

## Appendix G

### NDSU Economic Report for the JETx Project

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# Local Economic Impact of the Construction of the Jamestown – Ellendale Project

Dean A. Bangsund and Nancy M. Hodur



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## Executive Summary

Otter Tail Power Company and Montana-Dakota Utilities Co. are planning to design, construct, own, and operate an 85-mile 345 kV transmission line that will run from Jamestown to Ellendale, ND, and is referred to as JETx. The physical footprint encompasses construction activity in North Dakota; wholly within Stutsman, LaMoure, and Dickey counties. The project is expected to take six years; right of entry commenced in 2023 and post-construction activities are expected to be completed in 2029.

This economic assessment was based on construction-related expenditures for the acquisition of goods and services (e.g., engineering consultants), payment for construction and related-labor, landowner easements, and project-related infrastructure.

Expenditures related to the project were delineated into labor (local and non-local) and materials (local and non-local). The expenditure profile for the project was identified by year and by various stages of construction.

The IMPLAN modeling platform was used as the primary analytical tool to estimate secondary economic effects. The study region used in IMPLAN was the combination of Stutsman, LaMoure, and Dickey counties and represented economic characterization for 2022. Data used for analysis was current to 2024.

Key findings:

- Economic impacts are expected to be relatively modest in 2024 and 2025, but increase substantially during 2026 through 2028. Project impacts in 2029 are expected to be modest, albeit effects will likely remain larger than observed in the first two years of the project.
- Effect on local employment is expected to peak in 2027 with the project supporting 510 jobs in various economic sectors of the local economy.
- Labor income for direct, indirect, and induced employment over the project's six-year planned construction is expected to be \$94 million (expressed in 2024 dollars).
- The project is expected to generate \$238 million in business volume over the six-year period.
- Value-added economic output (synonymous with gross state product) is estimated at \$120 million over the six-year period.
- The project is expected to support \$1.7 million in revenues to local government jurisdictions, excluding direct payments for project permits, over the six-year period.

# **Local Economic Impact of the Construction of the “Jamestown - Ellendale 345-kV Project ”**

Dean A. Bangsund and Nancy M. Hodur\*

Construction and development of industry infrastructure often produce high volumes of employment, but many of those jobs are filled by non-local workers and are relatively short in duration. Also, publically stated project costs generally are not indicative of the business volume absorbed in local economies hosting the project. Economic impact assessments are performed to help gauge the magnitude of localized economic effects, and are of interest to stakeholders, policymakers, and business leaders.

## **Project Background**

Details on the JETx Project were shared by Otter Tail Power Company and Montana-Dakota Utilities Co. to provide perspective on the construction project. Changes in project scope may affect the local economic effects, but financial data shared by Otter Tail Power Company are consistent with the following project description. The project schedule anticipates six years to fully complete, although the line is expected to be in-service after the fifth year. Expenses for the sixth year represent clean up, restoration, and related activities.

Otter Tail Power Company (Otter Tail) and Montana-Dakota Utilities Co. plan to construct, own, and operate approximately 85-miles of new double circuit capable 345-kilovolt (kV) electric transmission line from Otter Tail's existing Jamestown 345-kV Substation in Stutsman County to Montana-Dakota Utilities's existing Ellendale 345-kV Substation in Dickey County (Figure 1). In addition to the transmission line, substation work at Otter Tail's Jamestown 345-kV Substation, Maple River 345-kV Substation as well as Montana-Dakota Utilities's Ellendale 345-kV Substation, and the co-owned Twin Brooks Substation, will also be completed to reliably integrate the transmission line into the transmission system.

The JETx Project was identified and approved by Midcontinent Independent System Operator, Inc. (MISO) as part of its Long-Range Transmission Planning (LRTP) Tranche 1 Portfolio. JETx is one of eighteen new transmission projects that will provide significant benefits to the Midwest subregion of MISO by enabling more reliable and economic energy delivery. The overall project is planned to be completed and in-service by the end of 2028.

