CMI Masterclass: The Real Story Behind the Critical Mineral Silica

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September 3, 2025 – Scarcity, not abundance, is the real story behind the sand beneath our feet. In a world where quartz seems as common as air, only a handful of deposits meet the chemical perfection required for semiconductors, solar-glass furnaces, and the next generation of battery anodes. That paradox—plentiful element, vanishingly rare purity—propels two Canadian-led ventures now racing to supply a United States determined to re-shore its high-tech supply chain.

Sio Silica Corporation, based 40 kilometres east of Winnipeg, is sitting on what CEO **Feisal Somji** calls "about 15 billion tonnes of sand in situ," yet he needs less than 5% of that to unlock an initial **540 million tonnes** of recoverable high-purity quartz. Buried 150 feet below the prairie in a freshwater aquifer, the deposit has "spent the last 500 million years being washed and turned over like a washing machine," Somji told **Jack Lifton** in an InvestorNews interview, leaving it remarkably homogeneous in grade and grain size. Its very location, however, makes permitting emotionally charged. "Any time you talk about drinking water, it becomes an emotionally charged conversation," Somji conceded. His answer is a closed-loop borehole airlift system that avoids open-pit scars, truck traffic, and dust—technology that underpins Sio Silica's claim it will be "one of the most environmentally friendly mining operations worldwide, regardless of commodity."

Across the equator, **Homerun Resources Inc.** (TSXV: HMR | OTCQB: HMRFF) has already secured exploitation rights in Brazil's

Belmonte District. CEO **Brian Leeners** emphasized the advantage of a surface deposit that "goes straight into a hopper" for washing and sorting. An August 14 news release confirmed Homerun's completion of a lease assignment covering key Guidoni mineral tenements, locking in a **royalty of roughly US$4.50 per tonne**—lower than prior supply contracts. Leeners framed the strategic ambition crisply: "Between ownership via CBPM leases and our partnership with a premier silica producer in Brazil, we are now in control of a significant majority of the silica sand in the District… We're not just participating in Brazil's renewable-energy transformation; we're enabling it."

Both firms are betting that raw material is only the opening act. Sio Silica intends to push downstream into silicon metal, polysilicon, and even solar-panel manufacturing, leveraging Manitoba's hydropower—"one of the lowest power rates in North America"—to challenge China on cost. A German engineering partner, Somji revealed, has already mapped a plant that could "produce a solar panel in Manitoba for the same landed cost as a Chinese panel." Homerun's four-pillar plan is equally bold: processed silica, advanced silicon and silicon carbide produced with "clean and green" methods in concert with U.S. national labs, a **365,000-tonnes-per-year** solar-glass furnace in Bahia, and a thermal-particle energy-storage tie-up with the U.S. Department of Energy's NREL. "Solar is now the cost-effectiveness winner for producing energy," Leeners said. "You also need energy storage—battery—otherwise solar doesn't function properly on the grid."

For Lifton, whose six-decade career in ultra-pure materials began in 1962, the market re-set is overdue. The United States has rich quartz at Spruce Pine, North Carolina, yet processes much of it offshore before re-importing it for chip fabrication. Washington's new subsidies for domestic semiconductor and solar supply chains ("throwing money," in Leeners's phrase) have

triggered what Somji calls “a real battle for the raw materials and where they’re coming from.” Sio already has offtake agreements with unnamed U.S. semiconductor companies; Homerun is courting global glassmakers and battery innovators attracted by a Brazilian solar market that ranked third-largest for new installations last year.

Logistics loom large. High-purity silica travels in bulk; impurities removed during refining account for only a sliver of the tonnage. Homerun’s competitive moat is Brazil’s tariff wall—25% on imported solar modules—and the prohibitive freight cost of shipping glass across oceans. Sio sees its advantage in North America’s rail grid: “We can go from permit-in-hand to operations within twelve months,” Somji said, and rail the product south “within 12–14 months… cash-flow positive.” Both executives agree on the maths: each extra “nine” of purity multiplies value exponentially.

Yet the commodity’s invisibility persists. “Silica gets no credit,” Leeners complained, noting that critical-minerals lists elevate processed silicon while ignoring the raw feed. Lifton voiced the broader misunderstanding: “People say, ‘If this stuff is made out of sand, why isn’t it free?’ Because it’s a long way from sand to six-nines silicon.” Somji elaborated: Sio’s sand emerges at **99.86% purity**, hits **3N** after a simple wash, and already scales to **6N (99.999%)** in lab trials—thresholds where trace boron or iron can doom a semiconductor wafer.

In private, the two CEOs have more in common than rivalry. “There’s no need to compete; there’s enough market for all of us,” Somji observed. Leeners concurred: partnership accelerates progress, especially when “less than one percent—maybe quite a bit less—of silica deposits worldwide can meet this quality.” Investors, he suggests, should treat high-purity silica like “gold” for the energy transition: cheap to mine, scarce in

supply, mandatory for every solar panel and silicon-rich battery on tomorrow’s grid.

From Canadian prairies to Brazilian coastal plains, the race to purify sand into the building blocks of microchips and megawatt-hours has never been more intense. The question is no longer whether the West will rebuild its silicon backbone, but which deposits—and which innovators—will crystallize that ambition first.

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