

## Manufacturing Demonstration Facilities

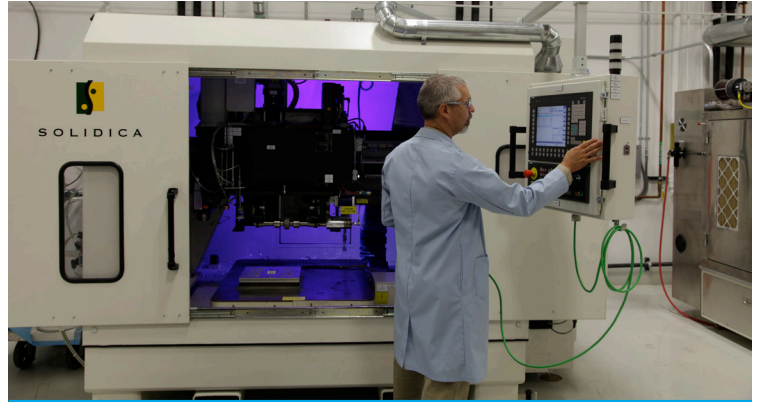
Advanced facilities provide access to physical and virtual tools for rapidly demonstrating new manufacturing technologies and optimizing critical processes.

Manufacturing Demonstration Facilities (MDFs) are collaborative communities that share a common infrastructure. They provide researchers timely, affordable access to physical and virtual tools and enable demonstration of new materials and critical processes that are important to advancing the industrial sector. The Advanced Manufacturing Office (AMO) plans to establish several of these facilities—each targeting a unique technology in advanced manufacturing.

Work conducted by MDF partners and users will provide real data that are needed to reduce the technical risk associated with full commercialization of promising energy-efficient processes and materials innovations. MDF work is intended to reduce manufacturing energy use and greenhouse gas emissions on a life-cycle basis; lower production costs; create jobs for American workers; and support the competitiveness of U.S. Industry. After an initial public-funding seed period of five years, MDFs should be financially self-sufficient.

The MDFs will be organized to foster an open exchange of pre-competitive manufacturing best-practices and know-how -- including design and processing tools, qualification and certification approaches, and fabrication costing methods -- but still protect company proprietary intellectual property. Each MDF will be managed and staffed with designers, manufacturing experts, and product evaluators to guide and train users and will also provide the opportunity for equipment suppliers and partners to improve their own technologies by learning from other users.

Technology developers may conduct work at the MDFs using a variety of collaboration instruments. Plans for the MDFs include hosting interns and guest workers from industry, academia, and government to accelerate pre-competitive development of rapid, flexible manufacturing technologies. Public-private shared infrastructure devoted to advanced manufacturing, like that provided through an MDF, has been a key recommendation of both industry and academia.



The DOE Manufacturing Demonstration Facility at Oak Ridge National Laboratory provides manufacturers access to an array of state-of-the-art additive manufacturing capabilities. The technology shown uses ultrasonic energy (sound) instead of heat and pressure to weld materials at a molecular level. *Photo credit: ORNL*



MDF equipment, like this electron beam melting (EBM) additive manufacturing powderbed, provide important learning opportunities for students. *Photo credit: ORNL*

Manufacturing converts a wide range of raw materials, components, and parts into finished goods that meet market expectations. The Advanced Manufacturing Office (AMO) partners with industry, small business, universities, and other stakeholders to identify and invest in emerging technologies with the potential to create high-quality domestic manufacturing jobs and enhance the global competitiveness of the United States.