

Lisa Murkowski: The case for advanced nuclear reactors

by Sen. Lisa Murkowski | September 17, 2018 12:00 AM

It was a warm summer night in 1955 when the lights turned on in Arco, Idaho — the first successful use of peaceful nuclear power. From this groundbreaking moment, our nation became the global industry leader — building impressive plants across the country and around the world while setting international standards for safety, security, and nonproliferation.

As recently as a few years ago, a total of 104 nuclear reactors were safely generating clean electricity in the United States, with plans for many more on the horizon. Today, however, we face a very different situation. Our domestic fleet is not growing, but shrinking.

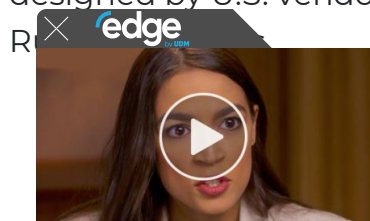
Plans for new reactors have mostly been shelved or moved to the back of the line, with just two currently under construction in the U.S. Meanwhile, existing plants are aging and economically challenged by low-cost natural gas and subsidized renewables, making them less competitive in power markets and raising the odds of their early retirement.

The consequences of this are already becoming evident.

First, we are losing a major source of clean, always-on energy at a time when U.S. electricity needs are forecast to grow 29 percent by 2040. No other source, renewable or otherwise, meets anywhere near as much U.S. energy demand without emissions as nuclear power.

One recent report showed that just four reactors slated for premature closure in Ohio and Pennsylvania represent a loss of more emissions-free energy than all of the wind and solar power produced in a 13-state region stretching from Chicago, Ill., to Washington, DC. In Massachusetts, the closure of the Pilgrim reactor will take more carbon-free electricity off the grid than wind and solar have added there over the past two decades.

Then there are the global ramifications. Russia, China, and South Korea have now surpassed us, and state-owned corporations are undercutting the United States in both price and time to market. Only 10 percent of the reactors under construction throughout the world were designed by U.S. vendors, compared to 28 percent by Chinese vendors and 28 percent by R



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As our nuclear leadership declines, we are simultaneously losing our ability to influence security and nonproliferation decisions. Taking our place — but not always sharing our views — are countries that could put world security interests at risk.

After inventing commercial nuclear power, the U.S. has now clearly fallen behind. Yet we can still turn the tide and restore our influence, particularly if we pursue the development of advanced reactors.

The companies working on the next generation of nuclear technologies range from our National Laboratories to start-ups like NuScale, Oklo, and TerraPower. Their innovative concepts rely on exotic fuels, materials, and coolants. And their designs hold tremendous promise to reduce costs, increase safety and efficiency, improve grid flexibility and reliability, and ease security concerns.

The key now is to develop these technologies here in the United States before others step up and seize the opportunity.

If we do that, we will have a new source of clean baseload electricity that will help reduce greenhouse gas emissions and address climate change without increasing the cost of electricity.

We will also create thousands of good-paying jobs and be able to compete for international contracts in a global market that the U.S. Department of Commerce estimates could reach \$740 billion through 2026.

To ensure we have the right tools in place to foster advanced nuclear projects, a bipartisan group of senators has joined me in introducing the Nuclear Energy Leadership Act. Our bill provides a path for the federal government to partner with industry innovators and research institutions to further the development of these technologies, while maintaining and strengthening the first-class U.S. nuclear workforce.

NELA is composed of common sense policies. It allows longer-term power purchase agreements that will help with project finance. It authorizes the construction of a versatile fast neutron source so our scientists and entrepreneurs are not forced to go to Russia or China to test reactor fuels and materials. Among other practical steps, it establishes a pilot project for the Department of Energy to produce advanced reactor fuel until a long-term domestic supply can be developed.

It's wonky stuff, but necessary to re-establish America's global leadership in nuclear power — which will, in turn, improve our nation's security, grow our nation's economy, and allow us to increase the use of emissions-free energy.



Lisa Murkowski, a Republican, is Alaska's senior U.S. senator and chairman of the Senate Committee on Energy and Natural Resources.

