Exhibit No.:	
Issues:	Public Interest: Economic Impacts of Local Hiring
Witness:	Adam McBride
Sponsoring Party:	Western Missouri and Kansas Laborers District Council
Type of Exhibit:	Rebuttal Testimony
Case No.:	EA-2019-0181
Date Testimony Prepared:	July 15, 2019

MISSOURI PUBLIC SERVICE COMMISSION

EA-2019-0181

REBUTTAL TESTIMONY

OF

ADAM MCBRIDE

ON BEHALF OF

THE WESTERN MISSOURI & KANSAS LABORERS DISTRICT COUNCIL

July 15, 2019

TABLE OF CONTENTS

I. Introduction

Q. Please state your name, the name of your employer, and your business address.

A. My name is Adam McBride. I am the Director of Legislative and Governmental Affairs for the Missouri Laborers' Legislative Committee. My business address is 3450 Hollenberg Dr., Bridgeton, Missouri 63044.

Q: Please summarize your background and professional experience.

A: I have been involved in this industry for 17 years. After graduating from Webster University as a history and political science major in 2002, I joined the Laborers' International Union of North America in Missouri. I have served as the Director of Legislative and Governmental Affairs since 2005.

Q: What are your duties and responsibilities in your current position?

A: I work with the Western Missouri and Kansas Laborers District Council ("WMKLDC") on legislative and public policy issues affecting our members in Missouri. WMKLDC is a labor organization that represents approximately 4,800 members in Western Missouri and Kansas, including within Atchison County, Missouri and surrounding areas. WMKLDC is an affiliate of the Laborers International Union of North America ("LIUNA"), which represents over 500,000 members primarily employed in the construction industry and is the eighth largest labor organization in the United States.

Laborers are construction workers, government workers, health care providers, industrial employees, service workers, and educators. Hundreds of our members work for signatory

union contractors to install wind generation facilities similar to the Outlaw Wind Project ("the Project") throughout Missouri and the country.

Q: Have you previously testified before the Missouri Public Utility Commission ("Commission")?

A: No. This is my first time appearing before the Missouri Public Utility Commission.

II. Purpose and Summary of Testimony

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to explain the economic benefits to the State of Missouri if local Laborers are hired for the work on the Outlaw Windfarm project in Atchison County, Missouri.

Q: What is your understanding as to the purpose and scope of this proceeding?

A: I understand that Ameren Missouri is seeking a Certificate of Convenience and Necessity to construct, own, and operate a wind generation facility in Atchison County, MO.

Q: Can you summarize the economic benefits to the State of Missouri if local Laborers are hired for this project?

A: Based on the length of similar wind projects, and the total manhours involved, we estimate the local economy would lose millions dollars if workers from out-of-state were brought in to construct this project. Hiring locally means the wages, and taxes paid on those wages, stay in Missouri.

Q: What is the structure of your testimony?

A: First, I will summarize the findings of a research analysis that my colleagues at LIUNA's Corporate Affairs Department produced to explore the likely socioeconomic impact of reliance on a local and non-local workforce to build a wind energy facility of the size and scope of the proposed Outlaw Wind Project for which Union Electric Company d/b/a Ameren Missouri (hereafter, "Ameren" or "the Company") seeks a Certificate of Convenience and Necessity ("CCN") in this case.

Second, I will discuss the feasibility of building Outlaw Wind Project and Ameren's two other wind projects in Missouri using a construction workforce that consists largely of local workers.

Third, I will discuss the potential consequences of the approval of wind energy projects that employ few local construction workers to local workers and communities as well as the industry as a whole.

Fourth, I will discuss actions that the Missouri Public Service Commission ("Commission") could take, consistent with its legal authority and the public interest, to maximize local benefits and minimize negative socioeconomic impacts of Outlaw Wind Project and similar wind energy projects.

Q: Please describe the analysis that LIUNA produced on the potential economic impact of construction hiring on the proposed Outlaw Wind project and explain the major findings of the analysis?

