

Hot sands

BY ANTHONY FENSOM

Silica sand is fast becoming one of Australia's key critical minerals exports, with a raft of new projects underway. With the global solar boom showing no signs of slowing, the industry's new players are confident of a bright outlook for the mineral, which is key to decarbonisation.

HIGHLIGHTING THE INDUSTRY'S new-found prominence, on 17 June, Brisbane-based Diatreme Resources announced its Northern Silica project (NSP), in Far North Queensland, had been awarded Major Project Status by the federal government. It is currently the only such project with this designation in the state.

The designation recognises the project's alignment with the federal government's Critical Minerals Strategy, reflecting its potential to deliver economic growth for Far North Queensland while also helping to power the clean energy boom.

The Queensland Government previously designated the NSP a Coordinated Project in January 2024 and a Project of Regional Significance in August 2023.

The NSP is expected to create around 120 direct employment positions and additional economic spin-offs through new businesses and service

providers, with Diatreme putting a high priority on Indigenous employment from the region.

'Major Project Status is an important recognition of the NSP's strategic importance as both a world-class, high-purity silica sand resource and its potential to directly contribute to the energy transition, specifically the globally important solar photovoltaic supply chain powering the clean energy boom,' Diatreme CEO Neil McIntyre says.

'The designation will assist us as we progress the NSP through the final permitting and development phases as we enter into offtake negotiations and assemble project finance together with our joint venture partner, Sibelco.'

On 23 June, Diatreme announced an upgraded mineral resource estimate for its Si₂ deposit to 187.5 million tonnes of measured mineral resource. Following the latest resource upgrade and the

Exploration drilling at Diatreme Resources' Northern Silica project, Far North Queensland



successful takeover of neighbouring Metallica Minerals and its Cape Flattery silica sand project in 2024, Diatreme now has a global silica sand resource exceeding 500 million tonnes across the Cape Flattery and Cape Bedford area.

‘This major resource upgrade reinforces the outstanding potential of our NSP. We’ve more than confirmed the scale and purity needed to support a long-life mining operation targeting photovoltaic silica markets,’ McIntyre says.

‘With permitting and testwork underway, and a pre-feasibility study next on the agenda, we’re building the foundations for an exciting new silica sand supply chain out of Cape York with decades of mine life.’

In January 2025, Diatreme announced that the NSP’s environmental studies had progressed to the final stages, with a draft environmental impact statement being prepared for lodgement with government. Diatreme then aims to secure a mining lease for the project, with a final investment decision expected in 2026 and first production as early as 2027.

Diatreme aims to access Cape Flattery port to export its silica products and is negotiating with port owner Ports North, a government-owned enterprise.

‘We estimate there is substantial capacity on Cape Flattery port for our product and are working with Ports North to secure the best solution for all stakeholders. There’s no doubt the benefits for Hope Vale and the region would be enormous from the addition of a new operation,’ McIntyre says.

Diatreme’s silica sand assets have attracted global interest, with the company announcing in December 2024 an offtake memorandum of understanding (MOU) with Japanese trading house Mitsui & Co., adding to its previous MOU with China’s Flat Glass Group and its strategic partnership with European giant Sibelco.

Also in Queensland, Australian Silica Quartz Group (ASQ) advised in June 2025 that its project partner, Quinbrook Infrastructure Partners, had terminated a heads of agreement over the Quartz Hill MGSi project, as its quartz grades were unsuitable for Quinbrook’s proposed polysilicon manufacturing facility.

ASQ said it would pause project development but continue exploration on other targets within its Queensland tenure.

WESTERN AUSTRALIA PROJECTS

In Western Australia, VRX Silica has flagged the potential development of ‘five very large-scale, high-grade and low-impurity silica sand projects, each project capable of independent operation to supply processed material to diverse markets’.

The Perth-based company expects production to commence within 8–12 months at its Arrowsmith North project, following final environmental approvals, finance and a final investment decision. On 6 May, it advised that a decision on state environmental approvals for the project was expected ‘in coming weeks’.

Production at its Muchea project is expected to follow Arrowsmith North, ‘subject to EPA approval’, the company said in a 7 May presentation.

Carbine Resources announced in May 2025 that it had received a mining lease for its Muchea West silica sand project, although the start of mining operations remains subject to ‘statutory approvals and consents, including environmental approvals and consents relating to the Muchea Air Weapons Range’. The company also plans further exploration at its Down South silica sand project, also located in Western Australia.

McLaren Minerals (previously Allup Silica) is advancing a preliminary feasibility study (PFS) for its McLaren titanium project, located in Western Australia’s Eucla Basin. The company expects to report the PFS results during the third quarter of 2025, following a successful \$1.28-million capital raise in June 2025.

Industrial Minerals is focused on its Pippingarra pegmatite project, targeting the global market for high-purity quartz (HPQ) products, including potential customers in China, Japan, South Korea and Taiwan. In March 2025, it reported that stage two HPQ testwork had commenced on a pegmatite sample from its project, ‘showing positive preliminary observations’.

DEMAND BOOST

The continuing global solar energy boom highlights the positive outlook for Australia’s silica sand miners. A record 597 gigawatts of new solar capacity was installed during 2024, up 33 per cent on the prior year and the highest annual increase to date, according to SolarPower Europe.

Investment in solar, both utility-scale and rooftop, is expected to reach US\$450 billion in 2025 – ‘the largest single item in our inventory of the world’s investment spending’, according to the International Energy Agency’s ‘World Energy Investment 2025’ report.

‘The solar boom is showing no signs of slowing and new sources of high-purity, low-iron silica sand will be essential to maintain this clean energy drive,’ McIntyre says.

‘Australia is extremely well-placed to supply this key industry for the 21st century, benefiting from our proximity to Asian markets; political stability; and environmental, social and governance-friendly production profile.’