



IBEW POLICY BRIEF

Chapter 12: Advanced Nuclear Power

The IBEW policies support initiatives that develop advanced nuclear technologies that extend the lives of current nuclear reactors. Nuclear generation is the only baseload (24/7) source of zero-emissions energy production. Nuclear generation is critical if the United States continues to reduce carbon emissions and avoid the worst potential impacts of climate change. Moreover, nuclear is the only carbon-free source that can ensure around-the-clock generation.

Next-generation nuclear power is a critical component of the effort to combat climate change. The IBEW supports research and development funding and collaboration with industry to nurture next-generation nuclear reactors, balancing economic competitiveness with reasonable regulatory oversight. Advanced nuclear technology is a fundamental component of an all-of-the-above energy strategy.

Nuclear plants provide an industrial base in the geographic area. The industry supplies high-quality employment, providing family-sustaining careers that pay, on average, one-third more than other jobs in the community. The IBEW is the largest union in the nuclear industry – 15,000 IBEW members are employed full-time at 55 nuclear facilities across the United States. In addition, thousands more IBEW members in the construction sector rotate through nuclear plants under contracts for maintenance and refueling. Nuclear generating facilities are among the safest industrial work environments in the world.

Nuclear power has accounted for about 20 percent of annual U.S. electricity generation since the late 1980s. In 2020, it was 19.7 percent. In recent years, the U.S. nuclear power industry has faced economic challenges. These challenges are particularly true for plants located in power markets where natural gas and renewable power generators influence wholesale electricity prices. As a result, thirteen U.S. nuclear power reactors have permanently closed since 2012. In addition, owners of U.S. nuclear reactors have announced six additional U.S. reactor retirements through 2025. Some of these planned closures, such as Diablo Canyon in California, may be delayed due to grid reliability concerns and new federal incentives for nuclear generation.

Recent Developments

Nuclear's Future

Nuclear Energy Provisions in the Bipartisan Infrastructure Law

The Biden administration has identified the nation's current fleet of nuclear power plants as vital for achieving the national goals of a net-zero electricity sector by 2035 and net-zero emissions economy-wide by 2050. Accordingly, the Bipartisan Infrastructure Law (BIL) includes several nuclear energy-related provisions. Through the Department of Energy (DOE)'s new Advanced Reactor Demonstration Program (ARDP), these provisions outline support for keeping nuclear power plants online that are facing economic hardship.

The BIL established a \$6 billion civil nuclear credit program designed to preserve the existing nuclear fleet and prevent premature shutdowns of nuclear power plants. The DOE expects this provision to help maintain the U.S. reactor fleet and save thousands of high-paying jobs across the country. The law provides \$6 billion through 2026 (\$1.2 billion annually).

Under this program, owners or operators of commercial U.S. reactors can apply for certification to bid on credits to support their continued operations. The project owners must show that the reactor will close for economic reasons without aid. Additionally, project owners must demonstrate that the closure will lead to a rise in carbon emissions.

The BIL recognizes the contributions of our nation's existing nuclear reactor fleet in providing reliable, clean power to millions of households and supports continued operations of these clean energy sources and the nearly 100,000 U.S. jobs in the nuclear industry.

Reliability for Uncertain Times

While the United States implements more intermittent renewable power from solar and wind, the need for reliable baseload generation will grow. Especially considering the severe weather, such as polar vortexes to triple-digit summer heatwaves the U.S. has been experiencing in recent years. These extreme weather events have revealed the need for nuclear power and the zero-emission baseload generation it provides.

The United States can reduce CO2 emissions by 3.5 billion tons by 2050 if we ensure that all existing nuclear reactors run for 80 years instead of 60 years. In addition, the U.S. expects electricity demand to rise significantly in the coming decades, so clean and reliable electricity is paramount.

A Permanent Place for Waste

Critical to the future of the nation's nuclear sector is opening a permanent repository for spent nuclear fuel. More than 88,000 metric tons of spent nuclear fuel are sitting at 121 temporary sites in 39 states across the country. Going back to the late 1970s, the IBEW has endorsed legislation that ensures central storage, safe transportation, and permanent disposal of spent nuclear fuels.

Due to local opposition, the Department of Energy has abandoned the decades-long effort to designate Nevada's Yucca Mountain as a repository. Instead, it has announced a search for willing communities to store nuclear waste.

A permanent geologic repository would help boost support for nuclear generation. Storage stability for byproducts will solidify nuclear as a foundational part of our nation's energy portfolio. We also need to ensure public support for the next generation of advanced nuclear reactors that will come online soon.

In the interim, the IBEW supports opening a temporary facility to store spent nuclear fuel safely. An interim facility would allow for the redevelopment of shuttered nuclear plants. The facility would also bring economic revitalization, tax revenue, and jobs to working families and communities that the closures have hard hit. In addition, due to existing electrical transmission infrastructure, many closed nuclear stations are ideal sites for the future development of other forms of electrical generation, including renewables.

Pending Priorities

Fuel for Advanced Nuclear Reactors

The U.S. government is already pivotal in developing new advanced reactors. The Department of Energy's Advanced Reactor Demonstration Program represents a multi-billion-dollar commitment to developing and deploying new nuclear technologies. However, most of these new reactors require a next-generation nuclear fuel called High-Assay, Low-Enriched Uranium (HALEU). Nine designs selected for DOE's Advanced Reactor Demonstration Program require HALEU-based fuels. Unfortunately, no HALEU is produced in the United States today for commercial purposes. The only international source currently available is imported from Russia. The IBEW and the nuclear industry have been calling for federal support for domestic HALEU production. The need for a safe domestic source of HALEU fuel has become more pressing since Russia began its invasion of Ukraine in late February 2022.

The now-passed Inflation Reduction Act appropriates \$700 million to support the availability of HALEU. In addition, Congress has funded civilian domestic research, development, demonstration, and commercial use and used a competitive, merit-based review process.

Nuclear Power Production Tax Credit

The Inflation Reduction Act has created a new production tax credit (PTC) for conventional nuclear generation. Congress modeled the nuclear PTC tax credit after wind generation's current production tax credit. The nuclear PTC tax credit will now provide a base credit rate of 0.3 cents/kWh and a bonus credit rate of 1.5 cents/kWh. Credit is reduced as the sale price of such electricity increases, with a complete phase-out once the price reaches \$43.75/MWh. To claim the credit, the nuclear facility must pay its construction and maintenance workers prevailing wages. Effective Jan. 1, 2024, and expires Dec. 31, 2032.

Like the Energy Department civil nuclear credit program, the nuclear PTC intends to help financially vulnerable nuclear facilities. Nuclear PTC will increase the competitiveness of nuclear plants when matched against natural gas and renewable generation. The program's ability to increase nuclear competitiveness is especially true in unregulated energy markets. It will also end the string of premature nuclear plant retirements that have resulted in lost work hours and jobs for IBEW members.

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