

MASTER PLAN

For Responsible Advanced Nuclear Development in New York

November 2026

NEW YORK STATE

NYSERDA Report 26-21

From Plan to Power:

A policy framework for the affordable, safe, and reliable deployment of advanced nuclear energy in New York

Master Plan for Responsible Advanced Nuclear Development in New York

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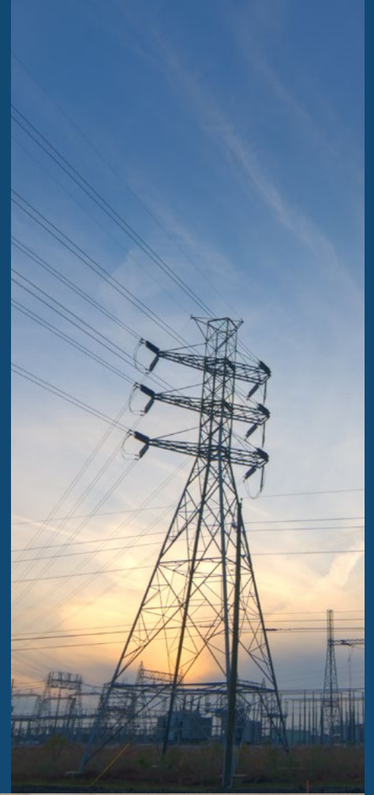
New York State Department of Labor

Empire State Development

New York Department of State

New York State Department of Health

New York State Division of Homeland Security and Emergency Services





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The Challenge

Electricity demand is rising for the first time in a generation, driven by growth in manufacturing and other economic activity, and the continued electrification of homes, businesses, and transportation across New York State.

Existing nuclear power plants and large hydropower provide the foundation of New York State's clean electricity today, complemented by a growing supply of renewable energy resources, including solar, wind, and battery storage systems. However, additional zero-emission capacity is needed to meet rising demand, maintain reliability, and support long-term decarbonization.

Global interest and competition in deploying advanced nuclear energy technologies are accelerating. The states and nations that move first are attracting investment, manufacturing, supply chains, and skilled workers.

The Opportunity

Advanced nuclear energy technologies can provide reliable, zero-carbon electricity while supporting economic growth and grid resilience.

Advanced nuclear energy development in New York can build on existing infrastructure, a skilled workforce, operating expertise, and communities with decades of nuclear power experience.

Deployed strategically, advanced nuclear can complement renewable energy resources by providing clean, reliable, baseload power, and it can position New York State as a national leader in clean energy innovation. Paired with transmission development, new nuclear generation can improve grid reliability and affordability while advancing the goals of the Climate Leadership and Community Protection Act (Climate Act).

New York State

New York State is well positioned to pursue advanced nuclear energy projects, with advantages that include:

- 3.4 GW of operating nuclear power generation
- World-class research institutions and national laboratory partnerships
- A strong workforce training ecosystem and organized labor force
- Established manufacturing, engineering, and project development capabilities
- Bold clean energy policy leadership
- State agencies and authorities with a proven record of delivering large-scale energy infrastructure

From Plan to Power

Governor Hochul has pushed New York State to respond to these challenges and opportunities. Over the past two years, she launched the Nuclear Reliability Backbone (Nuclear Backbone) goal, which includes 5 GW of new advanced nuclear generation; she called upon New York Power Authority (NYPA) to develop a project of at least 1 GW; and she started the process to create a "Master Plan for Responsible Advanced Nuclear Development in New York State" (Master Plan) to help establish the policy framework needed to carry out these initiatives.

The Master Plan follows up on NYSERDA's Blueprint for Consideration of Advanced Nuclear Energy Technologies published in January 2025. The Master Plan focuses on nuclear energy use for power generation, and considers a wide range of advanced nuclear technology options, including Generation III+ (Gen III+) and Generation IV (Gen IV) fission as well as nuclear fusion, at sizes ranging from large-scale designs to small modular reactors and microreactors.

The Master Plan lays out a pathway FROM PLAN TO POWER:

Based on an evaluation of technical, economic, community, regulatory, workforce, and supply chain aspects, this Master Plan presents the policies, partnerships, and investments that can help deliver New York State's Nuclear Backbone successfully, safely, and efficiently while maximizing the economic opportunities it will create.



Already Underway: A Microreactor Comes to the North Country

In August 2026, the U.S. Army selected Fort Drum, home of the 10th Mountain Division, as one of five installations nationwide to host an advanced microreactor, partnering with Westinghouse to deploy the company's eVinci technology there.

The selection of Fort Drum underscores the strength of the sites, partnerships, and workforce that position New York State as a national leader. Sited on roughly 5 acres and generating up to 20 MW, the project will bring the first new reactor to New York State soil in nearly 40 years, helping to power Fort Drum and benefitting the surrounding North Country region.

Applying the Master Plan's outcomes — including on regulatory matters, workforce, and supply chain — will help this project come to fruition while generating meaningful real-world learning opportunities.



Already Underway: New York Power Authority Project

In June 2025, Governor Hochul called upon the New York Power Authority (NYPA) to lead the development of an advanced nuclear power project in Upstate New York capable of generating at least 1 GW of zero-emissions electricity.

Since then — in parallel with the development of this Master Plan — NYPA has advanced a focused predevelopment effort. The Power Authority has solicited information from interested host communities and potential development partners, invested in building a nuclear talent pipeline through major workforce development funding, expanded international partnerships to share expertise and strengthen project delivery, and grown its leadership team with seasoned nuclear experts to guide siting, licensing, financing, and deployment efforts.

In November 2026, NYPA qualified 10 nuclear energy developer-integrators for potential partnership. The qualified firms demonstrated the technical expertise or project delivery experience required to support an advanced nuclear energy generation project.



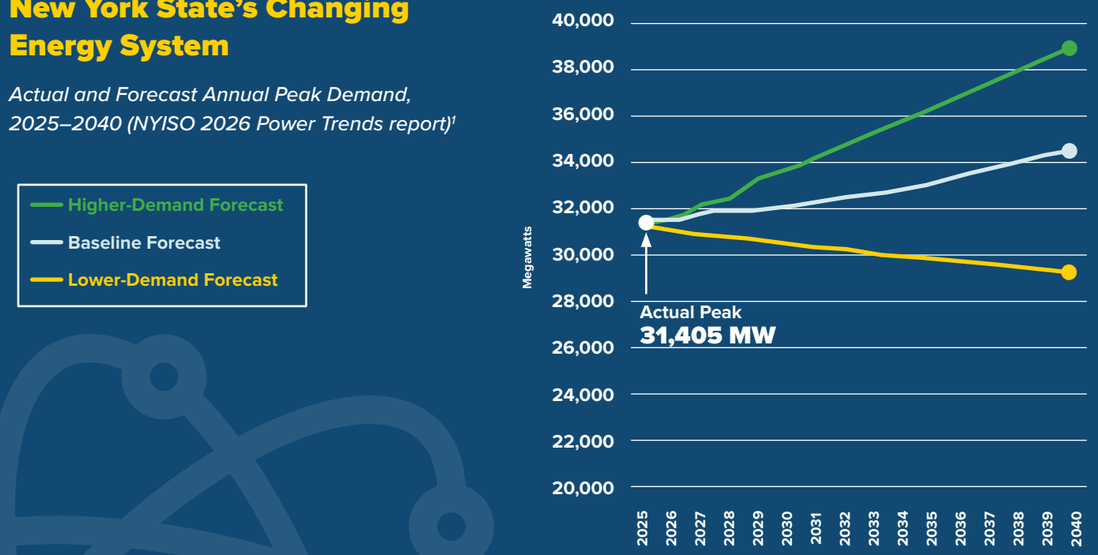
Strategic Context

After decades of relatively stable electricity demand, New York State is entering into a period of substantial load growth driven primarily by the beneficial electrification of our lives, homes, vehicles, and businesses, and by new economic development opportunities.

Meeting this demand, maintaining grid reliability, and achieving the State's decarbonization goals will require new firm sources of power, such as nuclear, to complement the ongoing development of renewables.

New York State's Changing Energy System

Actual and Forecast Annual Peak Demand, 2025–2040 (NYISO 2026 Power Trends report)[1]



Recognizing the urgency of these projections and the need for immediate action, in January 2026 Governor Hochul announced the **Nuclear Reliability Backbone** (Nuclear Backbone), an initiative led by the New York Department of Public Service (DPS) to consider, review, and facilitate a cost-effective pathway to 4 GW of new advanced nuclear energy for New York State. This announcement followed the Governor's June 2025 call on the New York Power Authority (NYPA) to lead the development of an advanced nuclear power project in Upstate New York capable of generating at least 1 GW of zero-emissions electricity. Together, the Governor's two initiatives set a goal of 5 GW of new advanced nuclear generation. Combined with New York's existing 3.4 GW of nuclear capacity, this would create an 8.4 GW Nuclear Backbone of clean, reliable, baseload power to serve millions of New Yorkers across the state.

The case for the Nuclear Backbone, including the benefits uniquely provided by advanced nuclear energy, is reinforced by several recent State analyses, including in the 2025 State Energy Plan (SEP), the Coordinated Grid Planning Process, and most recently, the Advanced Nuclear Policy Options Paper published in June 2026.

[1] *New York Independent System Operator (NYISO), "2026 Power Trends Annual Grid & Markets Report," June 2026, https://www.nyiso.com/power-trends.*

Energy Affordability

According to the 2025 SEP analysis, including new nuclear power in the State's decarbonization pathway is projected to **reduce net system costs by $28-31 billion by 2040 and $47-54 billion by 2050**, compared to pathways without new nuclear power. By combining new nuclear energy with renewables, storage, and other resources, New York State can build and maintain an energy system that is affordable, reliable, and clean, while meeting growing demand.

Jobs and Economy

The Master Plan's Economic Impact Analysis indicates that developing 5 GW of advanced nuclear power could support an annual average of roughly **4,000 jobs during the pre-operations phase** (planning, development, and construction) and an annual average of around **5,500 long-term jobs** during the operations phase, including jobs induced throughout the economy. This would generate approximately **$100 billion in economic growth**, and produce more than **$10 billion in local tax revenue**. It would also strengthen New York State's ability to attract and retain industries that increasingly choose locations based on access to reliable power.

Climate and Environment

Nuclear generation produces **no greenhouse gas emissions or particulate matter** during operation and, because of its high energy density, delivers substantial power on **a small amount of land**. Where new nuclear generation could displace fossil power plants, the resulting reduction in emissions would improve air quality and public health, relieving communities that have historically borne the pollution burden of instate fossil generation.



The opportunity and need for new nuclear power are recognized at the federal level. The Inflation Reduction Act of 2022 (IRA) established and expanded federal tax incentives supporting both the continued operation of the existing nuclear power fleet and investment in new nuclear generation. The federal focus on nuclear power expansion has continued through the establishment of a goal to quadruple U.S. nuclear capacity by 2050 and with actions to accelerate reactor licensing and deployment, domestic fuel production, and strengthen the domestic nuclear fuel supply chain. States are also taking action, including the 11 states in the Advanced Nuclear First Mover Initiative co-chaired by New York State.



Advanced Nuclear First Mover Initiative

The Advanced Nuclear First Mover Initiative is an 11-state coalition launched by the National Association of State Energy Officials (NASEO) and the U.S. Department of Energy's (DOE) Gateway for Accelerated Innovation in Nuclear (GAIN). It aims to accelerate small modular reactors (SMRs) and advanced nuclear energy deployment through coordinated policies, supply chains, and public-private financing.

Coalition Leadership and States

Co-Chair States: New York, Indiana, Kentucky, Tennessee, and Wyoming

Participating States: Louisiana, Maryland, Pennsylvania, Utah, Virginia, and West Virginia

Federal Partners: Idaho National Laboratory (INL) and Oak Ridge National Laboratory (ORNL)

Globally, market signals point to a new era for nuclear power, as governments increasingly recognize the need for new nuclear power generation in the energy mix. At the same time, industry announcements reflect rapidly growing readiness, and the first advanced nuclear energy projects are entering development.

At the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28) in 2023, more than 20 countries launched the Declaration to Triple Nuclear Energy, committing to work toward tripling global nuclear power capacity by 2050. Since then, 39 nations, including the U.S., have signed the declaration and many are expanding nuclear generation alongside renewable energy to strengthen energy security, support economic competitiveness, and achieve long-term decarbonization goals.

As this global ecosystem matures, today's decisions will shape where investment, manufacturing, innovation, and technical expertise are concentrated for decades. New York State has the opportunity to help shape this evolving landscape through strategic partnerships, research leadership, and responsible deployment.





