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# Nuclear Power Gateway to a Sustainable Energy Sector

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ENSC 230

Title: Nuclear Power: Gateway to a Sustainable Energy Sector

Clean, renewable, cost-effective, and powerful; everyone wants to find a resource that can be used for energy production that covers not just one, but all four of these criterion. Fossil fuels are king for energy production in the United States. However, fossil fuels have begun to look less desirable due to their finite availability and the climate change causing greenhouse gases they emit. Clean and green renewable energy sources like wind and solar power look like a promising alternative for the future, but issues with high costs and current storage technology have prevented them from overthrowing the current fossil fuel rule.

Fortunately, there is an energy source for electricity production that is clean, renewable, cost-effective, and powerful enough to sustain the continuously growing demand for energy in the United States. If the American's are interested in developing this energy source, we should start building more nuclear power plants.

Nuclear energy has the potential to be the ideal energy source to help us transition from fossil fuels to new renewable sources. Nuclear power plants produce huge quantities of energy that can be used for residential electricity. The effect on climate change will be minimal due to the extremely low carbon emissions produced by nuclear reactors. The only finite resource needed run a nuclear reactor is the cheap and abundant metal uranium. While the original building costs for a nuclear power plant can be high, the amount of energy that the reactor can produce will result in cheaper electricity costs that make up for the steep startup costs. All these factors lead to a clean, long-lasting, cost-effective, and powerful energy resource that we already have the technology and knowledge to implement across the nation.

Over the last several years, nuclear energy has been overlooked by the United States energy sector. The last nuclear power plant built in this country was in 1996. The average age of U.S. commercial nuclear power plants is about 33 years old. According to the World Nuclear Association, twenty percent of the United States' electricity comes from nuclear power plants. Other countries around the world have surpassed America in using nuclear power. For example, France uses nuclear power to produce over seventy percent of their electrical demand.

At one point decades ago, it looked like nuclear power was going to be the preferred method of electrical production in the future for the United States. However, unwarranted fears and concerns dealing with safety have diminished the ability of nuclear energy to take off here. While other countries presently take advantage of the benefits of nuclear power, the United States continues to still lag behind.

Outdated and outlandish representations of nuclear energy as an apocalypse causing catastrophe waiting to happen by Hollywood movies and fear-mongering media have led to an uneducated public that rejects nuclear energy for fabricated reasons. Increasing the use of nuclear energy will not lead to a loss in American lives; in fact it's actually just the opposite. According to a new study conducted by NASA scientists, the replacement of fossil fuel sources by nuclear

energy has already saved approximately 1.8 million lives and will save over 7 million lives in the next 40 years.

Other anti-nuclear advocates point to past mistakes made at nuclear power plants like Chernobyl and recently in Fukushima. However, these power plant issues occurred in old reactors that were not able to take advantage of the many technological advances and new safety measures established for new nuclear reactors in the United States. For example, the nuclear plant in Fukushima began construction in 1967, older than any currently operating nuclear power plant in the United States. According to Professor Bernard Cohen at the University of Pittsburgh, a nuclear meltdown would happen once every 20,000 years. He also states that only 1/3<sup>rd</sup> of meltdowns result in loss of human life.

The last point the opponents of nuclear energy point to is the waste produced by these power plants. While this waste is dangerous and stays around for a long time, scientists have proposed multiple sites for the construction of a national disposal site. These proposed sites are commonly in the uninhabitable desert in the western United States. Construction on one such site already began, but the project was canceled due to the budget sequestration in 2013.

Public awareness about climate change has led to a desire around the world to switch to clean energy sources, but renewables aren't ready to meet the majority of the world's energy demand. Nuclear power may not be a panacea to our energy problems, but it is a clean, cost-effective, and powerful energy source that should be used more in the United States to help transition from the waning reign of fossil fuels.

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