

The Estimated Local, Regional, and Statewide Economic and Fiscal Impacts of the Nucor Steel Brandenburg Plate Mill, Meade County, Kentucky

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October 3, 2019

EXECUTIVE SUMMARY

In March of 2019, Nucor Corporation announced the company's plans to build a \$1.35 billion steel plate manufacturing mill in Meade County, which is located along the Ohio River just southwest of Louisville, Kentucky. The facility will be located in an industrial park along the Ohio River in Brandenburg. It will have a production capacity of 1.2 million tons per year, serving customers throughout the region and nationwide. Full-time positions at Nucor Steel Brandenburg will pay an average annual wage of \$72,000 and will include equipment operators, production specialists, safety and environmental technicians, engineers, and office support staff. The purpose of this report is to document and communicate the regional and statewide economic and fiscal importance of the Nucor Steel Brandenburg plate mill to Meade County, the surrounding region, and the Commonwealth of Kentucky.

The analysis in this report is based on data provided by Nucor Corporation describing its spending on various production inputs and the expected volume and value of production output when the mill is fully operational. The \$1.35 billion cost of the mill is made up of \$200 million in construction costs, including land, land improvements, and buildings, and \$1.15 billion for capital equipment, including installation and ancillary costs. The Nucor Steel Brandenburg plate mill is expected to employ 400 people, with gross compensation of \$37.4 million (wages plus benefits). The value of Nucor Steel Brandenburg's output of plate steel is expected to be about \$900 million in annual sales. I supplement this information where needed with data from the U.S. Census Bureau and Bureau of Economic Analysis as well as IMPLAN, a detailed input-output model that is itself largely based on detailed U.S. government national and regional economic statistics.

Nucor Corporation provided information on the county of residence for their Gallatin steel mill. Based upon this information and data on commuting patterns in and out of Meade County from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics program, I expect that the Brandenburg mill will operate in a well-integrated six-county region encompassing Breckinridge, Bullitt, Hardin, Jefferson, and Meade counties in Kentucky and Harrison County in Indiana. I anticipate that 85 percent of the

Nucor Steel Brandenburg employees will reside in those six counties, 75 percent of them from the five Kentucky counties. An estimated 32 percent of employees are expected to reside in Meade County, with additional impact throughout the region. For this report, I focus on the five Kentucky counties in the region. And since much of the Nucor Steel Brandenburg plate mill's spending with Kentucky vendors will likely occur beyond the five-county region, the mill will also have a significant impact on the rest of Kentucky. I therefore analyze the effect of this expansion on the economy of Meade County, the other four counties in the region, and the entirety of Kentucky.

Nucor Corporation estimates that the Brandenburg mill will require inputs for consumables & supplies, electricity, mechanical vendors, slag operation & processing, natural gas, refractory, scrap (including scrap handling), and freight (rail/truck/barge). While Nucor Corporation has a long track record of spending in the local communities and in the states where it is located to source as much as possible in the regions of its facilities, it does note that some inputs (scrap substitute, electrodes, certain refractory and alloys, along with certain equipment) are not currently available from Kentucky vendors. Without detailed vendor location data, I rely heavily on the input-output model, which has a detailed county-by-county commodity trade model, to assess the availability of steel mill inputs in Meade County, the five-county region, and the state for purposes of this report.

Based on this, it is my opinion to a reasonable degree of economic certainty that the proposed steel mill's total net annual economic impact in Kentucky would be approximately 3,040 jobs and \$189 million in labor income (which includes wages and proprietor income plus benefits). Impacted businesses would have annual output (sales) totaling \$1.36 billion and annual value added of \$360 million (including the Brandenburg mill itself). When discussing economic development, value added is a more relevant measure than output, which is just a summation of all sales. Value added includes just the portion of the value of a firm's sales that is due to the work performed by the firm, stripping out the cost of intermediate goods and services. It eliminates the double counting that occurs with output when supplier firms are included with their customers among impacted businesses. For this reason, state GDP is the sum of all the value added at each of a state's businesses rather than their sales. In other words, GDP represents the total value of all the economic activity in a given geography, a direct indication of the health and growth of the economy.

