

REPORT

# Policy Options for States to Support Nuclear Energy

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## Introduction

The transition to a clean energy system depends on nuclear energy, both the existing fleet and innovative advanced nuclear technology. New reactor designs will pair with wind and solar generation as well as new battery storage technology to achieve state and federal carbon reduction goals.

Recent studies, including an [NEI survey](#) of its 21 utility members, found that hundreds of new advanced reactors are needed in the next 25 years to maintain a reliable, affordable and clean energy system.

Governors, legislators, and regulators will play a critical role in shaping policies that enhance the development and commercial deployment of these technologies. This document identifies policy tools already in use or being considered by state decisionmakers to achieve energy, environmental, climate, job creation and energy security goals by supporting the deployment of advanced nuclear technologies. These policy options are grouped by:

1. Utilizing nuclear energy to achieve broad policy goals.
2. Support for the deployment of advanced reactors.
3. Understanding the benefits of nuclear energy.

## Utilizing Nuclear Energy to Achieve Broad Policy Goals

### *Climate and Carbon Reduction Policies*

To reduce carbon emissions, and address climate change, all carbon-free technologies are needed. Climate and carbon reduction policies that are technology-neutral or include nuclear energy are key components of all viable plans to decarbonize not just the electric sector, but also the transportation and industrial sectors which account for nearly two-thirds of carbon emissions.

The following are the most common considerations:

- Enacting technology-neutral clean energy standards that support all carbon-free resources, including nuclear energy.
- Requiring taxes on carbon or other market-based solutions to reduce carbon emissions (i.e., Regional Greenhouse Gas Initiative).
- Assuring that nuclear energy is qualified to receive benefits available to other carbon-free energy sources, such as wind and solar.

### *State Energy Policy*

States are choosing individual paths of leadership in the promotion of various sectors of the nuclear energy industry. By directing official energy policy, a state can capture future benefits of an enhanced industry, including long-term, quality jobs; tax revenue; manufacturing base; and ready access to clean energy. The state energy policies are designed to ensure a reliable, resilient, and affordable energy supply.

- Establishing a comprehensive state energy policy that is technology-neutral and values the benefits of nuclear energy.
- Setting goals or targets for the performance of the energy system, including reliability, resilience, and affordability.

- Modifying the market or regulatory system to appropriately value the benefits of nuclear energy.
- Directing state energy planning to be inclusive of nuclear and to fully value the benefits of nuclear energy by ensuring energy planning is based upon total system costs to the customers and are not based upon methods that do not capture the entire set of benefits and costs (e.g., levelized cost of electricity).

### ***Energy Planning***

Electricity demand is forecasted to increase through 2050 as consumers turn to electric vehicles and other carbon-free infrastructure. States hoping to meet climate and carbon goals must ensure that the electricity is provided by reliable, carbon-free resources, like nuclear energy. An advanced nuclear reactor is defined as either “a nuclear fission reactor with significant improvements, including additional inherent safety features, compared to reactors operating on December 27, 2020, in the U.S.” or “a nuclear fission reactor consistent with 42 U.S.C. 16271.”

- Ensuring that the statutory definition of advanced nuclear aligns with [the language](#) released by the Idaho National Laboratory’s Gateway for Accelerated Innovation in Nuclear.
- Ensuring that Integrated Resource Plans include advanced nuclear energy as an option for future generation additions.
- Providing tax credits for the production of hydrogen through electrolysis or other emission-free sources of hydrogen generation.
- Urging state coordination to pursue federal hydrogen hub grants.
- Requiring that all state fleets operate using zero-emission vehicles (including school bus fleets).
- Funding the deployment of zero-emission vehicle fueling infrastructure.
- Providing tax incentives for the purchase of zero-emission vehicles.
- Providing tax incentives for the purchase of electric appliances, including heat pump space heaters, heat pump water heaters, induction cooktops, and upgraded breaker boxes.

### ***Capital Markets***

Nuclear reactors operate safely for decades and the corresponding investment to construct facilities can be significant. However, studies show that the most affordable way to decarbonize the electric sector is to include significant amounts of nuclear generation. By clearly defining the value of nuclear energy, policymakers bring clarity to capital markets and to operators seeking financing opportunities.

