

Hello members of the Senate Resources Committee.

I'm Kay Brown, Arctic Policy Director for Pacific Environment, and a resident of Anchorage.

I'm writing to oppose SB 177.

This bill represents a dramatic revision of the siting and regulation of so-called "micro" nuclear facilities of 50 MW or less that also meet the definition of "advanced" nuclear reactors.

The microreactor project planned for Eilson AFB, as well as any future proposed nuclear facilities, should not be exempted from siting by the state legislature or from ongoing studies by the named state agencies that would no longer be involved.

None of the commercial microreactor proposals in development around the world have yet been licensed or permitted by the Nuclear Regulatory Commission or deployed in operation anywhere in the United States. Many of the details of what is proposed or envisioned to be installed in Alaska remain proprietary. Therefore, it is impossible to know whether the theorized benefits by vendors and proponents are real. Projected costs and benefits are speculative. The technology is in its infancy.

A 2018 MIT study, "The Future of Nuclear Energy in a Carbon-Constrained World," found that as nuclear facility designs mature and incorporate more detail, cost uncertainty decreases but **actual costs increase significantly**. The study shows that the development, engineering, procurement, project management and construction of complex nuclear systems frequently result in **rapid cost escalation**, compared to initial projections, due to factors such as integration of emerging details, delays, turnover/skill shortages, supply chain challenges and inflation outbreaks. Thus, whatever the estimated cost at initial stages, history shows that the actual cost is likely to be much greater and the energy produced much more expensive.

If history were to be repeated with these nuclear microreactors and they cost significantly more than now projected by proponents, who bears the risk of cost overruns? The federal government? Local government? Local electric ratepayers?

Nuclear power has never quite lived up to its promise. Reactors have proved **much more** expensive than hoped. Accidents and leaks have given it a reputation for being risky despite its zero-carbon credentials. According to a recent article in the Economist, developers of small modular nuclear reactors hope their time has come. The International Atomic Energy Agency estimates that about 50 small modular nuclear "designs" are being worked on around the world.

It may look good now on paper, but history counsels a degree of skepticism. Previous attempts to build small modular nuclear reactors, dating back to the 1960s, have foundered on the twin rocks of economics and technology.

With any nuclear development, concerns remain about safety and security across the life of the project, especially the end-of-life decommissioning and disposal of nuclear spent fuel rods and irradiated components.

The definition of “advanced nuclear reactor” in the recently passed federal infrastructure bill, adopted by reference in this legislation, allows a broad range of improvements in capacity, performance, efficiency, integration capability, and other factors - compared to reactors operating on December 27, 2020 - to qualify a facility or proposal as an “advanced nuclear reactor” regardless of the improvements’ impact on safety. The “advanced” designation does not guarantee adequate safety especially in high-risk coastal and earthquake prone regions.

Thank you for considering these points. This bill is unwise and should not be passed.

References:

Massachusetts Institute of Technology, *The Future of Nuclear Energy in a Carbon-Constrained World*, 2018

Economist, *Developers of small modular reactors hope their time has come*, March 26, 2022