

Nucor - Growth Capital Through a Steel-Cycle Turn

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Decision scope: Hypothetical next-cycle capital priorities

Case convention: Public historical evidence is distinguished from the hypothetical classroom decision. No private deliberation or board decision is represented.

The decision

Imagine you are advising Nucor as it plans its next investment cycle. The company has large steelmaking and downstream projects underway. At the same time, third-quarter results show lower realized selling prices, narrower steel-mill metal margins, and weaker shipments in parts of the portfolio. Management's estimate for 2024 capital expenditures is about \$3.2 billion. What should receive the next increment of growth capital and management attention?

1. Continue a broad portfolio of steelmaking and downstream capacity investments.
2. Put the next increment toward downstream steel products and fabrication, seeking closer customer and product-market positions.
3. Preserve flexibility by pacing additional discretionary commitments until the company has more evidence on demand and project ramps.

Choose a priority, make the strongest case against it, and state what evidence would change your decision. These options are classroom alternatives inferred from public disclosures. They are not a disclosed Nucor plan, ranking, budget, or proposal to cancel projects already underway. The public record does not provide enough project-level economics to calculate or compare returns.

A company spanning the steel value chain

Nucor operates three reportable segments: steel mills, steel products, and raw materials. Steel mills make sheet, plate, structural and bar steel. They sell to external customers and also ship steel internally to Nucor's downstream operations. Steel products include fabricated and downstream businesses such as joists and deck, rebar fabrication, tubular products, building systems, and towers and structures. Raw materials includes scrap brokerage and processing and direct reduced iron (DRI). [S1]

The boundaries matter when evaluating performance. Consolidated outside-customer shipments measure sales beyond Nucor. Steel-mill internal shipments are inputs to downstream operations, not additional external demand. A decline in downstream shipments can coexist with relatively stable steel-mill outside shipments; neither measure alone describes the entire customer market.

Nucor’s production system also makes “cost” and “capacity” more complicated than a single line item. Scrap and scrap substitutes are important steelmaking inputs. Selling price per ton can change with product mix as well as comparable-product pricing. Operating utilization is an observed operating-rate measure; it does not reveal theoretical spare capacity, plant readiness, break-even utilization, or whether new capacity would earn an acceptable return. [S1]

A quarter with different signals

In the third quarter of 2024, Nucor reported approximately 6.196 million tons of consolidated outside-customer shipments, down 1% year over year. Average sales price per ton fell 15%, and consolidated net sales fell from \$8.776 billion to \$7.444 billion. The reported average price is not a pure like-for-like price measure: product and customer mix can affect it. The sales decline reflects both price and volume, with possible mix effects. [S1, Item 2, pp. 18-19]

The segments did not move in unison:

Q3 2024 measure	Steel mills	Steel products	What it does-and does not-show
Outside shipments	4.607m tons, +1% year over year	Down 11%	Segment-specific tons sold outside Nucor; not an end-market demand index
Internal steel-mill shipments	1.112m tons, down 5%	-	Mill transfers to Nucor businesses, not external customer demand
Average sales price per ton	\$967, down 13%	\$2,469, down 13%	Realized average; product mix may contribute to movement
Segment sales	Down 12%	Down 23%	Combines price, volume, mix and other segment effects

Source: Nucor Q3 2024 Form 10-Q, Item 2, pp. 19-20. Figures are company-reported; percentages are year-over-year.

Management said steel-mill metal margins narrowed because selling prices fell more than the cost of scrap and scrap substitutes. Average scrap and scrap-substitute cost per gross ton was \$378, down 9% from \$415 a year earlier. That input-cost decline did not offset the larger fall in average steel selling price. The “spread” is a relationship between selling prices and material costs; it is not total production cost, contribution margin by product, or a project return. [S1, Item 2, pp. 20-21]

Nucor’s reported gross margin was \$757.9 million, or 10% of sales, compared with \$1.92 billion, or 22%, in the prior-year quarter. Management attributed results primarily to lower steel-selling prices, alongside other cost and segment factors. The company’s explanations are useful evidence of management’s view, not an independent causal decomposition. [S1, Item 2, pp. 20-21]

Existing investments and the next cycle

Nucor reported \$2.29 billion of cash capital expenditures for the first nine months of 2024, up \$797.6 million year over year. It estimated approximately \$3.2 billion of full-year 2024 capital expenditures, compared with \$2.20 billion in 2023. That full-year figure was guidance at the cutoff, not actual final spending. The company identified the West Virginia sheet mill, Indiana sheet-mill expansion, North Carolina rebar micro mill, and two Nucor Towers & Structures manufacturing locations among its largest anticipated projects for 2024. These were active commitments spanning steelmaking and downstream manufacturing. [S1, Item 2, p. 24]

