

Cape Flattery Silica

Noosa Mining Investor Conference

19-21 July 2023



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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. See ASX Release 17 July 2023 “Cape Flattery Silica Definitive Feasibility Study”
2. See ASX Release 3 March 2023 “Maiden Inferred Mineral Resource of 12Mt at 99.15% SiO₂, 0.09% Fe₂O₃ Estimated for CFS West Project”
3. See ASX Results 28 April 2022 “Positive Metallurgical test work results achieved at CFS”
4. See ASX Release 1 June 2023 “Extension of MOU to explore off-take arrangements”

The statements in this presentation concerning Mineral Resource Estimates at the CFS Project are derived from ASX announcements 1, 4 and 6 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

The information in this report that relates to the Cape Flattery Silica Project – Eastern Resource Area is based on information and modelling carried out by Chris Ainslie, Project Engineer, who is a full-time employee of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy. The work was supervised by Mr Carl Morandy, Mining Engineer who is Managing Director of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy and also by Mr Brice Mutton who is a Senior Associate Geologist for Ausrocks Pty Ltd. Mr Mutton is a Fellow of the Australasian Institute of Mining & Metallurgy and a Fellow of the Australian Institute of Geoscientists.

Mr Morandy and Mr Ainslie and Mr Mutton are employed by Ausrocks Pty Ltd who have been engaged by Metallica Minerals Ltd to prepare this independent report, there is no conflict of interest between the parties. Mr Morandy, Mr Ainslie and Mutton consent to the disclosure of information in the form and context in which it appears in this report.

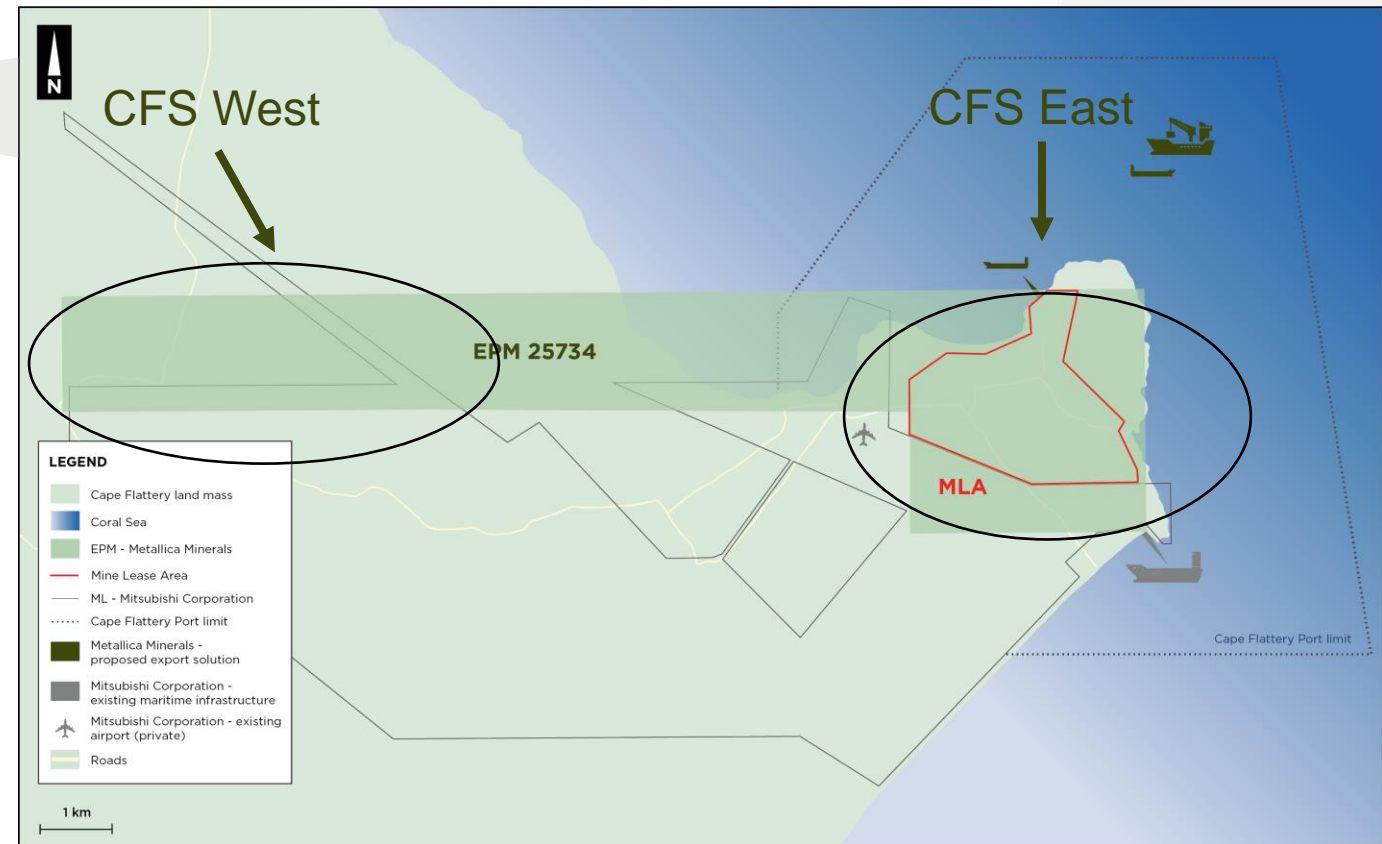
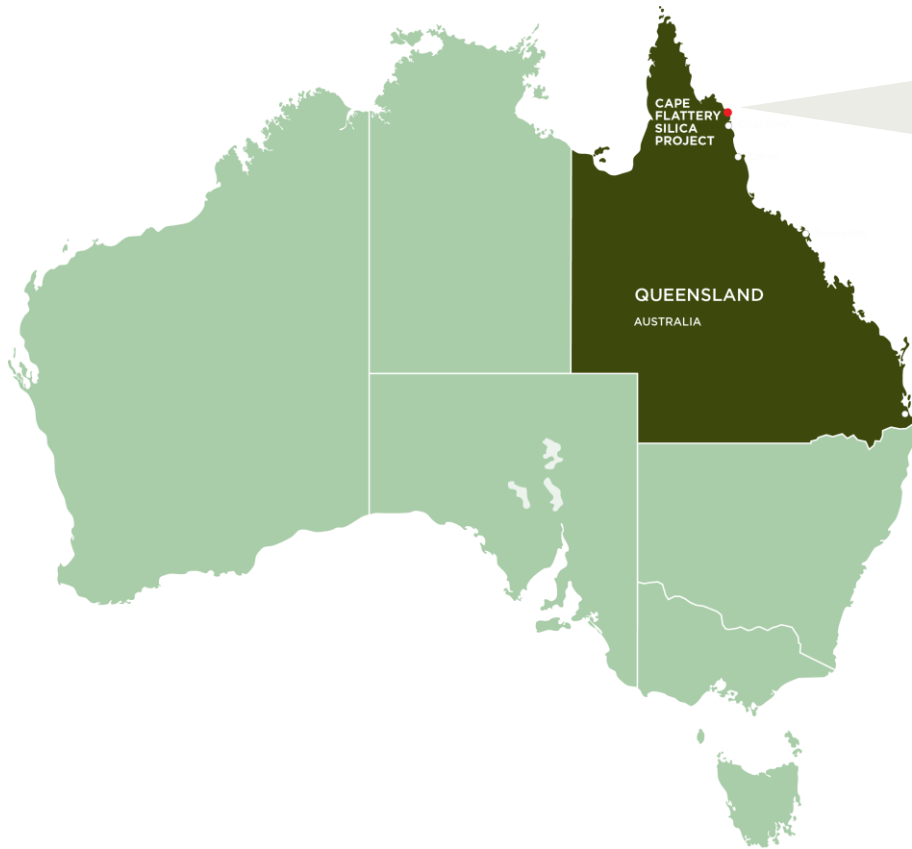
The overall resource work for the Cape Flattery Silica Project – Eastern Resource Area is based on the direction and supervision of Mr Mutton who has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken to 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”.

