Project: Is Nuclear Energy Right for Montana?

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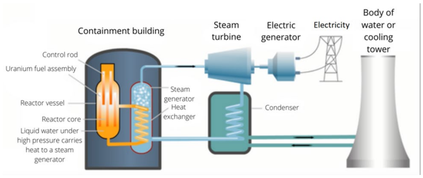
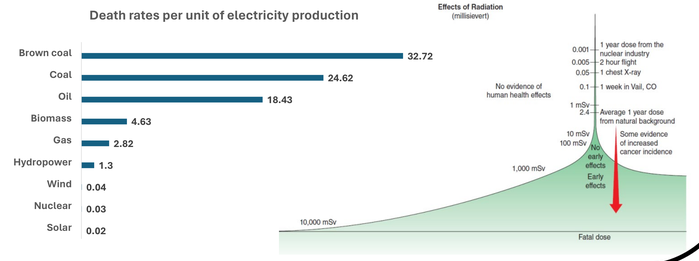
What is Nuclear Energy?

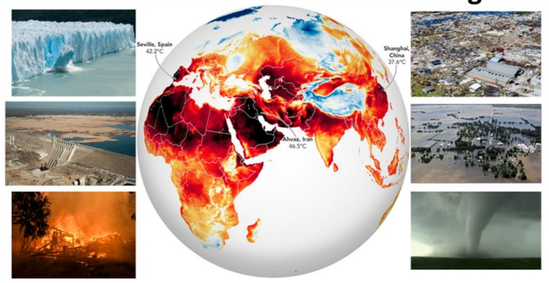


Nuclear Energy is efficient in all aspects. Reliable firm clean power, secure, small footprint, 50+ yrs safe operational record.



Why we need to care?

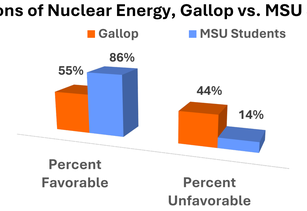
Planet Earth's Fever is Increasing



World's Thirst for Energy is increasing

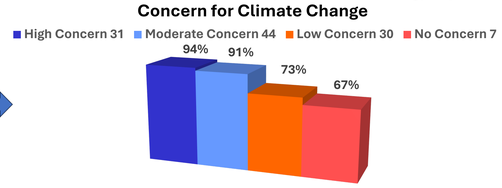
Part I. MSU Student Opinion Survey

1. Opinions of Nuclear Energy, Gallop vs. MSU Students



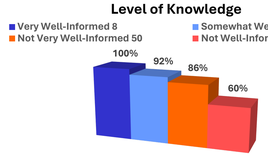
MSU Students favor nuclear energy at a much higher rate than the total US population.

2. MSU Students Favorability of Nuclear Energy, by Concern for Climate Change



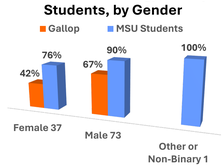
Regardless of respondents concern for climate change, each concern category is over 50% favorable towards nuclear energy.

3. MSU Students Favorability of Nuclear Energy, by Level of Knowledge



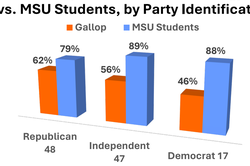
Those with knowledge of nuclear energy are near 100% favorable towards nuclear energy. Those with little to no knowledge are open to the attributes nuclear energy possesses.

4. Opinions of Nuclear Energy, Gallop vs. MSU Students, by Gender



Gallop Poll and MSU Students favored nuclear energy, regardless of gender. MSU Students were more favorable than total US population.

5. Favorable Opinions of Nuclear Energy, Gallop vs. MSU Students, by Party Identification



A striking result to me is that MSU democrats are almost twice as favorable towards nuclear energy than the public.

Samples of Free Response Answers from Survey:

Favorable:

- "The main appeal for me is the lack of carbon emissions to energy yield. I grew up close to Palo Verde Nuclear plant in AZ, so I was able to learn how safe nuclear power really is."
- "Seems like an efficient way to create energy without having to use a lot of natural resources which is arguably the most important thing on this planet."
- "Incredibly efficient, safe, and misunderstood"

Unfavorable:

- "I don't really even know what it is just sounds bad."
- "Nuclear waste has always been an issue for disposal. An increase in nuclear energy will increase the amount of nuclear waste for disposal that will more than likely be buried seeping radiation into the soil."
- "It sounds dangerous."

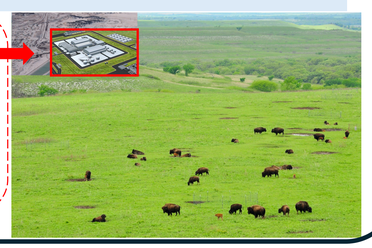
The Coal to Nuclear Transition in Montana

Unplug Coal

Colstrip Coal- Fired Power Plant + Mine = 50 sq mi.

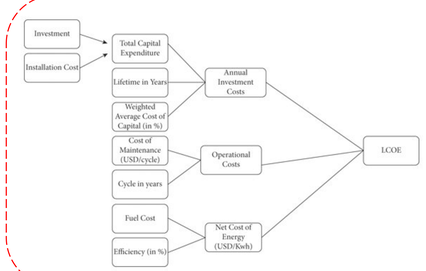
Plug-in Nuclear

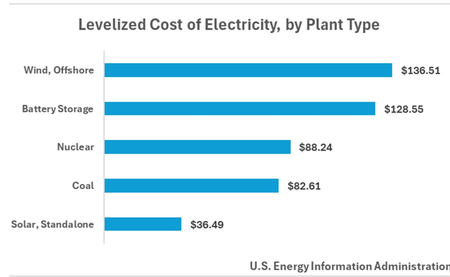
NuScale SMR = 1 sq mi + 49 sq mi Repurposed for agriculture, native grasslands, or clean industry.



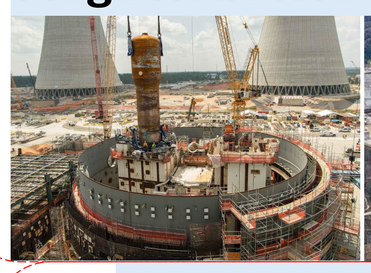
Part II. Cost Analysis of The Energy Life Cycle

(Material Supply – Construction – O&M – Waste Disposal)

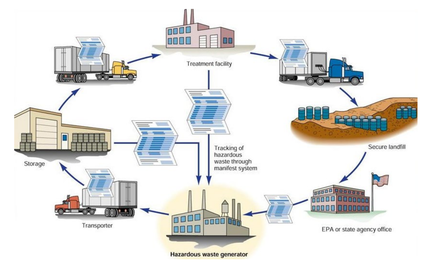


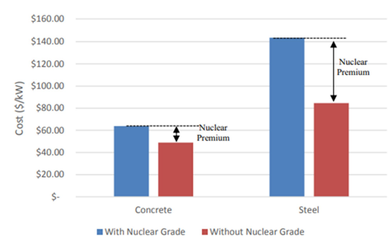


Mega Reactors Built on Site

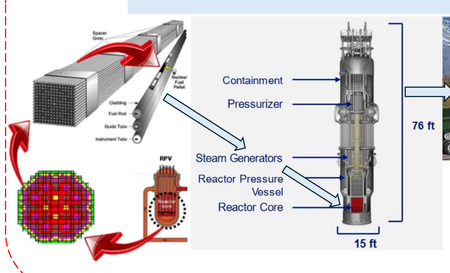


NRC Regulatory Process





Small Modular Reactors (SMRs) Built in Factories



Recommendations: • Regulatory Reform • Mode of Construction