

NUCLEAR

A FALSE PROMISE
FOR MONTANA'S
ENERGY FUTURE?



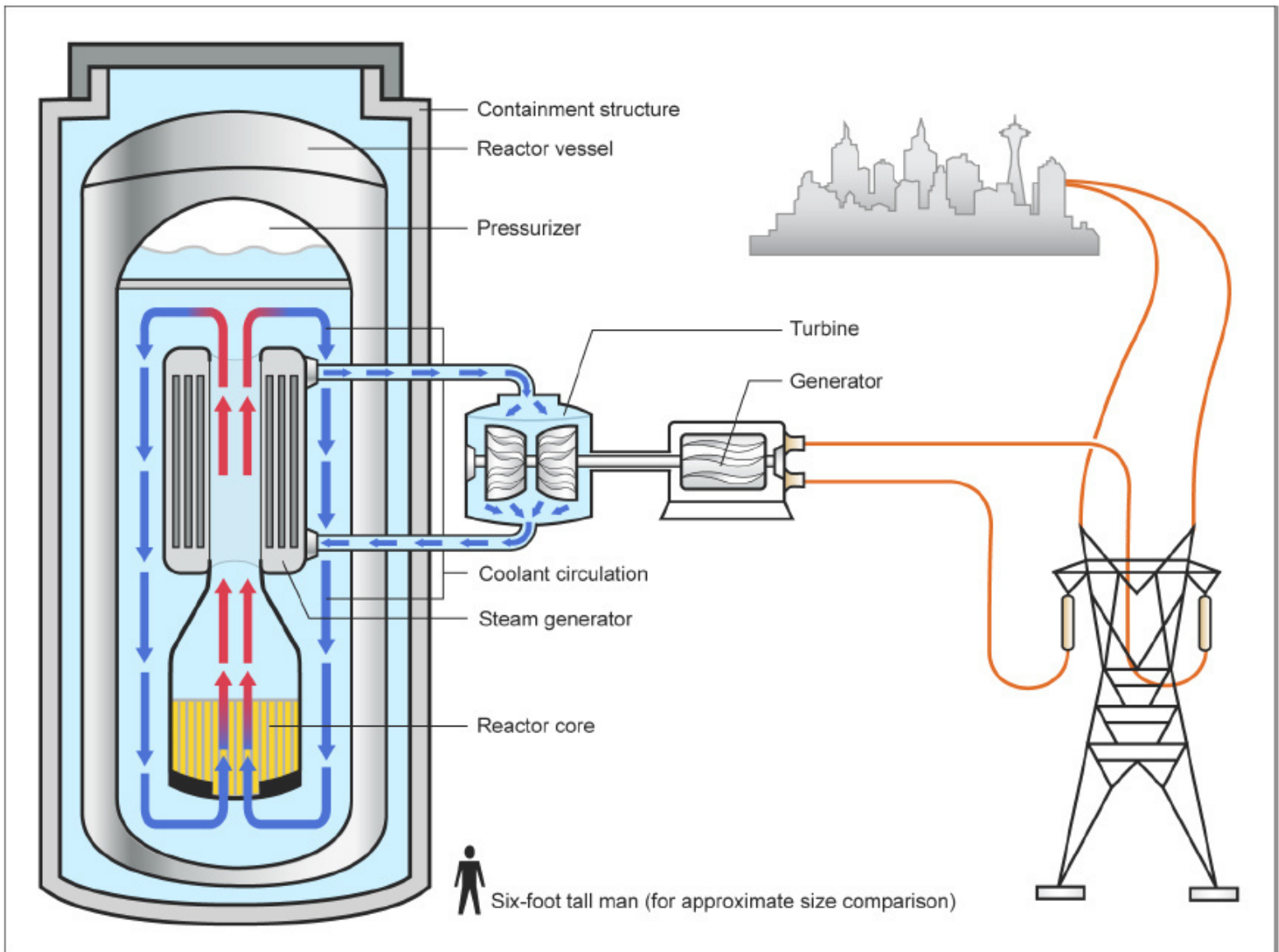
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WHAT ARE SMALL MODULAR REACTORS?

Small modular reactors (**SMRs**) are nuclear fission reactors that are smaller than conventional nuclear reactors.

NuScale and Utah Associated Municipal Power Systems (UAMPS) are courting taxpayers and electricity ratepayers in Montana, Wyoming, Utah, Washington and other states to pay for a new SMR nuclear plant slated for construction near Idaho Falls.



CAN NUCLEAR SOLVE THE CLIMATE CRISIS?

“I’M A REALIST AND A PRAGMATIST, I’M A SCIENTIST, I’M A GEOLOGIST BY TRAINING, AND IT’S JUST NOT POSSIBLE FOR NUCLEAR TO HAVE ANY KIND OF SIGNIFICANT IMPACT ON REDUCING CLIMATE CHANGE IN THE NEXT 20 YEARS.”

ALLISON MACFARLANE,
WYOFIELD, JULY 2021



As physicist Amory Lovins points out, to argue nuclear and renewables are both vital for addressing climate is like saying that since caviar and rice are both food, they are both vital to reducing hunger.

Resources and time spent on expensive, slow options like nuclear drain resources from inexpensive, fast solutions like renewable energy. At best, nuclear plants take at least a decade to build, and most have been plagued by construction and permitting delays. Scientists say we have a decade to get our emissions under control. We simply can't wait to see whether or not this new generation of nuclear will work if we really want to start solving the climate crisis.

