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Testimony
In Support of

LD 343 An Act to Direct the Public Utilities Commission to Seek Informational Bids Regarding Small Modular Nuclear Reactors in the State

Senator Lawrence, Representative Sachs, and the distinguished members of the Joint Standing Committee on Energy, Utilities and Technology, my name is Reagan Paul and I represent House District 37 which includes the towns of Winterport, Prospect, Stockton Springs, Searsport, and part of Frankfort.

I am before you today to proudly present my bill LD 343, "An Act to Direct the Public Utilities Commission to Seek Informational Bids Regarding Small Modular Nuclear Reactors in the State."

Last session when I submitted a nearly identical bill before this committee, I realized that the underlying message of my testimony may have been interpreted to say that nuclear power is the future. I would like to correct that statement to say that nuclear power is now. We have a chance right here, right now on this committee to chart a new energy course for our state and I hope we have the courage to take it.

The EUT committee members received a well-put together booklet a couple weeks ago titled "Maine Energy Plan" from the Governor's Energy Office. On page 34, you will see this statement under "Strategy A Key Actions: Design and establish a CES that is compatible with similar policies in other

New England states and complementary to Maine's existing RPS by creating a new class that allows for energy generated by clean electricity resources (such as nuclear..."

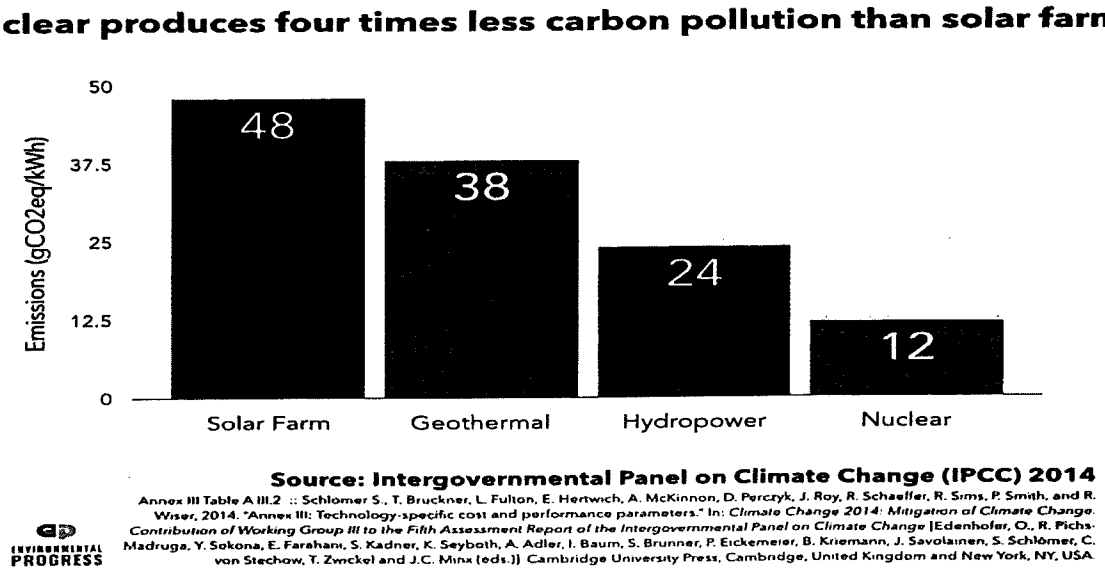
I remember a few weeks ago that there were some questions asked of the Governor's Energy Office that seemed to imply that the objectives in the plan to 2040 didn't seem to have synchronous legislation to bridge the gap between theory and reality. Well, I am happy to say that my bills here today do just that– they serve as puzzle pieces that put together the larger picture of Maine's energy reality and future.

Before I quickly go over some SMR benefits, I'd like to remind this committee that this bill simply seeks information, and we shouldn't fear that. Up-to-date information should be the cornerstone of our decision making.

Nuclear Produces Less Carbon Pollution

According to the Intergovernmental Panel on Climate Change (IPCC) data, solar farms produce four times more carbon pollution than nuclear power plants. For context, solar produces about 20 times less carbon than a coal-powered plant. Still yet, nuclear's carbon impact is a fraction of solar. The process of uranium enrichment and fuel fabrication emits minimal carbon dioxide, and the operation of a nuclear power plant results in almost no emissions.

