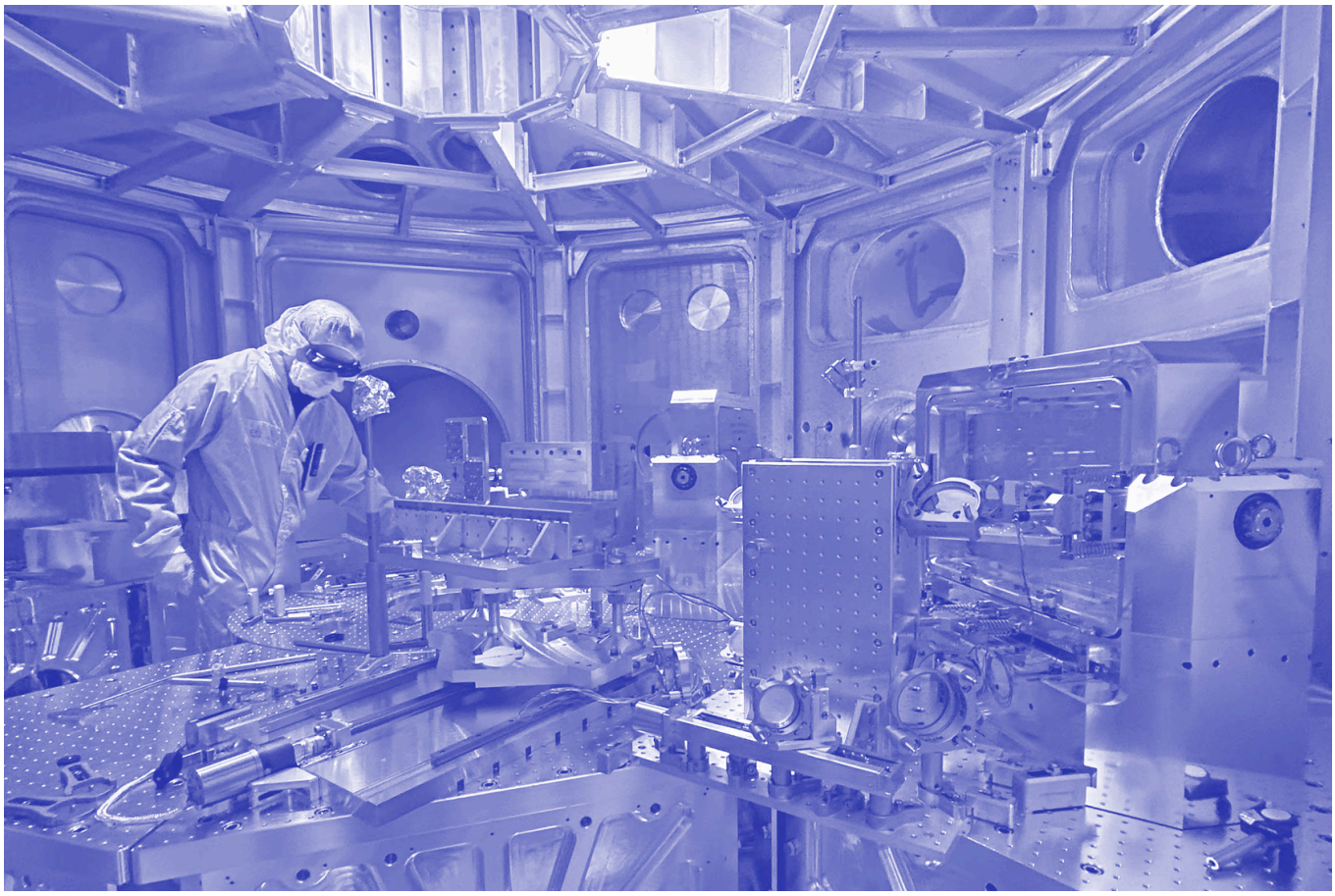
Sydney nuclear fusion startup HB11 inks deal with European laser giant

HB11 has partnered with Europe's ELI ERIC, a top laser R&D consortium, to supply laser targets — marking a major step in the Australian startup's fusion ambitions.

