



*Metallica Minerals poised to be a shining light  
in emerging silica sand industry*

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Australia has the highest uptake of solar globally, with about 30% of households – or 3 million rooftops – in the country having solar photovoltaic (PV) systems installed.

As the world transitions towards decarbonisation and net zero emissions by 2050, the number of other countries and households to install rooftop solar is expected to grow exponentially.

In a July 2022 report, the International Energy Agency (IEA) noted that reaching net zero by 2050 will be based largely on renewables, and solar power is set to be the single biggest supply source.

The IEA report states annual additions of solar PV capacity to electricity systems worldwide need to more than quadruple by 2030 to reach the net zero target.

As such, global production capacity for the key building blocks of solar panels would need to more than double by 2030 from current levels. In addition, existing production facilities would need to be modernised.

While the process of converting sunlight into electricity using PV systems is widely known to produce zero greenhouse gas emissions, what is less known is that the world needs more 'high-quality' silica sand in order to meet this demand for solar panels.

Silica sand was first put to industrial use thousands of years ago for the metallurgical industry and glassmaking but it's only in recent years that it is being recognised as another critical mineral.

However, readily accessible 'high-quality' silica sand is a finite resource that is in limited supply.

One such company that is close to producing this essential raw material for manufacturing hi-tech glass is Metallica Minerals (ASX:MLM) – a Queensland-based mining company developing the Cape Flattery Silica Sands Project.

The 100% owned project is located on the eastern coastline of Cape York Peninsula and 220km north of Cairns in North Queensland.

## *THIS REGION IS 'WORLD-CLASS' AS IT HAS BEEN A RENOWNED MINING PRECINCT FOR 55 YEARS*

As Executive Chairman Theo Psaros notes, this region is 'world-class' as it has been a renowned mining precinct for 55 years and is within close proximity to existing shipping channels.

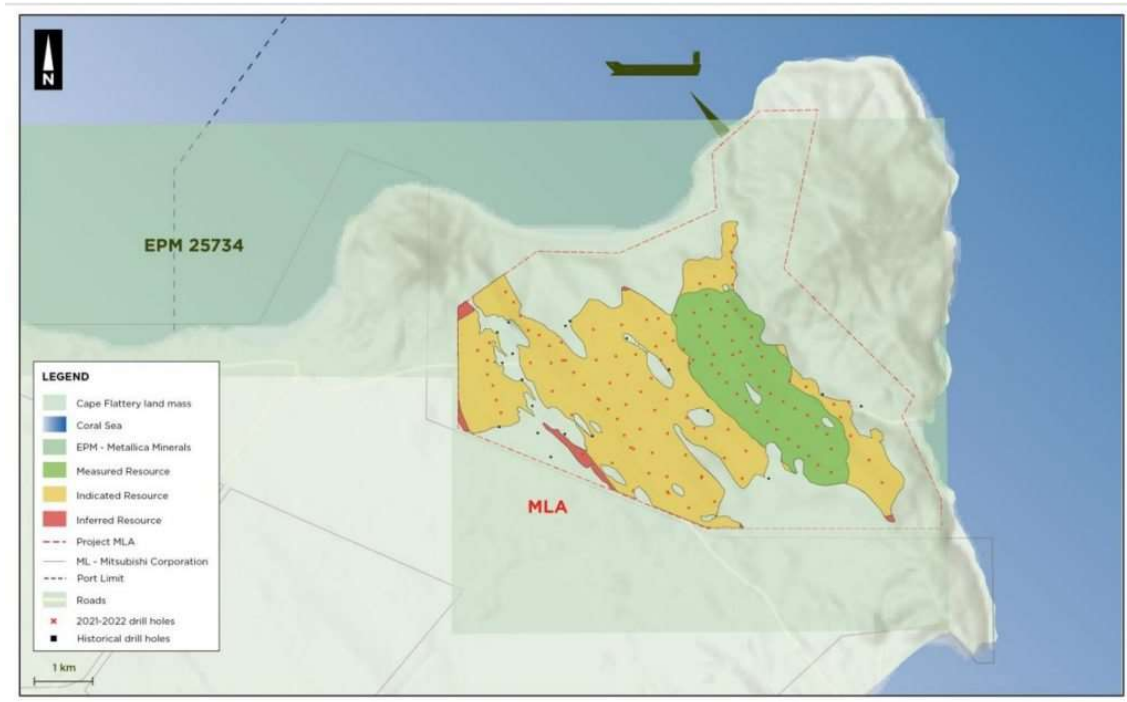
Mitsubishi's Cape Flattery Silica Mines, located adjacent to Metallica's project, has been in production for more than five decades, still produces high-purity sand, and has access to an established shipping operation.

In essence, this region is recognised for its in-situ quality.

Psaros notes: *"What comes directly out of the ground is high-quality.*

*Ours is because we have high levels of silica coming out of a raw product and the impurities are minor, and this is significant, hence why the region is so well-known."*

Metallica has one of the most advanced and well-known silica sands projects around the world, which means the company has a strong competitive position to help meet the aforementioned demand.



## Solar boom

Metallica's Cape Flattery project is expected to export 1.35Mtpa of silica sand, which could help manufacture more than 133 million 375W solar panels on the basis of 74% of the panel being comprised of SiO<sub>2</sub>. That is equivalent to 3.35 billion panels over the expected 25-year mine life at full production.

