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Technology, Space & Energy (Purple)

Helium-3: Scarcity, Strategy, and the Case for a Terrestrial First.

Helium-3, widely regarded as the most valuable isotope known to humankind, is now being referenced openly at the highest levels of government policymaking, increasingly recognised as a foundational input for the next phase of space exploration, advanced energy systems, and quantum-era infrastructure.

In recent interviews, Jared Isaacman, the newly appointed Administrator of NASA, has spoken candidly (04:30-05:05) about the role helium-3 could play, as the United States moves from exploration to permanence in space. The lunar regolith is widely recognized as one of the richest known natural reservoirs of helium-3, and several governments and space agencies have publicly stated intentions to evaluate lunar extraction as part of longer-term space-economy planning.

From sustained lunar operations to nuclear-enabled spacecraft, helium-3 is increasingly being framed as a strategic enabler underpinning the emergence of a future orbital economy. Its unique nuclear and quantum properties support applications across advanced cryogenics, neutron detection, fusion research, and next-generation quantum systems. As these sectors scale, demand for helium-3 is expected to rise from a small existing base into a more expansive supply environment, driven by a rapidly developing customer base across various emerging helium-3-dependent industries.

Helium-3 is exceptionally scarce. Unlike more common helium (helium-4), it has not historically been recognised as occurring in meaningful quantities on Earth, instead being sourced almost exclusively as a by-product of nuclear programmes and specialised research facilities. That paradigm, however, may be about to change.

Pulsar Helium Inc. (AIM/TSXV: PLSR, OTCQB: PSRHF) is advancing what could prove to be the world's first viable terrestrial source of helium-3. At its Topaz Project in Minnesota, USA, laboratory analysis has confirmed the presence of helium-3 at concentrations that are broadly equivalent to those on the moon. The helium-3 at Topaz is hosted within gas and would be produced via surface gas processing, distinguishing it fundamentally from solid-material mining concepts being considered for the moon. Crucially, this discovery is being advanced within a stable jurisdiction, an increasingly important consideration as governments recognize helium-3 as a strategically significant resource.

The implications are significant if terrestrial production of helium-3 can be realized. Should the Topaz Project in Minnesota yield commercial quantities of helium-3, the pathway from production to end user could prove materially shorter than waiting for lunar infrastructure to mature and deliver. The fact that helium-3 at Topaz is gas-borne further shortens the pathway to market by leveraging established gas-production and separation infrastructure. Furthermore, costs, technical risk, and geopolitical complexity would be reduced, with terrestrial production offering a far more immediate and technically feasible pathway to meeting early demand from quantum technologies and other frontier industries on Earth.

This does not diminish lunar ambition. Space-based helium-3 may one day support a fully realized orbital economy, with terrestrial helium-3 potentially underpinning the critical transition phase that gets us there.

Against this backdrop, terrestrial optionality could fast become a strategic imperative.

Those who can deliver helium-3 reliably, compliantly, and sooner than expected are likely to occupy a pivotal position in this emerging supply chain. In that context, Pulsar's terrestrial discovery represents a potential inflection point, one that could reduce reliance on lunar mining, accelerate access to a critical isotope, and reshape how the world thinks about helium-3 in the years ahead.

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

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