A. LIUNA's Corporate Affairs Department undertook an analysis of the potential construction employment and associated economic impacts of a wind energy project of similar size and

scope to Outlaw Wind Project. They employed a methodology that was initially developed by North Star Policy Institute ("NSPI"), a policy think tank, to examine the employment impacts of wind energy development in Minnesota, and that has been used subsequently by NSPI and LIUNA to analyze proposed wind energy projects in Minnesota and North Dakota. NSPI's report, "Catching the Wind: The impact of local vs. non-local hiring practices on construction of Minnesota wind farms" is attached to my testimony (Attachment 1). Findings from the Outlaw Wind analysis are as follows:

First, the analysis found that a project such as Outlaw Wind that employ a local construction workforce can positively impact local residents and communities by generating career opportunities for local workers and injecting tens of millions of dollars in construction payrolls into the local economy. The analysis projects that building such a facility with a 70% local construction workforce would create approximately 210 jobs for local workers and generate more than $21.4 million in local economic activity directly associated with construction payrolls.

Wind energy projects have the potential to create high-quality job opportunities for both experienced construction workers and new entrants to the industry. The research indicates that Missouri construction workers employed on wind energy construction projects can expect to earn $54,500 in wages, on average, in addition to roughly $14,500 in health benefits and $14,500 in retirement benefits.

Furthermore, the analysis found that the average local worker employed on a wind energy project can be expected to contribute roughly $51,900 in direct local spending over the short term, after deducting taxes and savings and adding spending associated with health coverage. The same worker could contribute an additional $14,500 over the long term as

retirement savings are converted into retirement income. After applying a local spending multiplier, we expect each such job to generate nearly $90,000 in short-term economic activity and over $115,000 when retirement benefits are included.

Second, we found that employment of local construction workers to build a project like Outlaw Wind Project can be expected to deliver significant incremental benefits compared to the employment of non-local workers. We find that the typical local worker employed on a wind farm can be expected to contribute over three times more than a non-local worker in terms of local spending ($51,900 vs. $15,600), and their contribution can be four times greater over the long term ($66,400 vs. $15,600).

When this incremental difference is applied to a project similar to Outlaw Wind Project, we find utilization of a largely local workforce (70% local) is associated with roughly $7.6 million in incremental short-term economic activity compared to utilization of a largely non-local workforce (30% local) -- a figure that grows to $9.3 million over the long term as retirement savings become retirement income.

Third, the analysis found that, thousands of local residents could benefit from new construction career opportunities created by a large energy project such as Outlaw Wind Project. While Missouri's unemployment rate remains low, the research identified approximately 65,000 workers in northwest Missouri who are employed in jobs that pay an average $9 to $15 per hour and may offer few, if any, fringe benefits.

Lastly, though the analysis focused primarily on the Outlaw Wind Project, we also looked at the cumulative economic impacts of Ameren Missouri's three wind projects. The economic benefits of employing a majority local workforce (70%) as compared to a largely

non-local workforce (30%) is significant. By employing a majority of local workers on these projects, payroll impacts grow by $12.6 million, and total economic output to the local community grows by $22 million. Should there be no local residents employed on the Company's three wind projects, Missouri's local communities would lose $22.1 million in direct payroll impacts and $38.4 million in total economic benefits. A wind project is a major construction endeavor that can create significant opportunities or significant losses for local workers, their families, and the communities they support.

Table 1: Economic Impacts of Local Employment on Ameren Missouri's Wind Projects

	Outlaw Wind Project	Brickyard Wind Project	High Prairie Wind Project	Total
Payroll Impacts: 70% Local compared to 30%	$ 4,352,128	$ 2,901,419	$ 5,378,526	$ 12,632,074
Economic Output Impacts: 70% Local compared to 30%	$ 7,562,694	$ 5,041,796	$ 9,346,265	$ 21,950,755
Payroll Impacts: 70% Local compared to 0%	$ 7,616,225	$ 5,077,483	$ 9,412,421	$ 22,106,129
Economic Output Impacts: 70% Local compared to 0%	$ 13,234,714	$ 8,823,143	$ 16,355,964	$ 38,413,821

Like large pipeline projects, wind energy can create opportunities for new entrants to the construction industry. These projects do so directly in the form of entry-level jobs on a project, and indirectly, by attracting local workers from other sectors of the construction industry whose positions must be backfilled. These opportunities are only generated, however, to the extent that contractors employ local rather than non-local construction workforce.

The construction of large energy facilities such as the proposed Outlaw Wind Project can offer unique opportunities for current construction workers to advance their careers and for new workforce to get a foot in the door. Wind and other large energy projects create jobs with skill and experience requirements ranging from entry-level positions that can be filled by men and women with no background in the industry who are willing to show up on time, work hard, and follow directions; to positions that can be filled by men and women with experience working on building or highway projects; to positions that can only be filled by men and women who have extensive wind industry experience.