Cape Flattery Silica Sand 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 Australasian 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 is appears in this release/report.

Cape Flattery Silica Project Location



Company Highlights



Cape Flattery Silica (CFS) is **100% owned** by Metallica Minerals and deemed a project of Regional Significance



47Mt Reserve high purity Silica Sand resource¹



DFS highlights strong positive, low Capex, low Opex and Reserve for 25 years production¹



CFS West Maiden Resource²



CFS project has a **transport solution** – located within Port Limit of Cape Flattery



Excellent internal Metallurgical test results received – potential customer acceptance underway³



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



MoU extended with Mitsui⁴

1. See ASX Release 17 July 2023 “Cape Flattery DFS – confirms excellent economics”, 2. See ASX Release 3 March 2023 “Maiden Inferred Mineral Resource of 12Mt at 99.15% SiO₂, 0.09% Fe₂O₃ Estimated for CFS West Project” 3. See ASX Results 28 April 2022 “Positive Metallurgical test work results achieved at CFS”, 4. See ASX Release 1 June 2023 “Extension of MOU to explore off-take arrangements”.

Corporate snapshot



Share Price

2.5c

(as at 17 July 2023)

Cash

\$7.1m

(as at 30 June 2023)

Ordinary Shares

956.9m

Debt

Nil

Listed Options

179.6m

\$0.06

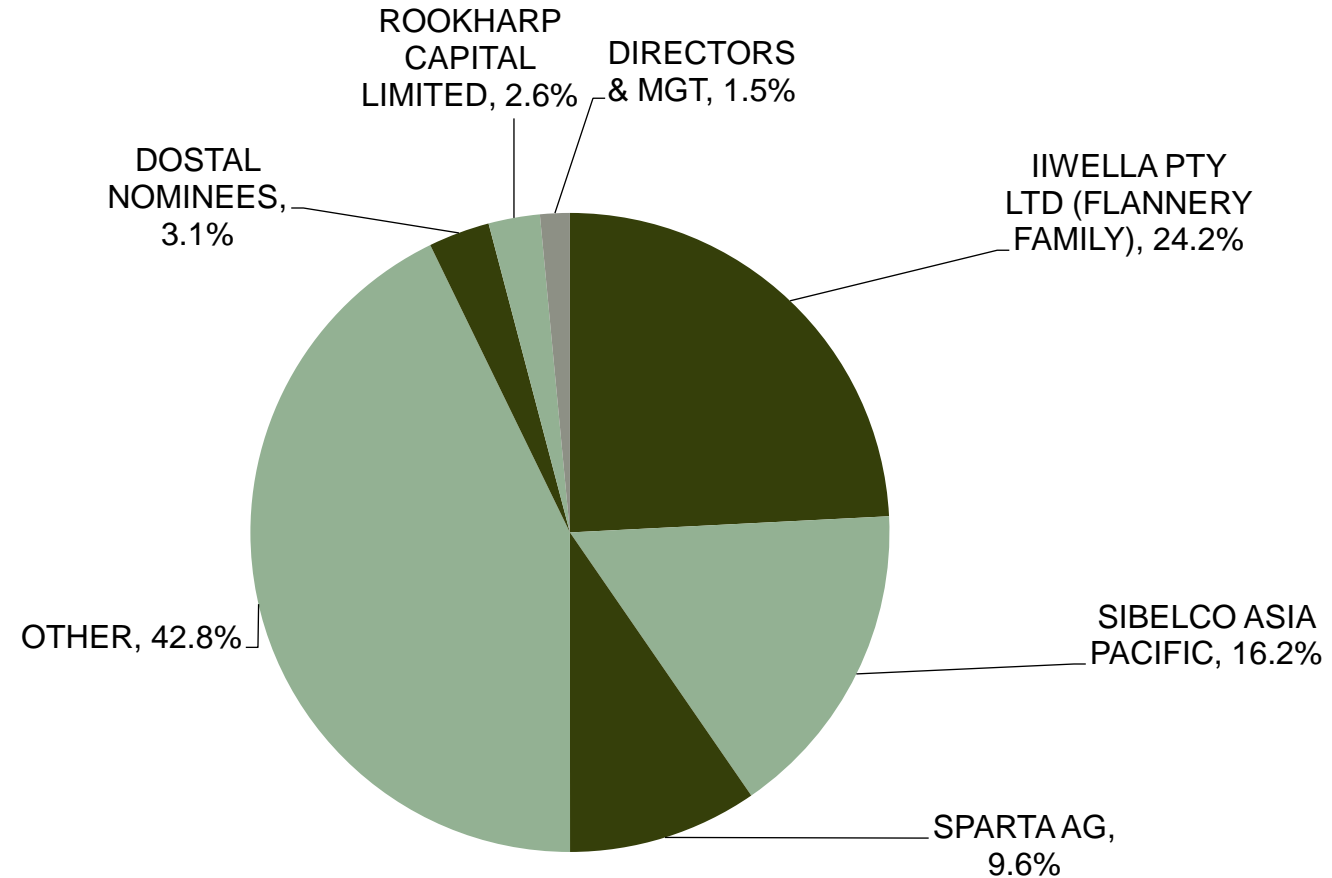
Unlisted Options

21.7m

Market Cap

\$24m

Top 20
shareholders
hold **66.3%**
of Register

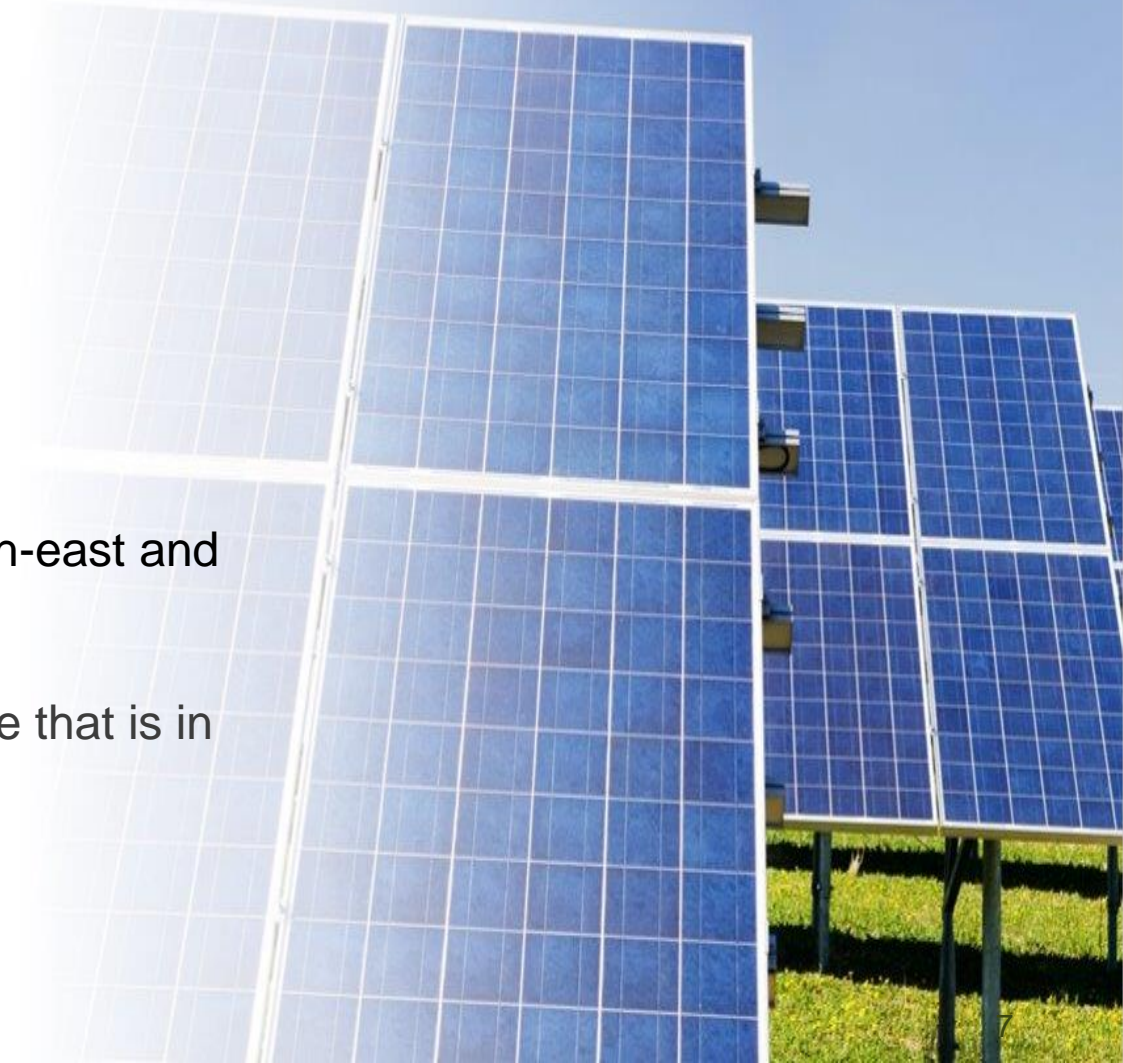


Cape Flattery Silica Market drivers