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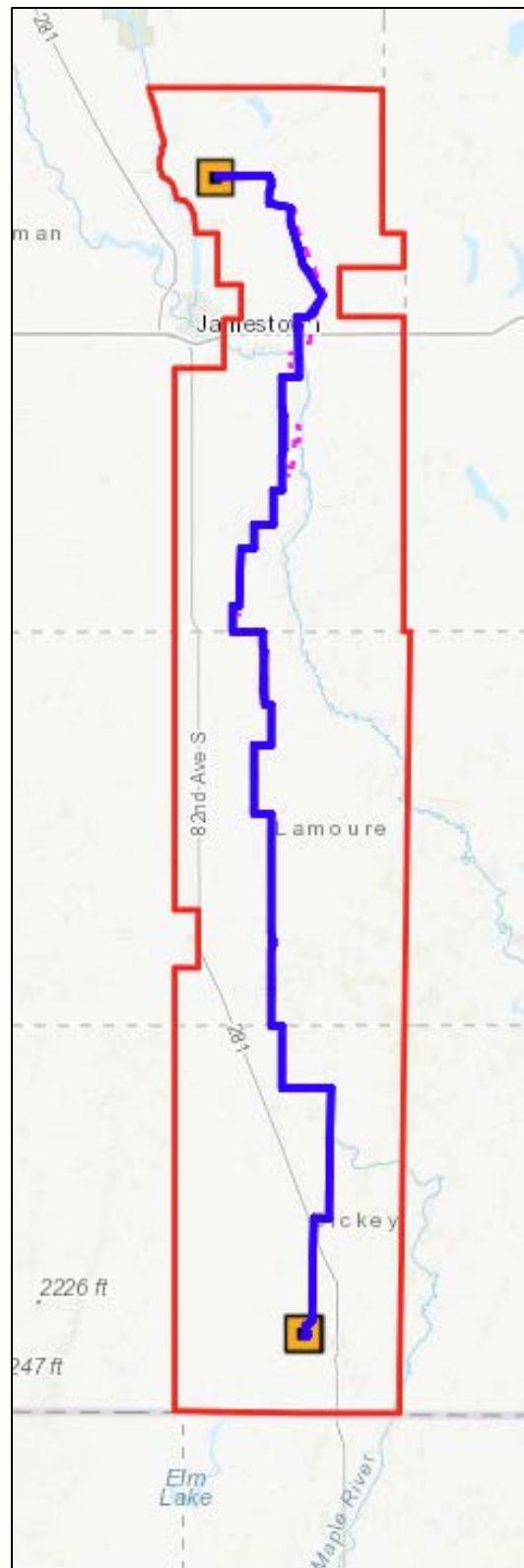


Figure 1. JETx Project Area, Transmission Line, Otter Tail Power Company and Montana-Dakota Utilities Co.

Source: Otter Tail Power Company

## Study Methodology

All economic impact and contribution studies rely on financial and/or economic data. Data from secondary sources (e.g., other studies, statistical services, private data sets) can be used, but the most timely and defensible data relating to sales, employment, payroll, and input purchase patterns come directly from firms and associations. Other forms of data are typically available from government sources, such as employment and taxes, and often are combined with data from firms and associations.

### Economic Impact Analysis

An economic impact assessment measures the net change in output within various components of an economy, and often makes comparisons of size to the overall composition of a given economy over a specified period. Economic size is estimated by combining direct or first-round effects (e.g., industry expenditures, business sales, employment) with economic modeling to estimate how first round effects generate business-to-business transactions and household spending for consumer goods and services. Economic effects are described in terms of labor income, employment, value-added, gross business volume, and government revenues.

Input-Output (I-O) is a form of economic modeling often used in economic impact assessments, and can be used to estimate both direct and secondary economic effects. I-O is a mathematical representation of the production and consumption of goods and services within a given economy and is premised on the notion of inter-industry transactions, where industries use products/services from other industries to generate their output, and outputs from one industry usually represent inputs to another industry. The basis for the interdependence (linkages) within input-output analysis between consuming and producing industries forms the foundation for development of multipliers. Multipliers are used to estimate how changes in economic activity in a given sector or industry result in economy-wide secondary effects in other economic sectors.

IMPLAN modeling platform was the I-O model used in this assessment. It is popular among a host of stakeholders for use in conducting economic impact and contribution assessments. This study used the 2022 matrix, the most current version available when the study was conducted.

Secondary economic effects result from changes in demand created by the first round (direct) effects and are delineated into indirect and induced economic effects. Both direct and secondary effects are described in terms of labor income, employment, value-added, gross business volume, and government revenues (Figure 2).