Public Engagement

Input from stakeholders, communities, and experts has helped to shape the Master Plan.

New nuclear power development requires attention to the interests and concerns of industry stakeholders, interested communities, and outside experts, New York State sought this input early and often during the Master Plan's research process. The feedback the State collected helped ensure a balanced evaluation of needs, expectations, and opportunities across technologies, siting strategies, regulatory considerations, innovation, supply chain, and workforce. Continued engagement will be important as New York State moves from planning toward the decisions and projects that will ultimately shape its nuclear energy future.

Engagement activities to date have included:

- **Public comment opportunities**, including comments received on the Blueprint for Consideration of Advanced Nuclear Energy Technologies and the Advanced Nuclear Policy Options Paper (Policy Options Paper).
- **Public requests for information (RFIs)**, including NYSERDA's Advanced Nuclear RFI, which solicited technical, commercial, and market insights from a broad range of stakeholders, and drew over 70 responses. In late 2025, NYPA issued two RFIs aimed at developers and Upstate New York communities, which received 23 and 8 expressions of interest, respectively.
- **Technical working groups (TWGs)** convened over 15 meetings between State agency representatives, key stakeholders, and experts to provide subject matter expertise and help develop findings and conclusions across key topic areas of the Master Plan.
- **Industry roundtables, workshops, and conferences**, including engagement conducted during the 2025 Advanced Nuclear New York Summit, where participants discussed emerging technologies, deployment pathways, workforce needs, and supply chain opportunities, and a Nuclear Workforce Roundtable convened by Governor Hochul in September 2025, in addition to participation by State agency representatives in numerous nuclear energy conferences and events.
- **Targeted stakeholder meetings, educational sessions, and consultations**, including small group discussions, surveys, and more than 160 one-on-one meetings with elected officials, the federal government, representatives of other states and countries, industry, the U.S. military, labor organizations, academic institutions, Indigenous Nations, environmental and climate justice organizations, Upstate New York communities, and other interested parties.

Public engagement is essential at two levels: statewide to inform broader nuclear energy planning and policy, and locally for each individual project as specific development opportunities are identified and explored.

Public engagement efforts planned after the Master Plan's publication are outlined in Next Steps on page 57.

Technical Working Groups

New York State recognizes that responsible development of advanced nuclear energy requires extensive collaboration with individuals and organizations that have relevant technical knowledge and practical experience.

TWGs (pronounced “twigs”) provide an important feedback loop between State entities, experts, and the people who will ultimately shape, build, operate, and live alongside new nuclear power facilities. Bringing together community leaders, New York State businesses, organized labor, educators, nuclear researchers, and State officials allows a range of perspectives and expertise to inform implementation and operation practices. The TWGs have enabled participants to share practical experience in building and operating infrastructure, local communities’ perspectives, workers’ and employers’ needs, and government’s responsibilities. For a complex undertaking with consequences that extend well beyond a project’s boundaries, TWGs help surface questions early, test assumptions, and keep planning connected to realities on the ground.

To maximize the value of this Master Plan, the State convened three Advanced Nuclear TWGs:

1. Workforce and Supply Chain Technical Working Group (WSC-TWG)

2. Research and Development Technical Working Group (R&D-TWG)

3. Fusion Technical Working Group (FUS-TWG)

These working groups were formed to discuss some of the most pressing challenges facing advanced nuclear energy development in the U.S. at a regional scale, and to help inform and shape development practices. They provide:

- Knowledgeable and representative voices
- A unique forum to discuss points of view and interests
- Regional, State, and national perspectives
- Active problem-solving to address barriers through policy and program development
- Greater cross-sector understanding of perspectives and limitations

The TWGs actively contributed to the development of the Master Plan throughout 2026. **After completing the Master Plan, NYSERDA, DPS, and other State agencies and authorities involved intend to continue working with these TWGs and potentially create additional working groups as needed**.

Stay updated on TWG progress and past and future meeting summaries.
nyserda.ny.gov/advanced-nuclear

TWG Participants

State agencies and authorities contributing to the work of the TWGs: New York State Energy Research and Development Authority (NYSERDA), New York Department of Public Service (DPS), Empire State Development (ESD), New York State Department of Labor (DOL), New York Department of State (DOS), New York Department of Environmental Conservation (DEC), and New York Power Authority (NYPA).

New York State thanks the organizations listed here for their participation and contributions.

Technical Working Group Participants and Contributors

Workforce and Supply Chain (WSC-TWG)

- AFL-CIO
- BWX Technologies, Inc.
- Capital Region Board of Cooperative Educational Services (BOCES)
- Constellation Energy Corporation
- City University of New York (CUNY)
- Climate Jobs New York
- GE Vernova Hitachi Nuclear Energy
- International Brotherhood of Electrical Workers
- Lightbridge Corporation
- Manufacturers Association of Central New York
- Operation Oswego County
- Rensselaer Polytechnic Institute (RPI)
- Soulful Synergy
- State University of New York (SUNY)
- SUNY Maritime College
- United Steelworkers
- Utility Workers Union of America
- Workforce Development Institute

Research and Development (R&D-TWG)

- Brookhaven National Laboratory (BNL)
- City College of New York (CCNY)
- Columbia University
- Cornell University
- GE Vernova
- Idaho National Laboratory (INL)
- Nuclear Science and Engineering Research Center, U.S. Military Academy, West Point
- Oak Ridge National Laboratory (ORNL)
- Rensselaer Polytechnic Institute
- Rochester Institute of Technology
- SUNY
- University at Buffalo

Fusion (FUS-TWG)

- Brookhaven National Laboratory
- Columbia University
- Cornell University
- Fusion Consultants
- Idaho National Laboratory
- Laboratory for Laser Energetics (LLE), University of Rochester
- Lawrence Livermore National Laboratory (LLNL)
- Princeton Plasma Physics Laboratory, Princeton University
- Rensselaer Polytechnic Institute
- Stony Brook University
- Tritium Solutions, Inc.

Studies & Policy Documents

This Master Plan includes and is supported by 12 studies and policy documents.

Each study is provided as a standalone technical reference document that provides full details on the analysis carried out for this Master Plan.

The Master Plan's supporting studies and policy documents are available at nyserda.ny.gov/advanced-nuclear

1
Advanced Nuclear Policy Options Paper

The Policy Options Paper, published in June 2026 ahead of the Master Plan, assesses nuclear business models, options for state action to help enable their commercial viability, as well as procurement paths and technology choices.

2
Nuclear Reliability Backbone White Paper

The White Paper offers specific, actionable policy recommendations for consideration by the New York State Public Service Commission (PSC), informed by stakeholder comments, including topics raised in the Advanced Nuclear Policy Options Paper and at a technical conference.

3
Economic Impacts Analysis

Following preliminary economic impacts estimates included in the Options Paper, the Master Plan includes updated and expanded analysis of economic benefits associated with realization of the Nuclear Backbone, including metrics on Gross State Product, tax revenue and number of jobs.

4
Supply Chain Study

This study assesses where and how New York State can strengthen advanced nuclear energy supply chain capabilities to support deployment of the Nuclear Backbone and maximize economic development opportunities.

5
Workforce Development Study

This study assesses New York State's future nuclear energy workforce needs, including occupations, projected demand, and existing workforce capacity and program funding; as well as actions to address gaps in skills, training, and education.

6
Regulatory Issues and Safety Study

This study assesses the federal, state, and local regulatory roles and responsibilities governing safe deployment and operation of advanced nuclear power in New York State.

7
Waste Study

This study assesses the management of conventional and advanced nuclear reactor waste, including generation, storage, transportation, and disposal.

8
Siting Study

This study assesses the siting of nuclear generation, focusing on viability from the perspectives of both developers and potential host communities.

9
Environmental and Climate Justice Study

This study examines how ECJ considerations can be identified and addressed across the advanced nuclear project lifecycle.

10
Nuclear Microreactor Technologies Study

This study provides an overview of a wide range of possible nuclear energy reactor designs smaller than grid-scale electricity generation.

11
Research and Development Study

This study identifies priority R&D areas aligned with New York State's capabilities to position the State in the growing advanced nuclear energy sector.

12
Fusion Energy Study

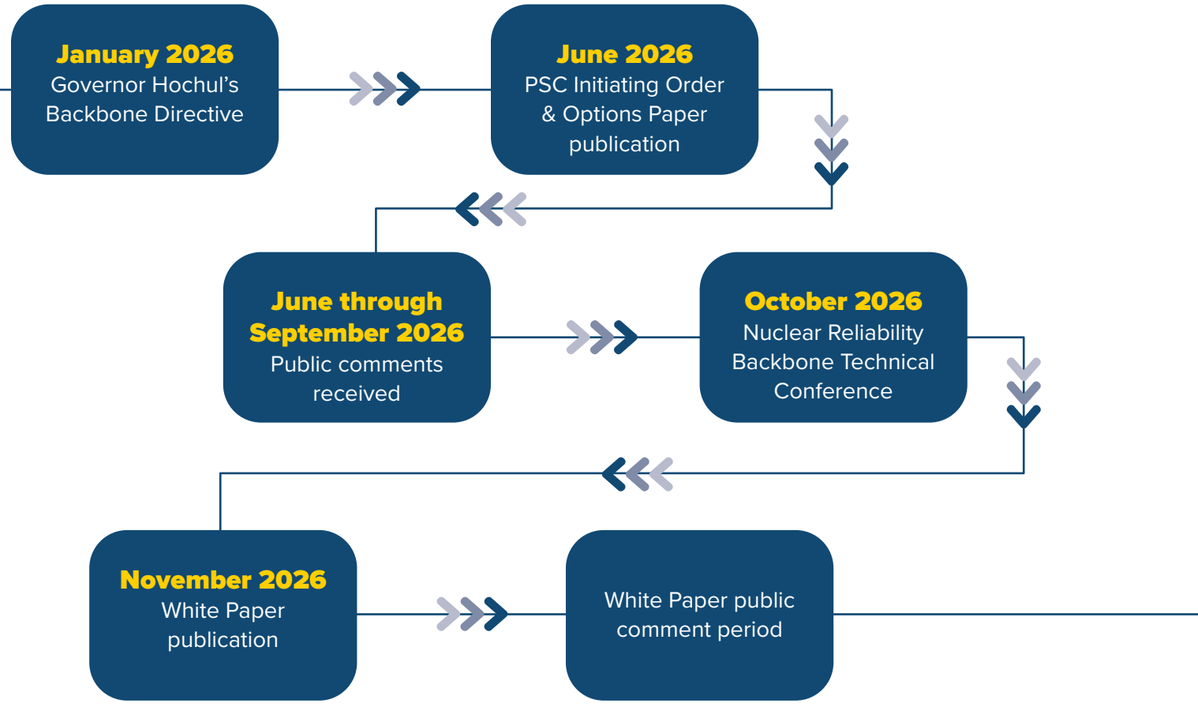
This study evaluates the current landscape of the nuclear fusion industry.



Nuclear Reliability Backbone White Paper: Advancing State Support for New Nuclear

The Nuclear Reliability Backbone White Paper (White Paper) moves New York's path toward an affordable, safe. and zero-emission Nuclear Reliability Backbone from planning to implementation.

It builds on years of state research and analysis, including the Clean Energy Standard's Zero Emission Credits program, the State Energy Plan, the Coordinated Grid Planning Process, the Zero by 40 Technoeconomic Assessment, the Advanced Nuclear Policy Options Paper (Options Paper) and this Master Plan. It also reflects views of New Yorkers and stakeholders, expressed through public comments and a technical conference. It offers recommendations to the Public Service Commission how the state should support new advanced nuclear plants so that they are built safely and cost-effectively to deliver lasting reliable power, good jobs, cleaner air, and long-term energy savings for New Yorkers.



Barriers to commercial deployment, and options to address them

The first advanced nuclear plants will face challenges common to emerging technologies, requiring support beyond what private markets are likely to provide. For New Yorkers to see the benefits of advanced nuclear, these projects must reach operation. Across the country, states are looking for ways to address financial and development barriers, and New York is taking concrete steps to meet these challenges.

The Options Paper identified the key barriers to commercial viability at each stage of a project, and what strategies New York could use to address them:

- **Early development:** Before construction can begin, developers must make substantial investments in site studies, licensing and design, often without certainty that the project will move forward or access the private capital needed to advance it.
  - ***Options for State Intervention:*** Early development grants or loans; a backstop for private lending; clarity on the State's support framework.

- **Construction:** Building a gigawatt-scale project takes years and billions of dollars. Federal loans may cover most construction costs, but the rest requires private investing, and the high returns investors expect add to the project's overall cost.
  - ***Options for State intervention:*** Direct state or utility investment in projects; shared protection against construction risks; construction grants.

