

Advanced Manufacturing Office Research & Development Projects

The Advanced Manufacturing Office (AMO) is the only technology development office within the U.S. Government that is dedicated to improving the energy and material efficiency, productivity, and competitiveness of manufacturers across the industrial sector.

R&D Projects

The Advanced Manufacturing R&D Projects subprogram supports innovative advanced manufacturing applied R&D projects that focus on specific high-impact manufacturing technology and process challenges. The subprogram invests in foundational energy-related advanced manufacturing technologies and processes.

Scope of Projects

AMO's pre-competitive research projects range from early stage applied research through verification and validation. Individual projects address one or more of the following overall investment approaches during the performance period:

- **Improve performance and reduce costs** – Applied R&D of enabling materials, technologies, components, systems integration, and process intensification.
- **Validate technology and reduce risk** – Confirm technology performance, both in controlled laboratory and real-world conditions, and provide



Rapid Freeform Sheet Metal Forming Technology (RAFFT) machine in Rockford, Illinois. Photo courtesy Ingersoll Rand.

benchmarks for performance and durability, to reduce technical uncertainty.

- **Reduce market barriers** – Address specific technology and performance challenges that impact market development and acceptance. Demonstrate significant advantages over technologies and practices widely in use.

Technical Areas

R&D project investments are aligned with technical areas identified in the AMO Multi-Year Program Plan for fiscal years 2017 through 2021 including extensive techno-economic analyses and consultation with private sector firms, non-profits, universities, national laboratories, and others across DOE.

Individual R&D projects address challenges in the following areas:

- Additive Manufacturing
- Advanced Materials Manufacturing
- Clean Water Technologies
- Combined Heat and Power (CHP) Systems
- Composite Materials
- Critical Materials

- Direct Thermal Energy Conversion Materials, Devices, and Systems
- High Performance Computing for Manufacturing
- Materials for Harsh Service Environments
- Next Generation Electric Machines
- Process Heating
- Process Intensification
- Roll-to-Roll Processing
- Smart Manufacturing: Advanced Sensors, Controls, Platforms, and Modeling for Manufacturing
- Sustainable Manufacturing
- Waste Heat Recovery Systems
- Wide Bandgap Semiconductors for Power Electronics

Emerging Research Exploration

Emerging Research Exploration funding supports early-stage, innovative technologies and solutions in advanced manufacturing. This funding is focused on addressing ten subtopics across three technical areas of interest: advanced materials, advanced processes, and modeling and analysis tools for materials and manufacturing. Projects will reduce technical uncertainty and develop new

knowledge associated with potential breakthrough materials, processes, and tools for U.S. manufacturers that could improve their competitiveness and enhance their energy efficiency.

High Performance Computing for Manufacturing (HPC4Mfg)

The High Performance Computing for Manufacturing program leverages world-class technical expertise in high performance computing to tackle manufacturing challenges uniquely solved by computer modeling.

Electric Machines

AMO's Next Generation Electric Machines (NGEM) program is an RD&D effort that leverages recent technology advancements in power electronics and electric motors to develop a new generation of energy efficient, high power density, high speed, integrated medium voltage (MV) drive systems for a wide variety of critical energy applications.

Combined Heat & Power (CHP)

AMO's Combined Heat and Power (CHP) R&D project portfolio tests, validates, and deploys innovative CHP and distributed energy for industry and other manufacturing applications. Current projects focus on developing flexible CHP systems that can automatically provide support to the electricity grid. In the past, projects included advanced reciprocating engine systems (ARES), packaged CHP systems, high-value applications, fuel-flexible CHP, and demonstrations of these technologies.

Small Business Innovation Research

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs work with eligible small technology firms to stimulate innovative, cost-effective solutions to challenging scientific and engineering problems.

Lab-Embedded Entrepreneurship Programs

The Lab-Embedded Entrepreneurship Programs provide an institutional home for innovative postdoctoral researchers to build their research into products and train to be entrepreneurs.

For additional information, please contact

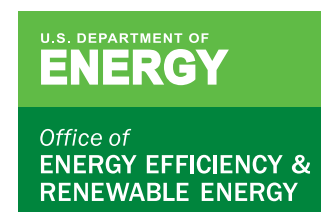
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For more information visit:

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