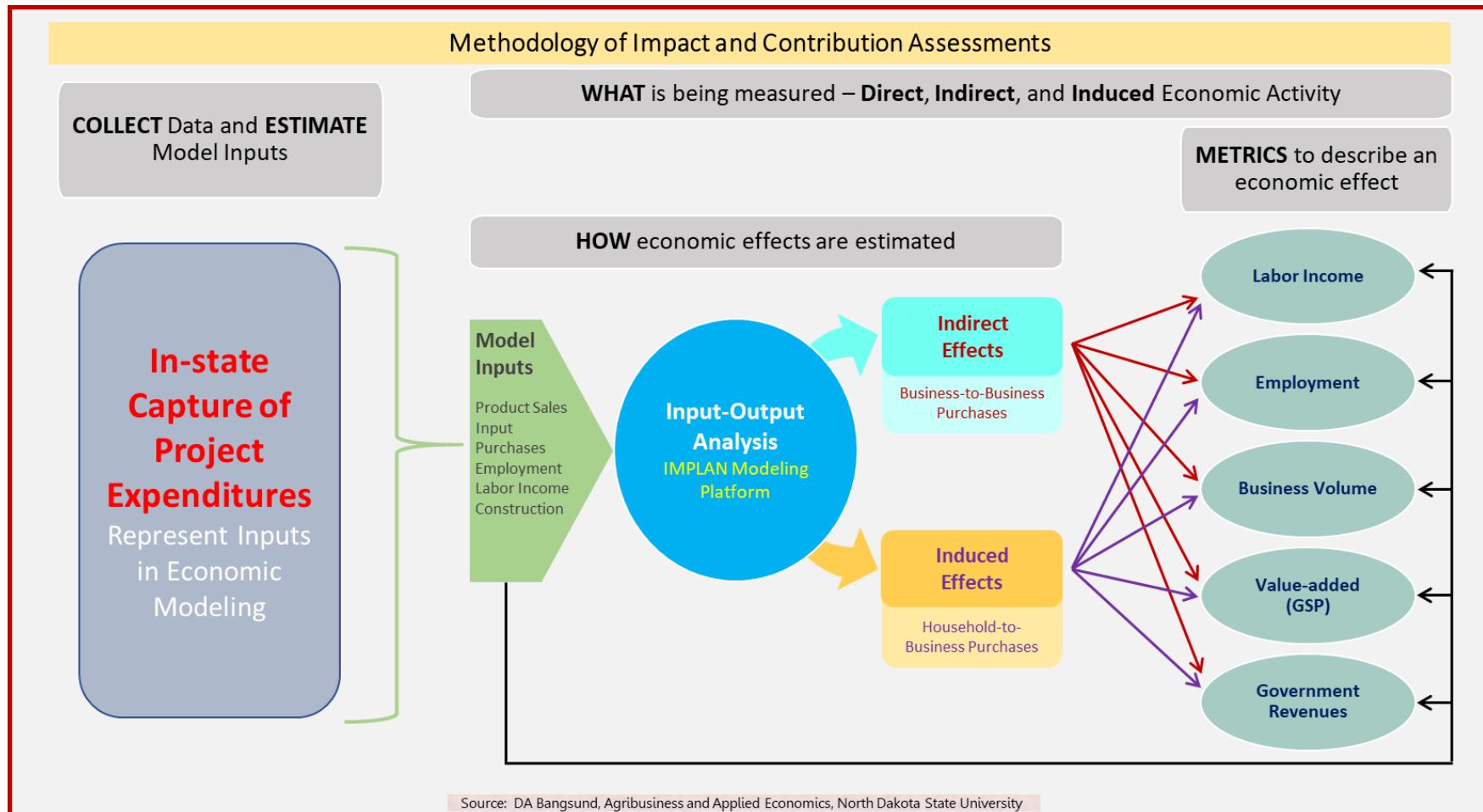


Figure 2. Overview of Impact and Contribution Assessments

## Types of Economic Causality

*Direct Economic Effects:* Direct economic effects represent the first-round of payments for services, labor, and materials. Direct effects can be interpreted to represent jobs, labor income, and business activity within a given industry or economic sector.