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- > Silica sand is the key ingredient in glassmaking
- > High-quality silica sand such as CFS's silica, is an essential raw material for the production of hi-tech glass
 - Solar panels
 - BIPV and e-glass
 - Smartphones
 - Fibre optics
 - Tablets
 - LED lighting
- > Over 90% of high-quality glass will be manufactured in south-east and north Asia
- > Current seaborne market for HPSS is ~ 8Mtpa
- > Readily accessible high purity Silica Sand is a finite resource that is in limited supply



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

Potential silica sand demand growth



	Stated Policies Scenario (GW)						Shares (%)			CAAGR (%) 2021 to:	
	2010	2020	2021	2030	2040	2050	2021	2030	2050	2030	2050
Total Capacity	5 198	7 849	8 185	11 954	16 468	19 792	100	100	100	4.3	3.1
Renewables	1 343	2 989	3 278	6 707	10 666	13 655	40	56	69	8.3	5.0
Solar PV	39	741	892	3 020	5 573	7 464	11	25	38	15	7.6
Wind	181	737	832	1 830	2 853	3 564	10	15	18	9.2	5.1

Assumptions:

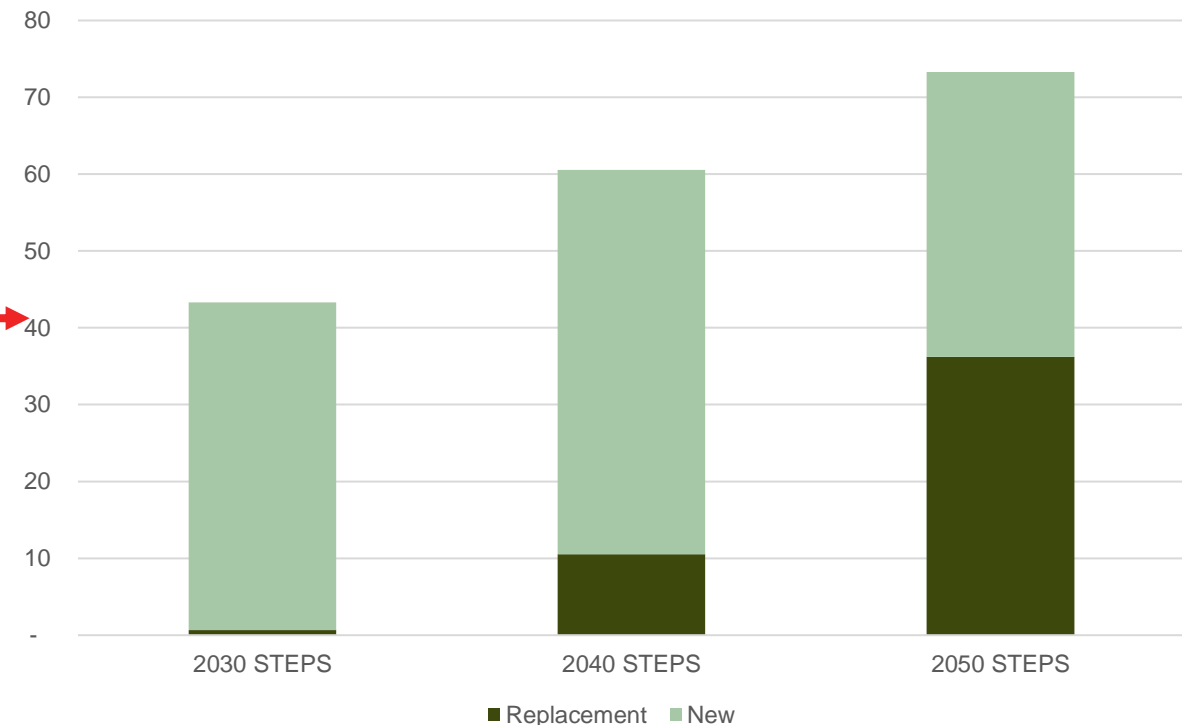
Global silica sand demand derived from growth in solar capacity STEPS scenario, growth from previous period, 2021 first base year, 20 year panel life, 35t glass/MW, 0.56t sand/tonne glass

Sources:

BP Statistical review 2022
World Energy Outlook 2022 International Energy Agency
Metallica own research

- International Energy Agency forecasts significant growth in solar power capacity
- STEPS scenario – lowest growth case for renewables
- The majority of these solar modules will be manufactured in Asia Pacific
- Glass for solar panels is a key driver of demand for high purity silica sand