Q: Why is the employment of local workforce on wind energy construction projects a concern for your organization and your members, and why should it be a concern for the Commission?

A: Our organization is concerned the practice of outsourcing the construction of wind energy facilities to non-local workers, which has the potential to become widespread. We believe that reliance on a non-local workforce undercuts the benefits of, and support for, wind energy development. Despite the fact that big projects like the Osborn Wind Project and Lost Creek Wind Project have employed many Missouri workers, our investigation into past Missouri wind projects suggest that Missouri workers accounted for only 41% of wind energy construction jobs. In other words, more out of state workers than Missouri residents are building Missouri's wind energy future.

The lack of Missouri construction workers on Missouri wind energy projects represents more than just a missed opportunity, we are concerned that the approval of a project that offers limited local employment benefits can end up hurting local workers and communities by crowding out better projects that could have delivered many more jobs

and much greater economic stimulus. We are also concerned that the approval of projects that create few local jobs could undermine public support for wind energy development and confidence in the permitting process.

III. Recommendations

Q: What could the Missouri Public Service Commission do, consistent with its legal authority, to maximize the local benefits and minimize unintended consequences of wind energy development?

A: Though I am not a lawyer, my understanding is that the Commission has traditionally analyzed CCN applications using the "Tartan Factors." One of the factors is whether the project is in the public interest. We encourage the Commission to give preference in permitting decisions to projects that can be expected to maximize associated benefits, specifically including the training and employment of local workers. The Commission can condition the issue of a permit, in proper cases, on the adoption of policies and practices that the Commission finds necessary to maximize such benefits to ensure that the project is in the public interest. We believe that the Commission can and should exercise its authority to encourage greater use of local labor where feasible, and to provide more transparency with respect to the employment impacts of wind energy development.

First, the Commission can consider the extent to which the project can be expected to create high-quality employment and training opportunities for local workers based on the evidence in the record, potentially including any local construction hiring commitments made by the applicant or its developer as well as evidence concerning past hiring practices on projects built by the applicant or its developers, or by contractors selected or under

consideration to build the facility. The Commission can further weigh the project's anticipated local employment and training benefits against any negative impacts that could occur if the project "crowds out" competing development opportunities.

Second, the Commission can require successful applicants for wind energy facilities to submit regular reports during construction on the employment of local and non-local workers in order to better inform future Commission decisions and provide greater public transparency regarding the degree to which promised benefits of wind energy development actually materialize and are made available to local residents. Both of these steps fall clearly within the Commission's legal authority and both could strengthen public confidence in the development and permitting of wind energy facilities.

Q: Have any other states taken similar steps to maximize the local employment benefits and increase transparency in wind energy development?

A: Yes. Minnesota's Public Utilities Commission has recently taken action in both areas. In late 2018, Minnesota's Commission began requiring successful applicants for permits to build or retrofit wind energy facilities to submit quarterly reports on number of Full-Time Equivalent workers ("FTE") or hours worked by local workers -- including both Minnesota residents and residents of neighboring states living within 150 miles of the project -- and non-local workers.

Minnesota's Commission recognized that it made little sense to require collection of detailed information on species and other environmental impacts, but no information on how many local residents were eventually employed on projects that purported to create hundreds of new construction jobs. Permits have been issued for three wind energy

construction projects since the Minnesota Commission began requiring local hire reporting, including one that is currently under construction and another that is expected to commence construction later this year.

In December of 2018, for the first time in its history, Minnesota's Commission also made employment of local construction workers an explicit consideration in a case where the Commission referred applications for a Certificate of Need and Site Permit to contested case hearings based on concerns over expected reliance of non-local construction labor. The proposed project was subsequently sold to another different developer and is expected to create many more employment opportunities for local workers.

Q: How have the steps taken in Minnesota impacted the development process and the employment of local workers on wind energy construction projects?

