

P178 RESOURCE PLANNING FOR ELECTRIC POWER SYSTEMS



KEY INSIGHTS

- Input material and metal prices have stabilized recently, but at prices higher than pre-pandemic levels.
- While construction material costs stabilized at higher than pre-pandemic levels, construction labor costs have continued to increase.
- Near-term fossil fuel forecasts indicate greater stability with only moderate changes anticipated.
- The cost of capital decreased during the early pandemic period due to lower interest rates, then increased as the economy recovered and rates were raised.
- Policy drivers, like the IRA of 2022, have increased incentives for infrastructure and technology development. These incentives could offset certain inflationary and supply chain impacts.

Assessing Key Market Trends Impacting Technology Costs in Energy System Resource Planning

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Overview

In the rapidly evolving landscape of energy system technologies, understanding the market trends that influence cost is essential for informed decision-making and strategic planning. With the energy sector undergoing significant transformations, factors such as construction material and labor costs, critical mineral prices, fuel forecasts, and the cost of capital play a pivotal role in determining the overall economics of energy projects.

Additionally, policy drivers, like the Inflation Reduction Act (IRA) of 2022, introduce new dynamics that have significant impact on the costs of energy system technologies.

Summary of Findings

Recent trends indicate a stabilization of key metal prices, though at levels higher than those seen before the pandemic. While construction material costs have also stabilized, they remain elevated compared to pre-pandemic figures. In contrast, construction labor costs continue to rise, reflecting ongoing challenges in the labor market and general inflationary pressures.

Figure 1. Key construction materials and metal prices showing signs of stabilization in 2023 following significant price increases in previous years (Source: U.S. Bureau of Labor Statistics)

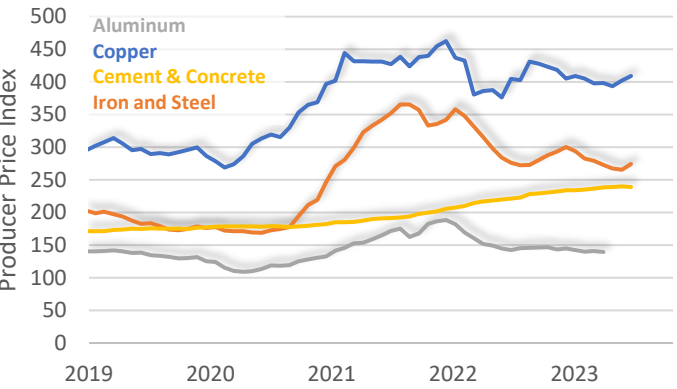


Figure 2. Continued upward trend of construction labor compensation influenced by inflationary pressures and other challenges faced by labor market (Source: U.S. Bureau of Labor Statistics)

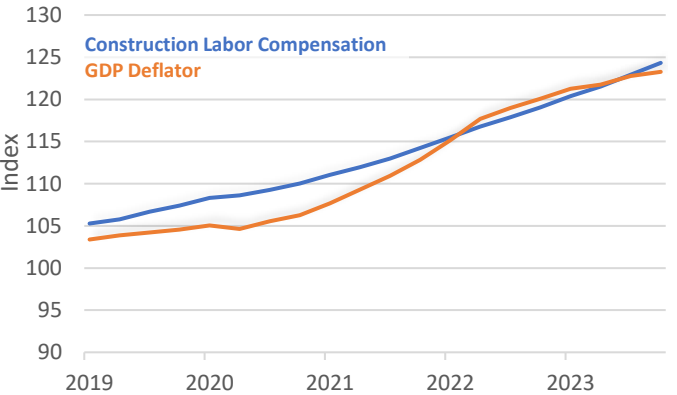
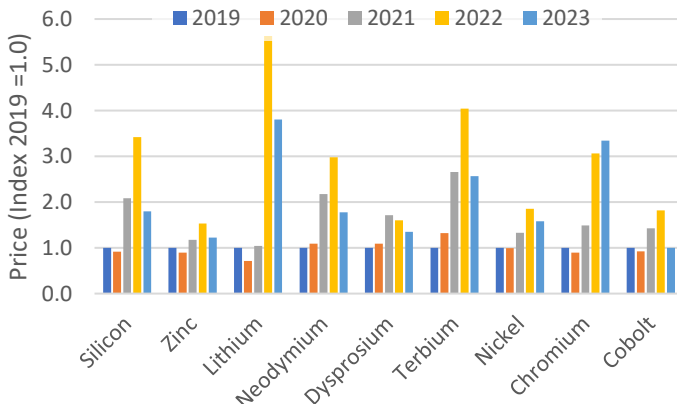


Figure 3. Mineral and rare earth element prices declined in 2023 after the sharp increases seen in 2021-2022, yet they remain higher than pre-pandemic levels (Source: U.S. Geological Survey)



High natural gas (NG) production, flat consumption, and increasing inventories contributed to lower NG prices in 2023. Near-term fossil fuel forecasts suggest a period of relative stability with only modest fluctuations expected.

The cost of capital for electric utilities decreased initially during the early pandemic due to lower interest rates, but it has since increased as the economy recovered and rates were raised.

Figure 4. Power generation fuel costs, \$/MMBtu (Source: U.S. Energy Information Administration)

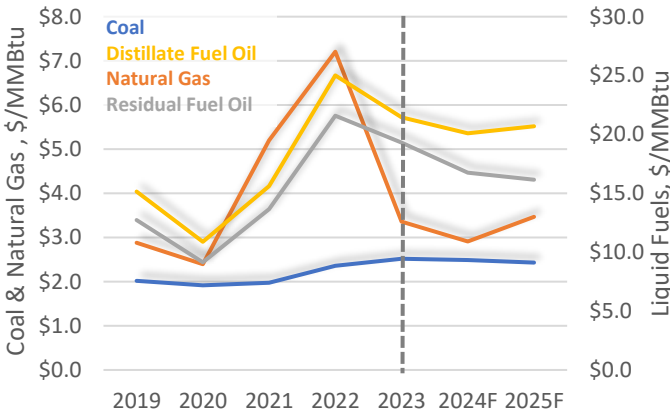
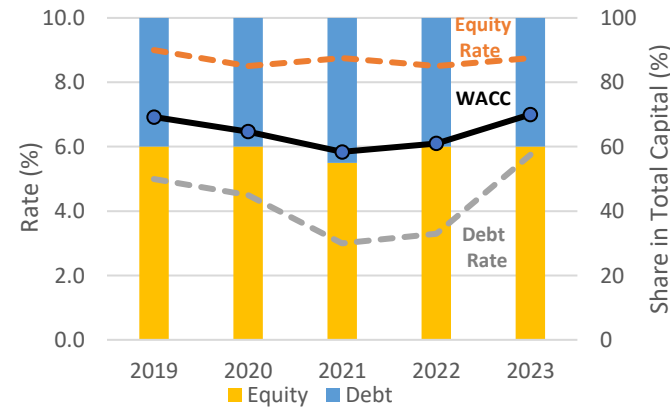


Figure 5. Cost of capital of electric industry (Source: Department of Revenue, Washington State)



This insight is based on EPRI Report "2024 Energy System Technology Cost and Performance Summary – Market Trends and Technology Insights," Product ID 3002030846



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