

Collaborative Technology Assessments of Advanced Manufacturing and Materials Technologies

Oak Ridge National Laboratory (ORNL) is seeking industry partners for short-term, collaborative projects within the Manufacturing Demonstration Facility (MDF) to assess applicability and of new energy efficient technologies available to the U.S. manufacturing industry. This Collaborative Technology Assessment will provide selected industrial partners access to ORNL's experienced staff and unique equipment and capabilities to demonstrate proof-of-principle for advanced concepts in manufacturing and materials as needed to warrant further development and deployment in the U.S. manufacturing industries.

Description

UT-Battelle, LLC, acting under its Prime Contract No. DE-AC05-00OR22725 with the U.S. Department of Energy (DOE) for the management and operation of the Oak Ridge National Laboratory, conducts research and development in support of the DOE Advanced Manufacturing Office (AMO). AMO's mission is to develop and demonstrate new energy efficient manufacturing and materials technologies at a scale adequate to prove their value to manufacturers. The mission includes technology deployment that promotes use of advanced technologies and better energy management to capture U.S. competitive advantage.

ORNL is requesting proposals from industry to assess applicability and offer technical assistance of new technologies that promote and enhance the objectives of the DOE AMO and the ORNL MDF. As part of the technical assessments conducted under this announcement, each industry partner will be required to describe and quantify the potential manufacturing and life cycle energy savings that may be realized by the targeted technology. Selected technical assessments will focus on advanced materials and manufacturing technologies for commercial and national security applications.

Projects will be conducted over a short-time period (i.e. 1-2 months) under a User Agreement between UT-Battelle and the industrial partner. At least 50% cost share, which can be in-kind contributions (e.g., facilities, services, and staff time), is required on the part of the industrial participant. Funds will not be provided to the industrial participant by ORNL. **Note: THIS IS NOT A PROCUREMENT REQUEST.**

Eligibility

Eligibility is limited to industries that currently manufacture or process materials in the U.S. for commercial applications or to industries that will be able to do so as a direct result of these collaborative efforts. There is no restriction based on a particular material system or manufacturing process.

Background

Manufacturing is the engine that drives prosperity, spurring job creation and investment across the economy. Innovation is critical to the future of U.S. industry for reducing barriers and enabling affordable, rapid, adaptable, energy-efficient manufacturing. ORNL is one of the world's most capable resources for transforming the next generation of scientific discovery into solutions for rebuilding and revitalizing U.S. manufacturing industries.



ORNL's Manufacturing Demonstration Facility offers distinctive world-leading capabilities in manufacturing and materials research technologies and characterization facilities that leverage previous and on-going government investments. The MDF enables research and development from concept to prototype in an open or secure environment for reducing risks and costs, accelerating innovation, optimizing energy efficiency, protecting intellectual property and maximizing investments.

From concept to commercialization, ORNL's world-leading facilities and expertise enable research focused on reducing the energy intensity of U.S. industry, supporting development of new products, and strengthening our nation's clean energy economy to meet the commercial and national security needs of tomorrow.

Objective

The ORNL objective is to collaborate with industry to investigate, improve, and scale process methodology to reduce the risk and accelerate the development and deployment of innovative energy efficient manufacturing and materials technologies. Creation and preservation of domestic manufacturing jobs is a primary goal of this solicitation.

Awards will be granted in one or more of the following high priority categories:

- **Additive manufacturing** utilizing a broad range of direct manufacturing technologies, including electron beam melting, ultrasonic, extrusion, and laser metal deposition for rapid prototyping
- **Carbon fiber and composites** a broad range of carbon fiber synthesis, characterization, and compositing technologies from precursor evaluation through carbon fiber pilot scale production (25 metric tons/year) for low cost, lightweight, and higher-performance carbon fiber

Other key areas of interest include:

- **Lightweight metals processing** using advanced synthesis and processing technologies for low-cost titanium alloys, magnesium alloys, and metal matrix composite products
- **Roll-to-roll processing** using pulse thermal processing and other advanced processing technologies to develop low-cost manufacturing of flexible electronics, photovoltaics, and energy storage systems
- **Low-temperature material synthesis** for lower energy and processing costs through biosynthesis of unique materials at low temperature
- **Transient field processing** utilizing radiant, magnetic, ultrasonic, electron beam, microwave, etc. for dramatic enhancement of material properties beyond today's limits, including increased fatigue life and strength and stress relief

ORNL's expertise in material synthesis, characterization, and process technology will assist manufacturing industries in conducting assessments of new fabrication concepts and methods for improving existing technologies. The materials and processing technologies developed are expected to be deployed in a new or existing manufacturing facility along with demonstration of any energy savings and economic impact.

