

# POTENTIAL ECONOMIC IMPACT OF INVESTMENTS IN HARDIN COUNTY AND SURROUNDING REGIONS

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Bauernfeind Center for Economic and Entrepreneurial Development

ICED - Initiative for Community Economic Development



ICED

### The Potential Economic Impact of Investments in Hardin County, KY, and Surrounding Regions January 2023

#### Introduction

This report presents estimates of the economic impact of a battery plant that will power a new lineup of Ford and Lincoln electrical vehicles. This plant will be potentially built in Hardin County, KY, and the impacts on the surrounding counties of Bullitt, Grayson, Hart, Larue, Meade, and Nelson are also estimated. The results are obtained using IMPLAN, an Input-Output modeling software that is a standard choice among economic development practitioners.<sup>1</sup>

The starting point in this kind of model is the initial increment in expenditures caused by the economic events being studied. (In this case, the operations of the battery plant.) Those include, for instance, input costs, wages, rent, and so on. They are called “direct effects.” But the extra input demands must be met by an increment in their production, which also incurs labor costs. (For instance, the production of copper must increase.) Thus, the direct effects trigger business-to-business purchases in the supply chain (“indirect effects”) and extra household spending stemming from the extra labor income generated in the process (“induced effects”). The direct, indirect, and induced effects are IMPLAN’s output.

The only data available for this study is the number of employees (5,000) predicted to be hired once the plant starts its operations. Thus, two points must be emphasized. First, the lack of data on, for instance, the plant’s construction costs and required infrastructure projects such as roads, utilities, and so on, implies that the economic impact is underestimated. Second, since detailed information on the project’s spending pattern is unavailable (as is often the case with still inexistent businesses), the results are mostly based on IMPLAN’s default values, which are based on regional averages.

As stated on IMPLAN’s website, “The more data [is] brought into the application from outside of IMPLAN the more IMPLAN data points and averages are being replaced with the analyst’s known values or assumptions. More specificity is added to the analysis when more data is known about the effect and is incorporated in the setup of the analysis in the application.”<sup>2</sup> Since the analysis below is based on one data point, the results should be considered cautiously.

After this introduction and following glossary, the predicted economic impact for the combined counties of Hardin, Bullitt, Grayson, Hart, Larue, Meade, and Nelson is presented. The tax effects are also estimated. Then the results in each individual county are shown. Note that all direct effects happen in Hardin county, where the plant will be located. However, due to the purchase of inputs from outside this county and employee commuting, there is a spillover of indirect and induced effects from Hardin to the other mentioned counties.

<sup>1</sup> <https://implan.com/>

<sup>2</sup> <https://support.implan.com/hc/en-us/articles/360046112753-What-Kind-of-Data-Can-I-Bring-to-IMPLAN-#:~:text=The%20more%20data%20brought%20into,analyst%27s%20known%20values%20or%20assumptions.>

## Glossary

### Direct effects

It is one or more production changes or expenditures made by producers/consumers/institutions as a result of an activity or policy being studied.

### Employment

Employment in IMPLAN is an Industry-specific mix of full-time, part-time, and seasonal employment. It is an annual average that accounts for seasonality and follows the same definition used by the BLS and BEA.

### Indirect effects

Changes in backward-linked industry purchases as they respond to the new demands of the directly affected industries.

### Induced effects

Changes in spending from households as labor income is converted into household spending on local goods and services.

### Labor Income

All forms of Employment income, including Employee Compensation (wages, salaries, and benefits) and Proprietor Income.

### Output

The value of production by industry in a calendar year. It can also be described as annual revenues plus net inventory change.

### Proprietor Income

The current-production income of sole proprietorships, partnerships, and tax-exempt cooperatives. Excludes dividends, monetary interest received by nonfinancial business, and rental income received by persons not primarily engaged in the real estate business.

### Sub-County

Geographic locations contained in a county such as cities, townships, and villages.

### Sub-County Special Districts

Special districts contained in a county such as public-school districts and fire districts.

### Value Added

Value Added represents the difference between Output and the cost of Intermediate Inputs throughout a defined economy during a specified period of time. It is equivalent to the Industry's contribution to GDP.

## Results

The results below are in 2023 dollars and are based on the assumption that the plant will hire 5,000 employees once it starts its operations. Outputs provided by IMPLAN correspond to yearly impacts.