Silica sand demand growth (million tonnes) from solar panel demand

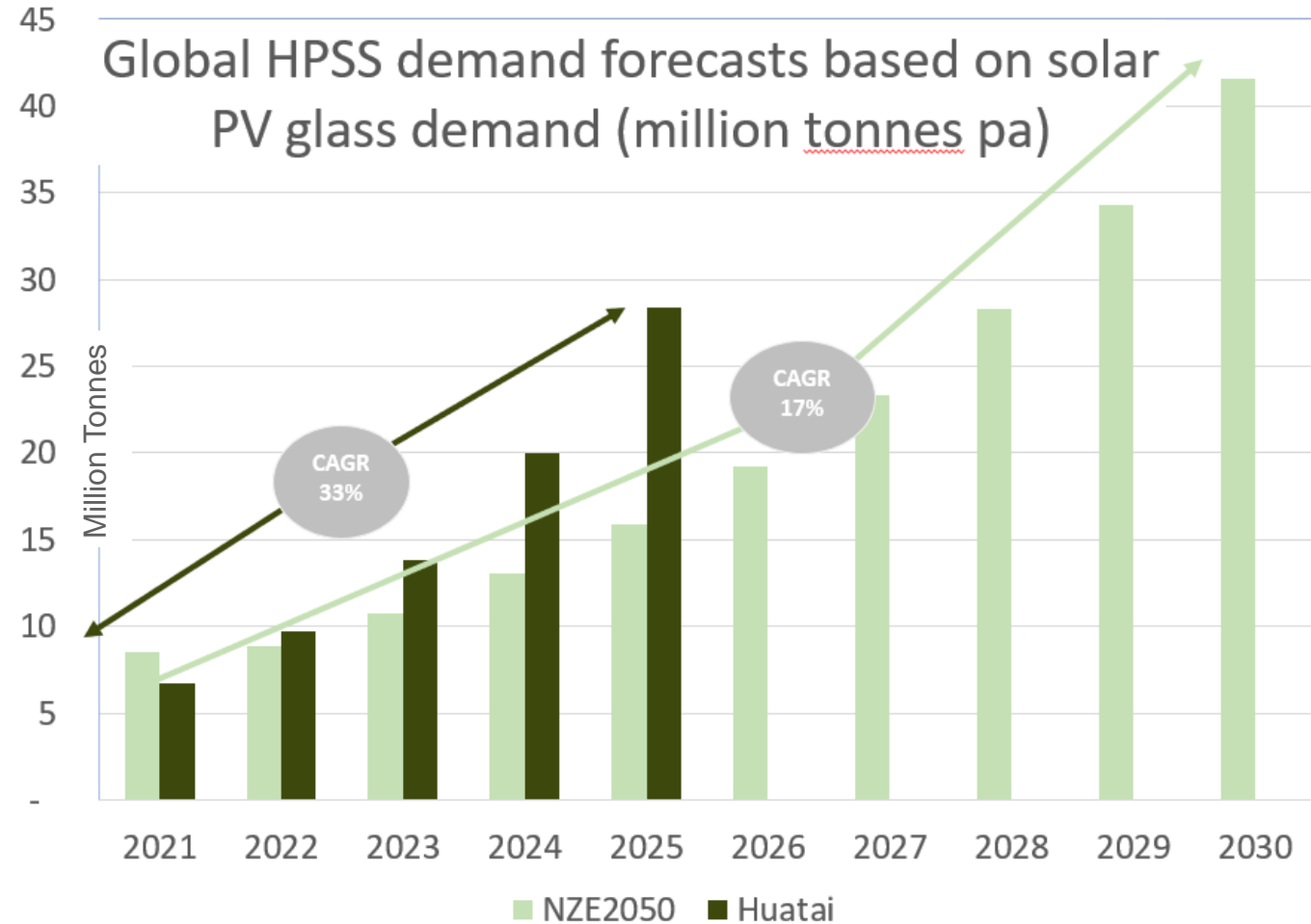


Rapidly increasing demand for high purity silica sand



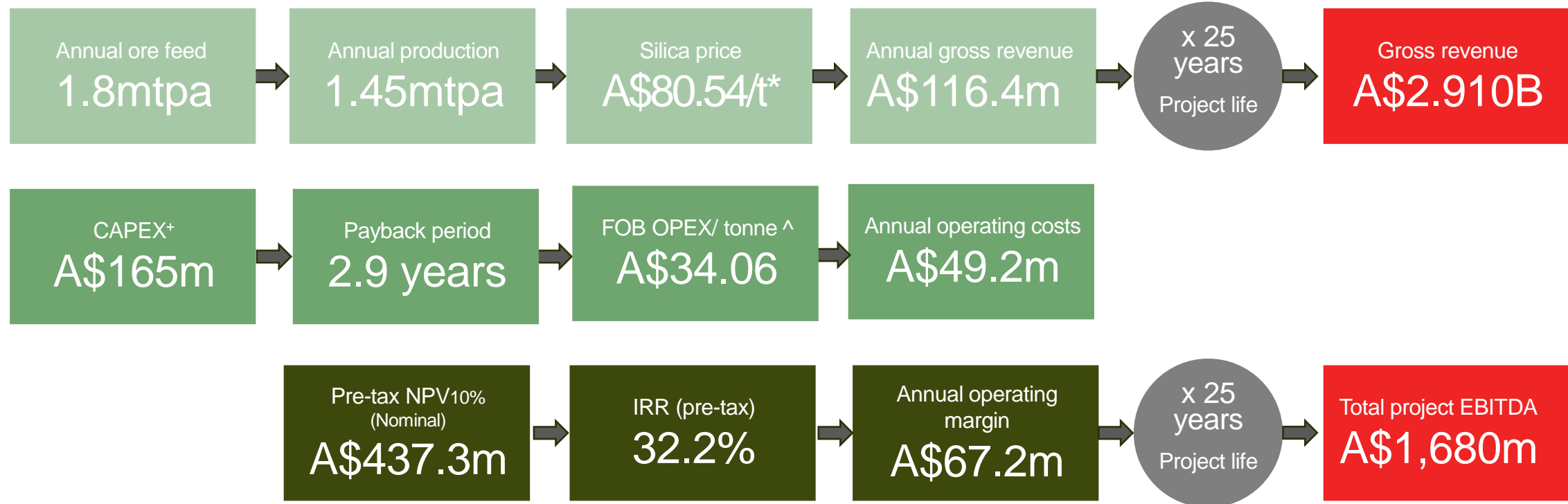
Why is the CFS project a winner?

