Insights Week 30 - Friday, December 5th 2025
Critical Materials & Resource Dependency (Orange)

Mainstream media highlight mounting supply-chain uncertainty amid a helium dependent, chip-hungry AI boom.

Amid a new wave of AI-driven demand for microchips, a fresh supply-chain crunch is emerging. This week's reporting by Reuters highlights how an acute global shortage of components is forcing AI and consumer-electronics companies to compete for dwindling supplies, with prices for critical chips rising sharply and some manufacturers warning that additional capacity may not come online until 2027 - 2028.

Safe-jurisdiction terrestrial resources are likely to be the most dependable option for the foreseeable future.

For governments, manufacturers, and investors, it is a stark reminder that the digital economy ultimately runs on physical inputs, including critical gases such as helium, and that in both the near- and mid-term, reliably sourced raw materials will almost certainly need to come from secure terrestrial supply chains.

Advanced semiconductor fabrication depends on helium to provide inert, tightly controlled environments, to support high-integrity leak detection, and to manage heat loads in increasingly dense manufacturing lines and chip packages. As AI infrastructure scales from data-centre campuses to specialised accelerators, demand for helium is expected to rise in tandem. Market research already suggests global helium demand could nearly double by 2035, with semiconductor growth driving a significant share of that increase. In short, current forecasts suggest digital capacity is expanding very rapidly, while securing new raw-material supply, including helium, is progressing more slowly and remains exposed to bottlenecks.

In addition to supplying conventional components for smartphones, PCs, and consumer devices, helium-dependent chipmakers are now re-tooling production lines to prioritise high-bandwidth memory chips for AI workloads. As inventories shrink and retail outlets in key markets begin rationing stock, the fragility of upstream supply chains is becoming visible in real time, a dynamic that could soon translate into higher retail prices for end consumers.

Lunar mining: promising on paper, but will it deliver in time to fuel today's tech spike?

In parallel, a wave of headline-grabbing lunar-mining proposals has reignited interest in the potential recovery of highly valuable resources, notably the exceptionally rare isotope helium-3. Yet from a mining and investment perspective, lunar extraction remains at an early stage. A 2025 study in Acta Astronautica / Science Direct argues that most lunar resource research still falls short of the rigorous, integrated feasibility frameworks applied to terrestrial mining projects, noting that many studies focus on isolated technical questions rather than fully costed, end-to-end development pathways.

Against this backdrop, it is important to remember that only 12 people in history have walked on the Moon. Turning a handful of scientific landings into industrial-scale mining across extreme conditions, with long logistics chains and unresolved legal questions - is likely to be measured in decades, not in the years relevant to today's chip and infrastructure bottlenecks.

For critical materials and gases, the unavoidable conclusion is that safe-jurisdiction terrestrial supply will need to do the heavy lifting.

For Pulsar Helium, this environment represents a strategic opening. At its flagship Topaz Project in Minnesota, a stable, transparent U.S. jurisdiction, Pulsar is advancing one of North America's few primary helium discoveries, with previously announced helium-3 grades at Topaz comparable to average concentrations reported in lunar regolith, but accessible without the cost or complexity of leaving Earth. As analysis of the Company's helium-3 discovery progresses, Topaz is emerging as a case study in how terrestrial resources could complement, and in the near term, potentially eclipse, the timelines of any future lunar supply.

As AI workloads expand, data-centre campuses multiply, and semiconductor output is pushed to its limits, secure terrestrial access to helium-4 and helium-3 under robust regulatory frameworks is likely to become even more valuable. Lunar mining may one day play a supporting role. For now, however, the practical path to de-risking high-tech supply chains runs through projects like Topaz, where helium can be explored, appraised and potentially produced within a safe and transparent jurisdiction on Earth.

Pulsar Helium's shares trade on TSXV: PLSR | OTCQB: PSRHF | AIM: PLSR

www.pulsarhelium.com

Disclaimer

This article contains information based on current market conditions and publicly available data. It does not constitute financial advice, and investors should conduct their own due diligence before making any investment decisions.

Marc Farrington
PR & Partnerships
marc@pulsarhelium.com
#PLSRINSIGHTS
Follow us on **X**