Nucor separately spent approximately \$565 million net of cash acquired to purchase Rytex during the quarter. An acquisition is not capital expenditure on a mill or manufacturing site; the two uses of cash should not be combined as if they were the same kind of investment. [S1, Item 2, p. 24]

The company also reported pre-operating and start-up costs of about \$168 million in Q3 and \$430 million for the first nine months of 2024. These were expensed losses tied to facilities under construction or in early operation until utilization reached levels consistent with similar facilities. They are neither cash capex nor necessarily a steady-state cost. A project can therefore consume construction capital and generate start-up expense in different periods and accounting categories. [S1, Item 2, p. 21]

For the first nine months, average utilization was 77% at steel mills, 59% at steel products, and 73% at raw materials. Nucor reported steel-mill operating rates of 75% in Q3, compared with 77% in Q3 2023. These measures describe operating rates across segments; they cannot be converted into available capacity or project-level demand without facility details. A lower figure could reflect market conditions, product mix, maintenance, commissioning, or other operating factors. [S1, Item 2, pp. 17, 21]

At September 28, Nucor held \$4.86 billion in cash, cash equivalents and short-term investments and had an undrawn \$1.75 billion revolving credit facility. Those figures indicate financial resources, but do not specify a discretionary growth budget or show which investment would create the most value. [S2, p. 3]

What the historical evidence can contribute

Collard-Wexler and De Loecker studied U.S. steel plants from 1963 to 2002 using plant-level Census manufacturing and business data. Their March 2013 Census working paper estimates price-corrected production functions and decomposes industry productivity change into plant improvement, market-share reallocation, entry, and exit. They report 23% aggregate productivity growth over the period in their preferred decomposition, with about one-third associated with reallocation toward more productive plants. They also find that product specialization mattered: minimills expanded earlier in bar products, while sheet specialization was associated with productivity and survival among integrated producers in that historical sample. [A1]

This is a working-paper version; it says it did not undergo the publication review accorded Census Bureau publications and does not represent Census Bureau views. The study is not a forecast for Nucor, an estimate of today's EAF cost advantage, or a return analysis for any project in the company's current slate. Its sample ends in 2002, and the authors note limits in observing plant management practices and measuring productivity. The related final article appeared in *American Economic Review* in 2015, but the cited reading is the 2013 working-paper text. [A1]

Yamawaki's 1985 paper concerns U.S. iron and steel pricing and fringe capacity in 1907-1930. Only the abstract was accessible for this case. It describes a possible interaction between dominant-firm pricing, fringe market share, and capacity investment. The full article's data, methods, coefficients, and identification could not be checked. Treat it only as a historical prompt about price and capacity feedback, not as evidence for a current Nucor decision. [A2]

Together, the studies make process technology, product position, competitive response, and reallocation relevant questions. They do not establish current market demand, Nucor's project economics, or the right timing for a specific investment.

Questions for the decision

Prepare a recommendation to Nucor's leadership:

1. Where should the next increment of discretionary growth capital and management attention go: steelmaking, downstream products/fabrication, or preserving flexibility?
2. How do current price, shipment, scrap-cost, utilization, and start-up data inform your choice-and where can each mislead?
3. What information would you require about customer demand, product mix, project ramps, and returns before making a larger commitment?
4. What downside evidence or trigger would cause you to change your priority?

State assumptions clearly. Do not treat guidance as actual results, utilization as capacity, segment averages as project economics, or management's attributed explanations as proven causation. No financial model is required.

Sources

- **[S1]** Nucor Corporation, Form 10-Q for quarter ended 28 September 2024, filed 6 November 2024. [SEC filing](#), Item 2, “Results of Operations,” pp. 17-24: utilization, sales/price/tonnage, gross margin, scrap costs, start-up expenses and capex outlook/projects.
- **[S2]** Nucor, “Nucor Reports Results for the Third Quarter of 2024,” 21 October 2024. [SEC Exhibit 99.1](#), pp. 1-3: segment results, liquidity and outlook.
- **[A1]** Allan Collard-Wexler and Jan De Loecker, “Reallocation and Technology: Evidence from the U.S. Steel Industry,” U.S. Census Bureau CES Working Paper 13-06, March 2013. [Full 51-page working-paper PDF](#); later published in *American Economic Review* 105(1) (2015):131-171, [DOI](#).
- **[A2]** Hideki Yamawaki, “Dominant Firm Pricing and Fringe Expansion: The Case of the U.S. Iron and Steel Industry, 1907-1930,” *The Review of Economics and Statistics* 67(3) (1985):429. [Abstract record](#); [DOI](#). Full text not accessed.