Laboratory Support

ORNL will provide industrial partners with access to appropriate infrastructure, testing, operations, characterization, and analysis capabilities. It is anticipated that industrial partners will work

collaboratively with laboratory staff to conduct project activities across the various areas of expertise within the MDF.

Intellectual Property and Proprietary Data

DOE and ORNL respect the importance of industry's intellectual property and data security while balancing the need to document the benefits of public expenditures. Provisions relating to proprietary information and intellectual property are set forth in the User Agreement. A Non-Disclosure agreement (NDA), if required, can be put into place to facilitate discussions while protecting the partner's proprietary information.

If company proprietary information is included in the proposal, the specific information should be marked as such, and UT-Battelle/ORNL will treat that information as business confidential. To the extent possible, it is preferred that proprietary information NOT be included in the proposal.

Proposal Guidelines

Proposals should be no more than 5 single spaced pages using 12 point font (Times New Roman preferred), should be in PDF file format, and must include the following components under headings corresponding to the bullets below:

- **Title Page:** (not included in page limit) Proposal title, principal investigator(s), contact information (name, company, title, nationality, address, phone number, fax number, and email address of the primary contact for contract issues and for scientific issues), as well as a brief company description.
- **Project Summary:** (200 words) Non-proprietary summary of technical objectives and potential impacts of research
- **Background:** (1 pg) Present technical challenge to be addressed. Identify MDF materials and processing techniques to be used and motivation for collaborative research.
- **Project Plan and Objectives:** (1-2 pgs) Provide a brief plan of action for research and expected utilization of ORNL MDF resources. List clear technical objectives and project tasks with associated metrics and milestones.
- **Impact:** (1-2 pgs) Predict the manufacturing technology impact of the described research if successful. Also describe associated energy savings and benefit to the economy.
- **Cost Share:** (not included in page limit) Estimate and justification of in-kind cost-sharing. Paragraph or tabular form is acceptable.
- **Resume:** (not included in page limit) Provide a single page resume for each key project participants

Proposal Deadline and Submission

This solicitation will remain open for twelve months from the initial date of release and contingent on FY13 funding.

Proposals must be submitted in final format by email to manufacturing@ornl.gov. The subject line should include: ORNL MDF Collaborative Technology Assessments. A confirmation email stating the date and time of receipt will be provided.

Proposal Evaluation

This is an open announcement. Evaluation of proposals will begin within 30 days from initial date of release. Proposals submitted thereafter will be reviewed monthly and considered as funding allows.

Selection of winning proposals will be at the discretion of the DOE AMO. The program office reserves the right to select all, a portion, or none of the submissions.

The ranking criteria used to evaluate submissions will be:

- Materials innovation and/or manufacturing problem(s) to be addressed (25%)
- Technical merit (25%)
- Potential of the collaboration to positively impact the U.S. manufacturing industry (25%)
- Potential for implementation of industrial energy savings (25%)

Point of Contact

All questions relating to this announcement should be directed to Jennifer Palmer by email, palmerja@ornl.gov, or by phone, 865/241-4218.

User Agreement Information

Awardees will be required to enter into a non-proprietary user agreement with UT-Battelle.

User agreements have provisions that address the protection of the partners' existing proprietary information and intellectual property, as well as the information and intellectual property generated and made during the collaboration. More specifically, each party owns its own inventions while jointly developed inventions will be jointly owned. In all cases, U.S. Government will retain government use rights. Proprietary data used in performing the work may be protected for a period of up to three years. Information generated as a result of the collaboration will be made publicly available.

For more information, please review the *sample* User Agreement attached to this announcement.