- > North Asian PV glass producers are running at rates above the IEA NZE2050 scenario
- > Rapidly rising demand for solar PV glass
- > Proximity to market and port solution
- > Quality of silica sand and size of Reserve
- > No substitute for HPSS in the manufacturing process for high quality glass, including recycled glass
- > 80% of Chinese HPSS comes from pickling – costly and environmentally challenging
- > Declining sand resource quantity and quality in China means the seaborne market is likely to experience rapid growth



Source: HPSS demand derived from IEA WEO 2022 NZE2050 scenario, Huatai Securities 2023 and Metallica Mineral Limited market research

Definitive Feasibility Study outcomes₃



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

+ Capital development costs include a 10% contingency (\$13.6m)

^ FOB OPEX includes Qld Gov Royalty of \$0.90 per tonne; C1 OPEX excludes Qld Gov Royalty

3. All references are in unleveraged, mid-2025 Real AUD unless stated otherwise; See ASX Release 17 July 2023 "Cape Flattery Silica DFS – confirms excellent economics"

Listing Rule 5.23

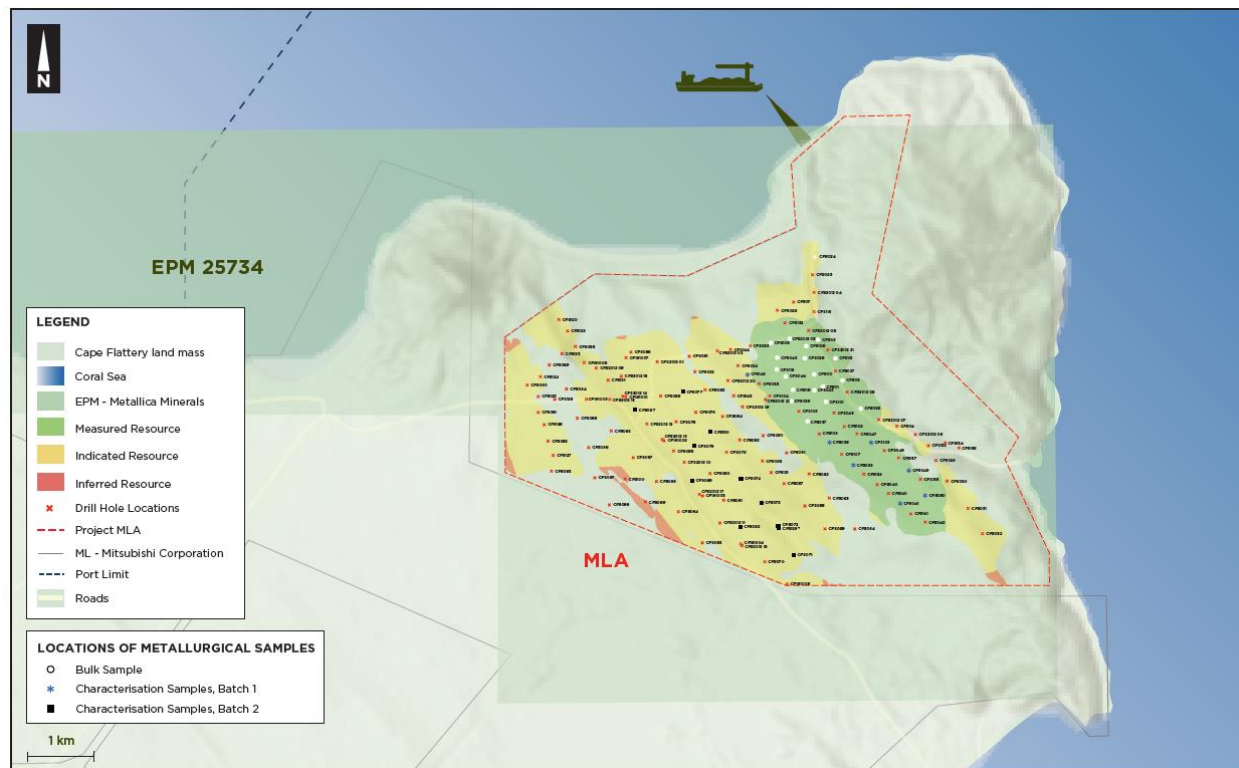
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Statements concerning production targets and related financial information are derived from ASX announcement above and ASX Release 17 July 2023 "Cape Flattery Silica DFS – confirms excellent economics"

JORC Resource₁ & Ore Reserve



Ore Reserve Category	Tonnage Mt	SiO ₂ %	Fe ₂ O ₃ %	TiO ₂ %	Al ₂ O ₃	LOI%	Waste Mt
Probable Reserve	47	99.11	0.09	0.14	0.15	0.24	4.0



- > High purity silica sand resource of 49.5Mt @ 99.10% SiO₂
- > 144 Drill holes completed

RESOURCE CATEGORY	SILICA SAND (MT)	SiO ₂ (%)	Fe ₂ O ₃ (%)	Al ₂ O ₃ (%)	TiO ₂ (%)	LOI (%)	DENSITY (T/M ³)	SILICA SAND (MM ³)
Measured	16.1	99.20	0.08	0.12	0.13	0.22	1.6	10.1
Indicated	33.2	99.05	0.10	0.18	0.15	0.25	1.6	20.7
Inferred	0.2	99.00	0.12	0.27	0.13	0.28	1.6	0.1
Total	49.5	99.10	0.09	0.16	0.14	0.24	1.6	30.9