Of the statewide impact, about 2,800 jobs and \$176 million in labor income would be concentrated in the five-county region including Meade County. Impacted businesses in the region would have annual output (sales) totaling \$1.3 billion and annual value added of \$336 million. Meade County itself would see an increase of 780 jobs, \$56 million in

labor income, \$978 million in output, and \$133 million in value added (including the steel mill). Further, it is my opinion to a reasonable degree of economic certainty that, due to the operations of the Nucor Steel Brandenburg plate mill and the household income associated with the additional jobs, state and local governments in Kentucky would receive about \$14.3 million more in payroll associated tax revenues (income, sales, and occupational taxes) annually than under current conditions.

The construction and equipping of the facilities will also have a short-term impact on the regional economy, boosting jobs and revenues for a two-year period. The results here are more speculative, since the exact number of contractors that will work on the project, where they reside, how much they will be paid, and which vendors will be supplying the capital equipment are unknown. However, using reasonable assumptions concerning the number of workers and their pay, I estimate that Kentucky could see a two-year boost of around 1,505 jobs with almost \$98 million in annual labor income just from the construction of the new mill facilities, with about 98 percent of that impact occurring in the five-county region. Equipping the new mill with machinery, computers, vehicles, furniture, and fixtures would, at a bare minimum, result in a short-term increase of about 840 jobs with \$53 million in labor income in the region. While less than 10 percent of that impact would be within Meade County, about 98 percent would be in the five-county region. Nearly all of that impact would be the result of activity in wholesaling and truck transportation rather than the purchase of capital goods. It is possible that the investment impact across the state may be much higher depending on the locations of the eventual vendors.

The above estimates are for the economic and fiscal categories most easily quantified. Although difficult to quantify, it is also my opinion that there are other, positive economic impacts related to the expansion of the mill. For example, the area real estate market is linked to the payrolls at such facilities, but it is very difficult to sort out all the factors that contribute to housing values and commercial properties. Real estate markets are impacted over decades by complex interactions among many factors, including retirements, migration, mortgages, second incomes, second careers, children, as well as any industrial changes in the marketplace. Social indicators, like unemployment and crime, are also likely related to the Nucor Steel Brandenburg plate mill's employment levels, as are public costs for unemployment benefits, retraining, and social services. And the finances of local school districts are linked to the Nucor Steel Brandenburg plate mill's operations. Nucor Steel Brandenburg pays property taxes annually, and employees pay property taxes on their homes as well. In addition, Nucor will pay a school tax of up to 3% on its electricity purchases.

In the remainder of the report, I describe the methods used in this study, and provide the detailed economic and fiscal estimates.

METHODOLOGY

Because the steel produced by the Nucor Steel Brandenburg plate mill will be sold in national and international markets, it will bring new dollars into the regional and state economy – as opposed to simply absorbing local dollars, as is the case for most retail, commercial and service operations. In this sense, the operation of the Nucor Steel Brandenburg plate mill has large and predictable economic and fiscal impacts in Kentucky. The positive benefits associated with industrial manufacturers that export nationally and internationally explain why multiple states including Kentucky aggressively pursued the Nucor plant with economic development incentives.

I now turn to a discussion of the methods used to measure the regional economic and fiscal impacts. First, I explain how I defined the regional economic footprint for purposes of this impact study. Then, I discuss in some detail the input-output model used to measure the statewide impacts.

Location and Economic Footprint

The Nucor Steel Brandenburg plate mill will be located in Meade County, Kentucky. Because Nucor Steel Brandenburg will be a large employer requiring skilled workers in a sparsely populated county, it must pull from a fairly wide commuting shed. In many ways, the Nucor Gallatin Steel plant is similarly situated. County of residence data for that plant show that only 11 percent of employees live in Gallatin County, but that 54 percent live in the six contiguous bordering counties. U.S. Census Bureau data from the Longitudinal Employer-Household Dynamics program for manufacturing employers show a more concentrated commuter shed than Gallatin's, but still just 40 percent residing in Meade County. Based off of both the Gallatin mill information and the Meade County commuting data, the table below presents a probable commuting pattern for the Nucor Steel Brandenburg plate mill. I estimate that about one-third of employees will reside in Meade County and another two-fifths in the surrounding four counties. The compensation numbers in the table are based on an average salary of \$72,000, with benefits roughly equal to 30 percent of wages.

**Probable Commuting Pattern for Nucor
Brandenburg Plant**

County of Residence	Employees	Compensation
Meade	130	\$12,168,000
Breckinridge	50	\$4,680,000
Bullitt	15	\$1,404,000
Hardin	55	\$5,148,000
Jefferson	50	\$4,680,000
Other Kentucky	25	\$2,340,000
Indiana	75	\$7,020,000
Total	400	\$37,440,000

Note: Estimated from US Census Bureau Longitudinal Employer-Household Dynamics commuting data and employee residence information provided for Nucor's Gallatin Steel Plant.

