



Focused Energy Completes its First Milestones through DOE's Milestone-Based Fusion Development Program

Company developed its initial high-gain target design based on direct-drive laser inertial fusion

San Francisco, November 14, 2024 – Focused Energy today announced that the U.S. Department of Energy (DOE) has verified the completion of the company's first two science and technology milestones as part of the DOE's Milestone-Based Fusion Development Program.

The laser-fusion company produced a scientific report outlining its proposed initial fusion fuel target design and successfully led an experimental campaign at Colorado State University to optimize a method needed to ignite the fusion fuel using laser-accelerated protons.

In May 2023, DOE [announced](#) that Focused Energy was one of eight fusion companies selected to advance R&D toward realizing a viable design for a fusion pilot plant, with the goal of solidifying U.S. leadership in fusion commercialization.

“Focused Energy is pleased to have completed our first science and technology milestones under the Department of Energy's milestone-based fusion development program,” said Focused Energy CEO Scott Mercer. **“In doing so, our team of world-class scientists has taken a meaningful step toward answering the design and engineering questions needed to improve gain and develop a workable design for fusion fuel targets. With continued support from the Department of Energy, we look forward to helping bring fusion to commercial viability.”**

Focused Energy is pursuing commercial fusion with top scientific and engineering minds using promising, cutting-edge technologies. The company's approach – based on direct-drive laser fusion – builds upon the path-breaking work conducted on the National Ignition Facility laser at Lawrence Livermore National Laboratory that achieved scientific energy gain for the first time in December 2022. Focused Energy is developing low-cost, millimeter-scale deuterium/tritium fuel targets and modular laser arrays optimized for high repetition rate and efficiency.

Milestone One: Completed Point Design Report

The first milestone was to produce a scientific report detailing Focused Energy's initial high-gain target design. This design builds on the work done at the National Ignition Facility and describes Focused Energy's pathway from ignition at NIF to the high energy gain needed for a fusion power plant.

Milestone Two: Successful Proton Experiment

Additionally, Focused Energy successfully led an experimental campaign at the Laboratory for Advanced Laser for Extreme Photonics (ALEPH) at Colorado State University to measure and optimize laser-generated proton focusing – a key element of the company's approach to



inertial fusion. The experiment also tested Focused Energy's ability to produce and align targets at high repetition rates through the company's in-house target laboratory.

Under Focused Energy's approach, a focused proton beam would ignite millimeter-scale sphere deuterium/tritium fuel targets to create fusion reactions and unlock energy that would then create steam, turn turbines, and send clean energy to the grid.

The successful proton experiment was performed with collaborators from Princeton Plasma Physics Laboratory, University of California San Diego, University of Alberta, Colorado State University, Technical University of Darmstadt, Spanish Center for Pulsed Lasers, Polytechnic University of Madrid, University of Texas at Austin, French Alternative Energies and Atomic Energy Commission. The beamtime was awarded through the DOE LaserNetUS Program.

About Focused Energy

Focused Energy is a leading laser-driven fusion company pursuing a promising path to clean, abundant fusion power. The global company, based in the San Francisco Bay Area and Darmstadt, Germany, has brought together the top scientific and engineering minds using proven technologies to unlock fusion power at commercial scale. Focused Energy is working to unleash the next chapter of economic growth and scientific innovation through the widespread adoption of clean, abundant fusion power. To learn more, visit focused-energy.world.

In total, Focused Energy has raised more than \$175 million in private capital and public grant funding. Additionally, the German Federal Ministry of Education and Research (BMBF) has supported the company's research and development efforts through significant grants. Focused Energy also benefits from five Department of Energy INFUSE Awards. INFUSE awards provide funding to national labs and universities to accelerate private-sector fusion energy development by reducing impediments to collaboration through access to the expertise and unique resources available at DOE facilities.

Focused Energy recently announced a new \$65 million laser development facility that will be located in the San Francisco Bay Area to help develop the lasers and global supply chain needed to support commercial fusion at scale.

About DOE's Milestone-Based Fusion Development Program

The U.S. Department of Energy's Milestone-Based Fusion Development Program is a key initiative in the Department's support of the U.S. Bold Decadal Vision for Commercial Fusion Energy. In May 2023, eight companies across 7 states were selected for \$46 million in funding for the first 18 months of the program to resolve scientific and technological challenges to create designs for a fusion pilot plant that will help bring fusion to both technical and commercial viability. This program was partially inspired by the National Aeronautics and Space Administration's Commercial Orbital Transportation Services program that helped enable commercial space launch. More information about the projects can be found on the [Fusion Energy Sciences Topical Funding Opportunity Awards page](#).



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