*Indirect Economic Effects:* Indirect economic effects arise from the additional consumption of goods and services triggered by businesses that supply inputs to firms in a given sector/industry. Indirect effects can be interpreted as the additional economic activity created through purchases by businesses.

*Induced Economic Effects:* Induced economic effects arise from the additional spending by households from changes in personal income associated with direct effects and indirect effects. Changes in personal income can come from payrolls of businesses that are directly impacted, changes in payroll from businesses that supply goods and services to an impacted sector (induced effects), and proprietor income resulting from a change in business volume. Induced effects measure the additional business activity that is triggered as changes in personal income translate into purchases of goods and services for personal consumption.

## Types of Economic Activity

*Value-added Effects:* Value-added economic activity is a measure of the payment to labor and capital, and includes labor income, business taxes, and business/proprietor income (profit). This economic effect is sometimes referred to as a measure of the value that is added to purchased inputs by a business or industry and is analogous to gross state product. The use or consumption of goods and services in the production of another good or service is not included in value-added measures.

*Total Economic Output:* Total output is a measure of the business activity created by summing direct economic effects, indirect economic effects, and induced economic effects. This economic measure is sometimes called gross business volume. Total output therefore represents the sum of gross receipts of all economic sectors.

*Employment and Employment Compensation:* Employment is perhaps one of the most important economic measures associated with impact and contribution assessments. Direct employment represents the jobs employed by the business or economic sector for which the activity or event is being modeled. I-O analysis also estimates employment associated with indirect and induced economic effects. Changes in employment compensation include wages, salaries, and employment benefits linked to changes in employment levels.

*Labor Income:* Labor income is often interchanged with employment compensation, but labor income is a broader measure of payments to labor since it includes employment compensation and proprietor income.

***Government Revenue:*** Changes in revenues to state and local governments are another important measure in most contribution studies. I-O models estimate changes in selected government revenues such personal income, sales and use, corporate income, severance, and property taxes, and a variety of miscellaneous revenues such as permits, fees, licenses, and dividends. Government revenues are not generally additive to economic effects, as most government revenues are either imputed internally or directly comprise a component of an industry balance sheet.

### **Fiscal Effects Methodology**

IMPLAN estimates fiscal impacts by examining total government revenues from a variety of data sources. The model then estimates the share of government revenues based on the individual source of revenue (e.g., sales tax, income tax, severance tax, fees, and licenses). IMPLAN compares total government revenues, from all sources, with total industry output from all sectors in the economy. That process produces an estimate of tax revenue per unit of average industry output (e.g., gross sales, state gross product). The model does not estimate tax collections stemming from individual economic sectors or industries. Therefore, to estimate the fiscal impacts of a project, program, or activity, IMPLAN estimates the change in economy-wide business output, and then estimates the fiscal effects by multiplying that change in business output by the ratio of government revenues to economy-wide output. This process produces a direct relationship between expected new government revenues and a change in industrial or economic output.

## Project Data

Otter Tail Power Company and Montana-Dakota Utilities Co. provided project-specific expenditure information for the construction of the transmission line. Of particular importance for any large-scale infrastructure project is the separation of project outlays occurring within the local economy with those expended outside the study region. All project expenditures were separated into Labor-local, Labor non-local, Materials local, and Materials non-local (Figure 3). The designation of 'Local' was defined as Stutsman, LaMoure, and Dickey counties in North Dakota.

Several development stages/categories of construction for the project were identified by the study sponsor (Figure 3). Total outlays for local and non-local labor and materials were provided as totals for the six-year project for each of those categories. Annual estimates for those combinations of project categories and spending types were created from the six-year totals and formed the foundation for inputs in the I-O matrix.

The next step, after accounting for local and nonlocal project outlays, was to align those financial values with proper designations with the I-O matrix (Figure 3). This process involves taking project-specific details and identifying the affected economic sectors. In many cases, the direct effects are relatively straightforward, for example, spending for labor and materials affecting the local construction sector. Other economic triggers are less straightforward and require changes in different types of economic stimuli (e.g., spending patterns for purchases of goods and services, changes in household income).

An important element to the impact assessment is to properly gauge the effect of non-local workers on the local economy. Non-local labor expenses were combined with secondary data to estimate the number of non-local construction workers. A custom household spending pattern was used to identify the expected volume of purchases made in the local economy by non-local workers while working on the project (e.g., lodging, dining, transportation). Those types of spending are reflected in the project's induced effects.

