

Proposed Economic Impact Study: Typical Fracture Sand Mining Operation

Overview

Data
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The University of Wisconsin-River Falls Center for Economic Research (CER) will use data provided by Dunn County Economic Development Corporation (DCEDC) to determine the economic impact, both direct and indirect, of a typical fracturing sand mine located in the state of Wisconsin. An overview of the data that will be needed is included below, and the CER will develop a questionnaire to assist data in data collection.

In this study, the CER will conduct an industry analysis, estimate the mine's effects on economic growth at the county and state level, and analyze the costs/benefits of the infrastructure investment needed to support mining operations. Implan will be used to conduct the study using data from 2009, which is the latest data available at the time of this proposal. Data needed to conduct the study are outlined in the data requirements section.

The economic impact study will analyze the effect of a typical fracture sand mine of economic growth by estimating the following:

Additional income: The additional income generated in the county and state as a result of the mine's payroll and its purchases of supplies and services, and the additional income generated by the spending of the mine's employees and independent contractors at local businesses.

Job creation: The number of additional jobs created both directly by the mine and indirectly through local businesses providing goods and services to the mine and the mine's employees and independent contractors.

Additional tax revenue: The additional tax revenue generated directly and indirectly by the mine, as well as additional property tax revenue.

The study will also provide analysis of infrastructure investment made by the county and state by estimating the following:

Infrastructure investment: The cost of initial infrastructure improvements typically needed to support the mining operation, as well as the continued maintenance cost of that infrastructure over the life of the mine.

Total discounted return: The total additional time-discounted income generated directly or indirectly by the mine over the life of the mine.

Additional tax revenue: The total additional time-discounted tax revenue generated directly and indirectly by the mine over the life of the mine.

Break-even point: The time needed to recoup initial infrastructure investment from additional tax revenue generated directly and indirectly by the mine.

Deliverables

The economic impact study will include the following:

Executive Summary: Intended for wide distribution, this report contains all of the major findings written in laymen's terms.

Overview Fact Sheet: Intended for wide distribution, this report contains bullet-by-bullet results on the economic impacts generated by a typical fracture sand mine.

Quick reports: One-page presentation-ready reports showing results from the perspective of the taxpayer, local business person, and relevant government official.

Main Report: Intended for technical audiences, this report presents the findings, assumptions, theory, and data sources.

Project Workflow

Data collection: (completed by 7/23/2011) CER staff will work with Dunn County Economic Development Corporation staff to obtain necessary data.

Data review and model processing: (completed by 7/30/2011) CER staff will review the data provided by Dunn County Economic Development Corporation. Then CER staff will build and estimate the economic model.

Draft report phase: (completed by 8/6/2011) CER will deliver the draft reports to Dunn County Economic Development Corporation for review and approval. Revision requests should be returned to CER staff by 8/13/2011.

Final report phase: (completed by 8/20/2011) CER will make revisions as need and will deliver the final reports to Dunn County Economic Development Corporation.

Principle Researchers

Logan Kelly, Ph.D.

Dr. Kelly is an assistant professor of economics and the director of the Center for Economic Research at the University of Wisconsin-River Falls College of Business and Economic. He received his Ph.D. from the University of Kansas in 2007 with specializations in applied econometrics and macroeconomics.

Brian Schultz, Ph.D.

Dr. Schultz is a professor of economics and the assistant dean of the College of Business and Economics at the University of Wisconsin-River Falls. He received his Ph.D. from the University of Notre Dame in 1980 with specializations in statistics and international trade.

Project Cost

Total cost of this project will be will \$3,000.00, which will be used to cover supplies, salary, and software.

Study Outline

1. Overview Page

- Short Term and long term jobs created including direct indirect and induced
- Total annual economic impact
- Total annual state/local tax revenue

2. Summary

- Summary of general economic impact data
- Summary fracture sand mines in general
- Average length of fracture mine operation

3. Purpose of study

- Summarize purpose of doing study
- Outline of what data was collected and why this data

4. Economic Impact Model Outline

- Summary of IMPLAN model
- Summary's of direct, indirect and induced effects

5. National Impact of Mining

- Impact of mining on U.S. economy
- Direct jobs created, labor income, impact on GDP, tax's generated, number of mining operations, upstream suppliers and value of mining inputs, and downstream suppliers and value of mining outputs all types of mines nationally

6. Overall economic impact of average mine

- Explanation of multiplier effect of average mine
- Table of annual economic impact of mine according to each effect (direct, indirect, and induced)

7. Jobs created

- Direct mining jobs created and base pay of fracture mining jobs created
- Direct transportation jobs created and base pay of transportation jobs
- Indirect jobs created in upstream suppliers industry's and average pay of jobs
- Induced jobs created such as "main street" jobs (grocery stores, clothing stores, schools, auto dealerships and etc.
- Table outlining job creation numbers of each effect

8. Annual tax impact

- Brief section outlining that both direct and indirect worker will generate income, property and sales taxes
- Total annual state and local tax impacts

9. Economic impact of mine construction

- Average number of jobs created annually due to mine construction
- Average total time to construction
- Average pay of workers at construction jobs created
- Where will construction workers come from (local workers or commuters)
- Average percentage of construction workers pay spent in mine location and spent in workers home area
- Table giving the direct, indirect, and induced effects on job creation by construction of mine
- Table giving the direct, indirect and induced effects economic impact due to construction
- Tax impact of construction

10. Infrastructure investments requirements for roads

- Mine impact on life of roads
- Amount of total road surface area mine impacts
- Economic cost associated with roads

11. Infrastructure investments required for water

- Water supply infrastructure for opening new mine summary
- Water demand of average mine
- Cost associated with initial costs and maintenance of water supply to community

12. Conclusion

- Re-summarize important data found
- Support regional need for fracture mining operations economic benefits

Data Requirements

Direct Jobs

- Categories of employees (examples top management, lower management, skilled workers, and unskilled workers)
- Number of workers per category
- Base pay of each category

Indirect Jobs

- Upstream and downstream companies, and location of companies
- Inputs and input costs of upstream suppliers
- Outputs of downstream suppliers
- Number of workers employed by upstream and downstream companies
- Average pay to workers of upstream and downstream companies

Other industry data

- Average gross sales of the typical mine
- Average amount of taxes paid by the typical mine
- Government agencies to whom taxes are paid

Initial Mine Construction

- Construction contractors used (national, international, or local)
- Length of mine construction
- Average pay of construction workers

Community Infrastructural costs

- Mines impact on life of roads, and total surface area impacted
- Initial road infrastructure investments needed and economic costs of maintenance
- Water supply infrastructure initial (if needed) and maintenance cost to community
- Energy infrastructure initial building cost to community (if needed)

