

Bechtel to Back Small Nuclear Plants

Engineering and Construction Giant Joins Reactor Designer Babcock & Wilcox to Advance New Type of Power Plants

By [REBECCA SMITH](#) July 14, 2010

Engineering and construction giant Bechtel Corp. is expected to disclose Wednesday that it will partner with nuclear vendor Babcock & Wilcox Co. to bring a small, commercial reactor design to market.

Closely held Bechtel declined to reveal its investment in the venture other than to say it is "substantial" and affirms its optimism about prospects for new plant designs that could make nuclear power affordable to smaller utilities and get new plants into operation faster.

Under the partnership, Bechtel will help Babcock complete the design of a modular reactor, called mPower, and seek necessary approvals from the Nuclear Regulatory Commission to begin sales in the U.S.

Bechtel, of San Francisco, will have exclusive responsibility for engineering, procuring key components and building the plants. The companies have not yet said what the likely cost of plants using the modular design would be.

After a few units are built, the partners hope to offer standard versions for a fixed price, something that has eluded nuclear vendors in the past. Unpredictable costs plagued the nuclear power industry in the past and stalled new U.S. nuclear-plant construction after the 1980s.



Georgia Power's Vogtle plant, above in February, represents the key competition for modular plant designs.

Although the average size of reactors globally has gradually gotten bigger, some observers think there's room for smaller reactors. Babcock's reactor can be built in factories, shipped by rail, barge or truck to sites, and then assembled in cookie-cutter fashion. The small size allows faster construction, with less money tied up in equipment before power sales begin.

Babcock, of Lynchburg, Va., now makes small reactors for the Navy, as well as nuclear fuel and plant components. It has designed big reactors in the past but wanted something it could build in its existing, domestic factories.

Its partner, Bechtel, is one of the most experienced nuclear construction and engineering firms in the world. It has a contract to build a large reactor in Maryland, and has built or done major modifications to 64 of the nation's 104 operating reactors.

"We think we're the premier [contractor] with 5,000 engineers with the word 'nuclear' in their resumes," said Jack Futcher, president of Bechtel Power Corp.

Bechtel's Mr. Futcher said it will be challenging for firms like his to find enough skilled workers to build the next generation of nuclear plants. Small, modular reactors offer certain advantages because utilities could start with one or two and add more.

"You'll need fewer people to build them and they'll get really good at what they're doing, through repetition," he said.

Christofer Mowry, president of Babcock & Wilcox Nuclear Energy in Charlotte, N.C., said Bechtel's participation will help the reactor gain traction as a serious rival of large reactors. "Bechtel doesn't get involved in science projects," said Mr. Mowry. "This [agreement] is a confidence builder that the promise of this small reactor is going to materialize."

Babcock's reactor currently exists only on paper. Still, it is attracting interest, especially from smaller utilities that want substitutes for coal-fired plants but can't afford standard-sized nuclear reactors that are 10 times the size of Babcock's 125-megawatt unit.

In recent days, a dozen utilities, including Old Dominion Electric Cooperative, PowerSouth Energy Cooperative and Nebraska Electric G&T Cooperative, have joined a consortium designed to help Babcock move ahead. They join founding consortium members [FirstEnergy Corp.](#), Tennessee Valley Authority and Oglethorpe Power Corp.

Utility interest is critical because the NRC devotes more staff to reactor designs whose vendors have waiting customers. Babcock and Bechtel intend to file an application for reactor certification in 2012 and would hope to start construction after 2017.

One new consortium member, Sunflower Electric Power Corp. in Hays, Kan., wants to diversify its generation portfolio by adding some nuclear capacity. Sunflower furnishes electricity to electric co-ops in Western Kansas from 1,200 megawatts of coal, natural gas, wind, hydroelectric and biomass generation.

In the past, small utilities purchased minority stakes in large reactors, alongside large investor-owned utilities, but sometimes felt powerless in the arrangements. Small reactors have appeal, said Earl Watkins, chief executive of Sunflower Electric, because even smaller utilities could own

their own units. If batched together, utilities could share security and maintenance staffs to control costs.

Babcock's reactor is designed to be buried in the ground, for added security, and to run twice as long between refueling outages—approximately four years—as existing reactors.

Babcock is talking to the NRC about reducing the staff at small reactors. For example, a plant with a single reactor unit might have 80 security people, versus 400 for a large reactor. The work force would rise as more reactor units were added, with an eight-unit plant having a security staff equivalent to a big, single reactor.

"We need to get more efficient with staffing or the economics won't work," said Babcock's Mr. Mowry.