

Summary: The topic of this presentation was the state and future of nuclear power. This presentation was given by The Honorable Professor Huff, who was the assistant secretary of nuclear energy. This position is the highest ranked nuclear official in the country and serves under the secretary of the Department of Energy for the United States. Professor Huff's history and experience are of paramount importance as she discussed the future of nuclear power. Due to her public service and research in fuel cycles and advanced reactors, she is well equipped to comment on the future and state of nuclear energy. There were many trends Professor Huff discussed to measure the progressive of nuclear power and described the current climate for nuclear energy as a "supercritical reaction". Some of the first policies at the turning point for nuclear power were the continued operation of nuclear power plants in the United States. After the reactor operation was continued, policies were passed furthering the progress of nuclear energy, such as: NEICA, MEIMA, MELA, ARDP, IJJA, IRA, COP28, and saving Diablo Canyon. The COP28 was one of the most important acts with a consortium of multiple countries pledging to triple nuclear power by 2050. She also discussed a similar cascade regarding nuclear power on social media. A decade ago, there were only a few people online advocating for nuclear power. Now, there are advocates like isotope, nuclear energy memes, and far more online discourse regarding nuclear. She also discussed the increase in nuclear activism with events like: nuclear science week, overturning moratoria on nuclear power, NGOs, the Nuclear Energy Summit, mascots, arts, and memes. When Huff was first appointed, there were 93 operating nuclear reactors in the US, but now, there are 94 reactors with many more planned during the coming years. However, China is building more reactors per year and may overtake the US as the global leader in nuclear power in a few decades. China overtaking the US is not inevitable as the domestic interest in nuclear power is growing rapidly with a majority of the public supporting the construction of more nuclear power. Overall, Professor Huff was very optimistic about the future of nuclear power, citing recent positive trends for nuclear power.

Response: I agree with Professor Huff about the future of nuclear power. With many countries vowing to decrease greenhouse gas emissions and many more developing countries that will require massive amounts of clean, cheap, reliable power, nuclear power is one of the only viable options. Nuclear power as a baseload power, operating at a steady power output throughout the entire day, unlike wind and solar power. Due to the steady-state nature of nuclear power, grid-scale energy storage is not required, like with wind and solar power. Frankly, the only reason wind and solar are currently viable are due to massive government subsidies, investment and tax breaks. However, increasing the percent of global power production that relies on wind and solar will cause the "duck curve" to deepen even further. The duck curve can be rectified by grid-scale energy storage, but this expense is often neglected when determining the cost of new wind and solar capacity. Unlike solar and wind, nuclear has also received far fewer subsidies and government investment, but this will hopefully change due to the current climate surrounding nuclear power. With a massive number of nuclear startups, more favorable policies like the Inflation Reduction Act, and positive public perception, nuclear power will become a main-stay in the years to come. One of the biggest complaints around nuclear power is the massive capital costs. However, these capital costs are offset by extremely low future energy costs. Nuclear power plants may take decades to repay, but they are highly profitable once the capital costs are offset. The public may raise grievances about the high investment costs of nuclear power, but, as the Greek proverb goes, "Society flourishes when old men plant trees whose shade they will never see." The short-sighted disdain for nuclear power will be detrimental in the long run.