ANALYSIS

Oregon Business Development Department
State Manufacturing Leadership

Analyst: Matt Stayner

Request: The Oregon Business Development Department requests permission to apply for a federal grant from the U.S. Department of Energy through the State Manufacturing Leadership program.

Analysis: The U.S. Department of Energy, Office of Manufacturing and Energy Supply Chains, provided notice of grant funding availability under the State Manufacturing Leadership program on April 4, 2023. The application deadline for the grant program is May 30, with project selection anticipated in August and final grant award anticipated in December 2023. The Oregon Business Development Department intends to apply for $2 million in grant funding from the program. Required minimum state matching is 30% or $600,000, however, the department plans on including $850,000 in in-kind matching expenditures of the Oregon Manufacturing Innovation Center.

The federal program provides funding for small or medium-size manufacturers to implement smart manufacturing technologies and practices, and to facilitate access to high-performance computing resources. Oregon Business Development Department will pass-through the funding to the Oregon Manufacturing Innovation Center, who in collaboration with Oregon State University, will use the funding to support:

- The development of software and process to predict and prevent damaging vibrations that can result in damaged parts and machines
- The beta testing of software and process by installing hardware and software on OMIC, OSU, and up to four private manufacturer's machines, and
- The development of marketing and outreach materials

The need for additional expenditure limitation is dependent on the actual grant award and existing budgetary capacity.

Legislative Fiscal Office Recommendation: The Legislative Fiscal Office recommends approval of the request.

Request: Authorization to apply for a grant of $2,000,000 for the State Manufacturing Leadership Program from the U.S. Department of Energy's (USDOE) Office of Manufacturing and Energy Supply Chains (MESC).

Recommendation: Approve the request.

Discussion: The MESC funding opportunity resulted from the Infrastructure Investment and Jobs Act. The purpose of the grant is to support states in accelerating the deployment of smart manufacturing and high-performance computing technologies across their small- and medium-sized manufacturing (SMMs) firm base. Grants provide financial awards to state and territory governments to assist small businesses with export development. USDOE is seeking applications for the purpose of creating new, or building on existing, assistance programming for SMMs specific to smart manufacturing. OBDD received notice of the grant availability on April 1, 2023. The application is due to USDOE by May 30, 2023. OBDD anticipates being notified in November or December about its success in applying for the grant.

OBDD plans to utilize this grant to fund the development of software and techniques to predict and prevent damaging vibrations (an issue in most manufacturing processes) to protect against damage to parts and machines, wasted material, excess costs, and emissions among a few of the hazards facing manufacturing plants. The Oregon Manufacturing Innovation Center – Research & Development (OMIC R&D) and Oregon State University (OSU) have worked to develop an algorithm and sensors system to anticipate conditions causing vibrations and automatically adjust machine settings to prevent the vibrations. The work done by OMIC R&D and OSU is expected to eliminate vibration-related shutdowns and the need to scrap parts in addition to reducing time, energy, and material requirements of the manufacturing process. OBDD would provide the grant to OMIC R&D and OSU to extend the initial research to evaluate the system's capabilities in real-world scenarios and further refine the system, which would finalize the project in order to provide the solution to SMMs. The project involved the installation of hardware and software on a machine located at OMIC R&D, a machine at OSU, and machines at up to four small- and medium-sized manufacturers identified by the Oregon Manufacturing Extension Partnership, allowing the evaluation of the product in "real-world" conditions to determine its usefulness in reducing vibrations. Furthermore, the testing will help to identify steps to prepare the product for market.

USDOE requires a 30 percent match from OBDD to receive the award. OBDD's application will include $850,000 of in-kind staff time, equipment, and software. If the grant is received OBDD will pass through the grant award to OMIC R&D to complete its work with OSU.

May 9, 2023

The Honorable Senator Elizabeth Steiner
The Honorable Representative Tawna Sanchez
Joint Committee on Ways and Means
900 Court Street, NE
H-178 State Capitol
Salem, OR 97301-4048

Dear Co-chairs Steiner and Sanchez:

The Oregon Business Development Department (Department) respectfully requests authority to apply to the US Department of Energy's Office of Manufacturing and Energy Supply Chains (MESC) for a State Manufacturing Leadership Program grant in the amount of $2,000,000.

Background

The Office of Manufacturing and Energy Supply Chains (MESC) has issued a funding opportunity resulting from the Infrastructure Investment and Jobs Act. The rapid development and adoption of smart manufacturing technologies are high priorities for increasing economic competitiveness, efficiency, and productivity while reducing greenhouse gas emissions in manufacturing. MESC's funding will support States in accelerating the deployment of smart manufacturing and high-performance computing technologies across small- and medium-sized manufacturers.

The work under this grant would involve developing software and techniques to predict and prevent damaging vibrations that are a challenge in almost all manufacturing processes and can result in damaged parts and machines, wasted material, excess costs and emissions, etc. The Oregon Manufacturing Innovation Center – Research & Devlelopment (OMIC R&D) and Oregon State University (OSU) developed an algorithm and sensors system to anticipate the conditions that cause these vibrations and automatically adjust machine settings to prevent the vibrations. This will eliminate vibration-related shutdowns and scrapping of parts as well as reduce the overall time, energy and material requirements of the manufacturing process. This grant would be used to extend the initial research to test the system's capabilities in real-world scenarios and further refine the system. This would be a final step before the solution can be provided to small- and medium-sized manufacturers.

The project will result in the installation of hardware and software on a machine located at OMIC R&D, a machine at OSU, and machines at up to four small- and medium-sized manufacturers identified by the Oregon Manufacturing Extension Partnership. This will allow for testing under real-world conditions and result in data that will demonstrate whether or not the software has eliminated or drastically reduced the destructive vibrations. In addition, the tests will identify any necessary steps to prepare the sensor and software for implementation in the market. OSU will test updates to the system to model and demonstrate the effectiveness of system adjustments. OMIC R&D will conduct comparative testing between results when using the program's algorithm and those from an identical machining process where the algorithm is not used.

Once the system is finalized, it will be made available to manufacturers who currently use or want to use compatible hardware. During the project, OMIC R&D will develop videos and seminars that will explain how the system works and the benefits it can provide to manufacturers to increase the rate of adoption by the manufacturing sector.

This opportunity requires at least 30% match. The application will include over $850,000 of in-kind staff time, equipment and software to exceed the level of required match. If the grant is awarded, the department will pass through the funding to OMIC R&D to complete the work with OSU. The application deadline is May 30, 2023.

Action Requested
The Department respectfully requests authority to apply to the US Department of Energy for a State Manufacturing Leadership Program grant in the amount of $2,000,000.

Legislation Affected
The request to apply for this grant does not affect current legislation.

Sincerely,

Sophorn Cheang
Director