



# Transforming Wyoming: Economic Diversification Options Beyond Fossil Fuels

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## Background

Mineral extraction and energy production are Wyoming's largest industry sectors. Within these sectors, coal, oil, and gas extraction account for the majority of their contribution to gross state product, employment, and tax revenue. However, state coal production is down 60% since 2008. A global shift away from fossil fuels will create fiscal and economic pressures that necessitate fiscal policy reform and strategic economic diversification in Wyoming.

This project examined the potential impacts of decreased public mineral revenues and explored several emerging industries which could provide alternative routes for economic growth in the state: nuclear energy, outdoor recreation, non-thermal coal use, controlled-environment agriculture, and quantum computing. Interest in these industries has been increasing over the last several years, but each comes with its own unique opportunities and barriers.

Read the companion policy brief exploring how state fiscal policy responds to negative energy shocks, including a case study from Wyoming.

## Key Opportunities for Economic Diversification

**Nuclear energy:** The nuclear energy industry is an emerging industry in Wyoming with potential for growth, due in part to the state's existing expertise in energy production and the recent introduction of the TerraPower Sodium project in Kemmerer. Our analysis found that a subset of Wyoming manufacturers is able to join the nuclear component supply chain based on the products they currently manufacture. As an example, L&H Industrial plans to enter the nuclear manufacturing space, a move made possible by a history of serving Wyoming's extraction industries. Additionally, Wyoming uranium output has increased over the last two years, driven by higher global prices. This increase has a significant effect on tax revenues but a modest impact on employment due to modern mining methods that minimize operational labor needs. Finally, as learning reduces costs, Wyoming is situated to add two or more nuclear reactors by 2050. Demand from data centers and industrial heat users could also contribute to this number in the form of micro- and small modular reactors.

**Outdoor recreation:** More than half the land in Wyoming is publicly owned, covering varied terrain including mountains, forests, plains, and deserts. Visitation to Wyoming's national parks fuels a large visitor economy already, but much of the rest of the state has natural assets for outdoor recreation that are largely untapped. Wyoming is investing in outdoor recreation infrastructure to diversify away from energy production, including through the Wyoming Outdoor Recreation Grant Program, which directed \$23 million in federal and state funds toward park improvements, trailhead construction, and other recreation facilities across the state. This spending created temporary impacts through construction activities and new outdoor recreation assets that are expected to increase visitation to the state. We find this investment can lead to further growth in non-extractive industries like lodging, food service, retail, transportation, and outdoor recreation.

**Non-thermal coal use:** There is increasing interest in both coal-based products and unconventional critical mineral recovery from coal and coal byproducts in Wyoming. The former is based on low-cost, high-demand products like construction materials and soil additives. Interest in unconventional critical mineral recovery is centered around extracting rare earth elements from coal fly ash, as well as other critical minerals that may be recoverable from otherwise unused coal. Supply chain analyses suggest that Wyoming is well positioned to ramp up coal production for these purposes due to existing excess production capacity, but these non-thermal uses for coal are still in relatively early stages technologically, so commercial viability is a concern. Additionally, it is unclear whether demand for coal-based products and unconventional critical mineral recovery is sufficient to offset or reverse the trend of continued coal production decline in Wyoming.

**Controlled-environment agriculture (CEA):**

Although the state has several successful, smaller CEA producers, the industry faces significant challenges. CEA production costs exceed those of traditional agriculture. Upfront capital costs are high, and operating expenses are significant due to high energy demand. Energy costs are a major constraint for the industry as a whole, but Wyoming's cold climate exacerbates heating requirements. The state also faces limited local demand to support large-scale CEA operations and statewide distribution and transportation constraints.

**Quantum computing:** Quantum computers use the principles of quantum physics to process information much faster and tackle problems that are beyond the capabilities of classical computers. Over the past few years, there have been efforts to expand quantum computing capacity, education, research, and partnerships within Wyoming. However, there are relatively large supply chain gaps in Wyoming to support this industry. Additionally, firms we identified as likely to enter the supply chain expressed limited interest in doing so during interviews.

## Policy Implications

Despite As Wyoming policymakers consider strategies to diversify the state's economy beyond fossil fuel extraction, several emerging industries offer practical paths forward. Most notably, nuclear energy, outdoor recreation, and non-thermal uses of coal are best situated to expand today given the supply chains, expertise, and natural resources already present in the state. In contrast, quantum computing and controlled-environment agriculture show less promise in their near term; both industries face large constraints in supply chain infrastructure which would need to be addressed to enable their growth.

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## About the Resilient Energy Economies Initiative

The REE Initiative was established in 2024 to develop strategies that support the economies of fossil fuel-dependent communities across the United States as the energy system transforms. In addition to supporting action-oriented research to find what works, REE has built a community of scholars, policymakers, and economic development practitioners from the local, state, tribal, and federal levels to share knowledge and build relationships across the nation's energy communities.

[www.resilientenergyeconomies.org](http://www.resilientenergyeconomies.org)



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