



Executive Summary: Pennsylvania's Opportunity to Lead in Nuclear Energy and the Next Era of Industrial Growth

Pennsylvania is at a defining moment. Electricity demand is rising after decades of stability. Artificial intelligence and advanced manufacturing are reshaping the economy. At the same time, nuclear energy is returning as a central solution for reliable and carbon-free power. Together, these forces create a narrow window for states that are ready to act.

Pennsylvania enters this moment with one of the most complete nuclear ecosystems in the United States. The commonwealth does not need to build an industry from scratch. It already operates one of the largest nuclear fleets in the country. It already supports a mature supply chain that serves projects across the nation. It already anchors research and talent through world-class universities and federal infrastructure. Pennsylvania's advantage is not any single asset. It is the ability to integrate generation, manufacturing, research, and demand within one coordinated system.

The opportunity now is to convert that foundation into sustained leadership.

This roadmap outlines a strategic path forward. It is not a siting guide. It does not prescribe specific technologies. It establishes a framework for coordination that reduces uncertainty and enables investment. Progress will depend on aligning institutions that influence energy systems, industrial development, and talent preparation.

Vision for Pennsylvania

Pennsylvania leads as a national and global force in nuclear innovation, translating industrial strength and deep expertise into prosperity and energy security statewide.

Vision for the Nuclear Energy Roadmap

The roadmap will guide and accelerate coordinated action to modernize and grow Pennsylvania's nuclear capacity across legacy and advanced technologies, align with federal and regional expansion goals, support reliable energy for diverse industries, promote the state's nuclear supply chain, and broaden opportunity and sustainability for communities statewide.



This document presents a bold, yet practical, framework organized around six strategic goals to be achieved by 2050:

1. Strengthen state leadership and regional collaboration

Advance coordinated action across state agencies, policymakers, industry, communities, and neighboring states to position Pennsylvania as a leading hub and accelerate nuclear deployment and investment, and support financial approaches that help de-risk first-of-a-kind projects

2. Sustain, modernize, and enable the existing nuclear fleet

Extend operation of current reactors, improve performance, and ensure continued reliability for the electricity grid, industrial heat, and emerging applications, while anchoring new momentum in a fully supported existing fleet and capitalizing on momentum from reactor restarts

3. Enable deployment of new and ready-to-deploy nuclear technologies

Prepare priority sites, including brownfield candidates, match technology options to industrial and community needs, and align with federal programs accelerating commercial deployment

4. Grow Pennsylvania’s nuclear supply chain and industrial leadership

Mobilize manufacturers, materials producers, technology firms, and service providers to meet rising national and global demand for SMRs, microreactors, and large-reactor components, building on existing corporate strengths

6. Build an inclusive and future-ready talent pipeline

Expand pathways in trades, technical fields, and engineering to support both existing and new facilities, address cross-sector competition, and create long-term talent opportunity across communities

Why This Moment Matters

Electricity demand is growing at a pace not seen in decades. Large energy users are seeking power that is reliable at all hours. Nuclear energy is one of the few technologies that can meet that requirement at scale. Federal policy and private capital are aligning around that reality. At the same time, other states are moving quickly to capture investment. Pennsylvania’s position is strong but not guaranteed. The central question is not only where reactors will be built, but where the long-term economic value will be captured. States that align infrastructure, industry, and talent will define the next phase of nuclear development.



A Coordinated Path Forward

Nuclear development requires time. It requires capital. It requires coordination across many actors. No single organization can deliver that outcome alone. Pennsylvania's strength is its ecosystem. Plant operators sustain the existing fleet. Manufacturers produce critical components. Universities advance research and train talent. Policymakers shape the environment for investment. Labor organizations provide the skilled talent required to build and operate facilities. Team Pennsylvania serves as a neutral convener within that system. The role is to connect these capabilities and align them around shared priorities. The roadmap reflects that approach and focuses on coordination rather than prescription.

A Whole-of-Commonwealth Opportunity

Nuclear energy supports more than electricity generation. It anchors long-term employment. It provides stability for local tax bases. It creates pathways for workers to enter high-quality careers. These benefits extend across regions from major metropolitan areas to rural communities with deep energy and manufacturing roots.

Looking Ahead

Pennsylvania helped build the nuclear industry. The next phase will be defined by how effectively the commonwealth builds on that legacy. With clear direction and coordinated action, Pennsylvania can move from readiness to execution. The commonwealth can position itself not only as a host of nuclear generation, but as the place where the nation's nuclear future is designed, built, and sustained.