A: There are many factors at play, but we have seen tangible progress in the use of local labor on Minnesota wind energy projects, and there is no question that the Commission's actions and attention to the issue have played a major role. During the 2017 and 2018 construction seasons, LIUNA's Minnesota affiliates estimate based on field observations and information filed with the Minnesota Public Utilities Commission that fewer than 20 percent of construction jobs on large Minnesota wind energy projects were filled by local workers. In 2019, by contrast, they project that well over half of construction jobs on large wind energy projects will be filled by local workers. Further, public dialogue over renewable energy development in Minnesota have changed from conversations that were almost entirely driven by environmental concerns to conversations that include impacts on workers and the job impacts.

On the other hand, LIUNA's Minnesota affiliates have seen no evidence that Minnesota's decisions to elevate the importance of local jobs and require local hire reporting have had any negative impacts on the industry or the pace of development. Minnesota is experiencing record levels of wind energy development and construction heading into 2020, and attention to local employment benefits has helped increase local support for projects such as Tenaska's Nobles 2 Wind near Worthington, Minnesota, which is expected to employ roughly 150 local workers. No wind energy developer has contested Minnesota's reporting requirement. Finally, in the one case where a developer withdrew from a project whose local job impact was disputed, the project was immediately acquired by another developer with a better local hiring track record.

Q: Would the proposed local hire reporting condition impose an undue burden on wind energy developers or their construction contractors?

A: No. The wind energy construction industry is well-equipped to provide data on the employment of local and non-local construction labor with little or no difficulty. Wind energy projects are routinely built by a small handful of large and sophisticated national contractors. These contractors are capable of tracking hours worked on projects at a much higher level of detail than would be required by the proposed reporting condition.

Further, the existence of a similar reporting requirement in a nearby state with substantial wind energy development all but ensures that likely bidders for Outlaw Wind Project and other Missouri wind energy projects will be willing and able to provide such reports. Among the five engineering, procurement, and construction ("EPC") contractors that perform the lion's share of wind energy installation in the United States, two are building projects covered by Minnesota's reporting requirement and the rest are on bid lists for

future Minnesota projects or have otherwise indicated their willingness to provide such reports.

Q: Does your organization advocate for the Commission to require the hiring of only local workers on wind energy projects or to deny permits for wind energy projects based solely on anticipated job impacts?

A: No. We urge the Commission to weigh the evidence in the record regarding an applicant's local hiring commitments and past practices as the Commission considers the totality of the project's public interest benefits, which obviously extend far beyond construction employment. We advocate consideration of local construction employment impacts as an important factor among many, not as a stand-alone basis to approve or deny a permit.

Q: Does this conclude your testimony?

A: Yes

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Permission and Approval and a Certificate of Public Convenience and Necessity Under 4 CSR 240-3.105	))))	**File No. EA-2019-0181**

AFFIDAVIT OF ADAM MCBRIDE

STATE OF MISSOURI)

) **ss**

CITY OF BRIDGETON)

COMES NOW Adam McBride, and on his oath states that he prepared the attached rebuttal testimony; and that the same is true and correct to the best of his knowledge and belief.

Adam McBride

Subscribed and sown to me before this 15th day of July, 2019.