CFS Project – Distribution of the various Resource categories

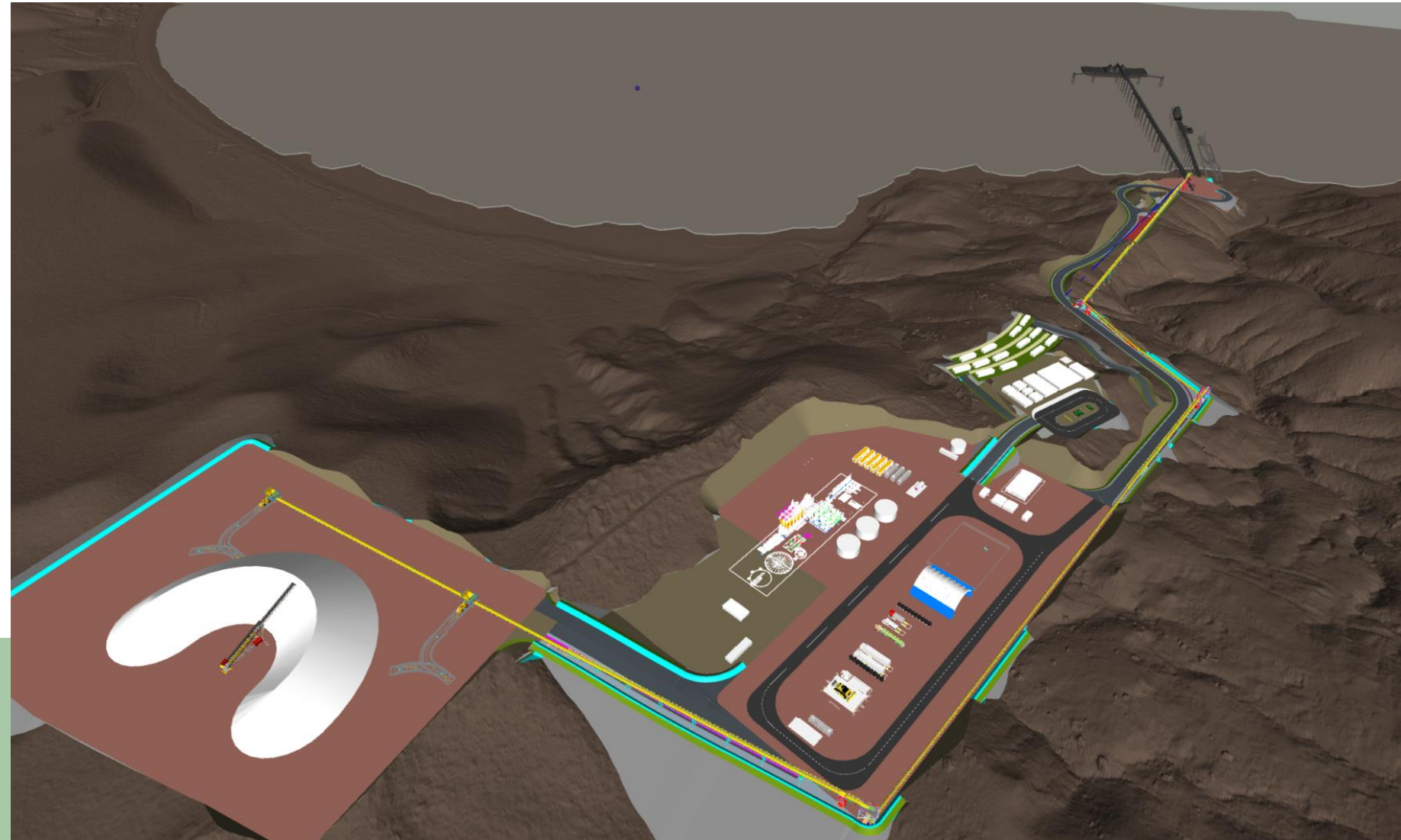
See ASX Release 17 July 2023 "Cape Flattery Silica DFS – confirms excellent economics"

Planned CFS Project Operations



Key site infrastructure includes:

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



Cape Flattery Silica's contribution towards the Queensland Critical Minerals Strategy & QRIDP



Acknowledgment of Country – “we are members of Hope Vale community”



Transition to low-carbon economy – produce high purity Silica Sand



Protect the Environment – including ESG excellence & TLO endorsed PRCP



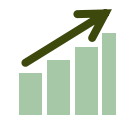
Build a sustainable workforce – indigenous employment target of 40%



CFS can be one of Australia's next silica sand exporters – royalties delivered to Queensland and TLOs



ESG – build & maintain world class credentials



Queensland exports a critical mineral to Asia



Partner with Government on their facilitation of environmental studies for Cape Flattery

Environmental

- > 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
 - protecting biodiversity
 - responsible water use
 - rehabilitating disturbed areas after disturbance
- > No chemicals will be used in production
- > Minimal dust will be produced during mining activities
- > Adopting progressive rehabilitation
- > Appropriate buffers, tree protection zones and offsets will be established
- > Additional seeding with preferred species will be undertaken.