In some assessments, all on-site labor is counted as a direct effect regardless if the workers are from local firms or represent non-local workers. In this assessment, payroll for non-local workers was not counted as part of the local economic effects, nor was estimated non-local workers counted in the employment effects.

Generally, expenditures for materials from sources outside a study region are omitted from an analysis as those outlays have no bearing on the local economy. An exception for that condition is the capture of some transportation/freight-related input purchases (e.g., trucks refueling). Easements accruing to landowners residing outside of the study area also are omitted and easements to landowners in the study region are not assigned to an economic sector, rather they represent a change in household income. Payments for crop damage do not represent economic impacts, as the loss of revenues from agricultural production is offset by payments to the owner(s) of those crops.

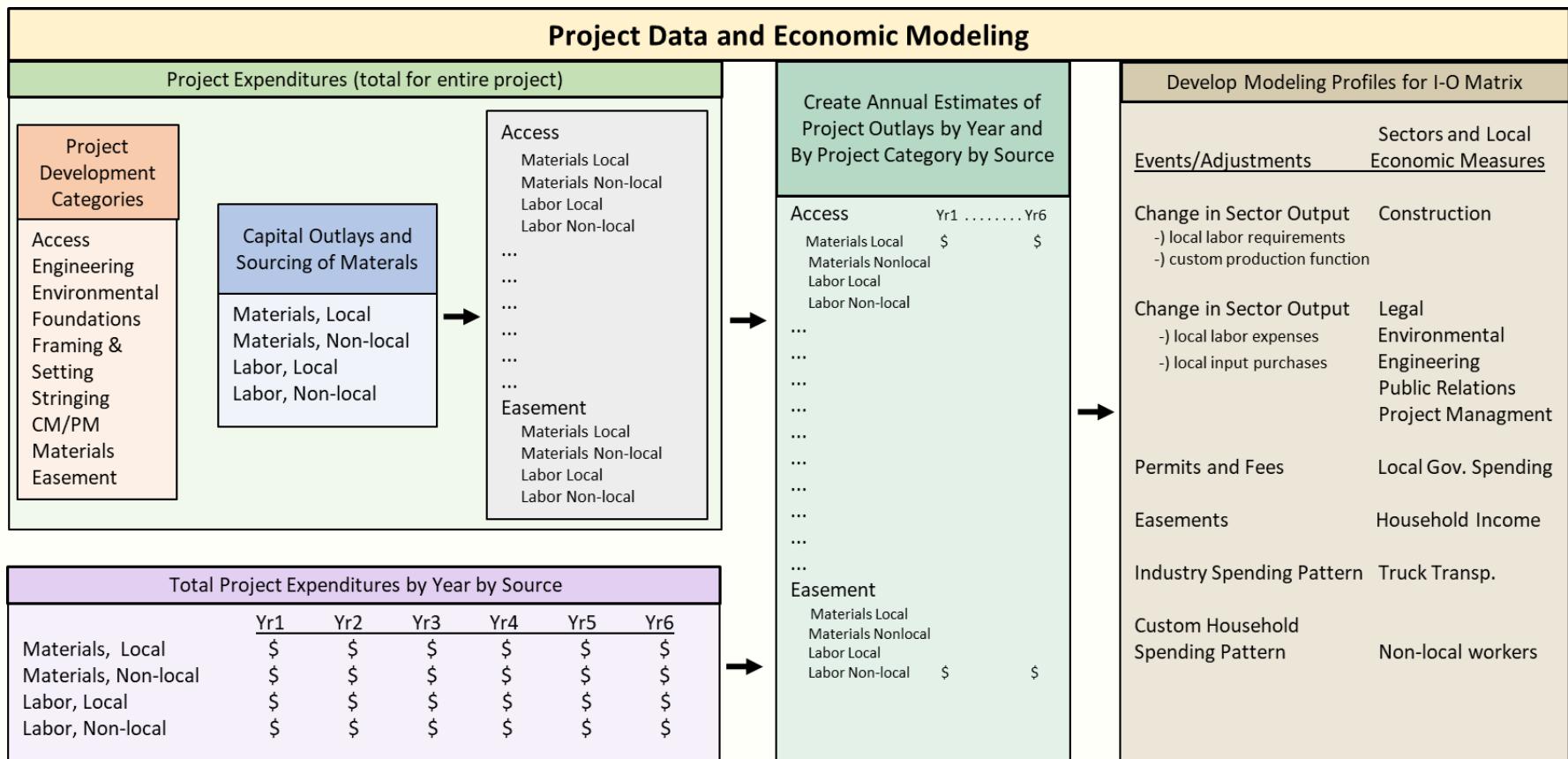


Figure 3. Transformation of Project-specific Financial Data into Modeling Inputs

## Economic Impacts

The transmission line project is expected to take five years to become operational with an additional year for post-construction activities. Economic impacts were developed for each year of the six-year period. In general, the economic impacts are expected to be relatively modest in 2024 and 2025, increase substantially in 2026, and peak in 2027. Economic effects remain relatively high in 2028 when the line is expected to become operational.

Direct, indirect, and induced economic effects were combined to protect confidential financial data. All of the economic effects are specific to the three-county project area.

### Employment

Employment supported in the three-county project area is expected to be modest in the first two years: less than 10 jobs in 2024 and 70 jobs in 2025 (Table 1). The bulk of the construction is expected to occur from 2026 through 2028 with roughly 500 jobs supported each year. Construction is expected to be largely completed by the end of 2028, but activities relating to the project would support about 210 jobs in 2029.

Non-local workers are not included in the employment figures. Additional workers would be present in the study area during the project, but those workers would not represent residents of the study region.

**Table 1. Employment, Construction of Transmission Line, Stutsman, LaMoure, and Dickey Counties, North Dakota, 2024 through 2029**

	2024	2025	2026	2027	2028	2029
----- jobs <sup>1</sup> -----						
Direct, Indirect, and Induced Effects	8	70	480	510	490	210

<sup>1</sup>Combination of wage/salary and self-employed workers.