It is therefore very likely that much of the spin-off activity resulting from the household spending of Nucor Steel Brandenburg employees does not impact Meade County, but that most of it is captured within the five-county region. Additionally, while the dollar values of the business-to-business spending by Nucor Steel Brandenburg will be high enough to generate significant spin-off activity in Meade County and the surrounding counties, since many of the goods and services purchased in Kentucky will likely go to businesses in other parts of the Commonwealth, Nucor Steel Brandenburg will have a significant impact beyond the five-county region. Therefore, I utilize economic models of Meade County, the four surrounding counties, the remaining 115 Kentucky counties, and one of the Commonwealth of Kentucky to derive the overall impacts.

Input-Output Model of Kentucky

To evaluate the economic and fiscal impacts of the Nucor Steel Brandenburg plate mill, I used standard regional economic impact methods. I obtained detailed economic data for each of the five counties and the Commonwealth of Kentucky and used them to build IMPLAN input-output models of the region.¹ The model can simulate the effects of changes in economic activity for any of 536 regional industries. It also can predict detailed inter-industry purchases and household spending related to industrial changes. Such region-specific models have the advantage that they take into account those industrial supplies and retail items likely available in the region and thus provide more precise

¹ As best I can tell, IMPLAN is one of the most widely used regional input-output modeling systems in the world. It has been used for thousands of impact studies. It was developed by economists at the University of Minnesota, and is sold by IMPLAN, Inc. See implan.com for documentation.

economic impact estimates than one that assumes everything is available in the region. The more that local industries can support the plant operation and the employees' household demands, the greater the regional economic multipliers, and hence the greater the predicted regional economic impact.

The Nucor Steel Brandenburg plate mill fits the North American Industrial Classification System (NAICS) code 331110, Iron and Steel Mills and Ferroalloy Manufacturing. The official definition is as follows:

(331110) This industry comprises establishments primarily engaged in one or more of the following: (1) direct reduction of iron ore; (2) manufacturing pig iron in molten or solid form; (3) converting pig iron into steel; (4) making steel; (5) making steel and manufacturing shapes (e.g., bar, plate, rod, sheet, strip, wire); (6) making steel and forming pipe and tube; and (7) manufacturing electrometallurgical ferroalloys. Ferroalloys add critical elements, such as silicon and manganese for carbon steel and chromium, vanadium, tungsten, titanium, and molybdenum for low- and high-alloy metals. Ferroalloys include iron-rich alloys and more pure forms of elements added during the steel manufacturing process that alter or improve the characteristics of the metal being made.

<https://www.census.gov/eos/www/naics/index.html>

At the heart of regional input-output models are industrial production functions, which are recipes for producing the products of an industry, what is needed, and relatively how much is spent on each input. These are combined with estimates of how much of the supply needs of an industry can be provided by other regional industries. The models use federal data on the presence of industries in the local economy to predict how much of an industry's inputs can be supplied locally versus that which must be imported from other regional economies. The IMPLAN models for Meade County and the five-county region needed to be customized to include the future Nucor Steel Brandenburg plate mill while making sure that the supplier linkages involving current businesses were not compromised.

Rather than just specifying the number of jobs in Meade County due to the expansion and the anticipated increase in sales and running a multi-region analysis in IMPLAN (which models the interactions among businesses and households in different regions, in this case the five counties and the rest of Kentucky), the analysis was divided into parts for two reasons. First, the commuting pattern associated with the plant is different from the default in IMPLAN. Second, steel mills require some very expensive inputs that are purchased in bulk from specific suppliers located in specific places. Getting the geographic locations and high dollar values together correctly matters. For these reasons, I modeled the household spending of the new employees in the counties they are expected to reside

in. I also modeled the unique industry spending pattern of the steel industry for different levels of geography (county, regional, rest of state) because their availability varies by location. In this way, the results below represent a fairly accurate representation of the possible impacts of the new steel mill operations.

