DOE HIGH PERFORMANCE COMPUTING FOR MANUFACTURING PROGRAM SEEKS TO FUND NEW INDUSTRY PROPOSALS

LIVERMORE, Calif – A new U.S. Department of Energy (DOE) program designed to spur the use of high-performance supercomputers to advance U.S. manufacturing is now seeking a second round of proposals from industry to compete for approximately $3 million in new funding.

The High Performance Computing for Manufacturing (HPC4Mfg) Program currently supports 15 projects partnering companies together with DOE's national labs to use the labs' high-performance computing (HPC) systems to upgrade their manufacturing processes and bring new clean energy technologies to market.

The 15 current projects underway, ranging from improved turbine blades for aircraft engines and reduced heat loss in electronics to improved fiberglass production, have each been awarded up to $300,000 for a total of nearly $4.5 million.

The partnerships use world-class supercomputers and scientific expertise from Lawrence Livermore National Laboratory (LLNL), which leads the program, and partner laboratories Lawrence Berkeley and Oak Ridge National Laboratories (LBNL and ORNL), which in turn team up with U.S. manufacturers.

"We are thrilled with the response from the U.S. manufacturing industry," said LLNL mathematician Peg Folta, the director of the HPC4Mfg program. "This program lowers the barrier of entry for U.S. manufacturers to adopt HPC.

"It makes it easier for a company to use supercomputers by not only funding access to the HPC systems, but also to experts in the use of these systems to solve complex problems."

Concept proposals from U.S. manufacturers seeking to use the national labs' capabilities can now be submitted to the HPC4Mfg program. It is expected that another 8-10 projects worth approximately $3 million will be funded, with the applications due by April 21.

A number of companies and their initial concepts will be selected and paired with a national lab HPC expert to jointly develop a full proposal in June, with final selections to be announced in August. More information about the HPC4Mfg program, the solicitation call, and submission instructions can be found at
https://hpc4mfg.llnl.gov/

Started March 2015, the HPC4Mfg program was created by the Advanced Manufacturing Office (AMO) within DOE's Office of Energy Efficiency and Renewable Energy (EERE).

"Access to supercomputers in the Department of Energy's labs will provide a resource to American firms inventing and building clean energy technologies right here at home that no international competitor can match," said Assistant Secretary for Energy Efficiency and Renewable Energy David Danielson.

"The HPC4Mfg initiative pairs leading clean energy technology companies with the world-class computing tools and expertise at our national labs to drive down the cost of materials and streamline manufacturing processes. The ultimate goal of their collaboration is to increase our global competitiveness in the race to develop clean energy technology and jobs."

"While some larger manufacturing companies use advanced computing in developing their industrial processes, it is a challenge to stay on the leading edge of HPC technology in this rapidly advancing field, and few small to medium-sized companies have had experience in its use," Folta said.

"It is noteworthy," Folta added, "that DOE labs possess five of the top 12 HPC systems worldwide and also boost broad expertise in the applications of HPC systems."

By using HPC in the design of products and industrial processes, U.S. manufacturers can reap a number of benefits, such as accelerating innovation, lowering energy costs, shortening testing cycles, reducing waste and rejected parts, and cutting the time to market.

Under the HPC4Mfg program, researchers from the national labs and companies work together to apply modeling, simulation and data analysis to industrial products and processes to lower production costs, reduce energy use and accelerate development of new clean energy technologies. An overarching objective is to keep the United States at the forefront of innovation in advanced clean energy technologies and energy efficiency techniques.

Scientists at the national labs benefit by expanding computer codes and applying them to different problem areas. The skills and new applications they develop through these public-private partnerships can then be applied to DOE missions in such areas as energy, materials science and national security.

Although the program is presently focused on using national lab HPC resources to bolster manufacturing, it is possible that other fields, such as transportation, more efficient buildings and renewable energy also could benefit from these national lab resources. As the program broadens, other national laboratory partners are expected to join.

As the HPC4Mfg program continues, it is anticipated that there will be two rounds of proposals sought each year, one in the spring and the other in the fall.

Founded in 1952, Lawrence Livermore National Laboratory is a national security laboratory, with a mission to ensure national security and apply science and technology to the important issues of our time. Lawrence Livermore National Laboratory is managed by Lawrence Livermore National Security, LLC for the U.S. Department of Energy's National Nuclear Security Administration.

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Laboratory news releases and photos are also available at
https://publicaffairs.llnl.gov/news/releases.html

High Performance Computing for Manufacturing Program, https://hpc4mfg.llnl.gov/

Clean Energy Manufacturing Initiative, http://energy.gov/eere/cemi/clean-energy-manufacturing-initiative

HPC Innovation Center, http://hpcinnovationcenter.llnl.gov/