## Labor Income

Labor income represents compensation for wage and salary employment and income for self-employed individuals. Total labor income (direct, indirect, and induced) for local workers is estimated to be less than \$1 million in 2024, but is expected to increase to \$25 million annually from 2026 through 2028. During the bulk of construction from 2026 through 2028, total labor income is estimated to be \$78 million (Table 2). Labor income for the entire six-year project is estimated at \$94 million. Payroll for non-local labor is excluded from labor income in Table 2.

**Table 2. Labor Income, Construction of Transmission Line, Stutsman, LaMoure, and Dickey Counties, North Dakota, 2024 through 2029**

	2024	2025	2026	2027	2028	2029	Total
Direct, Indirect, and Induced Effects	----- millions of 2024 \$ -----						
Direct, Indirect, and Induced Effects	0.4	3.5	25.3	26.8	25.8	12.5	94.3

## Gross Business Volume

Gross business activity is the sum of direct, indirect, and induced economic effects, and is sometimes called gross business volume. The total impact of the project is therefore the sum of gross receipts of all economic sectors for the six-year project for all three types of economic causality.

The gross business volume (i.e., total impact) across the six-year project is estimated at \$238 million. Approximately 85 percent of all business volume for the project in the local study area is expected to occur from 2026 through 2028 (Table 3). Business volume is expected to be less than \$20 million in 2024, 2025, and 2029.

When modeling economic effects of construction projects, the direct effect component in the gross business volume typically represents expenditures made by the study sponsor for goods and services acquired in the study region. Indirect and induced economic effects are the subsequent economic output that stems from the change in demand for goods and services created by the direct effects. Therefore, the gross business volume presented in this report is not equivalent to total project cost. As with nearly all construction projects requiring specialized labor and components, much of those project-expenditures accrue to entities outside of the local area.

**Table 3. Gross Business Volume, Construction of Transmission Line, Stutsman, LaMoure, and Dickey Counties, North Dakota, 2024 through 2029**

	2024	2025	2026	2027	2028	2029	Total
Direct, Indirect, and Induced Effects	1.6	14.1	61.8	75.8	65.1	19.4	237.7
	----- millions of 2024 \$ -----						

The distribution of economic output in the local economy was estimated as a weighted-average of gross business volume by two-digit North American Industrial Classification Codes (Figure 4). The economic sector with the largest business volume is Construction, followed by Accommodations and Food Services, Professional Services, Retail Trade, Real Estate, and Finance and Insurance sectors.

