ADVANCED ENERGY MINERALS

ASX Announcement
11 May 2026 ASX:
AEM

AEM to develop rare earth doped nano HPA for AI, Robotics, and Defence applications funded by Canadian government grant of CAD$800,000

Highlights

01	AEM is to undertake a collaborative project with NeoCtech Corp to scale-up and pilot the production of nano high purity alumina doped with rare earth elements recycled from end-of-life products.
02	The technology has the potential to unlock new, high value opportunities for AEM in applications for a range of rapidly growing, strategic industries such as AI, robotics, electric vehicles, defence, aerospace, advanced optics and clean technologies.
03	AEM will be supported by CAD$800,000 grant provided by NGen, a Canadian Government funded technology accelerator.

Project Overview and Strategic Importance

Advanced Energy Minerals Ltd (AEM) is pleased to announce a project to develop innovative technologies for manufacturing high-value rare-earth-doped nano-alumina – an engineered material with applications critical to the modern economy. AEM will undertake the project in collaboration with NeoCtech Corp (NeoCtech) and AEM will benefit from an $800,000 CAD grant provided by Canadian Government funded, Next Generation Manufacturing (NGen).

The project will scale up NeoCtech's technology for recovering high-purity rare earth elements (REEs) from end-of-life components and use them to dope AEM's high purity nano-alumina (nHPA) to engineer an advanced material with broad and critically important applications in semiconductors (used in AI data centres and robotics), power electronics (electric vehicles), optoelectronics (lasers and optical amplifiers), advanced ceramics (defence, aerospace and other leading edge applications involving exceptionally high temperatures and stresses) and advanced catalysts for energy and environmental applications.

This initiative aligns with AEM's commitment to engineer high-performance materials for applications critical to the modern economy, leveraging the deep R&D expertise and resources of AEM's Technical Development Centre in Montreal. By integrating NeoCtech's REE recovery and purification technologies with AEM's proprietary nHPA expertise, AEM and NeoCtech are addressing the growing demand for sustainable, high-purity materials in global supply chains.

Managing Director and CEO Michael Adams said:

"We are committed to enhancing the range of advanced engineered materials we offer our customers, developing next-generation materials for critical supply chains and playing a leading role in assisting our customers to participate in a circular economy in a way that gives us a durable competitive advantage. Our partnership with NeoCtech to engineer a high-performance material from recycled rare earth elements for application in some of the world's fastest growing end markets exemplifies our approach to creating value"

Applications & Market Potential

Doping nHPA with REE leads to improved mechanical, thermal, electrical, and optical performance in advanced ceramics, electronics, and optical devices, including in:

01	**Electronic substrates, insulators and packaging:** improved dielectric strength and thermal conductivity are critical in applications for semiconductors and power electronics.
02	**Optical and photonic materials:** REE dopants can tune optical emissions to improve performance in phosphors, luminescent layers, and gain media in LEDs, lasers, and optical amplifiers.
03	**Structural and engineering ceramics:** exposed to high temperature and stress (e.g., wear parts, cutting inserts, engine or aerospace ceramic components) benefit from improved creep resistance and toughness.
04	**Advanced coatings:** that provide improved thermal barrier behaviour, oxidation resistance, and durability in harsh environments (e.g., turbine and aerospace surfaces).
05	**Catalysis and photocatalysis supports:** REE dopants can tune surface acidity, redox properties, and electronic structure, improving catalytic or photocatalytic performance in energy and environmental applications.

Government Grant +CAD$800K

AEM Supported by CAD$800,000 grant provided by NGen

Key Project Components

NeoCtech will scale-up to pilot scale its proprietary clean, CO_2-neutral process for recycling REEs from end-of-life products (e.g., permanent magnets). It will focus on recovering and purifying REEs with an emphasis on separating light REEs from heavy REEs.

AEM will leverage its industrial expertise and facilities at Cap-Chat, Quebec to pilot the production of nHPA doped with REE supplied by NeoCtech at a scale of 10 kg/day for subsequent laboratory testing to validate the quality and performance of the material produced.

Circular Economy & Sustainability

AEM's partnership with NeoCtech exemplifies Canadian innovation in moving towards as circular economy: waste materials are transformed into valuable advanced, engineered materials with significant economic and environmental benefits. Both companies are committed to sustainable pathways that minimize emissions and resource waste, supporting Canada's goals for clean technology leadership and carbon neutrality.

Technology Readiness

The project builds on the success of a previous project that demonstrated proof-of-concept production at laboratory scale. The current project will advance the technology readiness level by establishing scalable processes, creating opportunities for future industrial deployment and giving AEM the ability to add another range of high-value engineered materials to its product portfolio.

