

Advanced Materials and Manufacturing Technologies Office

VISION, MISSION, AND RELEVANCE TO NATIONAL PRIORITIES:

Vision for the Future – A competitive U.S. manufacturing sector that accelerates the adoption of innovative materials and manufacturing technologies in support of a clean, decarbonized economy.

Mission – We advance energy-related materials and manufacturing technologies to increase domestic competitiveness and build a clean, decarbonized economy.

The Advanced Materials and Manufacturing Technologies Office (AMMTO) researches, develops, and demonstrates next-generation materials and manufacturing technologies needed to increase U.S. industrial competitiveness and to drive economy-wide decarbonization. AMMTO supports the national plan to revitalize American manufacturing, secure critical supply chains, and develop diverse innovation ecosystems leading to new manufacturing jobs and increased economic strength of the nation. AMMTO provides planning, management, and direction necessary for a balanced program of research, development, demonstration, technical assistance, and workforce development to support domestic manufacturing that is critical to achieving a clean, decarbonized economy.

AMMTO resides in the Office of Energy Efficiency and Renewable Energy within DOE's Under Secretary for Science and Innovation. AMMTO reports to the Deputy Assistant Secretary for Energy Efficiency.

MAJOR PROGRAM ACTIVITIES:

Next Generation Materials & Processes: Focuses on accelerating foundational, cross-cutting clean energy materials and manufacturing process technologies across the Department's mission areas that increase the competitiveness of a secure, domestic supply chain. Novel materials have improved properties, such as high strength, high-temperature performance, and/or enhanced conductivity. Manufacturing process innovations will lead to increased manufacturing and subsequent scale-up of new materials and technologies. In addition, the subprogram will support information technology innovations to enable manufacturing systems and supply chains to be competitive; energy efficient; and responsive to disruption, change, and opportunity. These materials and manufacturing innovations can be deployed by multiple industries and improve U.S. competitive advantage.

Secure and Sustainable Materials: Programs are intended to ensure secure and sustainable supply chains for the clean economy. This includes production of, and substitutes for, critical

materials for clean energy related products, such as advanced batteries, electric motor/generator magnets, power semiconductors, hydrogen production, and other clean energy technologies. Materials of interest include rare earth elements, cobalt, lithium, and platinum group metals. In addition, programs seek to establish a circular economy for a broad range of materials through material and product design, recycling technology development, and reverse supply chain logistics.

Energy Technology Manufacturing and Workforce: Focuses on research, development, and demonstration for innovative manufacturing that advance the clean energy economy, such as energy storage systems and wide bandgap power semiconductors. Investments also focus on manufacturing innovations to improve performance and address barriers to reducing manufacturing costs and accelerating market deployment. Initiatives support entrepreneurial programs, technical assistance, and workforce development to adopt novel manufacturing processes and provide workers the training and education needed to deploy new tools for manufacturing, such as advanced automation, high-performance computing, and artificial intelligence.