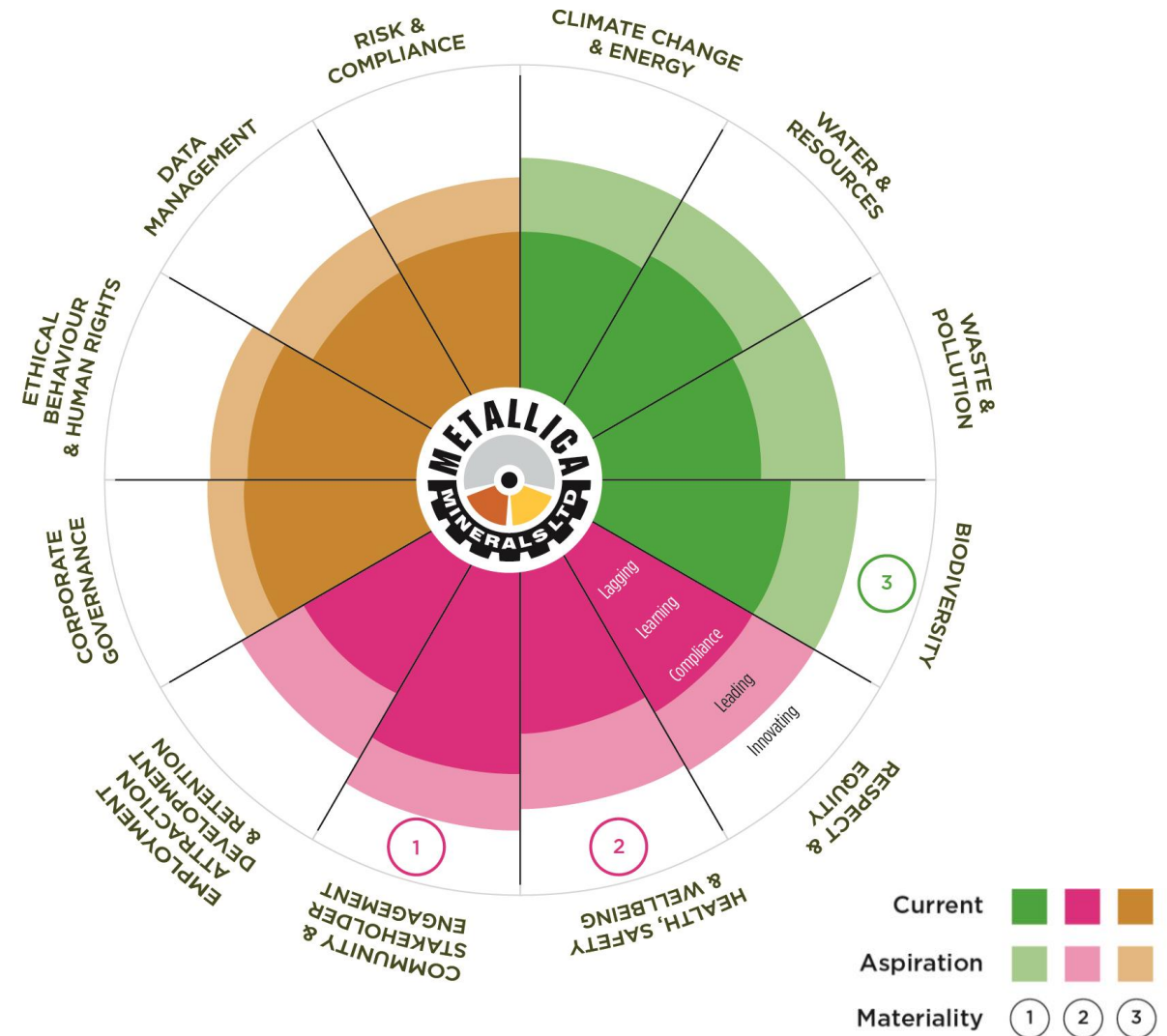
ESG benefits and principles



Feedback and shared perception across the CFS internal and external stakeholders surveyed was highly complimentary regarding CFS's consultative approach to addressing environmental and social aspects of the proposed project.



Metallica Minerals Executive Chairman, Theo Psaros, CFS General Manager Nicholas Villa with Dingaal representatives, Kenneth McLean (Walmbaar Aboriginal Corporation Chairman) and Stanton Thompson (Walmbaar Aboriginal Corporation Director) during recent site visit to TLO land areas



“I’d put my money on the sun and solar energy. What a source of power! I hope we don’t have to wait until oil and coal run out before we tackle that.” — Thomas Edison, 1931.



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