



# Economic Impacts of Nuclear Plants in Communities

July 2023

*Changing the World's Energy Future*

River Bennett



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**Idaho National Laboratory  
Idaho Falls, Idaho 83415**

**<http://www.inl.gov>**

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NRIC




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The United States (U.S.) nuclear industry currently employs nearly 475,000 people in full-time jobs (direct and secondary). 100,000 of these are direct, career-length, and specialized.<sup>a</sup>

According to the U.S. Bureau of Labor Statistics and the Nuclear Energy Institute, the nuclear electric power generation sector directly employs between 50,000 and 60,000 workers. Nuclear vendors and manufacturers add another 60,000 positions. Compensation is also high, and in 2021, nuclear power reactor operators received a median annual pay of over \$100,000.<sup>b</sup> While operators are not required to have a college degree by the Nuclear Regulatory Commission regulations to have a college degree, the average nuclear engineer with a bachelor's degree earned over \$120,000.<sup>c</sup>

The defining characteristics of a nuclear power plant make it an economic hub because of the broad range of work roles required during construction and normal operation. This ranges from jobs in the skilled trades, like electricians and pipefitters, to scientists and engineers whose backgrounds are in multiple disciplines.<sup>d</sup>

Table 1: Jobs supported by nuclear power plants. Source: Nuclear Energy Institute.

SKILLED TRADE WORKERS	ENGINEERS & SUPPORT STAFF	TECHNICIANS & RADIOLOGISTS
Carpenters	Accountants	Chemists
Electricians	Chemical engineers	Mechanics
Heavy equipment operators	Civil engineers	Radiation protection specialists
Masons	Health physicists	Reactor operators
Pipefitters	Lawyers	Scientists
Sheet metal workers	Mechanical engineers	—
Welders	Nuclear engineers	—
—	Entrepreneurs	—
—	Financial managers	—

To fill these job opportunities, the nuclear industry hires from a range of educational backgrounds. This includes universities, community colleges, trade schools, and the

<sup>a</sup> <https://www.brattle.com/news-and-knowledge/news/report-by-brattle-economists-assesses-economic-and-carbon-value-of-nuclear-plants>

<sup>b</sup> <https://www.bls.gov/oes/current/oes518011.htm>

<sup>c</sup> <https://www.bls.gov/ooh/architecture-and-engineering/nuclear-engineers.htm>

<sup>d</sup> <https://www.nei.org/advantages/jobs>

military. Nearly one in four nuclear workers are veterans.<sup>e</sup>

The nuclear industry is also a large contributor to local, state, and federal tax bases. On average, the industry pays \$2.2 billion annually at the state level and nearly \$10 billion at the federal level. In New York state, three nuclear power plants alone are responsible for \$144 million in net state tax revenues annually, including more than \$60 million in annual state and local property taxes.<sup>f</sup>

Looking forward, advanced nuclear reactors and the power plants where they are housed will provide a similar range of job opportunities for the communities where they are located. One key distinction is in the number of jobs that they will provide. Existing U.S. nuclear power plants directly employ between 500 and 1,000 workers and have the capacity to produce between 600 and 4,000 megawatts (MW) of power, with the average being 1,000 MW.

Advanced reactors are being designed to integrate into our 21st century energy system, which is becoming more flexible and more spread out with the broader adoption of smaller distributed technologies like wind and solar. This means that many advanced reactors are becoming smaller as well. Small modular reactors are one category of new designs that are smaller in output, which means the plants where they are located will have a smaller output in the 100s of MW.

A consolidated plant size also means a consolidated local workforce. NuScale is the first company in the United States to receive a license for its advanced reactor model and expects to employ approximately 305 full-time employees at each of its plants, which it anticipates will be sized between 300 and 720 MW. This workforce is roughly twice the size of a similarly sized coal plant and six times that of a combined cycle natural gas plant. NuScale also anticipates thousands of secondary jobs related to the engineering, manufacturing, and construction of its plants.<sup>g</sup>

Microreactors are an even smaller advanced reactor that range from 1 to 50 MW. While these plants do not require the same level of staffing, they nonetheless require various types of operators and a manufacturing supply chain. The Oklo Aurora reactor – a 1.5 MW plant designed to serve communities of around 1,000 people – expects to create approximately 40 temporary jobs and 15 permanent jobs at its first plant in southeast Idaho.<sup>h</sup>

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<sup>e</sup> <https://www.nei.org/advantages/jobs>

<sup>f</sup> D. M. Berkman and D. D. Murphy, "New York's Upstate Nuclear Power Plants' Contribution to the State Economy," The Brattle Group, 2015.

<sup>g</sup> <https://docs.house.gov/meetings/IF/IF03/20200303/110640/HHRG-116-IF03-Wstate-HopkinsJ-20200303.pdf>

<sup>h</sup> <https://www.nrc.gov/docs/ML2007/ML20075A004.pdf>