- **Operation:** Once built and delivering power, a plant must earn enough to repay its construction costs. Like other renewable or clean energy resources, early nuclear energy projects are expected to need more revenue than electricity markets alone can provide until costs fall as more plants are deployed.
  - ***Options for State intervention:*** Revenue support for power and benefits delivered.

Ways to maximize the impact and lower the cost of State support:

- Combine several interventions into a single integrated framework
- Require best-practice project management
- Build several plants of the same design
- Start with proven technologies
- Deploy in phases, rather than all at once
- Use sites with existing energy infrastructure (i.e., brownfields)
- Negotiate realistic risk-sharing arrangements
- Include private buyers willing to pay a premium
- Preserve private sector incentives to deliver on time and on budget
- Cooperate with other states and the federal government

Given the public benefits of achieving the Backbone goal successfully and on time, the White Paper concludes that State support for new projects is justified and that New York is in a position to move from options to recommendations.

The White Paper also determines that support is most effective, and least costly, when designed as an integrated package of tools identified by the Options Paper that complements private investment and is paired with strong eligibility standards and rigorous cost and risk management.

Because the Backbone's benefits extend across the State, the White Paper also finds it appropriate to examine funding sources beyond New York's electricity customers. The details of each component will require further analysis, and the recommendations below establish the framework for those efforts.

Public Comments on the Nuclear Reliability Backbone

Between June 11 and September 24, more than 3,000 public comments on the Order Establishing a Nuclear Reliability Backbone Process and the Advanced Nuclear Policy Options Paper were received.

Many commenters pointed to advanced nuclear's potential for jobs and economic development, its ability to provide clean, firm power, its limited land use, its long operating life, and its potential for long-term energy savings. Others raised concerns about the cost of energy, construction risks, long development times, as well as spent fuel and safety — topics also addressed by this Master Plan.

All comments are available in Case 26-E-0335 on the Department of Public Service website: **dps.ny.gov**.

The Nuclear Reliability Backbone White Paper will be open to further public comments.

From Plan to Power

Summarized White Paper recommendations to the Public Service Commission:

1. **Adopt the Nuclear Reliability Backbone of 8.4 GW of statewide nuclear energy** with a target of 5 GW of new advanced nuclear generation that is integrated into the grid safely, timely, and cost-effectively.

Direct DPS and NYSERDA to:

2. **Establish a revenue support mechanism** for new advanced nuclear generation.
3. **Develop an eligibility and prequalification process** that can offer the opportunity for initial screening of developers, sites, project proposals, and technology readiness.
4. **Establish a competitive open-book negotiation process**.
5. **Develop a new advanced nuclear procurement framework** and to file an implementation plan with the Commission.



Supply Chain

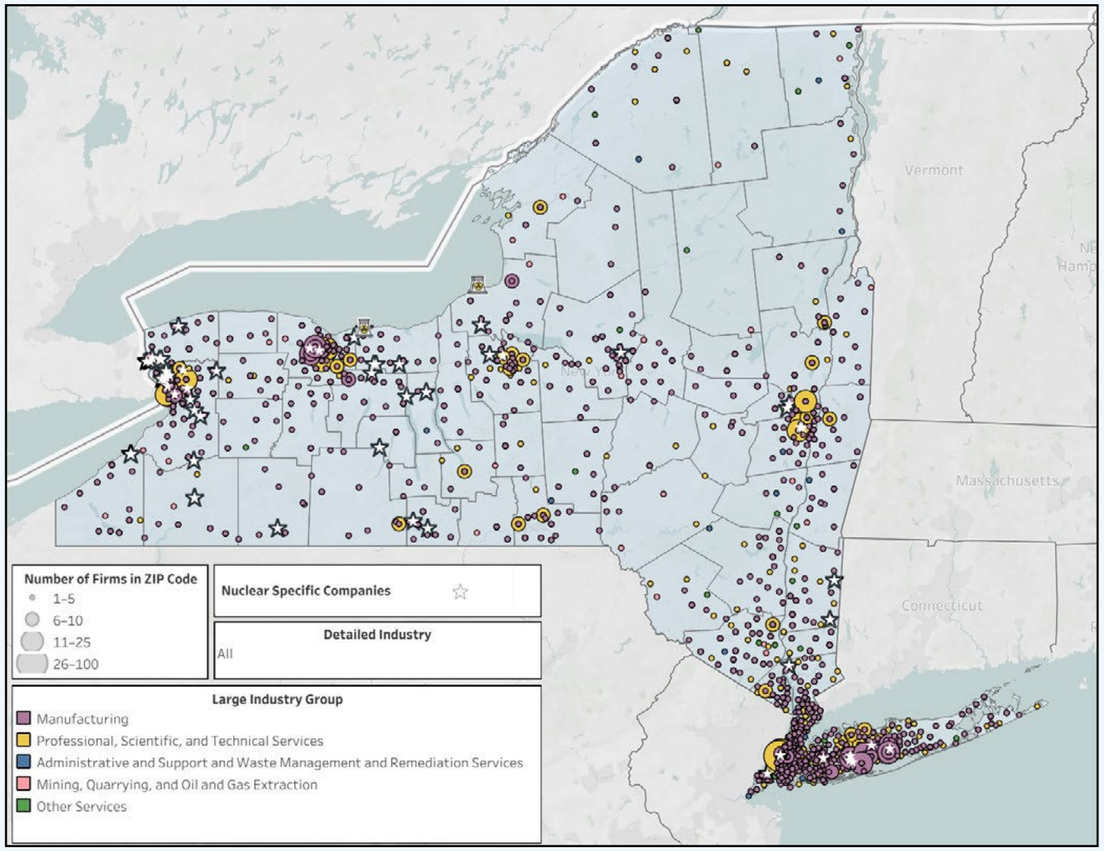
New York State's Nuclear Backbone, and deployment of advanced nuclear energy in general, provides an opportunity for the State to grow an advanced nuclear power industry and to create well-paying local jobs, strengthen regional economies, and secure the State's role in the industries of the future.

Advanced nuclear energy deployment also requires a highly capable supply chain, including manufacturers, engineering firms, construction contractors, and specialized service providers.

Findings

- **New York State has a strong potential supplier base:** The State has 45 nuclear suppliers, and more than 12,000 nuclear-adjacent firms with potentially relevant capabilities. Of these, around three quarters are in the construction sector and the remainder in manufacturing and other related sectors. This represents a significant industrial foundation, but adjacency alone does not establish procurement readiness; many firms would need further qualification, investment, or buyer-specific preparation before they could compete for nuclear energy work.
- **Supply chain development can position New York State firms to serve a broader nuclear power market:** Supplier development efforts should look beyond the State's own project pipeline and prepare New York State companies to compete for opportunities in growing national and international nuclear energy markets. Building capabilities that serve projects outside New York State can strengthen the long-term business case for supplier investment in the State, support broader U.S. nuclear energy deployment, and position the State as a hub for nuclear power manufacturing, services, and expertise.
- **The greatest near-term opportunity for New York companies lies in strengthening capabilities that create value regardless of reactor technology:** Supply chain requirements vary depending on the advanced nuclear reactor being deployed. The most actionable near-term opportunities are reactor-agnostic or balance-of-plant activities because the identified needs apply across technologies. This includes civil construction; engineering and project services; electrical equipment and installation; pumps, valves, seals, and heat exchangers; instrumentation; nondestructive examination; quality assurance and quality control; and operations and maintenance (O&M) support. Action to support technology-dependent components can follow as clarity on New York's deployment path including project technology selection emerges.
- **Different actions are needed to prepare existing suppliers and develop additional capabilities:** Where New York already has existing industrial strength, action should focus on moving companies from nuclear adjacency to nuclear readiness through supplier screening, help with qualifications, and by providing procurement visibility. Deeper State action to bring more manufacturing capacity to New York State includes strategic supplier recruitment, collaboration with other states, and targeted co-funding programs.
- **Focus on strategic dependencies:** Several reactor technologies share components that face high demand from limited production sources located outside of New York State and the U.S., including reactor pressure vessels, ultra-large forgings, steam generators, and fuel fabrication. Other requirements are technology-specific, including high-assay low-enriched uranium (HALEU), tri-structural isotropic (TRISO) fuel, and sodium systems for certain advanced designs, including sodium-cooled fast reactors. Although these components and materials are essential to deployment, New York State has limited near-term opportunities to establish competitive in-state production. The State should therefore leverage reliable national and international supply partnerships while monitoring opportunities for targeted onshoring to meet both in-state and national needs as reactor technologies are selected and greater certainty emerges regarding project pipeline, deployment scale, and repeat demand that justify investment.

Distribution of Nuclear-relevant Firms in Large Industry Groups (excluding construction)



- **Regional strengths support different supply chain roles:** Regions across New York State offer different capabilities that can support supplier development and project delivery. As examples, Central New York and the Finger Lakes have strength in supporting the current operating nuclear fleet, construction services, and precision manufacturing. Western New York offers manufacturing capabilities, leveraging opportunities for coordination across the existing nuclear fleet. The Capital Region contributes electric grid and energy technology expertise. The New York, Long Island, and the Mid-Hudson corridor provide engineering, finance, professional services, large contractor capacity, and university partnerships. These strengths can help direct outreach and coordination of workforce and infrastructure planning.
- **Take early action on supply chains:** Supplier engagement must begin before the procurement packages, qualification pathways, and incumbent supplier networks are firmly established. Once the original equipment manufacturer and engineering, procurement, and construction approach are selected, opportunities for New York State firms to enter the project supply chain may narrow substantially. To address this risk, the State can consider a spectrum of options, from encouraging developers to open opportunities for New York State suppliers, such as through matchmaking, to setting requirements through the State's project procurement standards.

Fusion Energy Supply Chain

Supply chain opportunities extend beyond nuclear fission and include fusion.

- **New York State has meaningful comparative strengths in several cross-cutting portions of the fusion supply chain.** New York State's existing research institutions, advanced manufacturing capabilities, and laser-fusion assets provide potential points of alignment with fusion technology development, particularly in areas such as inertial fusion research, precision manufacturing, optics and photonics, high temperature superconducting wire, and advanced structural materials. Beyond this, advancement in areas such as power electronics, controls, and component testing have potential co-benefits in adjacent industries, including nuclear fission.
- **The strongest near-term opportunities are those that benefit adjacent industries and those with value across all fusion technology concepts.** There is still uncertainty around which fusion concepts will achieve large-scale deployment and when fusion will be commercially viable. Therefore, the most resilient and low-risk economic opportunities lie in supply chain areas that support multiple competing approaches and/or have applications in other industries. There is overlap and alignment between fusion and fission, such that investment could have co-benefits. Although fusion and fission differ in their underlying physics, fuel cycles, and regulatory treatment, there is alignment in the industrial capabilities and workforce needed to support advanced nuclear deployment. Early investments in supply chain opportunities that deliver value across technologies and industries can strengthen New York State's role in the broader fusion ecosystem and in adjacent sectors like advanced fission, aerospace, semiconductors, hydrogen infrastructure, defense, and scientific research.

From Plan to Power

6. **Establish a nuclear supplier readiness program** to identify, qualify, and prepare firms for nuclear procurement through targeted technical assistance and supplier qualification support.
7. **Leverage programs aimed at nuclear project deployment** to create opportunities for New York supply chain companies, e.g. through matchmaking with suppliers in community/developer engagement, by promoting supply chain participation plans and by considering supply chain participation opportunities on localized content in the State's procurement efforts for nuclear projects.
8. **Develop a "whole-of-government" longer-term supply chain strategy** to build New York supply chain strength in a broader range of nuclear components and services and maintain access to any components coming from outside New York, including through strategic partnerships and collaboration with external suppliers and other states and jurisdictions as well as targeted co-funding.
9. **Develop a strategy to support sectors of the fusion supply chain** that offer value across fusion, fission, and other industries; if appropriate, extend eligibility of nuclear supply chain initiatives to include fusion.

Workforce Development

New York State's Nuclear Backbone, and the deployment of advanced nuclear energy in general, will require a highly skilled workforce across a broad range of capable manufacturers, engineering firms, construction contractors, specialized service providers, and operators.