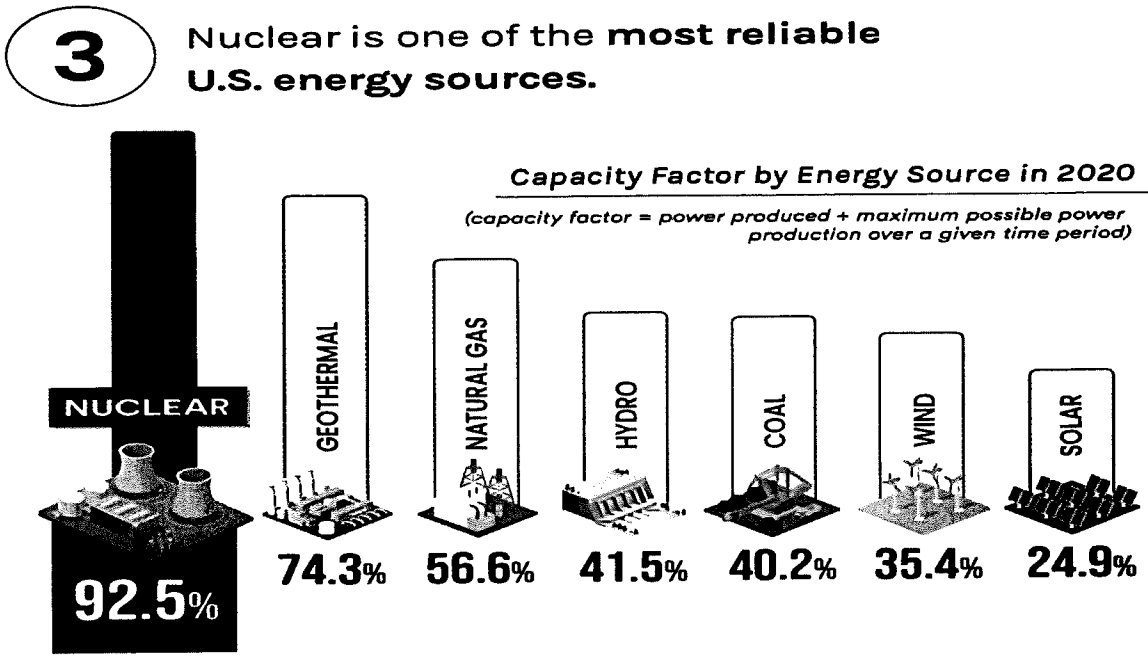
Nuclear Energy Is More Reliable and Has the Highest Capacity Factor



SMRs run around-the-clock (except for

scheduled maintenance) power to fill the gaps when the sun isn't shining or the wind isn't blowing. This in turn increases grid security and stability. Fuel can also be stored on site for a decade or more without the need for external supply.

Based on information from energy.gov, nuclear energy has an average capacity factor of 92.5%, compared to wind at 35.4% and solar at 24.9%.



According to the International Atomic Energy Agency (IAEA), SMRs also have reduced fuel requirements. Power plants based on SMRs may require less frequent refueling, every 3 to 7 years, in comparison to between 1 and 2 years for conventional plants. Some SMRs are designed to operate for up to 30 years without refueling.

The integration of SMRs into Maine's grid would increase stability as they quickly adjust output to match demand.

I want to remind the committee that this bill is just proposing an RFP.