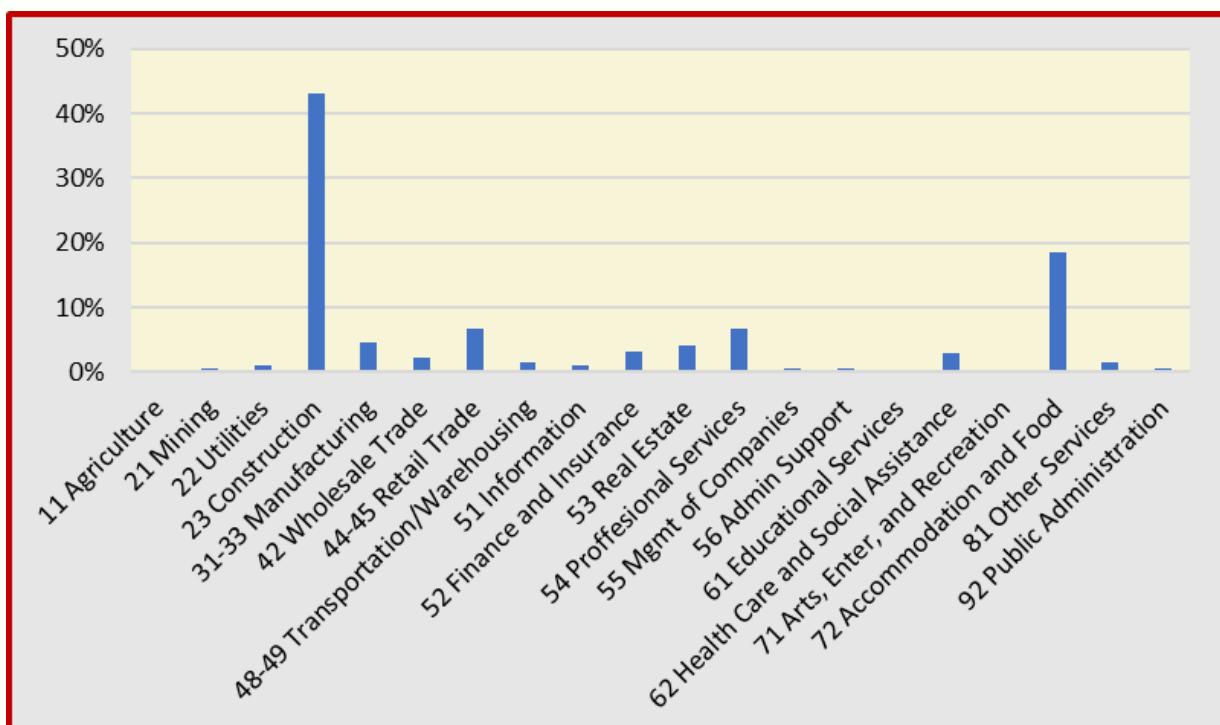


Figure 4. Distribution of Gross Business Volume, Construction of Transmission Line, Stutsman, LaMoure, and Dickey Counties, North Dakota, Weighted Average of 2024 through 2029

## **Value-added Economic Output**

Gross state product (GSP) is analogous to gross domestic product, but for a state-level economy. Input-output analysis produces measures of *value-added* which represent contribution to GSP. Gross state product is the government's official measure of the size of an economy. Value-added economic activity is a measure of the payment to labor and capital, and includes labor income, business taxes, and business/proprietor income (profit). The use or consumption of goods and services in the production of another good or service is not included in value-added measures.

Value-added economic output across the six-year project is estimated at \$121 million. As was estimated for business volume, 83 percent of all value-added for the project is expected to occur from 2026 through 2028 (Table 4). Annual value-added is expected to be less than \$15 million in 2024, 2025, and 2029.

**Table 4. Value-added Economic Output, Construction of Transmission Line, Stutsman, LaMoure, and Dickey Counties, North Dakota, 2024 through 2029**

	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>Total</b>
Direct, Indirect, and Induced Effects	0.6	5.0	32.4	35.0	33.2	14.6	120.8
	----- millions of 2024 \$ -----						

## Fiscal Effects

Government revenues represent another component of the economic effects for local economies. Government revenues that are likely to accrue to local government jurisdictions in the three-county study area were based on IMPLAN's fiscal analysis.