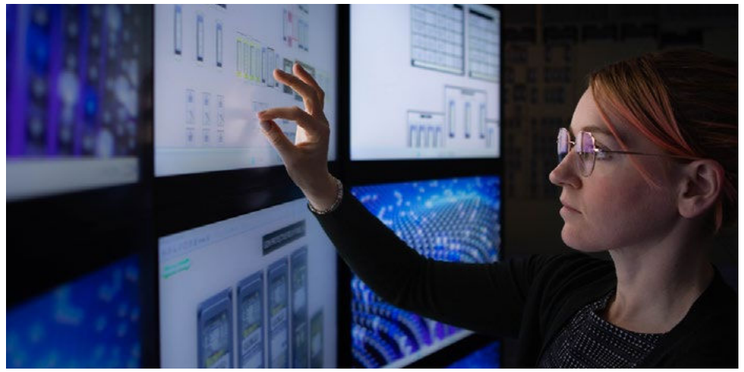
The scale of deployment New York State intends to achieve also creates an opportunity to generate thousands of skilled, well-paying local jobs that strengthen communities.

New York State's existing workforce includes a deep bench of clean energy workers, many already active in nuclear power operations, and extensive training institutions that can expand their training capacity. These assets mean New York State's advanced nuclear energy workforce development ecosystem starts from a position of strength and capability. More specific challenges will need to be addressed as the State's nuclear energy deployment path, in terms of project location, timing, and technology selection, becomes clearer.

Findings

Annual and peak workforce demand: Across the modeled development period and scenarios, nuclear energy projects require an average of approximately 3,100 pre-operations workers annually during the pre-operations phase and 3,200 O&M workers annually during the operations phase (direct and indirect jobs). These annual averages smooth out periods of higher and lower demand and are therefore lower than the peak estimates. The pre-operations phase may require around 7,800 jobs at peak, while the operations and maintenance (O&M) phase may require 4,000 jobs at peak.

Reactor deployment timelines significantly affect workforce demand timing: While these workforce demand projections are relatively consistent across the modeled deployment scenarios, the timing of demand peaks varies substantially, reflecting differences in when projects are planned and constructed. These variations highlight the importance of aligning workforce development, training, and recruitment efforts with projected project schedules to ensure workers are available when demand is highest.



A peak of

7,800

pre-operations workers

Up to

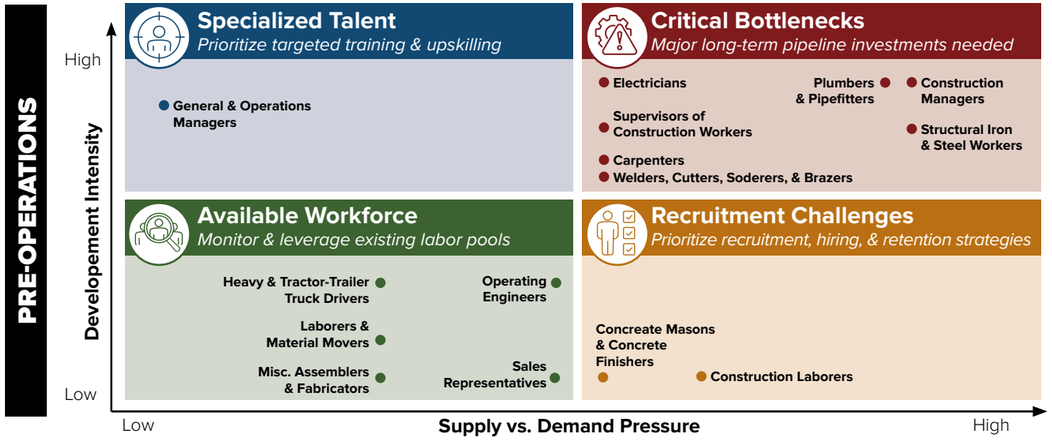
4,000

workers during operation

The nuclear energy workforce comprises two distinct phases that require different occupations and workforce development strategies: The pre-operations workforce supports planning, development, construction, and commissioning, while the O&M workforce operates the plant over its lifespan.

- **Pre-operations:** Initially, a small, specialized workforce is needed for site evaluation, licensing, financing, and environmental reviews, followed by substantial demand for skilled trades, construction management, manufacturing, logistics, and installation occupations. Construction trades drive the near-term workforce surge in New York State, with high demand for electricians, pipefitters, welders, concrete pourers, millwrights, operating engineers, and supervisors. Because many roles may not be needed continuously, careful consideration is needed to determine where in-state workforce development is most efficient versus where demand is better met by traveling workers experienced in major infrastructure projects.
- **Operations and maintenance:** Following construction and commissioning, workforce needs will shift to a sustained, long-term team of operators, technicians, engineers, maintenance staff, security personnel, radiation protection professionals, and plant managers. These roles often require longer lead times, plant-specific preparation, and sustained regional talent pipelines. Occupations with high projected demand and substantial representation in New York's existing nuclear workforce include nuclear technicians, reactor operators, nuclear engineers, security guards, first-line supervisors, general and operations managers, and lawyers.

These risk matrices identify occupations projected to account for the highest demand of workers in each phase, along with associated risks related to development intensity and supply/demand pressure.



Specialized roles: Both pre-operations and O&M require specialized expertise that may be challenging to recruit and develop, even where projected demand is lower. Critical roles include specialized engineers and scientists, digital controls and cybersecurity specialists, advanced manufacturing and modular fabrication personnel, health physicists, and other technical experts supporting design, licensing, commissioning, radiation protection, safety, construction, and operations. Technology-specific certifications, instrumentation and control technicians, hazardous materials removal workers, and specialized maintenance personnel will also be essential.

New York State has a strong existing workforce ecosystem to meet the workforce needs for an 8.4 GW nuclear backbone, particularly for the construction trades. Academic institutions, workforce development initiatives, organized labor apprenticeship programs, experienced contractors, and the State's existing nuclear fleet already possess many of the assets needed to train the workforce capable of delivering early projects. Higher education, community colleges, employers, and existing nuclear facilities can expand specialized education, work-based learning, and operator development. Together with the State's nuclear decommissioning workforce, these facilities represent a critical source of knowledge, experience, and talent that can support future nuclear development. New York State's existing apprenticeship capacity can also help advanced nuclear projects meet prevailing wage and apprenticeship requirements for the Investment Tax Credit (ITC), which requires registered apprentices to perform at least 15% of labor hours.



New York State's Nuclear Workforce Assets

New York State's clean energy economy already employs more than 184,000 workers and includes one of the nation's strongest foundations for advanced nuclear energy workforce development. Approximately 4,000 workers are employed in nuclear operations across the State. More than 500 education, training, and credentialing programs, an experienced organized labor apprenticeship system, existing commercial nuclear plants, national laboratories, advanced manufacturers, and over $200 million in annual energy workforce investments provide a strong platform to support the deployment of 5 GW of additional advanced nuclear energy capacity.

Existing nuclear facilities

- Nine Mile Point Clean Energy Center (Nine Mile Point)
- James A. FitzPatrick Clean Energy Center (J.A. FitzPatrick)
- R.E. Ginna Clean Energy Center (Ginna)
- Indian Point Energy Center decommissioning workforce

Education and training infrastructure

- 10 nuclear-focused programs across New York State colleges and universities
- More than 500 public training and credential programs aligned with nuclear power occupations
- 94 BOCES programs supporting workforce preparation

Labor infrastructure

- 42 organized labor apprenticeship programs supporting target nuclear power occupations
- Established systems for scaling skilled trades on major infrastructure projects
- Strong presence of organized labor in Upstate New York and across the State, including 13 organized labor apprenticeship training programs for electricians, 9 for operating engineers, and 19 or plumbers and pipefitters

Highlighted Existing Workforce Programs in New York State

Training and Career Pathways

- ***$40 million Nuclear Energy Workforce Training Program*** (NYPA) to support technical training, coursework, retraining, and apprenticeship programs for advanced nuclear careers
- ***$30 million Clean Energy Career Pathways Training Program*** (NYSERDA) supporting technical training, career preparation, wraparound services, and job placement
- ***$25 million Clean Energy Workforce Training Initiative*** (NYPA and DOL) supporting clean energy workforce pathways
- ***$15 million Apprenticeship and Pre-Apprenticeship Clean Energy Training Program*** (NYSERDA) expanding skilled trade pathways

Training Infrastructure and Employer Partnerships

- ***$35 million Workforce Development Capital Grant Program*** (ESD) supporting equipment, facility upgrades, and training capacity
- ***$60 million Regional Council Capital Funds Program*** (ESD) supporting regional workforce and infrastructure investments
- ***$115 million Pay for Performance Grant Program*** (ESD) supporting employer-aligned training and workforce expansion



- **New York State can play a national role in nuclear energy workforce training:** The State's extensive higher education, organized labor apprenticeship, workforce development, and existing nuclear energy training infrastructure create an opportunity to develop talent not only for New York State projects, but for the growing national nuclear power industry. As training capacity expands, New York State can establish specialized programs and credentials that attract workers from across the country, prepare New Yorkers for both in- and out-of-state opportunities, and position the State as a national center for nuclear power workforce education and training.
- **Coordinating and scaling based on deployment paths:** As with the supply chain outlook, future workforce needs will depend on key project decisions including where facilities are located, which technologies are selected, and deployment timing. Near-term investments should therefore prioritize scalable, low-risk actions that can expand as deployment plans take shape. Early coordination — including regional planning — among developers, reactor operators, organized labor, educators, and workforce partners will be essential to ensure training investments align with actual job opportunities.
- **Significant existing funding is likely sufficient to meet near-term needs:** More than $600 million in current and recent workforce-related funding opportunities could support occupations, skills, training infrastructure, and career pathways relevant to nuclear development. While these resources are not dedicated to nuclear workforce development, they represent substantial existing workforce infrastructure that New York State can leverage to prepare for nuclear expansion. Preliminary analysis indicates that current funding levels are sufficient to address identified training gaps in the near term, with needs to be reassessed as the State's nuclear deployment pathway becomes clearer.

- **Specific attention must be paid to nuclear career awareness campaigns:** Access to nuclear workforce opportunities may not occur automatically and without intervention. Targeted outreach, financial assistance, and wraparound services are needed to reduce barriers to participation for residents of disadvantaged communities and other historically underserved populations. These strategies are key to ensuring equitable nuclear career opportunity awareness. This includes broad K–12 outreach and education, which is essential to normalize nuclear careers, especially in host communities.
- **Secure equitable access to workforce and economic benefits:** Nuclear power facilities operate for generations, create stable employment opportunities, and provide significant benefits, including contributions to the local tax base in the communities where they are sited. State policies such as host community benefits, Minority- and Women-Owned Business Enterprise (MWBE) and Service-Disabled Veteran-Owned Business (SDVOB) expand opportunities for workers and communities at large. Any new nuclear development activity will be structured to ensure such economic benefits are equitably distributed and positively transformative within communities. Many communities require readily digestible ECJ-focused information about the range of opportunities, including specialized skills and education infrastructure to capitalize on these opportunities. Expanding equitable access will require targeted education, workforce development, and career pathways programs.

Areas to Address through Existing Workforce Programs

Adjustments to existing initiatives to be considered include adding nuclear specializations to existing academic programs, investing in additional training for construction trades, and creating transition pathways from the existing nuclear fleet and adjacent industries.

- Nuclear minors, certificates, and microcredentials
- Technician and community college pathways
- Employer-supported internships and cooperative education
- Apprenticeship-linked training
- Digital simulation and advanced-reactor training tools
- Nuclear awareness and career pathways across high schools, higher education institutions, labor organizations, and training programs

From Plan to Power

10 **Leverage available workforce funding and programs**, focusing near-term investment on strengthening broadly applicable workforce capacity including through upskilling experienced workers and transitioning workers from adjacent sectors, while avoiding substantial commitments to highly specialized or project-specific training until technology choices and project schedules become clearer.

11 **Build on existing workforce and supply chain development initiatives** – such as worker training, MWBE and SDVOB efforts, and place-based investments through existing programs – as well as community benefit frameworks to expand equitable access to the economic opportunities and benefits associated with advanced nuclear energy deployment.

12 **Address further workforce requirements through a longer-term workforce strategy** (covering aspects such as recurring regional planning, employer-led education-to-employment partnerships, and access to worker supports) as New York State's nuclear deployment path including technology choices and project schedules become clearer.

13 **Support stronger interstate and federal coordination** that avoids fragmented workforce strategies, including by pursuing memoranda of understanding with neighboring states and developing multi-state consortia to share labor market information and support planning and delivery of training.



Regulatory Issues and Safety

Ensuring that advanced nuclear power technologies are developed, constructed, operated, and decommissioned safely and responsibly is critical to the future of nuclear energy.

