

# Lab repeats nuclear fusion feat, with higher yield

August 7 2023

---



The Lawrence Livermore National Laboratory in California stunned the world in 2022 when it announced it had carried out an experimental nuclear reaction that put out more more energy than was put into it, a holy grail of science.

US scientists responsible for a historic nuclear fusion breakthrough say they have repeated the feat—this time achieving a greater yield of

energy.

The Lawrence Livermore National Laboratory stunned the world in December when it announced it had carried out an experimental nuclear reaction that put out more energy than was put into it, a holy grail of science in the quest for unlimited, clean power to end the era of fossil fuels.

"We can confirm the experiment produced a higher yield than the December 2022 experiment," public information officer Paul Rhien said Monday in an emailed statement, without disclosing specific figures.

He added the California lab planned to report the results at upcoming scientific conferences and in peer-reviewed publications.

The new development was first reported by the Financial Times.

Nuclear fusion has been touted by its supporters as a clean, abundant and safe source of energy that could eventually allow humanity to break its dependence on coal, [crude oil](#), [natural gas](#) and other hydrocarbons driving a global climate crisis.

However, there is still a long way to go before fusion is viable on an industrial scale, providing power to homes and businesses.

Nuclear power plants around the world currently use fission—the splitting of a heavy atom's nucleus—to produce energy.

Fusion on the other hand combines two light hydrogen atoms to form one heavier helium atom, releasing a large amount of energy in the process.

That is what occurs inside stars, including our sun.

On Earth, [fusion reactions](#) can be provoked by heating hydrogen to extreme temperatures inside specialized devices.

Like fission, fusion is carbon-free during operation, and has additional critical advantages: it poses no risk of nuclear disaster and produces much less radioactive waste.

During December's experiment, the lab used 192 ultra-powerful lasers to deliver 2.05 megajoules of energy to a tiny capsule smaller than a pea containing isotopes of hydrogen. It produced 3.15 megajoules of fusion energy output.

While the result was a net energy gain, 300 megajoules of [energy](#) was needed from the [electrical grid](#) to power the lasers.

© 2023 AFP

Citation: Lab repeats nuclear fusion feat, with higher yield (2023, August 7) retrieved 27 April 2024 from <https://phys.org/news/2023-08-lab-nuclear-fusion-feat-higher.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.