ECONOMIC IMPACTS

Based on that method, the IMPLAN model uses annual economic data to provide reasonable estimates of statewide effects on sales, jobs, and payrolls for export-based expansions or contractions of any of 536 industries in Kentucky. In the table below, I summarize the results of the IMPLAN simulations I ran on the five customized county models and the regional model containing the remaining 115 Kentucky counties. The table is divided into sections covering the estimated impacts within Meade County, the group of four surrounding Kentucky counties, the rest of Kentucky, and the Kentucky statewide totals. Meade County, where the direct impact (the new plant) occurs, is listed first. The impacts in the other regions can be considered the spin-off activity to the rest of the state resulting from the plant. A discussion of the relevant economic terms follows the table.

Estimated Local, Regional, and Statewide Impact of Nucor Brandenburg Plant				
Impact Type	Employment	Labor Income	Value Added (GDP)	Output
Meade County				
Direct Effect	400	\$37,440,000	\$99,350,231	\$900,000,000
Indirect Effect	309	\$16,830,708	\$28,421,845	\$68,428,446
Induced Effect	71	\$2,019,127	\$5,367,582	\$9,723,559
Total Effect	780	\$56,289,835	\$133,139,658	\$978,152,005
Primary Kentucky Commuting Shed (Breckinridge, Bullitt, Hardin, & Jefferson Counties)				
Indirect Effect	1313	\$85,747,495	\$144,679,658	\$235,658,481
Induced Effect	720	\$34,040,378	\$58,426,500	\$99,010,685
Total Effect	2033	\$119,787,873	\$203,106,158	\$334,669,166
Rest of Kentucky				
Indirect Effect	145	\$10,173,289	\$18,056,907	\$44,023,739
Induced Effect	86	\$3,226,584	\$5,694,616	\$10,824,269
Total Effect	230	\$13,399,873	\$23,751,523	\$54,848,008
Statewide Totals				
Direct Effect	400	\$37,440,000	\$99,350,231	\$900,000,000
Indirect Effect	1767	\$112,751,492	\$191,158,410	\$348,110,666
Induced Effect	877	\$39,286,089	\$69,488,698	\$119,558,513
Total Effect	3044	\$189,477,581	\$359,997,339	\$1,367,669,179
Implied Multiplier	7.61	5.06	3.62	1.52

Source: IMPLAN version 3.1 input-output models of Meade, Breckinridge, Bullitt, Hardin, and Jefferson counties and a region consisting of the remaining 115 Kentucky counties. 2016 IMPLAN economic data. Values in 2022 dollars. Results presented are sums of all household and industry spending analyses.

For each of several impact types (Employment, Labor Income, Value Added and Output), the IMPLAN model begins with a direct effect – here, a new steel plant. The direct effect would be the 400 new employees earning \$37.4 million in compensation producing \$900 million worth of steel plates. Labor income includes fringe benefits (both privately provided, such as health insurance or retirement fund matches, and government provided, such as Social Security and Medicare payments) as well as proprietor income (e.g. self-employment and unincorporated small businesses). Value added refers to the value of the product that is not tied to the prices of the purchased inputs. It is the difference between the sales value of the steel products and the value of all the purchased inputs, so it is the additional value gained during the production process. Since an input of one industry is the output of an industry upstream in the production process, focusing on value added avoids double counting. State level GDP, for example, is just the sum of the value added at all businesses in the state (not the sum of their output/sales). Given a Direct Effect, the IMPLAN model calculates an Indirect Effect, Induced Effect, Total Effect, and an economic Multiplier.

The Indirect Effect in the table refers to the linkages between the exporting industry (steel) and its industrial vendors (raw materials, transportation, electricity, tools, computers, insurance, etc.). When the exporting industry expands or contracts, it raises or lowers its purchases from its vendors, thus changing their employment and payrolls. Of course, the vendors also purchase goods and services from each other, so that the total indirect effect includes all the inter-industry linkages.

The Induced Effect refers to the impact of the new sales in the exporting industry (steel) on the local economy through the rounds of re-spending of the additional household income caused by the operation of the plant. Regional sales of cars, groceries, building supplies, banking services, and so on are all sensitive to growth in disposable income, as are donations to nonprofit groups, churches, and charities. The induced effect includes the household spending of all households affected directly and by the indirect linkages (the employees benefiting from the indirect effects). The Total Effect is the sum of the Direct, Indirect and Induced Effects.