Public trust underpins everything. Sustained public engagement, and transparent communication are essential to earning and maintaining that trust, and New York State treats them as core elements of responsible development. Public confidence in nuclear energy rests on two foundations: the safety characteristics of reactor technologies and a robust, independent regulatory framework that ensures projects meet the highest standards for protecting public health, safety, and the environment. Protection of public health and safety is carried out through a coordinated federal, state, and local framework that ensures nuclear power plants operate safely and do not pose undue risk to public health and safety.

The continued evolution of advanced nuclear power and responsible deployment must be centered on maintaining strong safety principles while ensuring regulatory approaches address new designs and novel deployments. Getting this balance right is not only a safety imperative but also a competitiveness one. A regulatory framework that is rigorous, predictable, and proportionate allows responsible projects to move from proposal to power without compromising what earns the public trust.

Findings

Federal, State, and local governments have unique roles: Federally, NRC maintains exclusive authority over reactor safety, security, and licensing of the radiological safety aspects of building and operating a commercial nuclear power plant. States retain authority over non-radiological environmental protection, siting, utility regulation, and offsite emergency preparedness. Local governments regulate land use and local zoning for smaller reactors alongside State and federal licensing processes.

Who Regulates What: The Three Layers of Nuclear Oversight

No single layer of government builds a nuclear project's rulebook. Authority is shared across these three levels.

1

Federal

The Nuclear Regulatory Commission (NRC) holds exclusive authority over commercial reactor safety, security, and the radiological aspects of licensing, construction, and operation. The NRC decides whether a reactor is safe to build and operate.

2

State

Authority over non-radiological environmental protection, siting, utility regulation, and emergency preparedness. In New York State, Public Service Law Article 10 governs the siting of reactors of 25 MW or larger, incorporates local review, and runs in parallel with the federal review.

3

Local

Land use planning, exercised alongside the State and federal processes. Local governments shape how a project fits its community, although they cannot regulate radiological safety.

- **Safety requirements for advanced reactors:** Many advanced reactors use passive safety features and hold less radioactive material on site, so enacted and proposed federal rules scale emergency planning and security requirements to their risk. Every design remains subject to the NRC's independent safety review and oversight. New York State, through its State Liaison Officer, should monitor these federal changes, assess what they mean for New York's communities, and coordinate with State and local agencies to keep public health and safety protected.
- **New York State's core regulatory framework:** New York State has the core legal and institutional framework needed to evaluate new grid-connected and large behind-the-meter nuclear power development, whether large light-water reactors or more advanced and smaller reactor designs. DPS and the New York State Board on Electric Generation Siting and the Environment, pursuant to Article 10 of the Public Service Law, have the primary role in siting nuclear generation facilities greater than 25 MW through the exercise of jurisdiction over most non-radiological aspects of siting, constructing, and operation of nuclear energy reactors. Article 10 serves as the central process to coordinate the siting and permitting of nuclear energy facilities, which occurs in parallel with the federal NRC process and aims for efficiency and minimal duplication of work, with NRC licensing materials filed for reference in the Article 10 proceedings.
- **The State's framework must adapt to differentiate by scale:** As the deployment of smaller and non-grid-connected nuclear power plants becomes increasingly feasible, the State's regulatory and safety framework must adapt to appropriately evaluate, site, and oversee the full lifecycle of such facilities. New technologies and deployments necessitate differentiation by scale or application in the State framework.

New York State Public Service Law Article 10 Certification Process

1 Public Investment Program (PIP)	2 Preliminary Scoping Statement	3 Formal Application Filed	4 Public Hearings	5 Siting Board Decision	6 Compliance Filings
Applicant conducts outreach: • Public Involvement Program (PIP) • Environmental Studies • Intervenor Funds • Voluntary Stipulations PIP must be submitted to the Siting Board at least 150 days prior to any Preliminary Scoping Statement.	Applicant files a preliminary scoping statement with the Siting Board. Must be approved before formal application may be submitted. Filing must occur at least 90 days before the application.	Applicant submits formal application. Robust exhibits include site, design, environmental impacts, and alternatives.	Siting Board evaluates the application and determines complete within 60 days. Holds hearings including the public and intervenors may participate and submit evidence.	Siting Board issues a final decision to issue or deny a certificate within one year. Decision must address: • Environmental Impacts. • Electric system benefits and consistency with energy plans. • Compatibility with State and Local Law.	Once a Certificate is issued, the Certificate Holder files compliance packages for PSC review and approval. Compliance filings are subject to public comment. Construction cannot begin until the PSC approves the relevant compliance filings.

Governing Law: Article 10 of the Public Services Law administered by the New York State Board on Electric Generation Siting and the Environment (Siting Board)

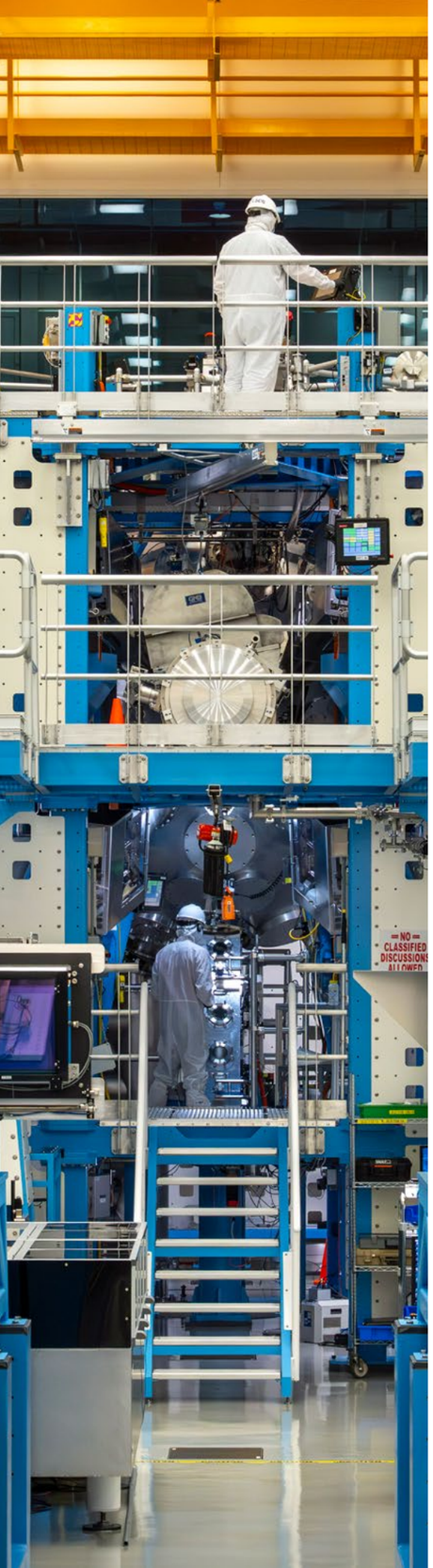
Safety by Design: How Advanced Reactors Protect Themselves

Many advanced reactors are engineered so that the laws of physics keep them safe rather than relying on operator action or external power. These safety features include:

- **Passive safety systems:** Utilize natural phenomena such as natural circulation, gravity, and convection to perform safety functions without outside power or operator intervention. Examples include gravity-driven cooling systems and passively actuated shutdown systems.
- **Inherent safety systems:** Fundamental physical properties of the reactor design that naturally limit accident progression without requiring human intervention. Examples include low pressure operation of some reactor types that eliminate high-pressure accident scenarios and advanced fuel forms such as tri-structural isotropic (TRISO) particles that are built to hold their radioactive contents intact at very high temperatures.

These characteristics do not replace oversight. Instead, they strengthen the case for oversight that is rigorous and right-sized.





- **Complexity and agency coordination:** Multiple State agencies and authorities — including DPS, DEC, DOH, DHSES, DOS, and NYSERDA — play important, established roles in nuclear energy deployment on matters of health and safety, environmental impacts, emergency preparedness, and intergovernmental coordination. The intersection of these agency roles and requirements can make it challenging for stakeholders to navigate the regulatory process, highlighting opportunities to streamline procedures and provide a clear, single source of information.
- **Early Site Permits (ESPs) can increase regulatory certainty:** The federal ESP process settles key regulatory aspects for a particular location before a reactor design is chosen or construction begins. It is a practical way to prepare project-ready sites for advanced nuclear energy development. However, navigating the regulatory process can be challenging and costly for communities who may need additional support to make the best use of ESPs. Recent U.S. Department of Energy (DOE) and New York State co-funding to support Constellation Energy's application for an ESP for advanced reactors at Nine Mile Point is an example of cooperative federal and State support to lower hurdles for potential projects to access the ESP process.
- **Ongoing federal regulatory modernization:** As federal agencies implement regulatory updates to accelerate advanced-reactor deployment, New York State supports best practices for federal processes to improve efficiency and ensure public safety. New York State comments on many federal rulemakings have emphasized preserving NRC independence; ensuring adequate NRC staffing levels; coordinating efficiently between NRC and DOE; achieving licensing predictability; providing appropriate safety requirements and oversight; maintaining review quality as new licensing pathways and accelerated timelines take effect; and funding advanced-reactor safety research.
- **Local governments are important stakeholders:** Local governments review aspects of nuclear energy facilities through zoning, site plan review, special use permits, and building permits for nuclear reactors below 25 MW. For nuclear facilities subject to Article 10, local governments are represented on the Siting Board and have statutorily guaranteed party status. Additional resources, technical information and assistance, and planning support may be useful for municipalities, particularly as advanced nuclear energy technologies mature, and to address ancillary development such as roads, highways, water and sewer infrastructure, housing, and financial planning.
- **Regulatory readiness for nuclear fusion:** NRC's upcoming fusion rulemaking reflects that fusion is expected to produce very limited long-lived high-level radioactive waste. New York State, mainly through DOH, will have primary responsibility for licensing and oversight of future fusion facilities and already does so at the University of Rochester's Laboratory for Laser Energetics. Additionally, any fusion generator would fall under Article 10 as a major electric generating facility where nameplate generation exceeds 25 MW for siting of electric infrastructure. While New York State's statutory authority has no fundamental gap, administrative and technical opportunities remain to enhance preparedness and consider streamlined procedures for commercial-scale facilities.

From Plan to Power

14 **Continue to conduct proactive public engagement**, including clear and timely information on nuclear development, and nuclear energy education, so that host communities and the broader public can meaningfully engage in public participation opportunities and have confidence in the rigor of State and federal oversight.

15 **Conduct a review of State regulations** including for smaller and non–grid-connected nuclear facilities to identify opportunities to increase efficiencies, streamline review, and address potential emerging areas - building on the findings in this Master Plan and to further the Governor's EXPRESS NY initiative.

16 **Consider additional support for local governments in local planning and regulatory needs** to prepare for potential new nuclear development, through updates or development of new model zoning laws and planning tools.

17 **Provide information on regulations, licensing, safety, and waste management** for stakeholders, local governments, and host communities; and assist with referrals to appropriate permitting, environmental, and public safety agencies.

18 **Continue working with the federal government to develop cooperative federal and State support** on the Early Site Permitting process to communities and developers in the form of federal co-funding and regulatory assistance.

19 **Include fusion in the State's efforts to provide information on nuclear regulatory issues** as well as State assessment and review of regulations for nuclear facilities; and strengthen agency preparedness to ensure the State is ready as and when the first pilot or commercial project application emerges.

Waste

Responsible development of nuclear energy requires safe management of nuclear waste.

The federal government regulates storage and transportation of spent nuclear fuel and high-level radioactive waste and is responsible for its permanent disposal. NRC and DOE licensees are responsible for managing spent fuel on-site in safe, established, dry cask storage for an extended period while permanent federal solutions are developed.

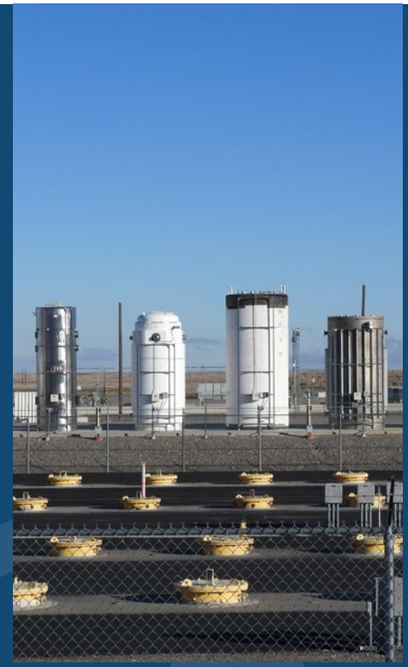
New York State has safely stored spent nuclear fuel and other high-level waste since its first nuclear power plant, Indian Point, opened in 1962. The State currently stores, on an interim basis, approximately 5,700 MTHM of spent nuclear fuel across four commercial nuclear power plant sites, in addition to 278 vitrified high-level radioactive waste canisters at the West Valley Demonstration Project (WVDP), which was the nation's only privately operated spent fuel reprocessing facility. While advanced reactors would contribute additional waste over time, they do not create the underlying challenge; they add to an inventory the State is already safely and responsibly storing until a long-term waste solution is available.