SMRs Take Up Less Land

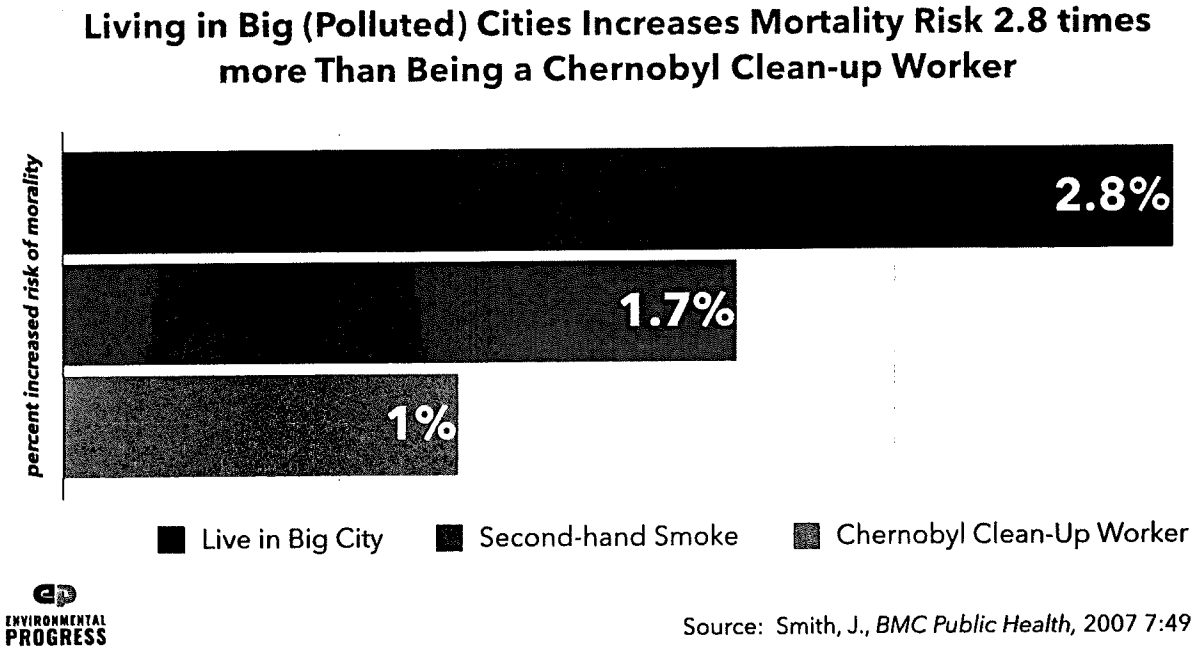
A nuclear energy facility also has a small area footprint, requiring about 1.3 square miles per 1,000 megawatts of installed capacity. (equivalent to about 3 small modular nuclear reactors). This figure is based on the median land area of the 59 nuclear plant sites in the United States. Taking the average capacity factors into account, a wind farm would need an installed capacity between 1,900 megawatts and 2,800 MW to generate the same amount of electricity in a year as a 1,000-MW nuclear energy facility. A solar PV facility must have an installed capacity of 3,300 MW and 5,400 MW to match a 1,000-MW nuclear facility's output, requiring between 45 and 75 square miles. For comparison, the District of Columbia's total land area is 68 square miles.

In more simple terms, one 300 MW SMR on 35 acres could supply enough continuous clean power for over 300,000 homes. They truly are small but mighty.

Nuclear Is Not Dangerous

A common concern regarding nuclear technology is safety. A word that comes to the minds of many is Chernobyl, but what we don't talk about is the cheap, shoddy design that didn't even have a crucial containment dome that keeps radioactive material inside if something goes wrong. It's like building a rocket without a windshield.

With a little context, it is plain to see how Chernobyl was an unfortunate event, but even with all of the issues we saw in Ukraine, it still wasn't as dangerous as some may think. Environmental Progress is quick to point out that you are 2.8 times more likely to die from pollution in a big city than you are to die from radiation as a Chernobyl clean-up worker.



I'd also like to point out that in all of US history, the recorded number of deaths due to nuclear power is zero. In fact, it is one of the safest industries in the United States.

Let's look at 3 Mile Island. That incident resulted in zero deaths and more than a dozen studies conducted since that incident have shown that the radiation released was too small to even measure the health effects.

Even with that safety record, SMR's are considered to be even safer.