Notary Public

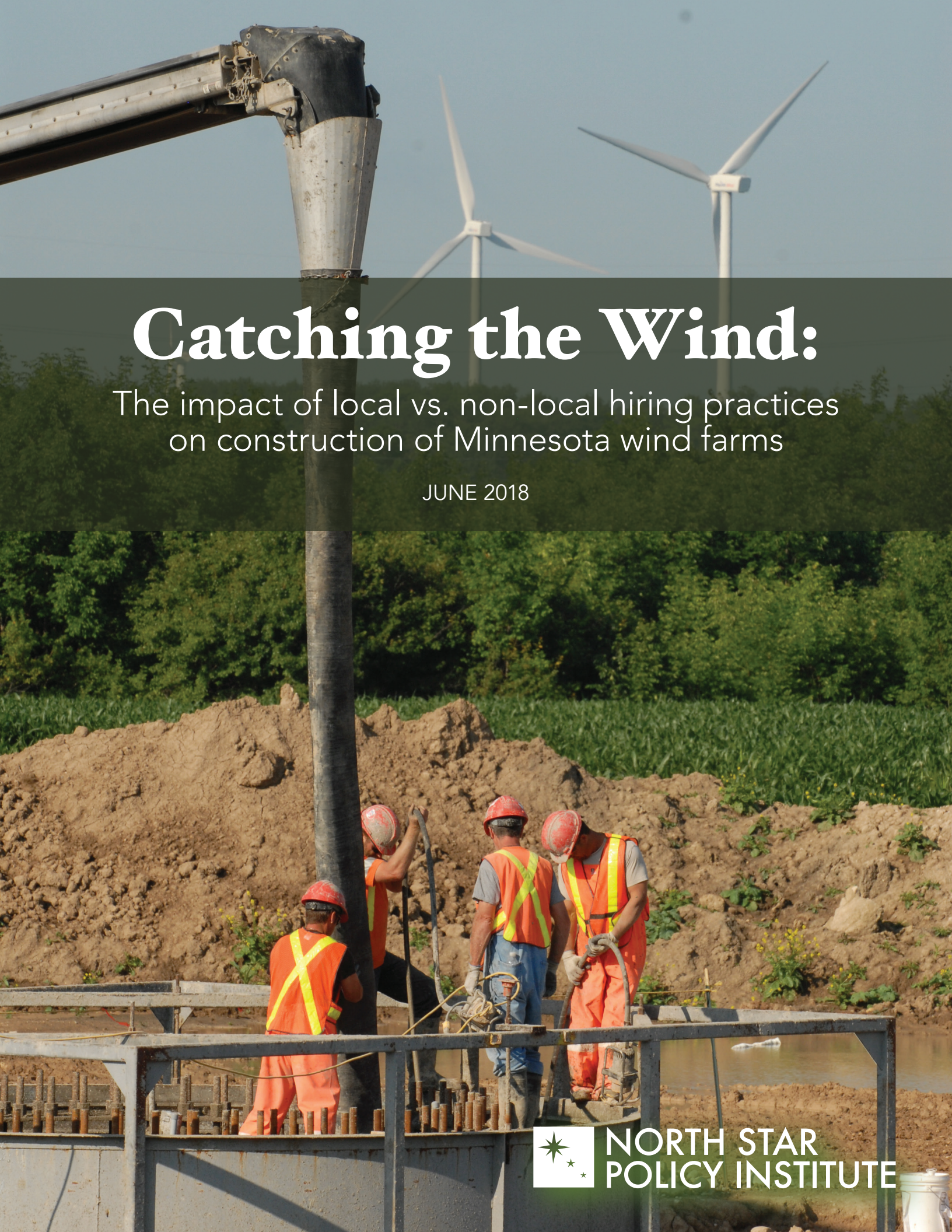
My commission expires: December 09, 2022

JENNIFER BREDENKOETTER
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Charles County
My Commission Expires: December 09, 2022
Commission Number: 14109817

Case No. EA-2019-0181

Adam McBride Rebuttal Testimony

Attachment 1: “Chasing the Wind” Report



Catching the Wind:

The impact of local vs. non-local hiring practices on construction of Minnesota wind farms

JUNE 2018

NORTH STAR POLICY INSTITUTE

This report was written by Katie Hatt and Lucas Franco.
Design and layout by Rachel Weeks.

About North Star Policy Institute:

NORTH STAR
POLICY INSTITUTE

North Star Policy Institute is a Minnesota progressive think tank that advances public awareness of and discussion about state-level public policies.

Our vision for Minnesota is a state where working families get ahead instead of just getting by; where all Minnesotans have the opportunity to succeed in the changing economy; and where smart investments in public services and infrastructure support healthy and connected communities.

www.northstarpolicy.org

CONTENTS

EXECUTIVE SUMMARY

Minnesota's wind energy economy is booming. The state is eighth in the nation in net generation from wind energy. There are currently at least seven major wind farm projects seeking permits or in pre-construction in Southern Minnesota. These projects will generate an additional 1,400 megawatts in renewable power and add to Minnesota's already impressive wind energy portfolio.

These seven projects and others in the pipeline have the capacity to create thousands of family-supporting construction jobs. Unfortunately, Southern Minnesota will miss out on many of the economic benefits of new wind farm construction if developers rely primarily on non-local construction workers. Unlike local workers, who spend their wages locally, non-local workers on wind projects typically take the wages they earn back home when they leave.

To better understand the consequences of using local versus non-local workers, this report analyzes the potential economic impact of seven major wind farm projects in Minnesota.