Decades of Safe Storage in a Remarkably Small Footprint

When spent fuel leaves a reactor, it is first cooled in water, then sealed inside dry casks: massive steel-and-concrete cylinders engineered to contain radiation, dissipate heat, and withstand extreme events. The technology is not experimental. It has safely stored used fuel across the U.S. for decades.

- **Proven and passive:** Dry casks require no moving parts and no external power to stay safe. They cool by natural air circulation.
- **Compact:** decades of used fuel from a nuclear plant can be stored safely on a remarkably small footprint.
- **Secure and monitored:** Casks are continuously monitored and inspected under federal oversight.

Dry-cask storage is a proven interim solution. What remains is the federal endpoint to complete the journey.



Findings

- **Safe interim storage:** Dry-cask storage has been safely used for decades and provides a proven, secure interim storage solution for spent nuclear fuel while permanent federal solutions are developed.
- **Some advanced nuclear energy technologies may generate different quantities or types of spent fuel:** The maturity of the disposal pathway should be considered when evaluating advanced nuclear reactor technologies.



Waste Characteristics and Management Uncertainties for Advanced Non-Water-Cooled Reactors and Microreactors

Advanced reactors with non-water coolants present different waste profiles than light-water reactors (LWRs). For example, sodium-bonded spent fuel from some advanced designs is not suitable for direct disposal and requires treatment methods that are not yet mature at industrial scale, and high-temperature gas-cooled reactor graphite and tri-structural isotropic (TRISO) fuel may increase waste volumes that must be managed as spent fuel.

Additionally, significant uncertainty remains regarding the quantities of high-level and low-level waste generation expected from advanced reactors. Waste management strategies for advanced-reactor technologies will need to be tailored to the specific technology, and many practical uncertainties persist because of limited commercial operating experience with non–water-cooled designs. While non–water-cooled advanced reactors are expected to rely on the same fundamental storage approach as conventional spent fuel, the specific storage systems may differ substantially by fuel type.

Microreactors will require additional design-specific considerations depending on the fuel type, coolant, materials, and refueling practices. Key uncertainties for managing spent fuel from microreactors include the amount and classification of activated structural material generated during operation and decommissioning, the storage and transportation requirements for spent cores or fuel, the extent to which waste management would occur at the deployment site versus a centralized facility, and the resulting lifetime waste volumes and storage footprint.

- **Class A, B, and C low-level waste is routinely and safely managed:** Low-level radioactive waste is safely managed, and disposal options are currently in place outside of New York State. Continued cooperation with the states that host low-level-waste and voluntarily accept waste generated in New York helps to preserve access to existing disposal capacity.
- **New York State has gained important hands-on experience with nonroutine spent fuel issues:** Indian Point's timely transition to onsite dry cask storage (about 127 casks) and the 25-member Indian Point Decommissioning Oversight Board (DOB) give the State a working model for coordinating multiagency oversight that can be applied to advanced-reactor sites. West Valley has successfully vitrified more than 600,000 gallons of liquid high-level waste into 278 canisters. These examples reinforce confidence in New York State's ability to responsibly manage future nuclear energy waste challenges.

Exploring a Demonstration for Safe Fuel Transportation

Completing the back end of the fuel cycle will eventually mean moving used fuel safely from where it is stored to where it is consolidated or disposed. New York State is well positioned to explore a partnership with DOE to help demonstrate safe spent fuel transportation.

- **The opportunity:** Exploring a partnership with the DOE to demonstrate the transportation of commercial spent nuclear fuel, or of West Valley's high-level waste, would give the State and its communities direct, practical experience with the logistics, safety protocols, and community engagement that large-scale transport requires.
- **Why it matters:** Transportation is often the least familiar part of the fuel cycle to the public. A well-run demonstration would build the operational know-how and the public confidence that a future consolidated storage or repository program will depend on.
- **New York State's advantage:** Casks in this country are transported under rigorous, long-established federal safety standards. New York State's experienced workforce and its existing sites make it a credible place to demonstrate how it can be done.

A potential safe fuel transportation demonstration would turn a distant federal obligation into a near-term opportunity for New York State to lead.

From Plan to Power

20 **Continue engagement with the federal government on issues related to spent fuel**, including consolidated long-term storage, DOE's Nuclear Lifecycle Innovation Campus Initiative, and strengthened oversight of decommissioning trust funds.

21 **Support research on advanced nuclear technology spent fuels**.

22 **Explore a partnership with the DOE** to demonstrate safe transportation of New York State commercial spent nuclear fuel or West Valley high-level waste to complement federal transportation demonstrations and reduce State spent fuel volumes.



Siting

Selecting a nuclear energy facility site is one of the most consequential early decisions in the project lifecycle, influencing design customization, regulatory approvals, community acceptance, construction timelines, project costs, and long-term operational success.

Identifying viable sites requires consideration of a broad range of technical, environmental, infrastructure, regulatory, and community factors. Once a site and willing host community is identified, extensive site characterization prepares the project for NRC licensing and State permitting decisions, underscoring the importance of early and thorough evaluations to identify the most viable sites and willing host communities.

The process to identify a site for the NYPA-led project is already underway including through an RFI process that enabled interested communities to be considered as potential hosts. Further site identification and evaluation will be needed to deliver the Nuclear Reliability Backbone goal.

Findings

- **A community-based approach is essential:** A community-centered approach to initial site identification, evaluation, and early site development is likely to yield the most suitable sites that incorporate community interests, lower overall project costs, and reduce project risks. Emerging processes across the nation, in addition to New York State's experience with other energy project siting processes, provide real-world examples of critical program elements, including mechanisms to engage the local community, demonstrate public support, methods of determining preferred sites, and incentivizing project sponsor interest through potential State contributions to future permitting/licensing activities. Siting decisions should balance community needs with key technical, environmental, infrastructure, and regulatory factors.
- **Site evaluation is a phased process:** The site evaluation process often begins with a preliminary study focused on identifying any immediate issues that would make a site unviable. More detailed evaluations follow and incorporate more NRC siting criteria and factors that may affect overall site readiness. These evaluations can start from a broader geographical area rather than a single preferred site or set of potential sites.



Site characterization is a significant effort and is critical for future licensing or permitting: Once a preferred site is identified and secured, site characterization can proceed with extensive on-site collection of detailed environmental, geological, meteorological, and technical information necessary to support NRC licensing and federal and State permitting decisions. These activities can require a significant investment, with site characterization costs estimated at approximately $8 million to $13 million. ESPs include additional activities that can increase these costs. The cost and complexity of these activities underscore the importance of conducting thorough early evaluations to identify the most viable sites and host communities before advancing to later stages of development.

Brownfield sites may offer cost advantages over greenfield sites: As noted in the Advanced Nuclear Policy Options Paper, development on brownfield sites — those previously used for energy or industrial purposes — could significantly reduce overall project costs. This is largely attributable to lower capital costs and shorter development timelines, which depend in large part on the sufficiency of existing infrastructure accessible to the brownfield site, e.g. transmission capacity and remediation costs. The Zero by 40 Technoeconomic Assessment found that the opportunity may be highest at former coal sites. Development of brownfield sites would be subject to the same siting evaluations that consider a range of technical, environmental, infrastructure, regulatory, and community factors.

From Plan to Power

23 **Identify communities interested in hosting nuclear deployment** and support both communities and partnering developers in evaluating suitable sites (such as fossil brownfields), including through co-funding of ESPs or site characterization.

A Timeline of Siting Stages

1

Initial Site Screening

- Earliest stages of analysis focused on whether one or multiple sites fulfill essential NRC criteria (e.g., population centers) or present major barriers to site development (e.g., water availability).

2

Site Feasibility Study

- Wider and more detailed NRC criteria and factors that pose implications for cost and timeline, known as “avoidance factors” (e.g., land rights, workforce availability, access to infrastructure). A Site Feasibility Study could examine one or multiple sites to result in final site selection.
- As an alternative, a “Full Site Selection Study” may be carried out — where consideration does not start with specific initially-identified sites, this systematically evaluates possible sites across a broader geographical area, effectively incorporating elements both of Initial Site Screening and Site Feasibility Study.

3

Site Characterization

- On-site data collection and field activities to support a licensing application to the NRC once a site has been selected and the developer or community has acquired rights to develop the site. This work could cost between $8 million and $13 million, so confidence in the site selected through earlier analysis is crucial.

Environmental and Climate Justice

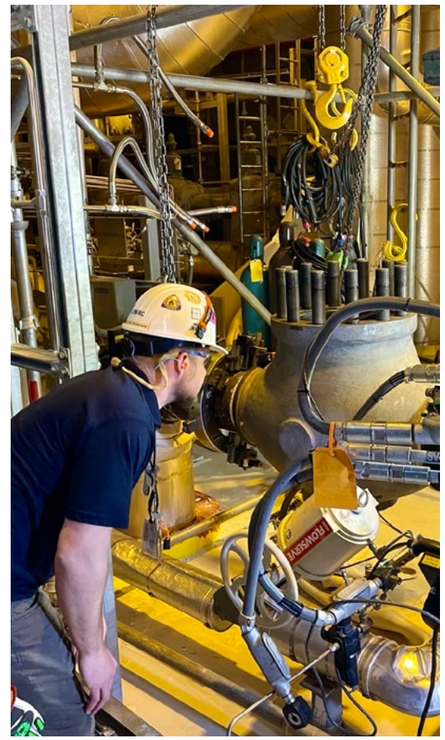
As New York State considers the responsible deployment of a new generation of advanced nuclear energy facilities, the State remains committed to championing the Environmental and Climate Justice (ECJ) principles of equitable treatment and meaningful involvement of potential host communities.

New York State has established itself as a national leader in fostering ECJ principles across its legal, policy, and regulatory frameworks, and programs. Advanced nuclear energy development presents unique opportunities and responsibilities to continue to apply these lessons. New York's robust framework establishes under the Climate Act that 40% of the benefits from state clean energy and energy efficiency program investments should flow to disadvantaged communities, with a goal of 45%.

Given the longevity of nuclear generation assets and intergenerational spent fuel management needs and requirements, ECJ principles throughout the lifecycle of nuclear power generation development are essential to achieving equitable distribution of benefits and responsibilities. Indigenous Nation considerations, in particular, must be incorporated given the deep historic ties to the land and natural environment that are culturally, spiritually, and economically important across generations.

Findings

Provide robust and accessible public education: New York State's energy development history shows that community outcomes depend on how physical project infrastructures, outcomes, and benefits are structured and delivered, and whether long-term project maintenance responsibilities are implemented effectively. Building trust through education and community engagement is central to developing advanced nuclear projects. Credible, timely, and transparent communication; accessible public health information; and sustained engagement that acknowledges perceived and potential risks can help communities make informed decisions and participate meaningfully in project development. By the time federal environmental reviews begin, developers and communities have already made site selection decisions and substantial licensing process investments. Existing New York State ECJ policies, tools, and best practices, including, as applicable, state-level permit reviews, can complement Federal environmental reviews by incorporating ECJ considerations before major siting and development decisions are concluded and significant investments are committed.



- **Engage Indigenous Nations throughout the project development lifecycle:** Engaging Indigenous Nations early in project planning builds the trust and sustained relationships necessary for successful outcomes. Formal government-to-government consultation, including through state-level permit reviews, as applicable, early in the project lifecycle can provide meaningful additional engagement. Federal consultation requirements also provide important mechanisms for federally recognized Indigenous Nation engagement in the NRC licensing process. However, this typically occurs after early-stage project development and site locations have been identified.
- **Clear information and sustained engagement are essential for successful advanced nuclear development:** Credible, timely, and accessible communication and public health information, and sustained engagement can build public trust and help communities make informed decisions and participate meaningfully in project planning.
- **Emergency preparedness and planning needs to incorporate community circumstances:** Existing economic constraints, mobility and transportation limitations, communications constraints, and lack of emergency response capacity can impact a community's ability to prepare for, respond to, and recover from potential crisis events. These conditions may be highly variable throughout communities across New York State. Effective emergency preparedness planning must therefore evaluate the likelihood and consequences of potential incidents alongside the existing conditions that shape community resilience. Incorporating these factors into planning and siting decisions early can help ensure environmental, public health, and emergency preparedness disparities are examined and addressed.

