



ENERGY

Bill Gates's TerraPower Will Build Experimental Nuclear Reactor in Idaho

The company is part of a team building a molten chloride reactor at Idaho National Laboratory that could be attractive to heavy industry.

By Mack DeGeurin Tuesday 4:50PM | Comments (15) | Alerts



A member of an engineering team using the 3-D Computer-Assisted Virtual Environment (CAVE) at Idaho National Laboratory's Center for Advanced Energy Studies. The tool can be used to tour a virtual nuclear reactor and consider new designs. Photo: [Idaho National Laboratory/Flickr](#)

- Though still in the early stages, it appears the U.S. appetite for experimental nuclear
- energy technology is on the rise. Last week, Bill Gates-founded TerraPower
- [announced](#) it had selected Kemmerer, Wyoming, as the site for its first “Natrium”

- ✉ 345 megawatt sodium-cooled fast reactor. Now, the company's technology will be
- 🔖 used to create a first-of-its-kind molten chloride reactor three hours away at the Idaho National Laboratory.

That reactor will be built in collaboration with gas utility giant Southern Company and utilize TerraPower's [molten chloride fast reactor technology](#). According to TerraPower, this type of reactor differs from others due to its ability to create carbon-free power and generate heat that could make this type of design attractive to heavy industries like [steel](#) that require high temperatures and lots of power. The lab itself is a [hub for nuclear energy research](#).

Southern Company [claims](#) the reactor will represent the world's first fast-spectrum, salt-fueled nuclear fission reactor to operate on a self-sustaining nuclear chain reaction. The company described as a "significant inflection point," for the technology as a whole. Southern Company program manager Lauren Lathem [told](#) Bloomberg the company expects the reactor will feature less than 500 kilowatts of capacity, making it decidedly experimental.

The reactor is expected to enter service in 2026 but traces its origins back to 2015, when the two companies received \$40 million from the Department of Energy as part of a grant to develop infrastructure to support molten chloride fast reactors. While most nuclear reactors have been focused on generating electricity for the public, this reactor could place a greater emphasis on providing green solutions for industry.

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Solving that problem could be a key part of any attempt to meaningfully address climate change since industry as a sector accounts for nearly a quarter of all U.S.

greenhouse gas emissions, according to the Environmental Protection Agency. Steel alone is responsible for an estimated 9% of global emissions, and while there are no-carbon steel projects afoot, throwing one more iron into the proverbial fire doesn't hurt.

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TerraPower was co-founded in 2006 by Bill Gates with the aim of one day commercializing experimental new nuclear reactors. TerraPower had previously planned to build its first sodium-fueled reactor in Beijing, but that project fell victim to increased regulatory restrictions during the Trump presidency. Just last week the company announced that the project would operate out of Wyoming instead.

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Nuclear energy is being taken seriously by the Biden administration, which has [outlined](#) efforts to invest in advanced reactors that it hopes will be smaller and safer than those currently in operation. If passed, the [Build Back Better Act](#) would also [allocate](#) around \$3.2 billion for the Department of Energy's Advanced Reactor Demonstration Program and \$6 billion to preserve existing nuclear reactors that are [nearing \(or past\) their retirement age](#).

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DISCUSSION

By IAmBrett

It's pretty neat that they're getting to build a fast nuclear reactor, although they'll really need to get those reactor costs down if they want to commercialize it (the cost per kilowatt of electricity for the proposed TerraPower plant in Wyoming is about seven times that of solar photovoltaic power plus storage).

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