Findings

- Use of a 50% to 70% local workforce to build 1,400 megawatts of proposed wind generation is projected to generate $73 to $89 million in local economic activity.
- Use of a 10% to 30% local workforce to build the same wind energy facilities would generate approximately $41 to $57 million in local economic activity.
- The difference in local economic output of a largely local (50-70%) versus non-local (10-30%) workforce would be approximately $32 million.
- By including retirement benefits that will be spent down the road by local workers, the potential difference grows by approximately $13 million to $45 million.
- For a region of the state that has historically lagged the rest of Minnesota in construction job creation and overall economic vitality, this is a particularly concerning loss in economic activity.

Recommendations

The following recommendations could help to maximize the local employment and economic benefits of new wind projects.

- First, to secure specific commitments from developers and engineering, procurement and construction (EPC) contractors to set local hire goals for new wind farm projects during the project approval process.
- Second, to require regular reporting by developers on their use of local workers.
- Third, to encourage collaboration with state-registered apprenticeship programs, which can help recruit and train local workers in skills needed to build wind energy facilities.

Through these modest proposals, we can assure efficient use of investments and maximize local benefits.

INTRODUCTION

Minnesota's wind energy economy is booming. The state now ranks eighth in the nation in net generation from wind energy.[1] There are currently at least seven major wind farm projects seeking permits or in pre-construction, all in Southern Minnesota.

These projects will generate an additional 1,400 megawatts in renewable power[2] and add to Minnesota's already impressive wind energy portfolio. Today wind energy conversion facilities provide nearly 18% of the state's power, up 14% percent from 2012.[3,4]

New wind farm development has created economic benefits for both workers and land owners. The American Wind Energy Association (AWEA) estimates that, in 2017, wind farm projects in Minnesota provided annual land lease payments of between $10 million and $15 million, generated $7.1 billion in total capital investment and supported between 3,000 and 4,000 direct and indirect jobs.[5]

The majority of jobs needed to develop a wind farm are in the construction industry. A 200 megawatt wind farm, consisting of 60-100 turbines, requires 150-200 construction workers.[6]

A 200 megawatt wind farm, consisting of 60-100 turbines, requires 150-200 construction workers.

The construction of a wind farm relies on the labor of a range of skilled construction workers. Construction laborers help to build the access roads needed to carry heavy machinery to turbine installation sites and they pour the concrete foundations for new turbines. Operating engineers prepare the site and hoist the turbine components. Iron workers secure the tower and help construct the foundation. Electricians connect the turbines to transmission lines.

These jobs offer opportunities for Minnesotans across a broad spectrum of construction experience – from those with no experience to career journeymen and women.

A wind farm project typically includes workers with extensive experience and highly specialized skills (e.g. electrical workers with wind turbine expertise), workers with some wind construction experience (e.g. operating engineers with past experience hoisting turbine components), workers with only general construction experience (e.g. laborers

1 Energy Information Administration, "Minnesota State Profile and Energy Estimates," https://www.eia.gov/state/?sid=MN.

2 Minnesota Public Utilities Commission, "Project Database," https://mn.gov/commerce/energyfacilities/Docket.html?searchSubject=Wind+power&searchStatus=openProjects&searchCoverage=&dateStart=&dateEnd=&B1=Submit.

3 Department of Commerce, "Minnesota Renewable Energy," http://mn.gov/commerce-stat/pdfs/2016-renewable-energy-update.pdf.

4 Minnesota Public Utilities Commission, "Project Database," https://mn.gov/commerce/energyfacilities/Docket.html?searchSubject=Wind+power&searchStatus=openProjects&searchCoverage=&dateStart=&dateEnd=&B1=Submit.

5 American Wind Energy Association (AWEA), "Wind Energy in Minnesota," http://awea.files.cms-plus.com/FileDownloads/pdfs/Minnesota.pdf.

6 Jobs estimates based on author's analysis of the National Renewable Energy Laboratory's (NREL) Jobs and Economic Development Impacts (JEDI) model. Methodology for job estimates described later in this report.

with experience in pouring concrete) and those that are new to the industry with little to no construction experience.

Thus, there are many opportunities for workers from Southern Minnesota to begin a well-paid job on a wind farm project.

Unfortunately, Southern Minnesota may be missing out on many of the economic benefits of wind farm construction when developers and contractors rely on non-local construction workers to build wind energy projects. Unlike local workers, who typically pay local property taxes, send children to local schools, spend their earnings at local establishments, and donate to local churches and non-profits, non-local workers on wind projects take the wages earned and the skills developed on wind projects back home when they leave.

