

WebMemo



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Congress's Recent Attempts to Promote Small Modular Nuclear Reactors Fall Short

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The House and Senate are considering bills that are meant to help development of small and modular nuclear reactors (SMRs). These new reactors could provide all of the attractive qualities of large reactors—such as being safe, emissions-free sources of electricity—but at lower upfront costs with greater flexibility. Unfortunately, the two bills—the Nuclear Energy Research Initiative Improvement Act of 2011 (S. 1067) and the Nuclear Power 2021 Act (S. 512 and H.R. 1808)—would have the opposite impact.

These bills would smother the private-sector initiative that has driven SMR development in recent years. Instead of embracing this new and innovative approach to nuclear energy development, these bills would subject the SMR business to the same government-depressed trajectory that plagues traditional reactors.

The Nuclear Energy Research Initiative Improvement Act (S. 1067). S. 1067 would authorize \$250 million over five years to conduct research regarding SMR technology, power plant issues beyond nuclear technology, cost-efficient manufacturing and construction, licensing issues, and enhanced proliferation controls. While the spirit of the act is laudable, its approach is mostly counterproductive. The essence of the act is to mandate that the Department of Energy (DOE) develop a five-year plan to “lower effectively the costs of nuclear reactors.”

There are several problems with the act:

- **More government support is not needed.** Private investors have been driving the SMR business in

recent years. They recognized early on that small and modular reactors could potentially fulfill a market demand that large reactors could not fill, and they have done it without government support.

- **The government is neither capable of reducing nor qualified to reduce the cost of nuclear reactors.** Private industry has the interests, expertise, and background to develop cost-effective manufacturing and construction techniques. History demonstrates that government intervention would only slow the phenomenal progress made on the SMR front.
- **Government intervention has not produced a single new large reactor, and there is no reason to think it would work for SMRs.** The federal government's attempts to subsidize the commercialization of large reactors have failed to create a viable nuclear industry. In contrast, the SMR business has by and large built privately funded commercial enterprises out of federal research and development projects. Instead of controlling this innovation through DOE meddling, the federal government should embrace it as a model for other energy sectors.

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- **The bill plays into the hands of the anti-nuclear lobby.** The bill directs the DOE to conduct “public workshops” to generate “public comment” to inform its five-year plan. This opens the door to over-politicization and legal sandbagging—two of the anti-nuclear lobby’s favorite progress-killing tactics.
- **Creating an arbitrary timeline makes no sense.** Government program timelines to produce commercial projects do not work. Once the government creates a development program, the market begins to revolve around it. Then, as the timeline slips—as timelines always do—so does the eventual introduction of the products. Timelines should be market- and investor-driven, not dictated by Congress or the DOE.

The Nuclear Power 2021 Act (S. 512 and H.R. 1808). The Nuclear Power 2021 Act creates a DOE program to develop two standard SMR designs and demonstrate the licensing process for those designs. In essence, it authorizes the DOE to dictate who will make up America’s SMR business for the foreseeable future.

This is the wrong approach because:

- **It consolidates too much power in Washington.** The legislation creates public–private partnerships to “develop” standard designs and “demonstrate” SMR licensing, but private companies already design SMRs. There is no need for the federal government to intervene. Moreover, the licensing process should occur between the design owner and the Nuclear Regulatory Commission (NRC). There is no role for the DOE.
- **Lack of clarity risks socializing the SMR industry.** The legislation uses taxpayer money to pay for up to 50 percent of SMR design development and 25 percent of the licensing costs. Critically, it does not stipulate who will own the part of the designs that taxpayers have funded. So in essence, the legislation creates a situation where the federal government designs reactors and has an ownership stake in them.
- **It is anti-competitive.** Multiple companies have invested private dollars and resources to build the commercial SMR business. By choosing winners

and losers, the DOE would take away the incentive to compete and replace it with the incentive to lobby Washington. The result would be that Washington, not the market, would decide which technologies move forward.

- **It stifles innovation.** This anti-competitiveness results in less innovation in the marketplace. The irony is that private-sector innovation is what has given rise to the SMR market to begin with. As the established nuclear industry became bogged down in federal bureaucracy, nuclear energy entrepreneurs were investing in new and innovative ways to bring nuclear technology into the marketplace. S. 512/H.R. 1808 would apply the same anti-innovation bureaucracy to the SMR business.
- **It deters private-sector investment.** Multiple companies are currently investing in SMRs. By picking which two companies get government support, S. 512/H.R. 1808 essentially punishes those that were not chosen. This signals to private investors either that they should not get into the nuclear business or that they should spend significant resources on lobbying instead of product development.

A Better Approach. Congress could allow small and alternative reactor technologies to move forward by doing the following:

- **Reject additional loan guarantees.** Proponents of loan guarantees argue that high upfront costs of new large reactors make them unaffordable without loan guarantees. Presumably, then, a smaller, less expensive modular option would be very attractive to private investors even without government intervention. But loan guarantees undermine this advantage by subsidizing the capital costs and risk associated with large reactors. A small-reactor industry without loan guarantees would also provide competition and downward price pressure on large light-water reactors.
- **Reject subsidies.** They do not work. Despite continued attempts to subsidize the nuclear industry into success, the evidence demonstrates that such efforts invariably fail. The nuclear industry’s success stories are rooted in the free mar-

ket. Two examples include the efficiency and low costs of today's existing plants and the emergence of a private uranium enrichment industry. On the other hand, government intervention is the cause of the industry's failures, as illustrated by the government's inability to meet its nuclear waste disposal obligations.

- **Build expertise at the NRC.** The NRC is built to regulate large light-water reactors. It simply does not have the regulatory expertise to efficiently regulate other technologies, and building that expertise takes time. Helping the NRC to develop that expertise now would help bring new technologies into the marketplace more smoothly.
- **Establish a new licensing pathway.** The current licensing pathway relies on reactor customers to drive the regulatory process. The problem is that

the legal, regulatory, and policy apparatus is built to support large light-water reactors, effectively discriminating against other technologies. Establishing an alternative licensing pathway could help build the necessary regulatory support on which commercialization ultimately depends.

More Harm Than Good. It seems that some Senators are making a real effort to help move SMRs forward with S. 1067 and S. 512/H.R.1808. Unfortunately, their efforts would do more harm than good.

In the process of attempting to help SMRs, in practice, these measures would smother the very market forces that have driven the success of SMRs to begin with.

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