Managing Director and CEO Michael Adams said:

“The deep collaborative relationships AEM enjoys with its customers provides a strong incentive to invest in R&D to engineer new, advanced materials to support their business expansion.”

About NGen Funding Support

This project is supported by Next Generation Manufacturing Canada (NGen), the industry-led, government funded, not-for-profit organization leading Canada’s Global Innovation Cluster for Advanced Manufacturing. NGen has funded 173 projects with a total project value of CAD$607 million to accelerate the development and adoption of advanced technologies. It funds collaborative projects that address real manufacturing challenges, connecting industry partners, and fostering a national ecosystem to build world-leading manufacturing capabilities.

About NeoCtech

NeoCtech Corp. is a clean-technology company specializing in the circular recovery of rare-earth oxides (REO) from end-of-life neodymium-iron-boron (NdFeB) magnets using a proprietary, electrified hybrid process. Operating a continuous pilot facility in Québec, NeoCtech converts heterogeneous magnet scrap into specification-grade mixed rare-earth oxides using hydrothermal porosification, induction-heated roasting, and electrochemical separation. The process delivers ultra-low impurity profiles and high rare-earth recovery (≥95%) while operating on renewable hydroelectric power, achieving a carbon intensity of approximately 8–15 kg CO_2e per kilogram of REO—substantially lower than primary mining and incumbent recycling routes.

About HPA

HPA has critical applications in:

01	Manufacturing leading edge semiconductor wafers (sub-3nm) and AI accelerator and data centre packages
02	Thermal packaging and interface management materials, also for AI accelerator and data centre packages
03	Advanced ceramics for a diverse range of industries, including defence, aerospace, medical devices, advanced catalysts, sensors and mobile communications
04	Synthetic sapphire for defence, optoelectronics, sensors and luxury watches
05	Battery technologies, particularly solid-state battery applications.

Unlike homogeneous commodities, HPA is a downstream product which must meet each customer's specific requirements in terms of purity, particle size and morphology.

The process for qualifying a product with a customer can typically take one to two years.

It begins with laboratory testing of small samples before progressing in stages to industrial scale trials.

Structural supply constraints outside China and increasing performance requirements are expected to support demand for premium-grade HPA.

According to CM Group (2025), the global HPA market grew at 13.6% CAGR over the previous ten years and is forecast to grow at 10% CAGR 2025-2034 driven in part by semiconductor and electronics applications.

About Advanced Energy Minerals

Advanced Energy Minerals Limited (ASX: AEM) is a producer of high purity alumina (HPA) with production facilities in Cap-Chat, Quebec, Canada. Following completion of a two-year capital works program, the Cap-Chat Plant is now commercially sized with a 2,000 tpa nameplate production capacity and with plans to increase capacity to 3,000 tpa in 2026 (thereby completing the Stage 1 Expansion Project), with further expansion through to 6,000 tpa capacity from 2029 (Stage 2 Expansion Project). At 3,000 tpa full production rate, the Plant will be the 3rd largest HPA production asset outside of China.

<US$0.05/kWh

Renewable hydroelectric power supply at <US$0.05/kWh

~77%↓

Carbon emissions of approximately 2.8 tonnes CO_2e per tonne of HPA, ~77% lower than traditional alkoxide production methods

✓VERIFIED

Emissions profile verified in accordance with ISO 14064 (updated 2025)

✓ISO

Management systems certified to ISO 9001, ISO 14001 and ISO 45001

AEM expects to position within the lower half of the global HPA cost curve while delivering high purity, ex-China supply to customers seeking ESG-compliant sourcing.

→ **Watch the video of the AEM HPA Commercial Plant here**

Get in Touch

If you would like to keep in touch with regular updates from AEM please follow us on

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Visit our website “Investors” page for updates including a recent interview with AEM Chairman Richard Seville and CEO Mick Adams and general information on HPA:

→Website

This announcement has been authorised for release by the Chairman and the Managing Director and CEO of Advanced Energy Minerals Limited.