Examples of ECJ Considerations in Current Processes

DPS's large-scale generation siting processes include detailed requirements for the identification and description of disadvantaged communities, including those in Indigenous Nations. Notably, the permitting requirements for major renewable energy generation facilities pursuant to Public Service Law (PSL) Article VIII and major electric generation facilities pursuant to PSL Article 10 require any application to include:

- **Identification and description of environmental justice/disadvantaged communities within the project study area**
- **Assessment of the potential adverse disproportionate pollution impacts impacting environmental justice/disadvantaged communities**
- **Detailed assessment and description of measures to avoid, minimize, and/or offset disproportionate pollution impacts**

Article VIII and Article 10 also include opportunities for potentially affected environmental justice/disadvantaged communities to participate in the permitting review processes, including but not limited to, opportunities to provide comments on the record, recommendations for avoidance, minimization, and mitigation strategies, and potential party status.

In addition, both processes establish requirements for availability of intervenor funding for potentially affected municipalities and other parties, including environmental justice/disadvantaged communities and Indigenous Nations, to ensure full and equitable opportunities for participation in the application review and permitting processes.



From Plan to Power

Advance ECJ priorities through the efforts throughout the Master Plan, in particular on workforce development, regulatory issues, safety and siting, and in addition:

24 **Advance dedicated ECJ stakeholder and Indigenous Nation information sharing, education, and engagement activities.**

25 **Integrate ECJ considerations into advanced nuclear community engagement efforts and project development.**



Nuclear Microreactor Technologies

Advanced nuclear energy offers innovation in many respects, including by enabling nuclear energy projects at much smaller sizes than previously, referred to as nuclear microreactor designs.

Findings

- **Microreactor readiness:** In New York, microreactors may be most relevant to smaller, specialized industrial, institutional, military, remote, or existing nuclear-site loads, with lower-density locations offering more realistic early pathways. The market remains pre-commercial: there has been greater progress on funding, partnerships, and regulatory processes than on integrated demonstrations and fuel and manufacturing. Low-Enriched Uranium (LEU)-based designs generally have a fuel-supply advantage, while many advanced designs face High-Assay Low-Enriched Uranium (HALEU) and Tristructural Isotropic (TRISO) constraints. While the small size of these designs offers opportunities for these projects to be more fundable and faster, they currently remain at the first-of-a-kind (FOAK) development stage. Microreactors face similar deployment challenges as large LWRs and small modular reactors (SMRs) related to fuel supply, safety, spent fuel, siting, supply chain readiness, and permitting.
- **Electricity supply configurations:** Microreactors may supply the wider grid, serve co-located industrial, institutional, or military electricity users, or form part of microgrids designed for islanded operation. These arrangements can overlap. Co-location may offer resilience, price stability, revenue certainty, and reduced transmission losses and grid-upgrade needs. However, deployment schedules may not align with host requirements, backup supply may still be needed, and reliance on one customer creates offtake and stranded-asset risks. Microgrids capable of operating independently of the wider grid require onsite balancing, controls, and sufficient backup or redundancy. Batteries can help manage short-term differences between generation and demand, but additional backup arrangements are needed during extended reactor outages. The suitability of each arrangement depends on electricity demand, grid access, resilience requirements, and the associated cost and complexity.

Fort Drum: Microreactor Technology in Practice

The advanced microreactor selected for installation at Fort Drum under the U.S. Army's Janus Program is intended to provide secure, reliable, on-site power for critical defense operations.

This project shows how compact reactors can serve a dedicated load, strengthen energy resilience, integrate with the existing grid, and use only a small footprint. As this project advances, it can yield practical lessons on siting, licensing, and community engagement that inform New York State's broader approach to microreactors and other applications beyond grid-scale generation.

From Plan to Power

26 **Examine and identify the most compelling, high-value nuclear microreactor technology opportunities** for New York State and, where further action is warranted, outline pathways and options to enable their development.

27 **Establish an appropriate cooperation framework** with the U.S. Army's Fort Drum leadership and Westinghouse Government Services to identify opportunities for the state to benefit from the available federal investments, and to leverage experience gained in respect of supply chain, workforce, and the project's development, construction and operation.



Research and Development

Ongoing research and development (R&D) in fission technologies, including work on advanced fuels, improved materials, next-generation control systems, and enhanced safety features, continues to expand the performance, cost savings, and applications of advanced nuclear generation.

Sustained innovation in these areas is important to help address technical factors constraining the commercial deployment of next-generation advanced nuclear energy technologies. The federal government leads nuclear energy R&D in the U.S., which shapes, rather than eliminates, the case for State investment. Federal laboratories conduct the most capital-intensive research activities. At the same time, states tend to focus on applied research that accelerates deployment, such as innovations in manufacturing, siting processes, supply chains, and preparation for future demonstrations. States also leverage proximity to national laboratories and their academic institutions to host technology testbeds and research reactors.

New York State's continued leadership in R&D provides an opportunity to support the State's premier research institutions, help improve innovative technologies that could underpin the Nuclear Backbone, and position the State as a hub for nuclear energy innovation shaping the next generation of deployment.

Findings

New York State's robust research expertise can be strengthened through coordination: The state is home to globally recognized universities and research institutions that represent significant assets for advancing nuclear energy innovation. Premier institutions, including Rensselaer Polytechnic Institute (RPI), Stony Brook University, and Brookhaven National Laboratory (BNL), conduct research across a wide range of advanced nuclear energy technology disciplines. However, the State lacks a centralized nuclear power R&D support organization to improve coordination across New York State and avoid fragmented, duplicative efforts. Building partnerships within the State R&D ecosystem, as well as with national laboratories and private industry, is critical to ensuring innovators have access to cutting-edge tools and necessary testing infrastructure and to focus on the most impactful issues.

New York State is home to globally recognized universities and research institutions that represent significant assets for advancing nuclear energy innovation.

- **Opportunities for innovation:** The advanced nuclear energy project lifecycle spans a range of technical domains that targeted state-level research and innovation can address. Advancements in manufacturing and project delivery processes, leveraging the State's nonnuclear expertise, can support project economics by improving construction management, manufacturing, and engineering processes across technology types. Deploying New York State's civil, structural, and environmental engineering expertise to improve nuclear generation site characterization and preparation can also help streamline and standardize deployments. The State's significant expertise on material development and characterization and component design can translate to cost and performance gains for fission and advance fusion technologies. While the federal government leads and coordinates research into nuclear-fuel cycle innovation, improvements in used fuel management, spent fuel disposal pathways, and reprocessing options and safeguards offer long-term state-level investment opportunities.
- **Nationwide constraints in testing and validation infrastructure are delaying commercial readiness of nuclear energy innovations:** New York State researchers require improved access to specialized testing and validation infrastructure to have a significant impact. In the near term, facilitating collaboration and partnerships between New York State innovators, national laboratories, and other entities with specialized capabilities is a priority. To address these constraints, existing facilities would need to be expanded or new ones built.
- **Building a cohesive nuclear innovation ecosystem with an emphasis on partnerships is a priority:** This could be achieved by establishing a centralized operating vehicle focused on advanced nuclear innovation that could serve as a centralized coordinator and facilitator of advanced nuclear research around a shared R&D agenda. This entity could coordinate research activities and knowledge sharing in priority R&D topics identified in this study for nuclear fission and fusion energy, and facilitate academic-industry-government collaboration and public-private partnerships.

Spotlight: University of Rochester's Laboratory for Laser Energetics

The University of Rochester's (UR) Laboratory for Laser Energetics (LLE) is one of the world's leading inertial confinement fusion research institutions. LLE operates the OMEGA laser facilities and conducts research in high-energy-density physics, laser–plasma interactions, and advanced fusion diagnostics. Beyond research, LLE serves as a key workforce development and technology hub for high-power laser systems, training engineers and scientists with direct experience in fusion-relevant photonics and plasma diagnostics.

LLE has spun out startups and participated in public–private partnerships. Most recently, LLE entered into a partnership with Focused Energy Inc., a private fusion startup, to study laser-plasma instabilities, a collaboration awarded a $6.9 million DOE Innovation Network for Fusion Energy (INFUSE) Program grant. LLE is also leading one of three multi-institutional and multidisciplinary hubs DOE established in 2023 to advance inertial fusion energy.

New York State Academic and Industry Collaboration

The Nuclear Engineering program at Rensselaer Polytechnic Institute (RPI) is one of the oldest programs in the U.S., established in 1960. RPI operates the Gaerttner Linear Accelerator Center (Gaerttner LINAC Center), whose mission is to collect nuclear generation data for safe reactor design, with expanding applications in radiation effects testing, medical isotope production, and materials processing.

RPI has received multiple U.S. Department of Energy (DOE) grants, including Nuclear Energy University Program (NEUP) grants looking at the thermal properties of uranium dioxide fuel and corrosion resistance.

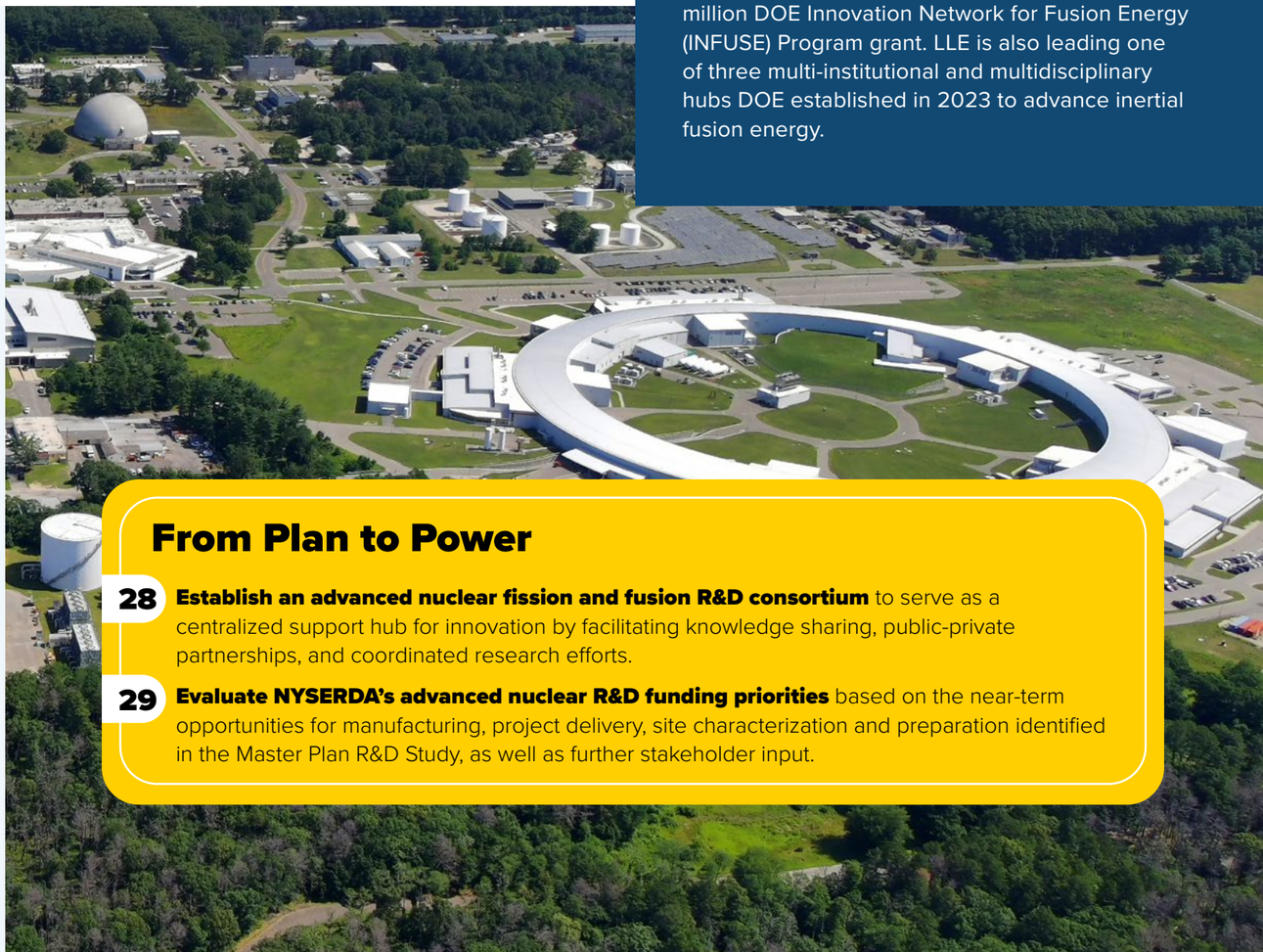
For example, RPI has developed artificial intelligence (AI) and machine learning methods for surrogate modeling and accelerated evaluation of material and component performance, and they have collaborated with Idaho National Laboratory (INL) on multi-physics modeling.

