

Power Consulting, Inc.
Thomas Michael Power, Ph.D. Economics
Donovan S. Power, M.S. Geologist
920 Evans Avenue
Missoula, Montana 59801
406 721 1391
tom@powereconconsulting.com
www.powerconsulting.com

The Economic Impacts of Frac-Sand Mining in Northwestern Wisconsin and Southeastern Minnesota: The Issues That Need to Be Studied

prepared for
Wisconsin Farmers Union
Tom Quinn
[August 29, 2012]

1. Introduction

- a. *The Situation: Over the last five years, a large number of frac-sand mines have opened or expanded and proposals for many more have been made in NW Wisconsin and SE Minnesota.*
- b. *These frac-sand mining developments have been presented as “engines of economic development and the source of new jobs.”*
- c. *As typically presented by mining companies such sand mining developments involve “pure economic benefits” with no significant costs or downsides. In the context of communities struggling with the local fallout from the “Great Recession,” sand mining development is often presented as the “only economic game in town.” In that setting, sand mine development appears to be an “economic offer that is too good to be refuse” by any rational person.*
- d. *The Need: A professional analytical study of both the costs and the benefits associated with frac-sand mining development so that citizens and private and public agencies and organizations can make informed, rational decisions about what is in the community’s best interests.*
- e. *The Focus: This first phase of such a study will focus on the questions that any community needs to ask and answer before supporting frac-sand mining. This phase will look at the impact of sand and other types of mining on local economic vitality and well-being within the region and across the nation. That review of actual community experience with mining will indicate in a generic way the potential costs as well as benefits of frac-sand mine development. Those generic results will indicate the most important questions for a community to ask and answer about the community economic impacts of such mining.*

2. Lessons to be learned from the region’s previous history with mining

- a. *Wisconsin, Minnesota, and the Upper Peninsula of Michigan have a long and colorful history with different types of mining. That history contains important lesson about the sustainability of mining-based economic vitality*

and prosperity. It is important not to ignore those relatively local experiences with mining.

b. Because the history of mining in the larger region has stretched from the middle of the 19th century to the middle of the 20th century, statistical information of the quality to which we are currently accustomed on employment, income, production, etc. of the various mining districts is not readily available. In addition, frac-sand mining is a relatively new form of mining with little detailed data available. For those reasons, this historical review will have to rely on historical narratives supplemented by what actual quantitative data is readily available.

3. The Anomaly of Mining: High Pay and Great Wealth Do Not Assure Sustained Prosperity. The Need for an Explanation

a. National and international data on past and contemporary mining raises questions about whether economic vitality and prosperity inevitably follows mining. This broader picture of the economic impacts of dependence on mining has to be carefully explored to understand the sources of the economic downsides of reliance on mineral extraction for local economic development.

b. There is an existing literature analyzing the potential for a “natural resource curse” as well as a literature that has studied “boom and bust” economies that often have been associated with mining. The implications of these studies for frac-sand mining need to be explored.

c. A careful analysis will explore the sources of the negative economic impacts that at times have been associated with mining despite unusually high levels of pay. These include.

i. the potential volatility of employment and income

ii. the decline in the labor intensity of mining and the deployment of labor-displacing technology.

iii. the potential for near permanent environmental damage associated with mining.

c. The indirect economic consequences of these potential characteristics of mining activities need to be explored.

d. It is also important to analyze how these impacts may vary with different types and sizes of communities and relative dependency on mining.

4. Miners and the Leakage of Income from Mining Areas

a. Sand-mining, like most contemporary surface mining, primarily involves material handling, processing, and transportation. The skills required tend to be the same as those used in many heavy construction projects such as highway building.

b. Such equipment operators are highly skilled and very mobile.

c. As a result, many mining jobs may not be filled by current unemployed workers found at a particular location. In-commuting or in-migrating workers may fill many of the jobs. A review of the adequacy of the immediate local pool of un-employed or under-employed workers with the appropriate skills as well as commuting patterns needs to be undertaken to answer the question “who will get the jobs?”

- d. Miners are rational and cautious and often seek to live at some distance from the mining operation to protect the value of their homes and position themselves geographically to pursue alternative employment opportunities.*
- e. The implications of these possible characteristics of the frac-sand mining jobs for local economic vitality and well-being needs to be explored.*

5. Studying the Local Economic Connections between a Mine and a Community

- a. Wages may be a small part of the value created at a frac-sand mine.*
- b. Often a significant part of the value produced goes to pay off the investors and the mineral and equipment owners who may not be local residents. This has implications for local economic impacts.*
- c. Mining often is mineral, land, capital, and energy intensive, not labor intensive. This can limit the local economic impacts of much of the mine's spending.*
- d. Small towns and rural areas often cannot provide the supplies and equipment needed at mines. Those mining supplies and equipment have to be imported. Rural areas and small towns also often cannot provide the goods and services sought by mine employees. Much of the payroll may be spent in relatively distant regional trade centers. This has implications for the size of local economic impacts.*
- f. These possibilities can limit the spill-over or multiplier impacts of mining on small towns and rural areas.*

