



NUCLEAR SERIES PART 6

WYOMING'S NUCLEAR SUPPLY CHAIN OPPORTUNITIES AND CHALLENGES: GENERATED ELECTRICITY

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WHY THE STUDY WAS NEEDED

This report is one in a series evaluating the feasibility of developing an integrated nuclear sector in Wyoming. From the mine mouth to spent fuel processing, each step in the nuclear supply chain has unique economic challenges. To compare the opportunities for Wyoming across the nuclear supply chain, a qualitative scoring system of advantages and obstacles is applied (Gebben & Peck, 2023). The summary of these scoring criteria for nuclear produced electricity is provided in Table 1.

ABOUT THE STUDY

This report quantifies the economic outcomes of fostering a nuclear electricity generation sector in Wyoming. The unique challenges and opportunities of attracting the industry to Wyoming are identified. Additionally, an event study is performed that estimates economic outcomes under a range of future nuclear power development paths.

WHAT THE RESEARCHERS CONCLUDED

Abundant low cost energy resources in Wyoming create a challenge to deploying nuclear electricity generation in the near term. However, repeated deployment of advanced reactors, such as the Kemmerer TerraPower Project, are expected to result in future cost reductions. As capital costs are reduced, Wyoming is well situated to be an industry leader in nuclear electricity generation.

Table 1:

Significant Economic Factors Related to Wyoming Nuclear Produced Electricity

	Level	Summary
Economic	Major Obstacle	Natural gas is a cheaper baseload energy source in Wyoming
Existing Industries	Moderate Advantage	Retired coal power plants can be converted to nuclear
Tax Structure	Major Advantage	Targeted tax benefits in Wyoming
Location	Minor Advantage	Locations without licensing obstacles
State Legal	Minor Obstacle	Redundant permitting required
Federal Legal	Minor Obstacle	Major but variable costs associated with NRC licensing
Technology	Moderate Obstacle	Advanced reactors require additional technological improvements.

Table 2:

Wyoming: Total Benefits and Costs of Nuclear Produced Electricity

Nuclear Growth Scenario	Low	Middle	High
Number of Reactors Added	1	2	5.5
Peak Construction Jobs	2,500	5,000	13,750
Long Term Jobs	673	1,346	3,702
NPV of State Taxes (Mill USD) ¹	297	404	778

Table 3:

Levelized Cost of Electricity for U.S. Electricity Sources Added After 2028¹

Plant Type	Capital	O&M	Variable	Transmission	Tax Credit	Total
Solar	\$30.83	\$11.12	\$0.00	\$4.21	-\$20.16	\$26.01
Wind, Onshore	\$41.96	\$11.78	\$0.00	\$3.24	-\$22.18	\$34.80
Geothermal	\$26.97	\$19.72	\$1.47	\$1.70	-\$8.09	\$41.78
Natural Gas	\$16.00	\$3.12	\$27.33	\$1.39	N/A	\$47.85
Hydroelectric	\$58.40	\$16.06	\$4.65	\$2.39	-\$17.52	\$63.97
Advanced Nuclear	\$69.63	\$19.45	\$11.32	\$1.29	-\$22.18	\$79.52
Biomass	\$50.02	\$22.96	\$32.14	\$1.46	-\$20.16	\$86.42
Coal	\$64.66	\$7.95	\$26.07	\$1.37	N/A	\$100.05
Wind, Offshore	\$100.36	\$39.04	\$0.00	\$3.08	-\$30.11	\$112.38

¹ Selected average LCOE reported from the EIA 2023 Annual Energy Outlook data set (EIA, 2023b). Inflation adjusted from 2022 dollars to December 2024, using the CPI index (U.S. Bureau of Labor Statistics, 2025b).

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