New York State has a strong fusion energy R&D ecosystem

LLE provides world-class inertial-fusion and high-energy-density physics capabilities; BNL offers superconducting magnet expertise, materials characterization, and accelerator-based irradiation capabilities; and universities including Columbia, Cornell, RPI, Stony Brook provide complementary expertise in plasma physics, materials, nuclear engineering, diagnostics, and modeling.

In addition, the State has a base of relevant manufacturers in optics, superconductors, precision fabrication, controls, and advanced materials that could partner in applied R&D. BNL's strengths in advanced characterization, accelerator-based irradiation, and materials science could position New York State to play a critical upstream and midstream role in the fusion materials ecosystem, complementing national facilities that specialize in high-flux testing.

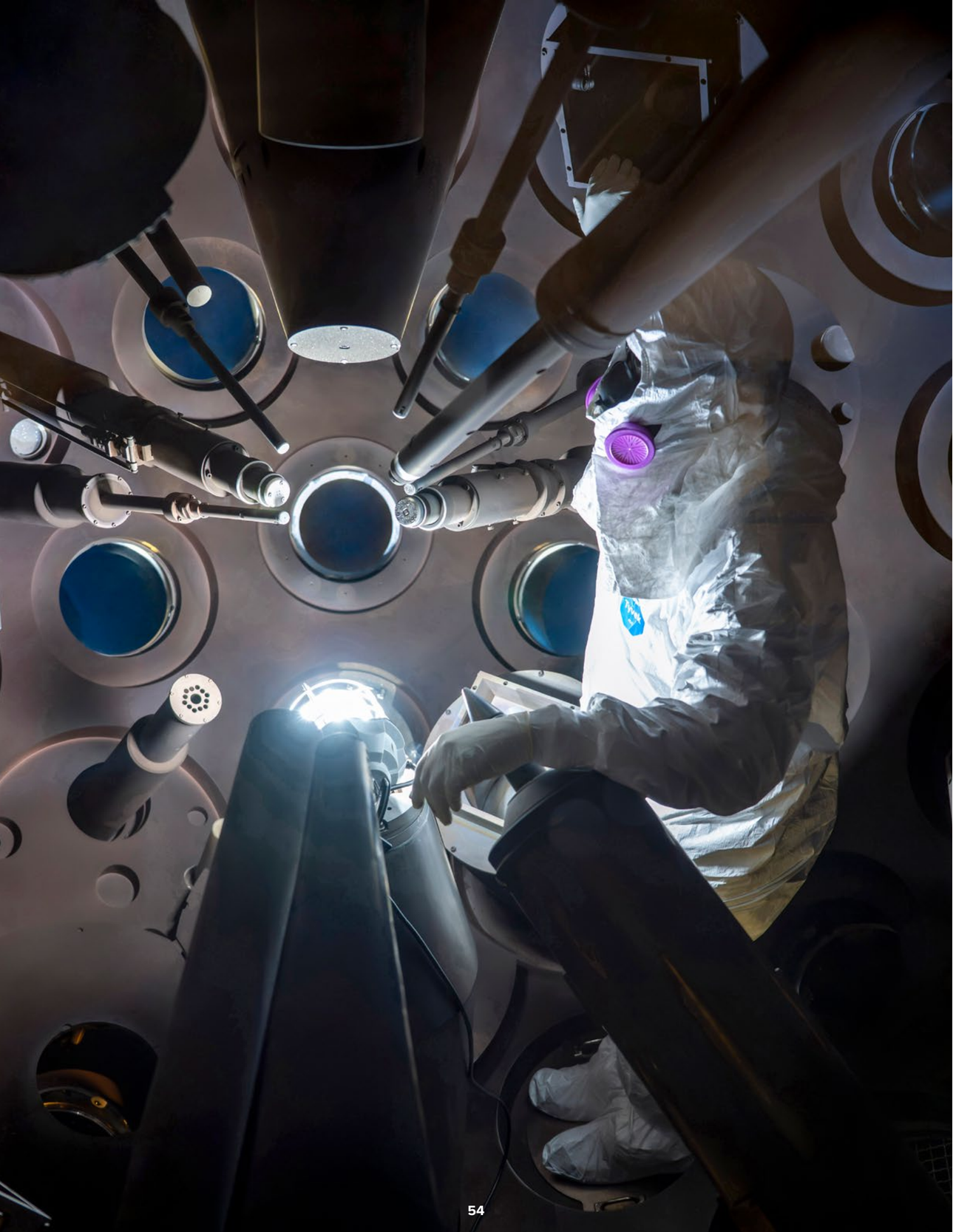
These strengths are in several areas that are critical across multiple fusion technology approaches and create opportunities for the state to contribute to fusion development.



From Plan to Power

28 **Establish an advanced nuclear fission and fusion R&D consortium** to serve as a centralized support hub for innovation by facilitating knowledge sharing, public-private partnerships, and coordinated research efforts.

29 **Evaluate NYSERDA's advanced nuclear R&D funding priorities** based on the near-term opportunities for manufacturing, project delivery, site characterization and preparation identified in the Master Plan R&D Study, as well as further stakeholder input.



Fusion Energy

Fusion technologies generate power by combining light atomic nuclei rather than, as in the case of nuclear fission, splitting heavy ones.

The nuclear fusion industry is evolving from a long-standing scientific research effort to engineering development and early-stage commercialization, driven by recent advancements in plasma physics, materials science, and significant public and private investments. Continued engagement with fusion technologies at this stage of development presents New York State with the opportunity to help shape an emerging global industry, position the State's research institutions and supply chain providers to contribute to its development, and capture early economic benefits as the sector matures.

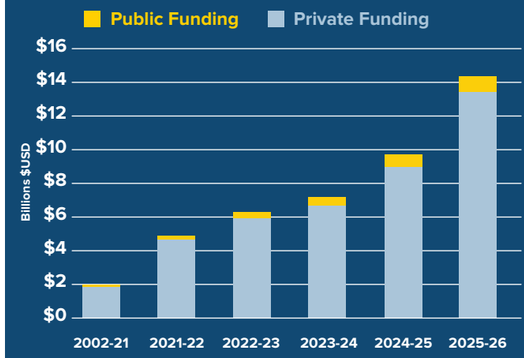
Findings

- **Fusion has made progress and investment is accelerating:** Recent advances in plasma physics, enabling technologies, federal funding programs, and private investment have contributed to this increased momentum for the growing fusion ecosystem. A key feature of the industry is public-private interactions with public research institutions and private developers advancing multiple technological pathways in parallel.
- **There remain significant hurdles to commercialization:** Fusion remains in a pre-commercial phase, with significant technical, industrial, regulatory, and market challenges to be addressed before it can be deployed as a reliable source of electricity. As fusion technologies continue to advance, their role within future energy systems will depend on the pace at which these challenges are addressed. Given these dependencies, deployment timelines remain uncertain.
- **For New York State, near-term action can most meaningfully focus on readiness and option value**, such as strengthening research and industrial capabilities and monitoring technology pathways; maximizing economic benefits from supply chain opportunities and ensuring the regulatory framework is ready to enable developments as the market progresses. These issues are considered throughout this Master Plan including in the Supply Chain, Regulatory Issues and Safety, and R&D studies.

State of the Fusion Industry

More than 50 private fusion companies operate worldwide, including 28 based in the U.S.

Since 2021, combined public and private sector funding for fusion has risen from $1.9 billion to over $14 billion globally. The vast majority (93%) of this investment comes from private sources, fueling technology development, engineering validation, prototype systems, and innovative design approaches on accelerated timelines.



From Plan to Power

30 **Pursue fusion energy opportunities** through the efforts throughout the Master Plan, in particular on supply chain, regulatory issues and safety, and R&D.



From Plan to Power: Next Steps

The steps set out in this Master Plan and in its supporting studies offer a path toward a comprehensive enabling policy framework for New York State's Nuclear Backbone and development of advanced nuclear energy projects more generally.

Implementation will be taken forward by NYSERDA, DPS, and other state entities, subject to Executive and/or PSC decision-making as appropriate. Several areas will need further strategy development once specific aspects of New York State's deployment paths — such as site and technology choices — become clearer.

Other actions can and should begin now.

In addition to the path forward on each of the specific areas examined in this Master Plan, the State will also continue sustained stakeholder engagement, education, and information-sharing to ensure that communities and other stakeholders are informed and meaningfully engaged as planning progresses, building on the engagement that already occurred throughout the Master Plan development period.

This is essential to earning and sustaining trust in the State and nuclear power industry. New Yorkers deserve clear, credible, and understandable information about complex and often unfamiliar topics, including reactor technologies, radiation and safety, radioactive waste, siting, costs, environmental impacts, and emerging technologies. Building public understanding will require an effort that extends beyond formal opportunities for participation and reaches people through the platforms, institutions, organizations, and information sources they already know and trust.

NYSERDA will build a **statewide nuclear energy education and information program** that provides clear, technically credible, and accessible information for everyday New Yorkers.

- As a first step, NYSERDA has curated an online Advanced Nuclear Education Library that compiles accessible, expert educational resources on aspects of advanced nuclear energy development, including nuclear energy basics, technology types, environment and health, waste, raw materials and supply chain, and more. Designed for all New Yorkers, the library is an online tool where residents, communities, educators, policy makers, and anyone with interest can find evidence-based information from credible sources. The goal of the Education Library is to make reliable information readily available to support public dialogue grounded in accuracy, transparency, and accessibility.
- The continuation of the Technical Working Groups formed as part of the Master Plan process will ensure that key stakeholder groups will continue to both share and receive information.
- Additional, creative and robust information sharing is necessary. This will be through public forums, workshops, digital communications, and materials tailored to different audiences. Fresh outreach approaches will be essential to reach New Yorkers who are not already aware of or engaged in the State's nuclear energy efforts.

NYSERDA, working with other state entities, will advance public engagement opportunities identified throughout this Master Plan in the areas of workforce and economic opportunities, siting, environmental and climate justice, regulatory matters, waste, and R&D.



Acronyms and Abbreviations

AI – artificial intelligence

BNL – Brookhaven National Laboratory

BOCES – Capital Region Board of Cooperative Educational Services

Climate Act – Climate Leadership and Community Protection Act of 2019

COP28 – 28th Conference of the Parties to the United Nations Framework Convention on Climate Change

DEC – New York State Department of Environmental Conservation

DHSES – New York State Division of Homeland Security and Emergency Services

DOB – Decommissioning Oversight Board

DOE – U.S. Department of Energy

DOH – New York State Department of Health

DOL – New York State Department of Labor

DOS – New York State Department of State

DPS – New York State Department of Public Service

ECJ – environmental and climate justice

ESD – Empire State Development

ESP – Early Site Permit

EXPRESS NY – Expediting Processes and Regulations to Enable Streamlined Services

FUS-TWG – Fusion Technical Working Group

GAIN – Gateway for Accelerated Innovation in Nuclear

Gen III+ – Generation III+

Gen IV – Generation IV

HALEU – high-assay low-enriched uranium

INFUSE Program – Innovation Network for Fusion Energy Program

INL – Idaho National Laboratory

IRA – Inflation Reduction Act of 2022

LLE – Laboratory for Laser Energetics

LWR – light-water reactor

Master Plan – *Master Plan for Responsible Advanced Nuclear Development in New York*

MWBE – Minority- and Women-Owned Business Enterprise

NASEO – National Association of State Energy Officials

NEUP – Nuclear Energy University Program

NRC – Nuclear Regulatory Commission

Nuclear Backbone – Nuclear Reliability Backbone

NYPA – New York Power Authority

NYSERDA – New York State Energy Research and Development Authority

O&M – operations and maintenance

ORNL – Oak Ridge National Laboratory

PSC – New York State Public Service Commission

R&D – research and development

RFI – Request for Information

RFQ – Request for Qualifications

R&D-TWG – Research and Development Technical Working Group

SDVOB – Service-Disabled Veteran-Owned Business

SEP – *2025 State Energy Plan*

Siting Board – New York State Board on Electric Generation Siting and the Environment

SMR – small modular reactors

TRISO – tri-structural isotropic

TWGs – Technical Working Groups

UR – University of Rochester

WSC-TWG – Workforce and Supply Chain Technical Working Group

WVDP – West Valley Demonstration Project

Units of Measurement

°C – degrees Celsius

GW – gigawatt

MTHM – metric tons of heavy metal

MW – megawatts

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State of New York
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