DANIEL VAN BOOM

4:00am today



A HB11 prototype reactor. HB11.

Australian nuclear fusion startup **HB11** has signed a deal to supply laser targets to ELI ERIC, one of the world's largest laser research and development labs.

Although Sydney-based HB11 is decades away from building nuclear fusion plants, it aims to generate revenue long before then — initially by selling laser targets to research institutions and, eventually, by selling lasers themselves.

The deal with ELI ERIC, a consortium of EU-backed laser facilities in the Czech Republic, Hungary and Romania, is the first step in turning that plan into a reality. The agreement was signed in the presence of Czech Republic President **Petr Pave**.

"This announcement is essentially the highest profile laser facility in the world signing us up to where we become a supplier of [laser] targets," HB11 founder **Warren McKenzie** said.
"It's not just one laser lab, it's three — and collectively, they are the most advanced lasers in the world, far exceeding anything that's in the United States as far as being able to do experiments on fusion."

Unlike today's nuclear power plants, which rely on fission to split atoms, fusion is the opposite: it fuses atomic nuclei together, releasing bursts of heat that can generate energy. HB11's technology uses lasers to fuse hydrogen and boron-11 atoms, a process that inspired the company's name.

ELI — short for Extreme Light Infrastructure — showcased a laser developed in collaboration with Thales earlier this year which has been described as the most powerful in the world. While lasers are sexy science, McKenzie says the targets they're shoot at are equally important.

"When huge investments in laser infrastructure are made, they [investors] kind of forget that lasers are designed to shoot at things," McKenzie said. "The scope of their abilities is limited not just by the lasers, but specifically what they can be shot at. Any experiment is absolutely a function of what you're shooting at and what you're trying to measure shooting from it."

Under the agreement, HB11 will work with ELI to develop laser targets and manufacture them. ELI's facilities have been funded with €900 million (AU$1.45 billion) from the European Union.

The announcement comes at a time when nuclear energy is increasingly on the national agenda in Australia. Polls show **Peter Dutton** gaining ground on Prime Minister **Anthony Albanese**, with

Dutton pledging to abolish Australia's nuclear energy ban and replace seven coal-fired power stations with nuclear plants by 2050. Australians are more positive about nuclear now than in years past, but remain wary of its cost.

Fusion technology promises vast amounts of clean energy, but the tech remains early in development. Most projections suggest fusion will form a significant part of the global energy mix in the 2050s — at the earliest.

Curtin University's **Igor Bray** cautioned that it is still too early to determine whether fusion will be cheaper than fission, but he highlighted its greater sustainability.

"Fusion works with very light elements that are abundant throughout the universe," he said. "Fission works with heavy elements like uranium which are less abundant. We've got plenty here on earth to last over 100 years in fission, but fusion is something that, if we got it going, would be here forever."

While the ELI ERIC partnership represents an early win for HB11, McKenzie maintains that the bigger moneymaking opportunity is in selling lasers themselves. The company plans to begin selling lasers to universities and research institutions next year, with plans to develop more advanced lasers for defence organisations in the future.

HB11 is raising a seed round in the meantime, aiming for "tens of millions". McKenzie couldn't say much about the capital raise, other than that it will mostly be coming from overseas investors.

Australian VCs, who have historically focused on software startups like **Canva**, have in recent years become increasingly enthusiastic about

deep tech. But McKenzie said they are stymied by not having the talent to handle the many varieties of deep tech emerging in Australia.

"We're largely focusing on overseas investors," he said. "We're possibly bypassing the cheque size that a lot of Australian funds can reasonably do, but the bigger problem is what deep tech demands over software... there's just no one to do the due diligence."

"The ability for one particular venture capital fund to lead is very difficult in Australia, but there are plenty who will follow."

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