

Executive Summary

The American Jobs Project was borne of two tough problems: loss of middle-class jobs in America and congressional paralysis. It seeks to address these problems by taking advantage of one of the biggest market opportunities of our era—the advanced energy and advanced materials sectors—and to do so at the state, not the federal, level. State and local leaders who leverage the unique strategic advantages of their state to grow localized clusters of interconnected companies and institutions are poised to create quality jobs. This report serves as a strategic guide to support those efforts.

Extensive research and more than sixty interviews with stakeholders and experts in Arizona have identified advanced materials—namely, carbon fiber, advanced ceramics, and semiconductor materials—as showing particular promise in the state. Advanced materials are the foundation for many manufacturing industries and can enable technological innovation, creating middle-income jobs for Arizonans and elevating Arizona companies in the marketplace.

Arizona is well positioned to benefit from rising global demand for advanced materials given its base of eighty-nine companies, leading research universities with materials expertise, and advantageous location and climate for manufacturing. Opportunities to leverage this momentum to further serve growing regional, national, and global markets offer real benefits for the state economy and Arizona residents.

However, there are several barriers hindering Arizona's advanced materials industry and preventing it from reaching its full potential. These barriers to growth range from underfunding for STEM education and workforce training to a lack of technical and financial resources for business development. Arizona must address these roadblocks in order to become a competitive hub for advanced materials.

To take full advantage of these opportunities, state leaders can pursue strategies to create a strong foundation for industry growth and to help Arizona businesses grow, innovate, and outcompete regional, national, and global competitors. With forward-thinking policies, Arizona's advanced materials industry can support nearly 66,000 jobs annually through 2030. These direct jobs will spark local job growth and economic development as employees spend their earnings in the local economy.

Summary of Recommendations

The analysis presented in this report culminates in recommendations for Arizona's leaders based on best practices in the United States and abroad. Each recommendation identifies opportunities for barrier removal and future growth in the advanced materials sectors. While the recommendations are intended to be complementary and would be more powerful if adopted as a package, each can also be viewed as a stand-alone option.

Organize an Advanced Materials Consortium to Define Industry Needs and Foster Resources for Growth. An industrial consortium could be organized by Arizona businesses and other stakeholders or be hosted by state universities to encourage public-private collaboration and share resources. Member fees and the universities' Technology and Research Initiative Fund (TRIF) could help fund administration and operation expenses. *Key players: Businesses, universities.*

Provide Materials Testing and Validation Services to Encourage Technical Collaboration between Schools and Industry. University-based resources for industry could enable access to capital equipment and technological expertise. Universities could leverage research revenue to match financial support from industry via user fees and privately owned machinery. *Key players: Businesses, universities.*

Expand Supply Chain Assistance for Small Businesses to Integrate Advanced Materials in Their Product Lines and Manufacturing Processes. Access to capital for factory retooling could allow Arizona's small businesses to tap into the advanced materials market and grow the in-state supply chain. The Arizona Commerce Authority could increase the state funds to RevAZ and dedicate a portion to a retooling loan fund to support small business growth. *Key players: Arizona Commerce Authority, RevAZ, small businesses.*

Establish a State Investment Fund to Stimulate the Venture Capital Environment. A state-initiated investment fund could bolster Arizona's venture capital environment and provide critical capital for early-stage ventures and small businesses in the state's growing high-tech economy. The Arizona Commerce Authority could leverage insurance premium tax credits to engage insurance companies in venture capital. *Key players: Arizona State Legislature, Arizona Commerce Authority, venture capital firms, insurance companies, businesses, entrepreneurs.*



Finance a STEM Immersion Strategic Fund for Targeted K-12 Curriculum Enhancement and Pre-Employment Training. A strategic fund for science, technology, engineering, and math (STEM) education could help prepare Arizona students and educators for Arizona’s growing number of STEM jobs. The state could coordinate private foundations to support this initiative. *Key players: Governor’s Office of Education, private foundations, businesses, Arizona Department of Education, Science Foundation Arizona, K-12 schools.*

Deploy Mobile Manufacturing Labs to Prepare Regional Workforces for Advanced Manufacturing Jobs. A fleet of mobile training labs could increase regional and local capacity to provide manufacturing education by traveling to schools, worksites, and community learning centers in rural, tribal, and other underserved regions. Funding could come from industry partnerships and federal grants for workforce and community development. *Key players: Economic development organizations, educational institutions, nonprofits, businesses, local communities.*

Encourage Foreign Direct Investment to Bolster Arizona’s Advanced Materials Supply Chain. State and local leaders could attract investment from global companies to address supply chain gaps and expand employment opportunities for Arizonans. Foreign direct investment missions could be a natural extension from the activities of the existing state and regional economic development organizations. *Key players: Transportation and Trade Corridor Alliance, economic development organizations, businesses, universities.*



The Arizona Capitol Museum in Phoenix, Arizona