- Directing State Investment Funds to seek clean energy investment opportunities.
- Ensuring that ESG screens clearly include nuclear energy as a clean energy source.
- Ensuring that economic modeling properly values nuclear energy as a clean energy source.

### ***Transmission Infrastructure***

Much of the nation’s electric system—including the network of generation, transmission, and distribution resources—is aging. Significant infrastructure upgrades will not only be required to address this aging infrastructure but will be required to reliably incorporate new technologies. Electric

transmission is the backbone of our nation's energy grid and helps connect clean energy sources with demand centers. The transmission system lowers the cost of delivering energy and helps to keep electricity affordable by optimizing the grid's performance, reducing congestion, enabling the deployment of new technologies, and enhancing reliability and resiliency.

- Reducing barriers to the deployment of new transmission infrastructure.
- Urging regional state coordination to encourage interstate transmission.
- Reducing or removing property taxes associated with transmission infrastructure.
- Allowing for more effective and precise monitoring of transmission infrastructure, including drones and artificial technology.
- Urging the Federal Energy Regulatory Commission to work with state commissioners to site and approve new transmission infrastructure.

## **Support for Advanced Reactor Deployment**

### ***Realizing the Value of Advanced Reactors***

Economic sustainability is vital to the continuing commercialization and future deployment of new nuclear. Nuclear energy is the most reliable generating resource available and a significant contributor to electric grid stability, which helps states meet their emission reduction goals while keeping their communities. States must ensure that these traits are accurately and fairly valued as energy policies come under consideration.

- Providing zero-emission credit programs or other types of zero-emissions production tax credits for nuclear energy.
- Reducing, removing, or exempting the property tax on nuclear facilities.
- Providing a job creation tax credit.
- Entering state power purchase agreements, with long term contracts and valuation of reliability and resilience benefits.
- Reducing, removing, or restructuring the income tax.
- Expanding the definition of recoverable capital costs.
- Allowing for recovery of costs associated with the siting and permitting of advanced nuclear technologies.
- Allowing for cost recovery mechanisms such as construction work in progress (CWIP).
- Offering incentives through a state Economic Development Agency or other state agency to support nuclear investment.
- Securing local, state, or federal loan guarantees.

### ***Supply Chain and Manufacturing***

The nuclear energy supply chain is complex and spans the globe. A reliable supply chain and manufacturing base create efficiencies that reduce the cost and timeline to build new reactors.

- Guaranteeing site-ready manufacturing facilities for nuclear manufacturers.
- Providing tax credits for new and existing nuclear manufacturing (e.g., jobs and infrastructure).
- Removing or reducing property taxes associated with manufacturing facilities.
- Funding trade school programs that align with requirements of nuclear manufacturers.
- Urging the federal government to enable import and export exchange.

### ***Nuclear Fuel Cycle***

Ensuring a secure, reliable nuclear fuel supply is critical to our nation's energy independence and national security. Russia enriches more uranium for use in nuclear power plants than any other country in the world and is currently the only commercial supplier of high-assay, low-enriched uranium (HALEU) required for advanced reactor development. Actions to increase cost-effective and competitive domestic mining, conversion, and enrichment capacity will enhance energy security for the U.S. and its allies by fostering a diverse, competitive marketplace that provides affordable fuel.

- Urging the Department of Energy and Congress to rapidly execute and fully fund the Advanced Nuclear Fuel Availability Program to deploy a high-assay low enriched uranium (HALEU) enrichment and deconversion capacity in the U.S.
- Urging the Department of Energy to make HALEU available to near-term projects before commercial HALEU capacity is available in the U.S.
- Urging Congress to expand the U.S. Uranium Reserve by appropriating funding to accelerate domestic uranium mining.
- Reducing barriers to siting and permitting of interim waste storage facilities.
- Removing any taxes levied on the storage of spent nuclear fuel.
- Urging the Federal Government to permanently resolve long-term storage.
- Providing investment tax credits for facilities associated with fuel production, including uranium mining, conversion, enrichment, and fuel fabrication.
- Reducing or removing property taxes for facilities associated with fuel production, including uranium mining, conversion, enrichment and fuel fabrication.
- Developing public-private partnerships to diversify the nuclear fuel supply chain.

