

Nuclear Energy

A carbon-free solution

In 2023, Minnesota passed the 100% carbon free by 2040 legislation without a real plan on how we are going to achieve it. The reality is, there is no carbon free resource that can provide baseload power, available 24-7, other than nuclear power.

A typical home uses about 11 megawatt hours of energy in a year. Here is the amount of each resource it takes to produce 11 MWH.



3.5 ounces of Uranium



1.5 tons of coal

(Carbon Credits) <https://carboncredits.com/more-power-per-punch-nuclear-energy-outshines-fossil-fuels/>

All the spent fuel from U.S. nuclear reactors since the 1950s would fit into a single football field at a depth of less than 10 yards.



This spent fuel has been safely stored and caused harm to exactly 0 people throughout the life of the industry.

(Source: U.S. Department of Energy)

Land use needed to produce 1 million megawatt hours of power:



17,800 acres wind



3,200 acres solar



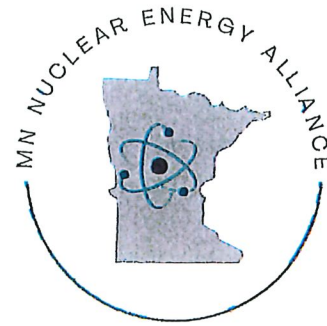
103 acres nuclear

(Wind area includes the spacing required between turbines.) (Source: Nuclear Energy Institute) <https://www.nei.org/news/2022/nuclear-brings-more-electricity-with-less-land>

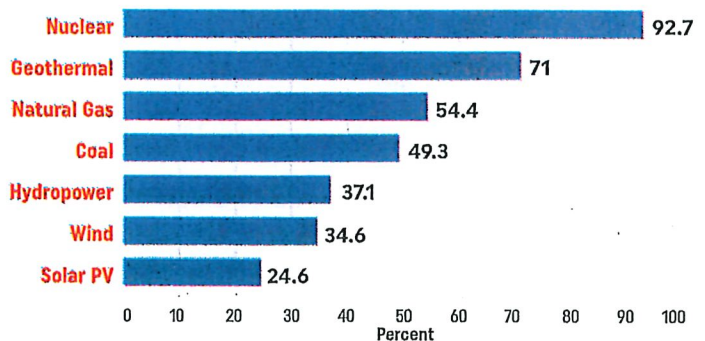
Small modular reactors

Benefits of small modular reactors

- Smaller size
- Siting flexibility
- Enhanced safety features
- Modular build
- Scalability
- Reduced costs



U.S. Capacity Factor* by Energy Source - 2021



(Source: U.S. Energy Information Administration)

The used nuclear fuel from one person's entire lifetime of energy use would fit in one pop can.



(Source: Canadian Nuclear Association)

Nuclear provides more permanent jobs and higher hourly pay than all other generation sources.

- SMRs to large reactors provide 237-500 permanent jobs
- Hourly pay averages around \$56/hour (50-65% more than wind and solar)

(Source: U.S. Department of Energy)

Studies show that nuclear energy worker safety ranks among the top of all forms of electric generation.

(Source: <https://ourworldindata.org/safest-sources-of-energy>)

- ▶ We are the only state in the nation that has an outright ban on new reactor construction.
- ▶ We are advocating for the ability to have conversations about nuclear energy.

* Capacity factor is a measure of the actual energy produced divided by the theoretical maximum energy produced if operated on a 24-7 basis.

The Minnesota Nuclear Energy Alliance is a coalition of diverse organizations committed to advancing nuclear power as a reliable solution to meet Minnesota's energy needs and achieve carbon-free goals. Alliance members represent utilities, labor unions, environmental advocates, businesses, and more. Learn more about the alliance at mnnuclearenergyalliance.org.