

**Testimony to the RES Working Group**  
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**November 29, 2023**

My name is Sam Senkowicz. I am currently studying at Montpelier's Greenway Institute, and am an engineering student at Elizabethtown College in PA.

One of Vermont's goals is to have 100% renewable power by 2030. If this goal is to be met, if we are to decarbonize the power grid, Vermont needs to embrace nuclear power.

Nuclear energy is not without its critics, but this moment calls for action. When Vermont closed Vermont Yankee, it was because, at the time, it was hard to compete with the price of natural gas<sup>1</sup>. As a United Nations Economic commission argued, we are running out of time and nuclear energy is a critical tool for cutting carbon emissions and slowing global warming.

Waste disposal is another commonly discussed problem, although nuclear waste is minimal, and what little there is can safely be recycled and repurposed.<sup>2</sup>

While Nuclear is not considered renewable, it is green. Nuclear power has minimal carbon emissions and is one of the best power sources that is currently available. Nuclear actually produces less carbon emissions over its lifetime, per watt, than solar.<sup>3</sup>

Current renewables are not enough to power the future. If we wanted to replace the current natural gas plants that Vermont gets its power from with solar, we would need thousands of acres worth of solar farms, and then thousands more again when our power demand increases as the state electrifies.<sup>4</sup> Nuclear power requires less land than natural gas, produces far more power, and is far, far safer<sup>5</sup>. The only power source that can generate a similar amount per acre is wind<sup>6</sup>, which has effectively been banned in Vermont.

If the RES group wants to see Vermont's power decarbonized, they need to consider nuclear energy. While not renewable, nuclear power is plentiful, cheap, safe, and one of the cleanest energy sources there is. Nuclear power is a necessity, and without it, there is no way forward.

<sup>1</sup> The Vermont Yankee reactor had been running since 1972, and was becoming increasingly expensive to maintain. Coupled with a drop in the price of natural gas, which has since increased again, it became more cost effective for Entergy, the company that owned and operated the reactor, to close Vermont Yankee, even though they had previously negotiated permission to operate until 2032. The plant was not closed for safety reasons, and the CEO of Entergy stated that "Nuclear energy is safe, reliable, carbon-free and contributes to supply diversity and energy security as part of a balanced energy portfolio."

<https://www.prnewswire.com/news-releases/entergy-to-close-decommission-vermont-yankee-221304391.html>

<sup>2</sup> The entirety of the nuclear waste created in the US over the last 60 years could fit in a football field at a depth of under 10 yards. In addition, recycling programs exist for nuclear waste, and modern reactors can run on used fuel.

<https://www.energy.gov/sites/prod/files/2019/01/f58/Ultimate%20Fast%20Facts%20Guide-PRINT.pdf>

<sup>3</sup> 12 grams of CO<sub>2</sub> per kWh compared to anywhere between 27-48 grams of CO<sub>2</sub> per kWh. Both options are carbon free once built, the carbon is released in the construction of both solar panels and the nuclear reactors.

<https://whatisnuclear.com/nuclear-lifecycle-co2.html>

<sup>4</sup> You would need over 3 million standard solar panels to generate the power of one standard nuclear reactor, before the capacity factor is taken into consideration. With that capacity factor the number of panels skyrockets, since solar does not produce power at night, and nuclear does. This solar farm would cover roughly 60 square miles, or 38,000 acres.

<https://www.energy.gov/sites/prod/files/2019/01/f58/Ultimate%20Fast%20Facts%20Guide-PRINT.pdf>

<sup>5</sup> There have only ever been 50 deaths in the nuclear industry, including Chernobyl. A large amount of those deaths come from steam leaks and electrocution, not anything unique to nuclear. This can be compared to an annual 1600 deaths from coal power, a number which has dramatically decreased in recent years.

<https://environmentalprogress.org/nuclear-deaths>

<sup>6</sup> This is only true if the land around the wind farm is used for other purposes as well. Wind takes up large amounts of space, since the turbines need to be spaced far apart, but the land they are on can be used for farming. The wind farm itself required to replace a nuclear reactor would be several times larger than the already massive solar field mentioned in the previous footnote.

<https://ourworldindata.org/land-use-per-energy-source>