### ***Workforce, Technology and Education***

Nuclear energy is an economic driver, contributing \$2.2 billion in state taxes each year directly employing nearly 100,000 people with the highest average wages of any energy source. Operating reactors today employ between 500 and 800 people in permanent jobs. The nuclear sector is one of the most skilled industries and requires a few different highly technical certifications. The workforce is sustained by a robust investment in nuclear-energy programs at our nation's universities and trade schools.

- Evaluating university, community college, and trade school curriculum and training programs to ensure the curriculum supports jobs that enable the construction and operation of the next generation of nuclear plants.
- Funding state universities' engineering and other related programs, such as apprenticeships, to ensure adequate talent pipeline of workers across technical disciplines to support nuclear power development and deployment.
- Funding advanced reactor demonstration and research programs at state universities.
- Providing tax credits for industry research and development of advanced reactors.
- Providing tax credits for new jobs or existing jobs in the nuclear industry.
- Developing workforce transition offices to support training programs as energy jobs transition from coal to nuclear activities.

### ***State and Federal Regulatory Reform***

There is unprecedented demand for new nuclear generation, and the decisions that state and federal regulators make now will ensure customers receive reliable, carbon-free nuclear power from advanced reactors. The U.S. Nuclear Regulatory Commission (NRC) must have the capacity to efficiently review and approve licenses, while tailoring its regulations to fit these innovative new designs. In addition, advanced reactors will increasingly come before state public utility commissions as regulated utilities incorporate more advanced reactors into their long-term integrated resource plans. State commissions must give adequate consideration to new nuclear in resource planning.

- Urging the NRC to efficiently review and approve site permits, construction permits, and operating licenses for new reactors.
- Directing State Agencies to evaluate whether it is in the state's interest to enter into the NRC Agreement State Program.
- Commissioning studies to examine the feasibility and necessary regulatory framework for siting new nuclear.
- Declaring advanced reactors, transmission infrastructure and other related activities in the public interest.
- Urging the Federal Energy Regulatory Commission to work with state public utility commissioners to site and approve new transmission infrastructure.
- Urging Public Utility Commissions to adequately consider nuclear in all long-term resource planning.
- Requiring Public Utility Commissions to use updated modeling that examines the value of nuclear through full system costs instead of individual project costs.
- Allowing for cost recovery of programs related to electrification.
- Allowing for cost recovery of demand-side management programs.

### ***Repealing Laws Prohibiting Nuclear Development***

Some states have historically had specific restrictions on the construction of new nuclear facilities. Removing these antiquated policies serves as a steppingstone toward a decarbonized future and ensures a reliable and cost-effective energy transition that creates good-paying, long-term jobs. Moratoriums hinder innovation and private sector investment, while maintaining an uneven playing field that hurts American households.

- Removing prohibitions on the construction of nuclear facilities.
- Allowing for advanced cost recovery mechanisms like construction work in progress (CWIP).

### **Understanding the Benefits of Advanced Nuclear Technologies**

#### ***Studying the Potential for and Expressing Support of Advanced Nuclear***

Ensuring that every American has equitable and reliable access to energy is a significant concern for policymakers planning their state's energy future. The variety of advanced reactor technologies, and their capabilities, must match current and future energy demands. Requiring state authorities to study the feasibility of advanced nuclear will lead to future grid stability.

- Commissioning studies to examine the feasibility and necessary regulatory framework for siting new nuclear.
- Creating a task force to explore policy options that support advanced reactor technologies.
- Conducting reliability studies showing the importance of nuclear in maintaining the electric grid.
- Forming public-private partnerships to advance nuclear energy.
- Creating State Agency working groups to advance nuclear energy.
- Declaring that nuclear energy is in the state interest.
- Declaring that nuclear energy is critical to National Security and Energy Independence.



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