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Light on the future
Nuclear power is the answer

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“The question before the American people is whether they are once again ready to accept the benefits of nuclear energy.”

Few issues in modern America inspire such an emotional response as the use of nuclear energy. With images of Chernobyl and Three Mile Island in one's mind, it is difficult to act otherwise. The public outcry following the 1979 Three Mile Island incident has led to a two-decade long moratorium on the production of reactors in the United States. Plans for dozens of new reactors were cancelled following the incident. Still, despite the lack of new production, over 100 reactors continue to operate in the United States, accounting for approximately 20% of its energy production, second only to coal. Unless there is a shift in American public opinion, however, that may change in the near future. Old, pre-Three Mile Island plants are aging and will have to shut down if not re-licensed. The question before the American people is whether they are once again ready to accept the benefits of nuclear energy.

It was the events of 1979, Three Mile Island, and 1986, Chernobyl, that eliminated nuclear power plant production in the United States. At Three Mile Island in Harrisburg, Pennsylvania a March 29 failure of the cooling mechanism caused a partial meltdown of the reactor and a release of some radioactive material. No ill health effects have been found from the radioactive emissions, although a twelve-year clean-up process was necessary at the plant. The disaster resulted from two primary factors: a series of unlikely accidents and inadequate training procedures. Poorly trained operators increased the magnitude of the incident in the first crucial minutes while rumors and incorrect information reached Washington, creating an atmosphere of panic among the nearby residents. By the end of the day, however, operators managed to restore the reactor's cooling system.

On April 25, 1986, an experiment at the Chernobyl nuclear facility in the former Soviet Union destroyed one of the site's reactors, emitting large quantities of radiation and killing 30 people. The reason for the catastrophe was three-fold: the dangers and inferiority of the 'Chernobyl-style' nuclear reactors, the minimal training of operators and the dangerous experimental testing of the reactor's endurance at low power levels. One can also lay the blame at the Cold War-era secrecy and isolation of the Soviet Union. Since the incident, ten more people have died and massive de-contamination efforts continue to this day. The region is afflicted with higher thyroid cancer rates, undoubtedly due to the disaster, although leukemia levels remain normal.

The incidents at Three Mile Island and Chernobyl may leave one doubting the safety of nuclear power. These, however, have been the only two incidents in over 10,000 reactor-years of operation thus far. Since Three Mile Island, safety procedures in American nuclear plants have improved and increased dramatically. Furthermore, during the Three Mile Island incident, the containment building worked exactly as designed, preventing a release of fuel despite a partial

meltdown. The Chernobyl reactor had no containment system and the training level of its operators was low compared to even pre-Three Mile Island American levels. The Chernobyl incident could not have happened in an American power plant: the American reactor would have withstood the stresses placed on the Chernobyl reactor and the American containment system would have prevented the release of radiation seen at Chernobyl. Moreover, despite public opinion to the contrary, a nuclear power plant physically cannot explode like an atomic bomb.

The issue most opponents against nuclear power bring up is waste. After a period of time, the fuel rods and other equipment used in the reactor must be replaced, leaving highly radioactive waste that must be stored for hundreds of years. The vast majority of radioactive waste comes from rags, tools, clothing, and similar materials used in the plant. These represent 90% of the volume of waste but produce only 1% of the radioactivity. The spent fuel rods are much more dangerous, containing 95% of the radiation in a much smaller volume. The radioactivity of these elements decreases with time and actually produces less radiation than many types of fossil fuels. Some radioactive wastes can be recycled and others have uses, such as the depleted uranium rounds of the US Army. Furthermore, nuclear power plants are the only power source that takes full responsibility for the removal of waste. Most of the waste from coal plants is pumped into the atmosphere, while the waste of a nuclear plant is conveniently located within the plant and reactor, ready for disposal and storage.

Since nuclear power plants are indeed safe the question that remains is whether they are more economical than other methods of energy production. In fact, nuclear power plants in most areas are as competitive as coal plants, and in some areas, more competitive. This is the case despite the need for nuclear plants to account for and store their radioactive waste and comply with greater governmental regulations dealing with nuclear plants. Each year, nuclear plants are becoming cheaper and more efficient across the globe. In a normal, free market environment, nuclear plants would have replaced coal plants, which are the next largest source of power in the United States, cause far more fatalities each year and release more radiation than do nuclear plants. The only factor that prevents the establishment of this ideal source of energy is the incorrect and irrational public fear concerning nuclear power plants.

The nuclear power plant industry in the United States is reaching a critical point. Many reactors will have to be decommissioned in the next several years and other will need license renewals. The growing demand for electricity will necessitate an increase in the number of power plants in the United States. This is the time for the nuclear power industry to regain its pre-Three Mile Island place in American electrical production. If the opportunity is lost, if reactors are decommissioned and not replaced while the increased demand for electricity is met with non-nuclear sources, the industry will not be able to take root again for many years. If this happens, the American people will suffer environmentally and economically.