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Virginia Energy Awards $500K Grant to VCU for Advanced Magnetic Materials Fusion Research

Virginia Clean Energy Innovation Bank Invests in Virginia's Fusion Supply Chain

RICHMOND, VA – The Virginia Clean Energy Innovation Bank (VCEIB), powered by Virginia Energy, has awarded a $500,000 grant to Virginia Commonwealth University's Advanced Magnetic Materials Processing Laboratory (AM^2P) to acquire an ultrasonic metal-powder atomizer and advance critical research in magnetic materials for fusion energy systems.

This atomizer is essential for developing the next generation of magnetic materials needed for compact fusion reactors, and this investment will enable VCU to establish Virginia's first in-state capability for producing custom high-purity metal powders tailored for next--generation fusion reactor components.

"This is a smart, high-impact investment in Virginia's energy future," said **Glenn Davis, Director of the Virginia Department of Energy**. "By establishing in-state powder atomization and advanced materials capability, we're positioned to become a critical node in the emerging fusion supply chain while strengthening our defense and clean-energy industrial base."

This project positions Virginia to capture a share of the rapidly expanding fusion materials and advanced manufacturing market, projected to surpass $8 billion annually by 2035. Also, this investment is expected to unlock more than $4 million in additional federally competitive research funding over the next four years.

"This grant accelerates Virginia's leadership in advanced nuclear and fusion manufacturing while strengthening workforce readiness," said **Julianne Szyper, Deputy Director of the Virginia Department of Energy**. "By connecting Virginia's academic talent with industry and national lab partners, we're creating an ecosystem that drives innovation, supports

high-quality careers, and positions the Commonwealth as a competitive hub for clean-energy technologies like fusion."

This comes on the heels of last year's announcement that Commonwealth Fusion Systems will make a multibillion-dollar investment to build the world's first grid-scale commercial fusion power plant in Chesterfield County.

The AM^{2}P Lab has emerged as one of the few academic research centers in the nation with deep expertise in additively manufactured permanent magnets, soft magnetic alloys, and magnetocaloric materials.

"Clean-energy innovations from fusion to grid-scale technologies demand materials that can operate under extreme conditions while remaining manufacturable at scale," said **Dr. Radhika Barua, Assistant Professor, Mechanical and Nuclear Engineering at VCU**. "This project will be transformative as we can now design advanced alloy compositions, produce them in-house, and immediately integrate them into additively manufactured components—dramatically accelerating the innovation cycle."

"This equipment and research will not only support fusion activities but also open doors for collaborative activities with multiple federal agencies including the Army Research Laboratory, the Air Force Office of Scientific Research, and the Office of Naval Research," said **Dr. Arvind Agarwal, Professor and Chair of Mechanical and Nuclear Engineering at VCU**.

Through support for initiatives like these, VCEIB accelerates the deployment of clean power generation and energy infrastructure across the Commonwealth with loans and other financing options. By mobilizing public and private capital to address critical financing gaps in these sectors, VCEIB supports the goals outlined in Virginia's All-American, All-of-the-Above Energy Plan.

Information about additional funding opportunities through the Virginia Clean Energy Innovation Bank is available online.

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