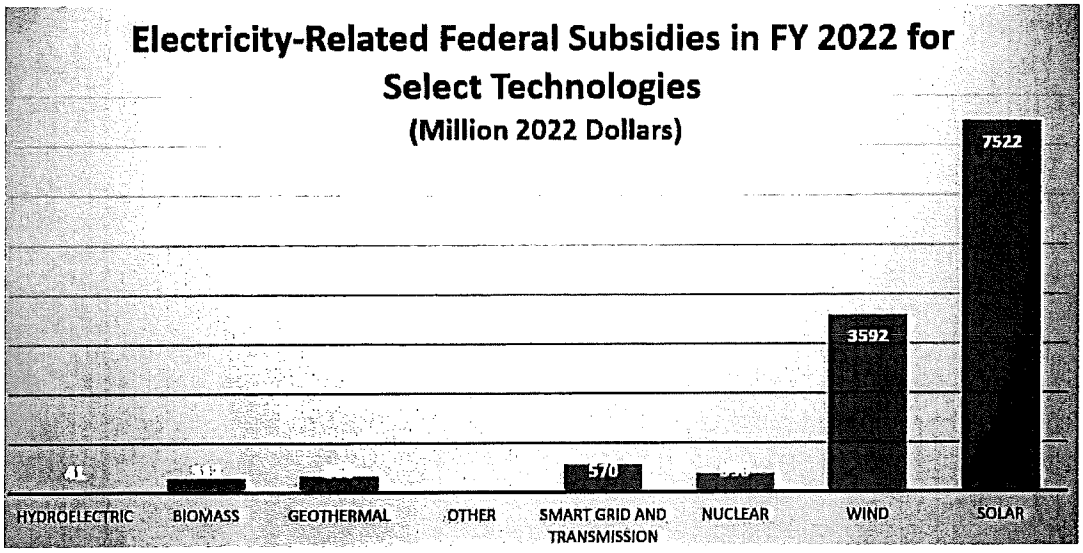
Many SMRs are constructed underground to make the reactors less vulnerable to extreme weather and physical attacks. SMR designs have the distinct advantage of factoring in current safeguards and security requirements. Most SMRs will be built below ground for safety and security enhancements, addressing vulnerabilities to both sabotage and natural phenomena hazard scenarios. Some SMRs will be designed to operate for extended periods without refueling. These SMRs could be fabricated and fueled in a factory, sealed and transported to sites for power generation or process heat, and

then returned to the factory for defueling at the end of the life cycle. This approach could help to minimize the transportation and handling of nuclear material.

Economic Benefits

In addition to the environmental benefits, nuclear power provides certain economic benefits. In New Brunswick for example, they estimate that 750 jobs will be produced per year over 15 years. In addition, they estimated $1 billion in GDP growth and $120 million in provincial government revenue.

Nuclear power also continues to be remarkably inexpensive. In 2019, the U.S. Energy Information Administration (EIA) estimated that the cost of electricity from new, advanced nuclear power plants coming online in 2023 to be 7.75 cents per kilowatt-hour before government subsidies. Current energy generation in Maine is nearly triple that cost. Keep in mind that subsidies for nuclear are a mere fraction of what is required for wind and solar, meaning nuclear can stand on its own and doesn't require the government to put their foot on the scale to make it successful.



SMRs also offer savings in cost and construction time and they can be deployed incrementally to match increasing energy demand. According to the U.S. Department of Energy, SMRs can reduce capital costs due to factory fabrication of components and can utilize existing infrastructure.

The drivers of cost for SMR development primarily center around regulatory burdens and this is something the new administration in Washington D.C. will be addressing.

Again, this bill is just asking for information.

Nuclear Isn't Perfect. It's just better.

In the interest of your time and sanity, I will not get into the weeds regarding this innovative technology but, overall nuclear energy provides several benefits over other forms of energy generation. Its high capacity factor, low carbon emissions, and small footprint make it an attractive option for any state looking to reduce their reliance on fossil fuels and meet their energy needs cleanly and efficiently.

In fact, Federal support for SMR development is longstanding and bi-partisan. The Department of Energy cites an unbroken heritage of support for SMRs since the late 1990s. Both President Obama and President Trump issued executive orders promoting the design and development of SMRs and even the Biden administration called them a key part of the Department of Energy's goal to develop safe, clean, and affordable power.

If the goal is truly to reduce carbon emissions, nuclear is the clear path forward. If Maine truly can't wait, we need to investigate this technology now.

SMRs not only reduce emissions, they offer reliable, scalable, and economically viable clean energy that aligns with Maine's need for job creation, energy security, and minimal environmental impact, making it a compelling option for Maine's energy future that is practical, economic, stable, secure, clean, and affordable.

The beautiful thing about nuclear power is that it is the solution regardless of your worldview or political affiliation. It satisfies the desires of those carbon conscious and those who want to save Maine ratepayers more of their hard earned money.

I would remind committee members that those who may have voted against this bill last session (even though it received a majority ought to pass as amended report), voted against data and facts. Those who have a desire to oppose this legislation this time will be overtly opposing the Governor's Energy Office's plan to reach its 2040 goals.

Thank you for your time.