The table clearly shows that the opening of the Nucor Steel Brandenburg plate mill would have considerable impact both locally, regionally, and statewide. Within Meade County, I estimate that about 780 total jobs would be supported by the plant (including the new jobs at the plant). Those jobs infuse the local economy with an additional \$56 million in labor income. Those figures represent roughly 10 and 18 percent of current jobs and labor income in Meade County, so the impacts are considerable. Those jobs would be associated with approximately \$133 million in value added, about 22% of current value added in Meade County. Roughly 310 jobs and \$16.8 million of income would be due to

business-to-business spending, both between Nucor Steel Brandenburg and its suppliers within Meade County and between those suppliers themselves. An additional 70 jobs and \$2 million of income would be due to the household spending of Nucor Steel Brandenburg employees and those households affected by the added business-to-business spending within the county (induced effects tend to result in lower average income per job because much of the employment is in lower paying retail and personal service industries).

Beyond Meade County, the expansion would have large effects in the wider commuting region, with just over 2,000 jobs and nearly \$120 million in labor income in spread among Breckinridge, Bullitt, Hardin, and Jefferson counties. This results from both the spending done by Nucor Steel Brandenburg in those counties (indirect effect), and the household spending of its new employees who live in other counties and the spending of households benefiting from Nucor Steel Brandenburg's use of local vendors (induced effect). Beyond the five-county region, Nucor Steel Brandenburg's reach is wide enough that the expansion would support 230 jobs throughout the rest of Kentucky, with labor income totaling \$13 million.

In sum, the Nucor Steel Brandenburg plate mill would likely benefit the state of Kentucky by supporting an additional 2,640 jobs in addition to the 400 jobs at the plant itself. Those jobs would add about \$189 million in labor income to state households. With the affected businesses adding around \$260 million to the state GDP. Including the plant, the expansion would support about \$360 million of Kentucky's GDP.

A few things about the multiplier line in the table are worth mentioning. The IMPLAN Multipliers allow a reasonable prediction of the total statewide economic impact of a change such as the Direct Effect. For example, looking at the Employment column of the table, the estimated job multiplier for the Nucor Steel Brandenburg plate mill in Kentucky is 7.61, meaning that for every job at Nucor Steel Brandenburg, another 6.61 jobs are created elsewhere in Kentucky. Similarly, the multiplier for Labor Income for Kentucky in the table is 5.06, meaning that for every dollar of income created at Nucor Steel Brandenburg another \$4.06 in income is created in other Kentucky industries. The Output Multiplier for Kentucky, 1.52 as shown in the table, measures the total statewide revenues of companies divided by the direct Nucor Steel Brandenburg revenues of \$900 million, as calculated. The Output Multiplier of 1.52 means that companies in Kentucky see an additional \$0.52 in sales when Nucor Steel Brandenburg sales rise by one dollar. Finally, the Value Added Multiplier estimates the sales dollars that 'stick' to Kentucky. Value added refers to the portion of total sales that is accounted for by regional

companies and which stimulate the regional economy.² The Value Added Multiplier of 3.62 means that companies in Kentucky add \$2.62 in value to the Kentucky economy for every \$1 added by the Nucor Steel Brandenburg plate mill. The distinction between Output and Value Added is important in regional economic studies since much of what goes into the total value of a product is intermediate goods and services purchased from vendors outside the region, and thus local economic activity can affect many regions.

The employment multiplier is so large because a large volume of steel can be produced with relatively few employees (compared to other industries) and about 80 percent of its value is in the inputs. Per employee, a steel plant is purchasing a very high value of intermediate goods and services. So, there are a lot of jobs created in industries where the value of the goods and services per employee is much less than it is for steel. This results in a high employment multiplier and much lower output multiplier. The income multiplier is significantly lower than the job multiplier because steel plant jobs pay much better than most of the jobs benefiting from their impact.

Taxes and Fiscal Impacts

To reasonably estimate the fiscal impacts of an industrial expansion or contraction in a region, analysts must rely on company records and local sources of data. I turn now to a discussion of the types of taxes and how I link fiscal impacts to economic impacts. I focus on the tax revenues that are most directly related to the payroll impacts of new jobs. These estimated tax revenues are related both to the direct Nucor Steel Brandenburg wages and salaries and to the indirect and induced labor income statewide, as predicted by my IMPLAN models. I estimate that the total annual fiscal impact in Kentucky will be \$14.3 million, as discussed below.

Because I used five county models and a model for the rest of the state, I can estimate the employee sales and income tax revenues linked to the Nucor Steel Brandenburg plate mill at both the state and local levels. Employees pay state sales taxes when they spend their wages in the local economy and are also liable for state income and local occupational taxes in Kentucky.

