

Zap Energy raising capital for drive to nuclear fusion 'net energy gain', VP says

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Zap Energy, a Seattle-based nuclear fusion energy company, is actively raising capital to continue developing technology aimed at delivering zero-emission commercial power generation by the early 2030s, said Ryan Umstattd, VP of products and partnerships.

Company officials declined to disclose how much money will be raised or a timetable for closing. They also would not say whether they have engaged an advisor or intend to do so.

The executive noted that Zap Energy's future capital needs will be substantial, as it crosses the so-called break-even point toward net energy gain, where its fusion device creates more energy than is required to cause the reaction.

The company plans to make extensive investments to make the technology commercially viable, including the design and construction of pilot and ultimately full-scale power plants, which Zap may operate or sell outright, the VP said. Each plant will cost hundreds of millions of dollars, he added.

"What's really going to matter as we enter the market is what's the capital cost of one of our power plants and how quickly can we scale production...and get them into the market," Umstattd said.

Zap Energy has raised a total of USD 200m, including a USD 160m Series C in June 2022, led by Lowercarbon Capital, with participation from Breakthrough Energy Ventures, Shell Ventures, DCVC, Valor Equity Partners, Addition, Energy Impact Partners (EIP) and Chevron Technology Ventures.

Mergermarket [reported](#) last August that the company expected to raise more capital as it achieved performance milestones that bring it closer to break even.

Zap Energy is awaiting the awarding of funds from a US government program aimed at stimulating design and construction of nuclear fusion power plants in the US, Umstattd said. Announcement of the recipients is expected imminently, he added.

It is among more than a dozen US companies developing different approaches to producing energy via nuclear fusion, billed as the Holy Grail of renewable energy because it is a safer and ecologically preferable alternative to traditional nuclear fission reactors, according to Cleantech Group, a sustainability research and consulting firm.

Competitor Helion Energy has announced plans to reach net energy gain sometime in 2024, while Commonwealth Fusion Systems and TAE Technologies expect to prove viability in 2025, according to Cleantech Group.

Zap Energy has not offered a timetable for reaching the goal. "Things are promising but I don't have yet a firm prediction of when we're actually going to achieve those conditions," he said.

More than USD 3.4bn in funding has been raised by nuclear fusion companies since 2021, with commercial applications expected to begin rolling out as soon as early 2030s, said Zainab Gilani, an energy associate with Cleantech Group.

In 2021, Everett, Washington-based Helion [raised](#) a USD 500m Series E and Cambridge, Massachusetts-based Commonwealth Fusion [secured](#) USD 1.8bn. And last year, Foothill Ranch, California-based TAE [raised](#) USD 250m in a Series G-2 round.

Zap Energy is rapidly ramping up its workforce, growing to 115 employees from 75 last summer, and expects its headcount to reach more than 140 by the year end, the VP said.

In addition to the team of scientists working on the plasma that is essential to the fusion reaction, a growing number of engineers are assigned to develop the systems that go around that plasma to create a functioning power plant.

Zap's latest fusion energy system is the FuZE-Q, a water-heater sized device that will be surrounded by a liquid metal wall, a pulsed power system, a fuel loop and the balance of a working power plant, the executive noted.

The company anticipates manufacturing the core systems in its factory and shipping them to customers in a handful of standard shipping containers, he said.

Zap hopes to be first-to-market but if it is not, the company expects its approach will gain market share by being the lowest-cost option for commercial fusion energy, the executive said.

Gains in fusion performance are outpacing Moore's Law, which cites exponential advancements in technology due to semiconductor development, Umstattd noted.

"Investors and the technologists developing the systems recognize that we're getting close as a society," he said. "I think that's kind of what's started to catch investors' attention."

Last year, the Lawrence Livermore National Laboratory for the first time achieved net energy gain. The feat required an array of laser beams the size of three football fields.

"The way they did it... isn't on a commercial power plant path," Umstattd said.

by Aldrin Brown in Los Angeles

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