IMPLAN's fiscal analysis requires important interpretation with respect to property tax collections. Property tax collections for the transmission line and any land under construction are not included as part of the analysis. The property tax values represent the expected level of tax collections based on business activity. In the case of property tax relating to construction projects, this often creates confusion as to whether the values represent new (additional) revenues or represent a share of expected revenues that are already occurring in the study region. Expansion of business activity during construction may or may not influence the creation of new property tax revenues. If a business(s) adds a facility or expands an existing structure as a result of the project, then those types of changes are likely to add to the property tax collections. Other situations, for example, a business that has increased sales resulting from the project, may not have any change in their property taxes, yet IMPLAN counts the property tax paid (determined based on a ratio of taxes paid to business output) in those sectors as part of the government revenues attributable to the construction project.

Cumulatively, government revenues created and supported in the study region are estimated at \$1.7 million for the project (Table 5). The bulk of those revenues coincide with peak construction activities in 2026 through 2028. Payments for permits for the project are included as part of the direct effects, and not counted in Table 5.

Sales and use taxes represent 11 percent of all local government revenues for the six-year project. Sales and use taxes are estimated only for materials and pipeline components purchased in North Dakota. Purchases of equipment supplied by businesses in other states are not part of the fiscal analysis.

**Table 5. Fiscal Effects, Construction of Transmission Line, Stutsman, LaMoure, and Dickey Counties, North Dakota, 2024 through 2029**

Government Revenue	2024	2025	2026	2027	2028	2029	Total
-----thousands of 2024 \$-----							
Property Tax	10.2	96.3	392.2	486.8	420.3	90.4	1,496.3
Sales & Use Tax	1.3	12.1	49.1	60.9	52.6	11.3	187.2
Special Assessments	0.1	0.8	3.2	3.9	3.4	0.7	12.1
Misc. Revenues	0.1	0.8	3.2	4.0	3.4	0.7	12.2
<b>Total</b>	<b>11.7</b>	<b>110.0</b>	<b>447.6</b>	<b>555.6</b>	<b>479.7</b>	<b>103.2</b>	<b>1,707.8</b>

## Summary

The Otter Tail Power Company and Montana-Dakota Utilities Co. plan to construct an 85-mile electricity transmission line in Stutsman, LaMoure, and Dickey counties in North Dakota. This assessment estimates the economic effects of the construction of that transmission line.

Expenditures by the transmission line owners were used to estimate the overall economic effects from the project in the three-county study region. Direct effects, which represent the injection of dollars into the local economy from the purchase of goods and services, were combined with economic effects from business-to-business transactions (indirect effects) and consumption of consumer goods and services by households (induced effects). The combination of those economic effects represents the economic impact from construction of the transmission line and does not include any ongoing economic effects from operations. Also, the region's economic impact is not comparable with the transmission line's total cost to Otter Tail Power Company and Montana-Dakota Utilities Co.

The project is expected to take five years for the transmission line to become operational, with project initiation starting in 2024. Additional activities to wrap up the project are slated for 2029. The economic effects in the three-county project area are modest in the first two years, with about 85 percent of the project development and construction occurring from 2026 through 2028.

Employment supported in study region is expected to peak at 510 jobs in 2027 (Table 6). The project is estimated to support \$94 million in labor income, \$121 million in value-added, and \$238 million in total economic impact (Table 6).

**Table 6. Summary of Economic Impacts, Direct, Indirect and Induced Effects, Construction of Transmission Line, Stutsman, LaMoure, and Dickey Counties, North Dakota, 2024 through 2029**

Economic Metrics	2024	2025	2026	2027	2028	2029	Total
----- jobs -----							
Employment	8	70	480	510	490	210	na
----- millions of 2024 \$ -----							
Labor Income	0.4	3.5	25.3	26.8	25.8	12.5	94.3
Value-added	0.6	5.0	32.4	35.0	33.2	14.6	120.8
Gross Business Volume	1.6	14.1	61.8	75.8	65.1	19.4	237.7

na = not applicable. Jobs cannot be summed across years.

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