² For an insightful example of value added, consider the purchase of a new car at a Lexington area dealership. If a resident spent \$25,000 on a new Subaru Outback, most of the dollars would flow immediately to the manufacturer of the car, built in Indiana with top management in Japan. Only a few thousand dollars in dealer prep work and commissions would be captured in the Lexington economy. So, in economic parlance, the value of output (sales) would be \$25,000, and value added might be only \$3,000.

Kentucky State Sales and Income Tax

By comparing the ratio of tax receipts to regional labor income, I calculate "effective" tax rates and use those to estimate the amount of Kentucky employees' income and sales taxes linked to the Nucor Steel Brandenburg payroll and impacts throughout the state. Labor income data by county comes from the US Bureau of Economic Analysis while the tax receipt data is compiled from multiple tax annual reports released by the Kentucky Revenue Cabinet. I used a ten-year average effective rate over the period 2008-17 (the last ten years for which all data is complete). The income tax effective rate for these employees is 3.4% and the sales tax effective rate is 2.83%.

Calculated this way, I estimate that state government revenues attributable to the Nucor Steel Brandenburg plate mill employees will be \$6.4 million in income taxes and \$5.4 million in sales taxes.

Local Occupational Taxes

Note that employees of the Nucor Steel Brandenburg plate mill not only pay state income and sales taxes, they also often pay local occupational taxes. The annual impact of these payments can be reasonably estimated, too, and are significant.

I have taken the local government jurisdictions that levy occupational taxes in counties and cities and weighted their rates by the value of wage in each jurisdiction in that county. This gives us a weighted average local occupational tax for each county to apply to the payroll impact of the IMPLAN model. I have also created weighted averages of occupational taxes for the five-county region and for the state using payroll inside and outside taxing jurisdictions as the weight. I apply these weighted averages to the combined indirect and induced payroll impacts. I applied the same methods for school district occupational taxes.

Applying the appropriate payroll impact to the weighted local tax rates, I estimate that local school districts would receive about \$500,000 in occupational taxes, and local city or county governments would receive \$2 million in occupational tax revenue due to the effects of the Nucor Steel Brandenburg plate mill.

Constructing and equipping the plant would also bring short-term impacts lasting a couple of years (those impacts are discussed below). Local jurisdictions could see a boost of \$375,000 in occupational taxes for a couple years.

Although harder to measure, additional tax impacts are also likely. Unemployment insurance taxes, insurance premiums taxes, building permit fees, motor vehicle sales taxes, and many other business tax categories are all affected by the operations of the

plant. Employees also pay gasoline taxes and property taxes, and there are positive effects on the regional real estate market.

CONSTRUCTION IMPACTS

There are short-term impacts arising from the construction and equipping of the new facilities as well. The project is budgeted for \$200 million in direct construction spending, including land, land improvements, and buildings, and \$1.15 billion for capital equipment, including installation and ancillary costs. I modeled the construction and capital equipment purchases separately, with the results presented in the following tables.

The construction schedule is currently two years. Nucor Steel Brandenburg anticipates about 2000 contractors will work on the site at some point during the construction period, though contractors will come and go depending on the need. It is expected that it will take about four million man-hours to construct and equip the plant over two years. Assuming a typical 40-hour work week, this works out to an average of about 960 contractors on-site on any given day. Assuming an average annual wage of \$60,000 and benefits typical of the sector, the expansion construction will add about \$68.5 million in labor income to the region each year for the two years of construction. This level of activity can be expected to support an additional \$29.5 million in sales (output) in Meade County, helping to employ a further 215 people in jobs with \$6.6 million of labor income (wages plus benefits). Altogether, the two-year construction phase can be expected to temporarily boost employment in the county by 1,175 jobs and increase incomes by \$80 million. The table also shows the construction impact will have significant impact in the other four counties in the region, and even some impact in the rest of the state.