6. Similarities and Differences between Frac-Sand and Other Types of Mining

- a. The size of individual frac-sand mines may differ from large surface metal or coal mines. On the other hand, there may be many more frac-sand mines per square mile of area.*
- b. The type, scale, and seriousness of environmental impacts may differ between frac-sand mining and other types of mining.*
- c. Transportation of processed frac-sand may have more serious community impacts than the transportation of, say, processed metal products because of the bulk of the product and the use of trucks and local roads to haul it.*
- c. At the same time, frac-sand mining is not necessarily similar to sand and gravel mining for local construction materials. Locations, number of mines, and size of mines, among other characteristics, may differ between frac-sand mining and the typical sand and gravel mine.*
- d. The necessary worker skills, pay levels, etc. may differ.*
- e. Residential locations of mine workers may differ.*

7. Carefully Analyzing the Likely Positive Economic Impacts

- a. The actual direct employment and payroll associated with the proposed mining and processing operations needs to be determined.*
- b. The direct taxes that would be paid by mines, processing facilities, and transportation equipment pay to local government units needs to be determined*
 - i. Taxes, in general, pay for public services. If the firm paying the taxes increases the demand for public services, some or all of the additional tax revenues may be offset by the demand for more*

services or the deterioration in the quality of existing public services.

- ii. The demand for additional public services associated with mining has to be analyzed.*
- c. All of these impacts should be put in the context of the current size of the local economy and local government budgets. I.e. what will be the **percentage** increase in employment, income, and local government revenues.*
- d. Carefully analyze the “multipliers” applied to direct positive impacts to make sure they reflect the limits of small towns and rural area commercial infrastructure.*

8. Mining Can “Squeeze Out” Other Types of Economic Activity

- a. Mines may bid away workers from other economic activities, raising the labor costs of those other activities and undermining their financial viability.*
- b. Mining may render land unfit for agricultural, recreational, residential, and other uses.*
- c. Mining can lower land value for surrounding lands.*
- d. Mining operations may conflict with other economic activities within the region.*
- e. Any such economic interactions between mining and other local economic activities must be taken into account.*

9. The Economic Importance of High Quality Natural and Social Environments

- a. For the last half-century, there has been an open competition among regions to attract and hold workers, households, firms, and visitors. Attractive areas can support “amenity-driven” local economic vitality.*
- b. It is important to explore whether there is evidence of “amenity-supported” local economic vitality in NW Wisconsin and SE Minnesota.*
- c. The role of outdoor recreation, tourism, and the “visitor economy” also needs to be explored.*
- d. Frac-sand mining’s compatibility or conflict with amenity-supported local economic vitality needs to be studied.*

10. Are Local Residents “Beggars” Who Cannot Afford to Be Good Choosers?

- a. In evaluating the “affordability” of economic trade-offs and choices associated with frac-sand mining, it is important to understand the current state of economic vitality and well-being in the region.*
- a. Trends and levels of local economic vitality and well-being in the region over the last four decades needs to be analyzed. It is important to realize that detailed economic data is only available down to the county level. Township and small town “economies” cannot be analyzed in detail. This is not a weakness since small rural areas are usually not integrated, stand-alone economies. They are parts of larger regional economies.*
 - i. The sources of livelihood for residents, especially the sources of new jobs and sources of income.*
 - ii. How the economy has been changing over the last 20 years.*
 - iii. The local economic future with frac-sand mining*
 - iv. The local economic future without frac-sand mining.*
- b. The likely sources of sustained economic vitality going forward.*

11. Integration and Summary: A Holistic View of the NW Wisconsin and SE Minnesota with and without Frac-Sand Mining

- a. How likely is it that the negative impacts exceed the positive impacts of frac-sand mining? Review the experiences of other mining communities after mine shut-down.*
- b. What determines whether the net impact is positive or negative?*

Contract Amount

It is our understanding that \$15,000 is available to support this *generic* phase of a larger frac-sand mining economic impact project. We agree to work within this budget limit, billing monthly as our work proceeds. This amount and the scope of work will not be changed without the written agreement by both parties.

Scheduling of the Project

The work will be done on the following schedule. Power Consulting will seek to prepare new drafts one week after receiving review comments. If the review comments are not returned to Power Consulting on this schedule or the review comments ask for significant changes or significant additional analysis, this schedule will have to be modified.

September 1-15

- i. Develop and sign a contract governing the first phase of this study.
- ii. Local review of the above set of frac-sand mining issues. Suggestions for additions, deletions, revisions.
- iii. Begin review of the literature on frac-sand mining: geology, environmental impacts and economics.
- iv. Begin review of the literature on the local economic costs and benefits of mining.

September 16-30

- i. September 16: Finalize the scope of work
- ii. Literature search for more recent studies of local economic impacts of mining.
- iii. Familiarize selves with the frac-sand mining region.

October 1-15

- i. Prepare first draft of report

October 16

- i. Submit first draft of report
- ii. First draft circulated for critical comment and editing

October 23

- i. Review comments on first draft returned to Power Consulting

November 1

- i. Second draft completed and submitted.
- ii. Second draft circulated for critical review

November 7

- i. Comments on second draft returned to Power Consulting

November 16

- i. Power Consulting submits final draft of the report.