

Nuclear Power Plants Closures: A Crisis in America

Nuclear energy benefits the local, state, and national community far more than other forms of energy, especially nonclean energy sources. Nuclear energy produced twenty percent of 2015's energy supply with only ninety-nine operating units, meaning it produces far more energy per unit and area than any other form of energy source (ii). Additionally, nuclear energy facilities are hubs for job creation and economic growth in the community and nation with the largest amount of jobs and monetary gain per unit as opposed to all other forms of energy (v). Furthermore, nuclear units produce almost twelve million tonnes of carbon output less than natural gas and even more for any other form of nonclean energy, and other forms of clean energy would not be able to produce enough energy to meet the 2030 Clean Power Plan goals if the nuclear power plants shut down (ii). All in all, nuclear power plant closure would have a negative impact on the surrounding community's economy, electric grid, and the nation's greenhouse gas emissions.

While the nuclear industry has a miniscule amount of facilities compared to other forms of energy, it does far more for the economy in each of those facilities. For example, one nuclear power plant can produce more than 530 jobs, which is substantial compared to natural gas only producing fifty jobs per unit and coal producing less than two hundred jobs (iv). Additionally, the construction of a nuclear energy facility requires 3,500 workers, which is another source of job creation in the nuclear industry (v). Also, not only does a nuclear power plant create more jobs, the jobs there are on average more long-term and higher-paying than jobs at other energy facilities (iv). In fact, a nuclear facility's job is on average thirty-six percent higher paying than another job in the local community, and the creation of a nuclear facility also stimulates job creation in the surrounding area, such as more grocery stores, dry cleaners, etc. (v). In total, the

nuclear industry creates 40-50 billion USD in revenue each year and employs over one hundred thousand people to aid in production (iv).

Furthermore, each nuclear energy facility pays, on average, 67 million USD in federal taxes every year and 16 million USD in state and local taxes each year, which benefits the local and national community through the funding of education, roads, and other infrastructures. Additionally, according to the Nuclear Energy Institute, for “every dollar spent by the typical nuclear energy facility results in the creation of \$1.04 in the local community, \$1.18 in the state economy and \$1.87 in the U.S. economy.” Moreover, the creation of a nuclear power plant “boosts suppliers of commodities like concrete and steel as well as manufacturers of hundreds of components,” which increases revenue and job creation. Unfortunately, according to E&E News, four nuclear power plants have closed since 2013, “another nine reactors have declared plans to close (although some might be saved by state financial support), and fourteen more reactors are listed as at risk of closing,” which in turn leads to severe unemployment in the local and state communities and less taxpaying, which means less funding for the local and state communities’ infrastructures (ii). Other forms of clean energy simply cannot keep up with the power lost from the closure of nuclear power plants, which will lead to communities reverting back to fossil fuel energy, which will drastically increase carbon emissions and decrease the amount of jobs in the area and nation.

Not only do nuclear power plants boost the surrounding area’s and nation’s economy, they also produce more electricity for the surrounding area than fossil fuel and other forms of clean energy sources can produce per unit. The reason for the increased electrical efficiency and increased energy density is due to nuclear power plants using nuclear reactions to power the generators, as opposed to fossil fuels using chemical reactions and other forms of clean energy

using mechanical energy. Nuclear energy sources continue to persevere and produce almost twenty percent of the nation's energy even with the recent closures since the "reliability of existing plants has grown substantially during this time, which means that existing plants are producing more energy than in the past" (iii). Nuclear power plants also produce far more energy per unit of fuel and faster than fossil fuels. For example, according to J.T. Barrett, "a one gigawatt coal-fired power plant requires nine thousand tons of fuel per day; an equivalent nuclear plant consumes about three kilograms (6.6 pounds) of uranium in the same amount of time" (i). However, even though nuclear power produces more energy and is more efficient, the upkeep cost of these plants is higher than fossil fuels due to the increased amount of jobs and income in those jobs at nuclear power plants as well as the higher cost for fuel. Therefore, many states, such as New York, are closing nuclear power plants in favor of cheaper energy from natural gasses. New York has a prospected closure of three nuclear power plants in the near future, and from just three plants closing, New York's dependency on natural gas rises to fifty-four percent, a full fourteen percent increase, and carbon emissions rise twenty-seven percent due to the increased dependence on fossil fuel energy (ii). Therefore, this example proves that nuclear energy is more energy and environmentally efficient due to the energy void and the increased environmental issues these closures produce.

Not only does nuclear power create more energy faster with less fuel and it is better for the economy with the revenue and jobs it generates, it also produces far less carbon output than fossil fuels to produce the same amount of energy. According to the World Nuclear Association, a coal plant that produces the same amount of electricity as a nuclear plant will produce 2613 million tonnes of carbon dioxide more than the nuclear power plant generates, and a natural gas plant will produce 1183 million tonnes of carbon dioxide more than the nuclear power plant (vii).

If the closures of nuclear power plants continues at the rate it does today due to cheaper natural gas and oil, the best-case scenario is “a six percent increase in CO2 emissions in the electric power sector by 2040, and the failure of any U.S. climate policy initiative.” In addition to New York becoming more dependent on natural gasses in the near future, it will not be able to meet its goals set by the Cuomo’s Clean Energy Standard in 2030, even with their plans to develop a major wind farm because the void left by nuclear power plants’ closures is simply too great for any clean and renewable source of energy to keep up with. In fact, “with a fifteen percent drop in reactor generation, wind and solar not only would have to sprint to meet the Clean Power Plan goals, but would have to add another 120 million MWh to replace the lost nuclear output,” which it will not be able to do (ii).

In order to fill these gaps, states will be turning to fossil fuel energies because they are cheap and easy, such as coal, but these sources of energy have intense and adverse environmental consequences. For example, “Waste created by a typical coal plant includes more than 125,000 tons of ash and 193,000 tons of sludge from the smokestack scrubber each year,” and these coal plants’ byproducts contain harmful chemicals, such as arsenic, that can contaminate the water supply and increase the death toll of a state. These plants also cause severe harm to the wildlife of the area because they use chemicals to accelerate the production of energy and those chemicals decrease the fertility and lifespan of the surrounding wildlife (vi). If more nuclear power plants undergo closure, then plants like these coal plants will need to fill the gap of energy, which will severely increase environmental harm and carbon output.

Nuclear power plant closures adversely affect the economy, electric grid, and carbon output. Each nuclear plant creates economic gain through jobs and revenue, but the loss of these plants without sufficient replacements cause the economies of surrounding areas to suffer.

Additionally, the replacements to nuclear power cannot supply enough power to compare to the power lost in the closures. Furthermore, the replacements to nuclear power are mostly fossil fuel energies, which produce far more carbon in their processes in addition to contaminating the drinking water and food supply by polluting the rivers and surrounding lands by using dangerous chemicals to accelerate processes and simply having the waste be extremely harmful sludge.

References

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