**Estimated Local, Regional, and Statewide Impact of Nucor Brandenburg Plant
Construction (Annual Impact for Two Years)**

Impact Type	Employment	Labor Income	Value Added (GDP)	Output
Meade County				
Direct Effect	962	\$73,636,402	\$85,835,477	\$100,000,000
Indirect Effect	37	\$1,627,896	\$2,639,569	\$5,870,076
Induced Effect	177	\$5,012,400	\$13,126,417	\$23,883,022
Total Effect	1176	\$80,276,698	\$101,601,463	\$129,753,098
Primary Kentucky Commuting Shed (Breckinridge, Bullitt, Hardin, & Jefferson Counties)				
Indirect Effect	58	\$4,345,202	\$7,587,465	\$11,780,344
Induced Effect	251	\$14,428,080	\$21,287,366	\$34,715,058
Total Effect	309	\$16,313,793	\$27,351,358	\$46,495,402
Rest of Kentucky				
Indirect Effect	12	\$684,899	\$1,023,121	\$2,682,153
Induced Effect	11	\$442,363	\$716,139	\$1,555,315
Total Effect	23	\$1,127,261	\$1,739,260	\$4,237,468
Statewide Totals				
Direct Effect	962	\$73,636,402	\$85,835,477	\$100,000,000
Indirect Effect	107	\$6,657,997	\$11,250,155	\$20,332,573
Induced Effect	438	\$19,882,843	\$35,129,922	\$60,153,395
Total Effect	1507	\$97,717,752	\$130,692,081	\$180,485,968
Implied Multiplier	1.57	1.33	1.52	1.80

Source: IMPLAN version 3.1 input-output models of Meade, Breckinridge, Bullitt, Hardin, and Jefferson counties and a region consisting of the remaining 115 Kentucky counties. 2016 IMPLAN economic data. Values in 2022 dollars. Results presented are sums of all household and industry spending analyses.

I modeled the \$1.15 billion in capital equipment spending using IMPLAN's equipment, furniture, and fixtures investment spending profile for the primary metal industries. I centered the spending in Meade County and conducted a multi-region analysis with the other five counties in the region and the model for the rest of the state. I also modeled the wider five-county region since Jefferson and Hardin counties are possible sources for some of this spending. The results reflect that just \$7.5 million of the \$1.15 billion in spending needed to equip the steel plant will occur in Meade County. The larger five-county region is expected to account for about \$76 million of the \$1.15 billion. A detailed examination of the results (not shown) reveals that nearly all of that regional spending goes towards wholesale trade and truck transportation, the middlemen rather than the equipment itself. The indirect and induced impacts in the table are the result of that limited activity.

**Estimated Local, Regional, and Statewide Impact of Nucor Brandenburg Plant
Capital Equipment Investment (Annual Impact for Two Years)**

Impact Type	Employment	Labor Income	Value Added (GDP)	Output
Meade County				
Direct Effect	49	\$2,225,683	\$3,721,816	\$7,466,109
Indirect Effect	11	\$316,535	\$522,248	\$1,213,308
Induced Effect	6	\$170,335	\$447,297	\$812,834
Total Effect	66	\$2,712,552	\$4,691,360	\$9,492,251
Primary Kentucky Commuting Shed (Breckinridge, Bullitt, Hardin, & Jefferson Counties)				
Direct Effect	328	\$27,783,700	\$43,657,088	\$76,120,597
Indirect Effect	204	\$11,718,409	\$17,894,479	\$29,458,553
Induced Effect	228	\$10,479,002	\$18,406,311	\$31,287,694
Total Effect	760	\$49,981,111	\$79,957,878	\$136,866,843
Rest of Kentucky				
Indirect Effect	9	\$468,946	\$662,200	\$1,704,541
Induced Effect	7	\$261,807	\$427,565	\$916,129
Total Effect	15	\$730,753	\$1,089,765	\$2,620,671
Statewide Totals				
Direct Effect	377	\$30,009,382	\$47,378,904	\$83,586,706
Indirect Effect	224	\$12,503,890	\$19,078,927	\$32,376,402
Induced Effect	241	\$10,911,143	\$19,281,172	\$33,016,657
Total Effect	842	\$53,424,415	\$85,739,002	\$148,979,764
Implied Multiplier	2.23	1.78	1.81	1.78

Source: IMPLAN version 3.1 input-output models of Meade, Breckinridge, Bullitt, Hardin, and Jefferson counties and a region consisting of the remaining 115 Kentucky counties. 2016 IMPLAN economic data. Values in 2022 dollars. Results presented are sums of all household and industry spending analyses.

Since the list of vendors for the capital equipment has not yet been decided upon, this modeling reflects the absolute lowest economic impact to Kentucky. If Nucor Steel Brandenburg were to choose equipment and machinery vendors located within Kentucky, then the resulting impacts would have to be modeled separately and would likely reflect greater positive impacts to Kentucky.