Theo Psaros and Nicholas Villa with Dingoal representatives Stanton Thompson (Walmbaar Director) and Kenneth McLean (Walmbaar Chairman)

Environmental Approval Processes



- > Federal Government Department of Climate Change, the Environment, Energy & Water (CCEEW) deemed the CFS Project is a Controlled Action under the Environment & Biodiversity Conservation Act 1999
- > Approval pathway requires an Environmental Impact Statement
- > Draft Terms of Reference have been issued by CCEEW
- > A submission will be lodged to the Office of Coordinator-General (OCG) for the project to be considered a “Coordinated Project”
- > Subject to a decision from the OCG, when ToRs are finalised, the EIS will formally be underway. However, we will start the project specific work next month
- > EIS studies that are relevant to all projects at Cape Flattery will be undertaken by key Queensland Government agencies (OCG/DoR). Discussions are already underway on the scope to be met by Government

Traditional Landowner Negotiations



> Three groups:

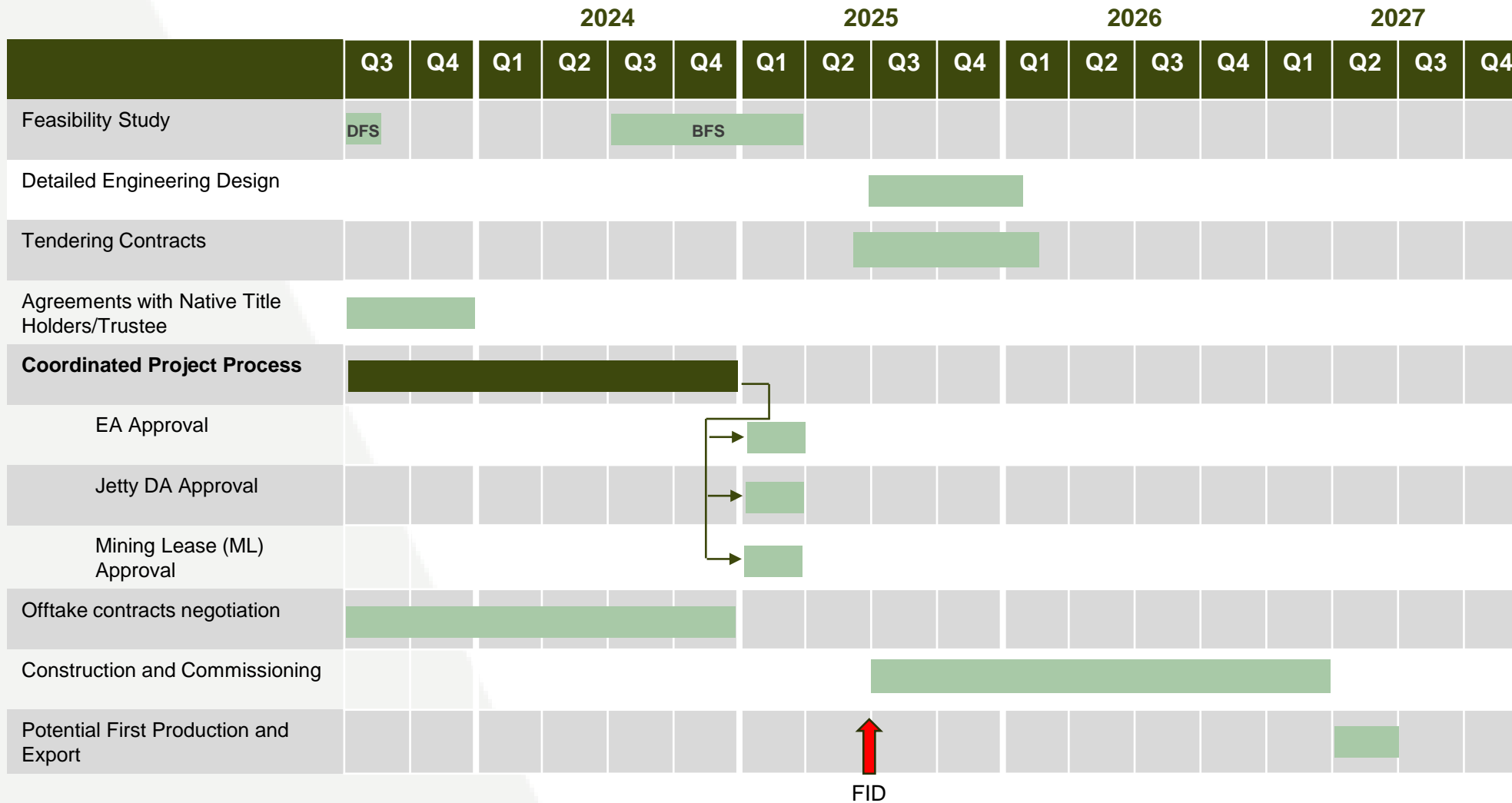
- Hopevale Congress Aboriginal Corporation (Trustee Landowner)
- Walmbaar Aboriginal Corporation (as agent for Dingaal clan – Traditional landowner)
- Nguurruumungu clan – Traditional landowner

> Negotiations have been held in respectful and friendly manner

> TLOs planning employment, training, apprenticeships and new business opportunities



Indicative Development Timeframe*



= timeline under a Coordinated Project Process. This process will coordinate Government departments including Department of Resources, Department of Environment and Science, Department of Regional Development Manufacturing and Water, Ports North.

> *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.

CFS Project – the next 12 months



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- > Subject to OCG process, lodge Environmental application and PRCP with Queensland's Department of Environment & Science
- > Lodge Development Application for the construction of purpose built jetty
- > Advance the EIS (note – significant environmental studies already completed)
- > Finalise negotiations with Traditional Landowners and Trustee Landowner
- > Progress offtake discussions – recent roadshow to Tokyo, Kuala Lumpur & London in March 2023 and China (July 2023) resulted in many positive discussions

“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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