With an assumed output of 4kWh/day, those panels have the potential to generate over 41,312 TWh of renewable energy over their operating life (25 years).

As silica sand is an extremely important ingredient to produce 'high-quality' glass panels to support the 'booming' solar panel industry, the metrics of the project put Metallica in good stead.

Commenting on these figures, Psaros noted: *"Based on a forecast silica price of US\$47.50 per tonne FOB (free on board) and the estimated capex, and in particular the low operating expenditure, the results are economically compelling."*

*"It's amazing just how many solar panels and the amount of energy that could be produced just by 1.35Mt of our silica sand."*

## ***"IT'S AMAZING JUST HOW MANY SOLAR PANELS AND THE AMOUNT OF ENERGY THAT COULD BE PRODUCED JUST BY 1.35MT OF OUR SILICA SAND"***

Silica sand is one of the most common varieties of sand found across the world and was first put to industrial use thousands of years ago for the metallurgical industry and glassmaking.

Psaros, who has more than 30 years of diverse global and local commercial experience in a number of sectors, says Metallica is in a prime position to take advantage of an emerging market that has been thousands of years in the making.

Silica sand for producing solar panels may be less known in the market than the need for lithium or copper for decarbonisation, however Metallica is already seeing interest from those in the know.

### **Flattery will get you everywhere**

The company is focused on delivering a saleable product in the next few years and it is already receiving interest from potential offtakers based throughout Asia-Pacific.

One interested party from South Korea has already toured the project site and another prospective offtaker from Asia will visit next month. Interest has come from Japan, with companies in China also initiating preliminary talks.

Commenting on the early interest Psaros said: *"Our expectation is that in the first half of 2025 we'll start to export and from the information we've received there's approximately 6Mtpa demand hole for Asia over the next 3.5 years alone.*

*So, we've positioned ourselves extremely well to capitalise on this."*

The catalyst for the current interest is the ongoing work the company has been undertaking so far.

Metallica is advancing through numerous studies, approval processes, and stakeholder engagement activities while it undertakes a definitive feasibility study (DFS) at Cape Flattery, which is planned to be completed Q2 2023.

Metallurgical studies have continued on from the prefeasibility study (PFS) work, which confirmed the project can be a long-life project producing 'high-quality' silica sand for the 'booming' Asia-Pacific glass manufacturing markets supplying the solar panel industry.

The PFS outlined the project could have pre-tax net present value (NPV) of \$290 million, an internal rate of return (IRR) of 34.9%, and life of mine cash revenue of \$2.127 billion.

The capital cost is estimated to be just \$79.4 million with a payback period of less than 4 years once in production. All production is based on the Maiden Ore Reserve of 46Mt @ 99.18% SiO<sub>2</sub> exploited over a 25-year project life producing a saleable product of 1.35Mt per annum.

*Psaros adds: "We're very pleased with the economics that the prefeasibility study delivered and obviously we've got more work to do when it comes to a definitive feasibility study, but we are well positioned to be a feeder to the Asian market."*

## **Silica market needs more**

The global silica sand market is fragmented. China enjoys the leading position in the global market, followed by the US, Italy, Turkey, Germany, followed by Australia.

Market research firm IMARC reports that the global silica sand market reached a value of US\$21.6 billion in 2021. IMARC forecasts the market to reach US\$30.9 billion by 2027, exhibiting a compound annual growth rate (CAGR) of 6% during 2022-2027.

**"AUSTRALIA'S RESOURCES INDUSTRY IS  
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SUPPLY"**

With geopolitical turmoil affecting most sectors, Psaros notes the importance for companies such as Metallica, which operate in emerging markets, to capitalise on having a product that is ethically sourced in a low sovereign risk nation to help meet this demand.

*"Australia's resources industry is also highly regarded on quality of supply and consistency and our project has a clear advantage as we have a transport solution."*

## **Underpinning demand**

Increasing demand for 'high-grade' silica sand is underpinned by population growth and adoption of devices such as smartphones, accelerating electrification, decarbonisation objectives, and transition to greener technologies, particularly solar energy.

The glass market is growing exponentially due to burgeoning demand from the construction market, rising automotive production and sales, as well as technological advancements.

Emerging trends such as solar control glazing for automotive and building glasses, lightweight glazing glass, and advanced nanotechnology in flat glass, are also contributing factors driving the growth of the glass industry, which in turn is boosting the demand for silica sand.

Silica sand is also used for paving roads, foundries and coal burning boilers, oil and water filtration, industrial casting, and sandblasting, among other uses. It has advantageous properties such as strength, as well as resistance to heat and chemical reactions.

For Psaros, who joined the board of Metallica Minerals as non-executive chairman in February 2019 and was appointed as executive chairman in May 2020, silica sand has a plethora of uses but it is predominantly the solar PV and auto industries that the company will remain focused on.

The silica sand sector itself may be thousands of years old but it's only now just emerging.

As Psaros puts it, Metallica's Cape Flattery has been designated by the Queensland Government as a Project of Regional Significance, but its real importance will be felt globally.

Both the sand extraction area and the industry standard processing facility will have a small footprint and low environmental impact but it will have an immediate and long-lasting positive effect on the world.