W. Frank Barton School of Business

Center for Economic Development and Business Research

Economic Impact – Battery Equipment Manufacturing

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Executive Summary

Kansas already has an established battery manufacturing sector and has the second-highest concentration of employment and wages among all states in the nation. Therefore, adding a battery equipment manufacturing company within Johnson County, Kansas, is estimated to have a positive economic spillover effect on the surrounding counties and the state. This project assumed that the firm would add four thousand jobs with an annual payroll of \$62,000 per year. At that rate, the total employment impact is expected to be 8,051 jobs with over 505 million dollars in yearly labor income. In addition, the capital investment from the development of the new firm will have a one-time economic boost to the economy by 16,551 temporary jobs.

Dattery Equipment Manufacturing Summary impact						
	Employment	Labor Income	Output			
Direct Effect	4,000	\$252,815,606	\$1,823,816,196			
Indirect Effect	2,047	\$146,423,534	\$434,130,177			
Induced Effect	2,004	\$106,460,778	\$323,695,033			
Total Effect	8,051	\$505,699,918	\$2,581,641,406			

Battery Equipment Manufacturing Summary Impact

Source: CEDBR

Construction and Equipment - Summary Impact							
	Employment	Labor Income	Output				
Direct Effect	-	\$0	\$4,000,000,000				
Indirect Effect	12,235	\$862,592,066	\$2,168,417,865				
Induced Effect	4,316	\$229,129,805	\$696,138,640				
Total Effect	16,551	\$1,091,721,872	\$6,864,556,505				

Source: CEDBR

The project has the eligibility to provide over 853 million dollars of public benefits, which include construction sales tax exemptions, investment tax credits, and training dollars, among other benefits. When comparing the total estimated impact over the ten-year period with the public investment of the firm's direct spending, the ratio was \$26.06. For every dollar spent, excluding the time value of money, the Kansas economy will gain \$26.06. Another way to look at this investment is to include the multiplier effect on the supply chain and household spending. Further expanding the concept shows that for every dollar invested, the Kansas economy will benefit from an additional \$38.30.

Direct Impact per Dollar Invested						
		5 YR		10YR		
Impact	\$1	3,119,080,980	\$2	2,238,161,960		
Public Costs	\$	698,541,055	\$	853,313,007		
Impact per dollar invested	\$	18.78	\$	26.06		

*Excluding Time Value of Money

	Total Impact per Dollar Invested						
	5 YR		10YR				
\$1	9,772,763,535	\$3	2,680,970,565				
\$	698,541,055	\$	853,313,007				
\$	28.31	\$	38.30				
	\$1 \$ \$	5 YR \$19,772,763,535 \$ 698,541,055 \$ 28.31	5 YR \$19,772,763,535 \$3 \$ 698,541,055 \$ \$ 28.31 \$				

*Excluding Time Value of Money

Acknowledgment

The following people were responsible for the successful completion of the impact study, which includes the data collection and economic modeling. At the Kansas Department of Commerce, Robert North, Chief Counsel, led the project scope, developed the simulation estimates, and provided overall guidance.

At Wichita State University's Center for Economic Development and Business Research (CEDBR), Jeremy Hill, Director of CEDBR served as the Principal Investigator, provided theoretical, technical expertise, data collection, and project management.

The Center for Economic Development and Business Research, a unit of the W. Frank Barton School of Business at Wichita State University, is responsible for any errors in this report. Inquiries may be directed to: Center for Economic Development and Business Research, 1845 Fairmount St. Wichita, KS 67370. The center can be reached by telephone at 1-316-978-3225 or through the website at www.CEDBR.org.

Methodology -Economic Impact model

There are two approaches to measuring the economic impact of this type of project: measuring net new or all economic activity. This project scope was to estimate the economic contributions of a new industry to the regional economy; thus, all of the employment, wages, and estimated sales were considered new economic activity.

The impact model used to estimate the economic effects of the battery equipment manufacturing industry on the regional and state economies was IMPLAN (Impact analysis for PLANning). IMPLAN is one of the most commonly used models for impacts similar to this project. Alternative models are less common in practice and tend to involve a higher level of customization. The advantage of using this model is that it is broadly available and uses straightforward methodologies. Others could replicate the study or even develop similar studies to provide reliability or comparability.

Double counting is a common weakness of contribution studies. It tends to occur by inputting two similar direct economic activities like salaries and employment or adding in an indirect effect on top of a direct effect. This study went to great lengths to prevent double-counting by using the Analysis-By-Part technique developed by IMPLAN. Further, this study used an iterative process to identify and reduce inter-industry transactions.

Terms and Definitions

- **Cluster** An industry cluster is a group of industries that gain economic efficiencies through shared labor, knowledge, and supply chains.
- **Direct impact** A direct effect measures an industry's initial change or value in terms of dollars, jobs, or wages.
- Indirect impact An indirect effect measures the supply chain impact from an initial change or direct impact.
- Induced impact An induced impact measures the household effect from increased demand from an initial change or direct effects.
- Labor income impact Labor income includes all forms of employment income and encompasses employee compensation and proprietor income.
- Location quotient A location quotient measures an industry's relative concentration.
- Market area This study used three measures of a market area. The local market area includes Douglas, Johnson, Leavenworth, Miami, and Wyandotte Counties, the primary location of the businesses.
- **Multiplier** A multiplier captures the inter-industry effects from a change to a primary sector. A value greater than one indicates a positive impact on the economy for every dollar or job created.
- **Output impact** An output effect measures the total value of a business's production and equals revenues.
- Tax on corporations Corporation taxes include dividends and corporate profits.
- **Tax on households** Household taxes include income, fines and fees, motor vehicle license, property, and fishing and hunting.
- **Tax on production** Production taxes includes sales, property, motor vehicle licenses, severance, other related taxes.
- **TIPU sector** The TIPU sector includes transportation, information, and public utilities.
- **Total impact** A total effect adds the direct, indirect, and induced effects to estimate the full impact on a regional economy.