Manufacturing Demonstration Facility
Technology Collaborations for US Manufacturers in Advanced Manufacturing and Materials Technologies

Oak Ridge National Laboratory (ORNL) is seeking industry partners to participate in short-term, collaborative projects within the Manufacturing Demonstration Facility (MDF) to assess applicability and of new energy efficient manufacturing technologies. This opportunity will provide selected participants access to ORNL's experienced staff and unique equipment and capabilities to demonstrate proof-of-principle for advanced concepts with intent to develop and deploy new manufacturing processes or materials in 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 of new technologies that can reduce manufacturing energy intensity or produce new, energy-efficient products. As part of the technology collaborations conducted under this announcement, the proposer will describe and quantify the potential manufacturing and life cycle energy savings that may be realized by the targeted project. Projects that focus on advanced manufacturing and materials technologies for commercial applications related to additive manufacturing or carbon fiber and composites will have the highest likelihood of acceptance.

Projects will be conducted during a short-time period (i.e. 60-90 days). At least 50% cost share, which can be funds-in to ORNL or in-kind contributions (e.g., facilities, services, and staff time), is required on the part of the industrial participant. Participant cost-share cannot be met using funds from U.S. Government sources. 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; however projects should address advanced manufacturing and materials technologies in additive manufacturing or carbon fiber and composites.

OAK RIDGE National Laboratory

Background

DOE's Manufacturing Demonstration Facility at ORNL offers distinctive world-leading capabilities in manufacturing and materials research technologies and characterization facilities. The MDF provides a collaborative, shared infrastructure to help industry adopt energy efficient rapid, flexible manufacturing technologies to lower production cost, and create new products and opportunities for high-paying jobs. 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.

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 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.

Projects will be approved 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

In addition to the above mentioned high priority technology categories, projects with sufficient merit may be approved in the following lower priority categories:

- ***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
- ***Magnetic field processing*** for dramatic enhancement of material properties beyond today's limits, including increased fatigue life and strength and stress relief
- ***Batteries manufacturing*** innovative processing using ORNL's unique prototyping materials and evaluation facility

Laboratory Support

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 including appropriate infrastructure, testing, operations, characterization, and analysis capabilities.

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 CRADA. A Non-Disclosure agreement (NDA), if required, can be put into place during development of the project to facilitate discussions while protecting the partner's proprietary information.

To the extent possible, it is preferred that proprietary information NOT be included in the proposal. 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.

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.
- Abstract: Brief non-proprietary summary of technical objectives and potential impacts of research
- Background: Present technical challenge to be addressed. Identify MDF materials and processing techniques to be used and motivation for collaborative research.
- Project Plan and Objectives: 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, deliverables and milestones.
- Impact: Predict the manufacturing technology impact of the described research if successful. Also describe associated energy savings and benefit to the economy.
- Project Budget: *(not included in page limit)* Summary of project costs including amount and source of participant cost-share.
- Qualifications and Experience: *(not included in page limit)* Provide a statement of qualification and experience including brief biographical information for key staff engaged in demonstration.

Proposers are encouraged to consult with ORNL technical staff to develop a work scope that is technically feasible and compatible with ORNL facilities and capabilities.

Proposal Deadline and Submission

This solicitation will remain open for twelve months from the initial date of release and contingent on FY14 funding.

Completed proposals must be submitted in **PDF** file format by email to manufacturing@ornl.gov. The subject line should include: ORNL MDF Technology Collaborations. Receipt of proposals will be confirmed within one week of submission.

Proposal Evaluation and Timeline

This is an open announcement. Evaluation of proposals will begin within 30 days from initial date of release. 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.

Proposals will be evaluated on the following criteria:

- Compatibility with ORNL facilities and capabilities (25%)
- Technical feasibility and merit (25%)
- Potential to create new products and US jobs (25%)
- Potential for 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.

Cooperative Research and Development Agreement (CRADA) Information

Awardees are expected to enter into a CRADA with UT-Battelle. Because of the need for accelerated placement and execution of the projects, the most favorable terms allowable within DOE guidelines have been established and will not be subject to negotiation. Failure to enter into a CRADA in a timely manner will result in termination of further project consideration. CRADAs 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 five years.

For more specific terms and conditions, please review the *model* CRADA attached to this announcement.