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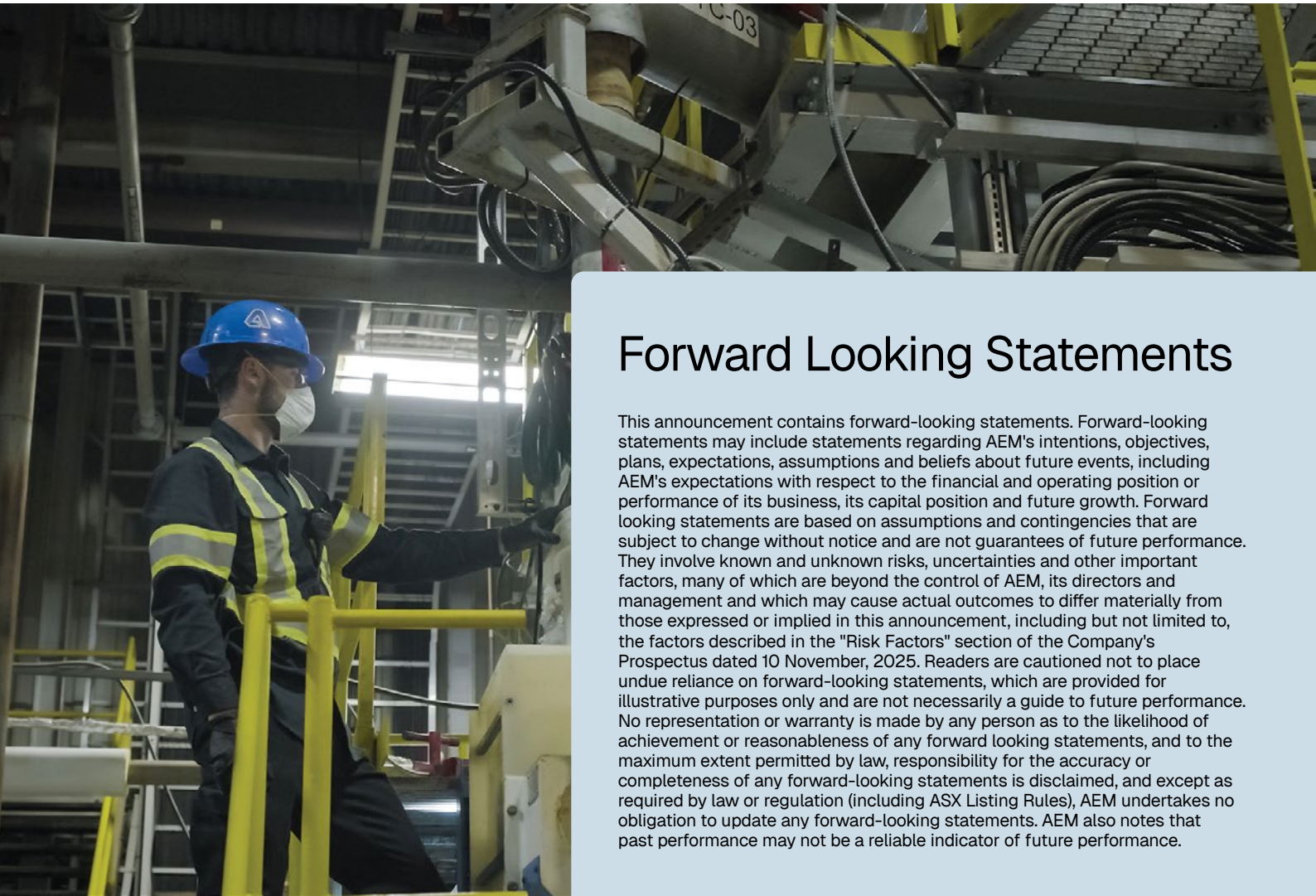

Forward Looking Statements

This announcement contains forward-looking statements. Forward-looking statements may include statements regarding AEM's intentions, objectives, plans, expectations, assumptions and beliefs about future events, including AEM's expectations with respect to the financial and operating position or performance of its business, its capital position and future growth. Forward looking statements are based on assumptions and contingencies that are subject to change without notice and are not guarantees of future performance. They involve known and unknown risks, uncertainties and other important factors, many of which are beyond the control of AEM, its directors and management and which may cause actual outcomes to differ materially from those expressed or implied in this announcement, including but not limited to, the factors described in the "Risk Factors" section of the Company's Prospectus dated 10 November, 2025. Readers are cautioned not to place undue reliance on forward-looking statements, which are provided for illustrative purposes only and are not necessarily a guide to future performance. No representation or warranty is made by any person as to the likelihood of achievement or reasonableness of any forward looking statements, and to the maximum extent permitted by law, responsibility for the accuracy or completeness of any forward-looking statements is disclaimed, and except as required by law or regulation (including ASX Listing Rules), AEM undertakes no obligation to update any forward-looking statements. AEM also notes that past performance may not be a reliable indicator of future performance.