Large renewable projects meanwhile can be built in a few years, and sometimes just a few months. And, even with massive taxpayer subsidies, nuclear costs 3-8 times more than solar and wind.

WHAT'S THE **ISSUE** WITH SMRs?



ESCALATING COSTS

The UAMPS/NuScale nuclear plant near Idaho Falls follows the same trajectory of rising costs that has plagued most nuclear projects across America. Total project cost estimates started at \$3.1 billion in 2015, rose to \$4.2 billion in 2017, and then to \$6.1 billion in 2020 – all before any construction has even begun.

A FINANCIAL RISK

The SMR planned by NuScale and Utah Associated Municipal Power Systems (UAMPS) is an untested nuclear reactor, so there's a risk it will follow the usual history of nuclear project cost overruns, delays, and failures. The private financial sector has not stepped forward to pay for it. Neither have large investor-owned utilities. That leaves backers looking to put the financial risk on smaller utilities and towns – first in Utah, and now surrounding states.

UNCERTAINTY & SECRECY

Many details of the UAMPS/NuScale nuclear project have changed over time, and been kept from public view. The construction timeline has been delayed by years. UAMPS refuses to disclose how it arrives at its price estimates, and has hidden key developments – like Energy Northwest's recent withdrawal as plant operator. Transparency is essential to good policy.

COST

NUCLEAR VS RENEWABLES

The costs of SMR-generated electricity can be summed in one word: uncertainty.

Early estimates by UAMPS for its project with NuScale near Idaho Falls promised \$55/MWh, but have risen to \$58/MWh. NuScale itself had a different estimate for the project: \$65/MWh. And cost estimates calculated by major utilities like PacifiCorp and Idaho Power came in much differently still: \$95/ MWh and \$121/MWh respectively.

By comparison, the levelized cost of energy from wind is presently in the \$26-\$54/MWh range, and utility-scale solar is in the \$29-\$42/MWh range, according to Lazard.

The construction of the VC Summer nuclear reactors in South Carolina were 64% complete when they were abandoned in 2017 after construction costs and time frames more than doubled.

A global study found that 97% of nuclear projects have ended with final costs exceeding initial budgets, with an average overrun of \$1.3 billion. Two-thirds of all projects took more time than projected. In the 1980s, American utilities lost \$100 billion on nuclear plants that were never finished.

More than 100 nuclear reactors have been cancelled in the U.S., nearly half of which had already begun construction.

**DOLLAR FOR DOLLAR, WIND AND SOLAR
BEAT NUCLEAR POWER**

NUCLEAR WASTE

Many countries reliant on nuclear power have invested billions in the infrastructure necessary to safely dispose of radioactive waste.

Nuclear power makes up a small fraction of US energy production, and the U.S. does not have similar infrastructure in place. The US government has been searching for a long-term disposal solution since the Reagan Administration. After spending \$15 billion on a disposal facility at Yucca Mountain, the site was abandoned due to its geological unsuitability and local political opposition. The US is no closer to a long-term storage solution.

SMRs generate power in a similar manner as traditional nuclear generators, creating the same amount of radioactive waste per unit of energy generated and posing the same challenges with waste storage. Nuclear waste can remain dangerously radioactive for hundreds of years.

“HIGH-LEVEL WASTES ARE HAZARDOUS BECAUSE THEY PRODUCE FATAL RADIATION DOSES DURING SHORT PERIODS OF DIRECT EXPOSURE.... IF ISOTOPES FROM THESE HIGH-LEVEL WASTES GET INTO GROUNDWATER OR RIVERS, THEY MAY ENTER FOOD CHAINS.”

NUCLEAR REGULATORY COMMISSION



FUKUSHIMA-DAIICHI
NUCLEAR POWER PLANT
ON MARCH 11, 2011

JUSTICE ISSUES

Indigenous communities worldwide have disproportionately borne the brunt of uranium mining and radioactive contamination to supply the nuclear fuel cycle.

- It's estimated that more than **70%** of known uranium deposits are on Indigenous land, but Indigenous Peoples are rarely involved in planning or profiting from the mines and instead must suffer from ongoing contamination.
- For example, the vast majority of the **520** abandoned uranium mines on Navajo Nation lands have not been remediated.
- Uranium mines across Australia have similar legacies, with decades of activism from the Mirarr people against the Ranger and Jabiluka mine sites in Kakadu National Park. In 36 years, the Ranger mine has produced over 125,000 tons of uranium and experienced more than **200** accidents.
- Ongoing nuclear plants near Indigenous populations also have a bad track record. Hanford Nuclear Reservation in Washington state caused dramatic increases in **cancer** rates among Indigenous peoples. Radioactive gases and fluids released between 1944 and 1977 directly affected fish and wildlife. Eight out of nine reactors at the facility were water-cooled from the Columbia River, affecting the fish that provide food and economic subsistence.

Indigenous Peoples should be consulted and their concerns addressed prior to siting any nuclear facility nearby.



THE BOTTOM LINE

If nuclear power could do as proponents suggest, MEIC would consider supporting it.

As it is, cost, permitting and development timeframes, safety, and waste issues lead to hefty skepticism that nuclear power will be the solution to the climate crisis.