### Part I: The Predicted Economic Impact on the Combined Region

**Table 1: Summary Results: Combined Region**

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	5,000.00	\$484,930,822.32	\$524,737,154.06	\$1,641,170,114.98
2 - Indirect	1,627.76	\$84,517,009.02	\$133,497,452.02	\$301,222,010.39
3 - Induced	1,644.49	\$74,437,777.26	\$140,872,518.01	\$251,349,710.61
Total	8,272.26	\$643,885,608.60	\$799,107,124.10	\$2,193,741,835.98

**Table 2: Tax Results: Combined Region**

Impact	Sub County General	Sub-County Special Districts	County	State	Federal	Total
1 - Direct	\$2,236,415.89	\$2,146,973.27	\$345,178.69	\$15,942,611.29	\$83,107,585.84	\$103,778,764.98
2 - Indirect	\$1,128,265.52	\$2,466,151.54	\$436,468.99	\$9,101,726.91	\$13,505,746.17	\$26,638,359.13
3 - Induced	\$1,299,446.88	\$3,116,477.45	\$662,948.33	\$11,387,292.74	\$11,797,857.63	\$28,264,023.03
Total	\$4,664,128.29	\$7,729,602.26	\$1,444,596.01	\$36,431,630.94	\$108,411,189.64	\$158,681,147.14

### Part II: The Predicted Economic Impact by County

**Table 3: Summary Results: Bullitt County**

Impact	Employment	Labor Income	Value Added	Output
2 - Indirect	156.26	\$8,071,008.87	\$12,589,649.40	\$27,875,821.45
3 - Induced	22.85	\$910,053.28	\$2,129,737.30	\$3,675,037.07
Total	179.11	\$8,981,062.14	\$14,719,386.70	\$31,550,858.52

**Table 4: Summary Results: Grayson County**

Impact	Employment	Labor Income	Value Added	Output
2 - Indirect	11.28	\$473,171.00	\$876,960.84	\$1,915,654.85
3 - Induced	47.19	\$1,656,984.61	\$3,475,975.89	\$6,581,739.79
Total	58.47	\$2,130,155.61	\$4,352,936.73	\$8,497,394.64

**Table 5: Summary Results: Hardin County**

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	5,000.00	\$484,930,822.32	\$524,737,154.06	\$1,641,170,114.98
2 - Indirect	1,426.72	\$74,234,404.34	\$116,895,659.05	\$264,404,058.81
3 - Induced	1,350.46	\$64,259,430.30	\$116,798,246.79	\$206,124,957.96
Total	7,777.18	\$623,424,656.95	\$758,431,059.89	\$2,111,699,131.75

**Table 6: Summary Results: Hart County**

Impact	Employment	Labor Income	Value Added	Output
2 - Indirect	3.08	\$171,390.30	\$248,057.33	\$638,086.57
3 - Induced	14.61	\$586,874.83	\$1,238,789.19	\$2,281,224.99
Total	17.69	\$758,265.13	\$1,486,846.51	\$2,919,311.56

**Table 7: Summary Results: Larue County**

Impact	Employment	Labor Income	Value Added	Output
2 - Indirect	12.54	\$532,876.60	\$1,109,149.81	\$2,196,347.71
3 - Induced	64.43	\$1,901,402.89	\$4,837,854.25	\$9,565,042.93
Total	76.97	\$2,434,279.48	\$5,947,004.07	\$11,761,390.64

**Table 8: Summary Results: Meade County**

Impact	Employment	Labor Income	Value Added	Output
2 - Indirect	5.1	\$340,051.19	\$515,574.07	\$1,406,981.82
3 - Induced	102.7	\$3,364,506.19	\$8,962,605.67	\$16,880,600.15
Total	107.8	\$3,704,557.37	\$9,478,179.74	\$18,287,581.97

**Table 9: Summary Results: Nelson County**

Impact	Employment	Labor Income	Value Added	Output
2 - Indirect	12.79	\$694,106.73	\$1,262,401.52	\$2,785,059.17
3 - Induced	42.27	\$1,758,525.18	\$3,429,308.93	\$6,241,107.73
Total	55.06	\$2,452,631.91	\$4,691,710.45	\$9,026,166.90

## Disclaimer

This report was prepared for and at the direction of the Kentucky League of Cities and is based on information provided by the Kentucky League of Cities. Murray State University Center for Economic and Entrepreneur Development relied on the Kentucky League of Cities for all inputs, direction, and guidance for the report as related to the specific project addressed herein. The Murray State University Center for Economic and Entrepreneur Development, using industry and academic resources standard and common to the industry, assisted in the preparation of this report. Murray State University makes no claims, warranties, or representations regarding the accuracy of the presentation. Users of the report assume all risk in all scenarios and agree to hold harmless Murray State University and all its affiliates and subsidiaries.