"It seems like a few of our wind developers have forgotten that Southern Minnesota is home to one of the best wind construction workforces in the country."

Mankato Building Trades President Stacey Karels, whose organization represents thousands of construction workers across Southwestern Minnesota, observes that for decades the industry has relied on local tradesmen and tradeswomen to build wind farm projects. In recent years, however, Karels and his members have seen an increase in the number of projects built with largely non-local labor.

"It seems like a few of our wind developers have forgotten that Southern Minnesota is home to one of the best wind construction workforces in the country. Our members haven't just been building wind projects safely, on-time, and on-budget in Minnesota for more than twenty years. They've also been contributing to their communities through their paychecks, health and retirement benefits, and volunteer hours."[7]

When wind developers increasingly rely on out-of-state labor for new wind farms, Minnesota communities miss out on the positive economic impacts of hiring local workers. The Red Pine Wind Farm, for example, became the subject of controversy in 2017 when area construction workers and community members criticized the project for employing a largely non-local workforce at the expense of local residents.[8]

Developers and construction contractors that rely on non-local workers often argue that there are not enough workers locally to meet their workforce demands. This argument is challenged, however, by the fact that many projects such as the Prairie Rose wind farm have relied on a majority local workforce, according to locals familiar with the projects.[9]

7 This interview was conducted on June 13th, 2018.

8 Karl Evers-Hillstrom, "Southwest Minnesota construction unions push back on wind farm outsourcing," Worthington Globe, September 5, 2017, http://www.dglobe.com/business/4322067-southwest-minnesota-construction-unions-push-back-wind-farm-outsourcing.

9 Information based on informal interviews with with construction personnel at all levels that worked on the project.

Further, area building trades unions have consistently expressed a willingness to work with wind farm developers to identify and train local workers for work on new wind farm construction projects.[10]

The objective of this report is to assess the economic consequences for local communities throughout Southern Minnesota when wind farm developers and contractors rely largely on local or non-local construction labor. To do this, we analyze the economic impact of seven major wind farm projects that are in the permitting or pre-construction phase, based on a review of applications filed with the Minnesota Public Utilities Commission and news reports. We find that greater use of local workers could not only create hundreds of well-paid jobs, but also generate tens of millions of dollars in additional economic activity across Southern Minnesota.

10 Public comments to the Minnesota PUC, "Mankato Building Trades Comments on Proposed Flying Cow Wind Project in Yellow Medicine County," PUC, comments submitted March 18, 2018.

THE WIND FARM INDUSTRY IN MINNESOTA

Minnesota is one of the top wind energy producing states. Minnesota ranked eighth in the United States in 2017 with total generation of 10,637 megawatt hours of wind power, which is enough energy to power 983,000 homes.[11,12]

Minnesota wind farms are largely concentrated in Southern Minnesota. The region experiences frequent and sustained wind activity making it an ideal area to capture wind energy.

In addition to this significant existing capacity, there are thousands of megawatts in wind farm projects under permitting review or in the pre-construction phase. Along with these new projects, there are also major re-power projects under review that will increase capacity and efficiency of existing wind farms. Table 1 lists some of the major projects currently in pre-construction or under PUC review.

These projects will not only expand Minnesota's renewable wind energy portfolio, but they also have the potential to directly create nearly 1,300 family-supporting construction jobs and generate over $110 million in employment driven economic activity in Southern Minnesota. On the other hand, if construction work on these wind farm projects were largely outsourced to non-local workers from states like California, Colorado and Texas, Southern Minnesota workers and communities could lose out on tens of millions of dollars worth of payrolls and local economic activity.

New construction jobs could have a particularly profound impact in the Buffalo Ridge area of Southwestern Minnesota. Construction industry employment has lagged in the region.[13] Additionally, average wages in Southwestern Minnesota are below the statewide average wage of $20.07.[14] It is a region that would benefit greatly from additional job opportunities and economic development.

11 Mike Hughlett, "Minnesota continues to be a top state for wind power," Star Tribune, April 14, 2017, http://www.startribune.com/minnesota-continues-to-be-a-top-state-for-wind-power/419868513/.

12 Energy Information Administration, "Minnesota State Profile and Energy Estimates," https://www.eia.gov/state/?sid=MN.

TABLE 1

Major Minnesota Wind Farm Projects Under Review

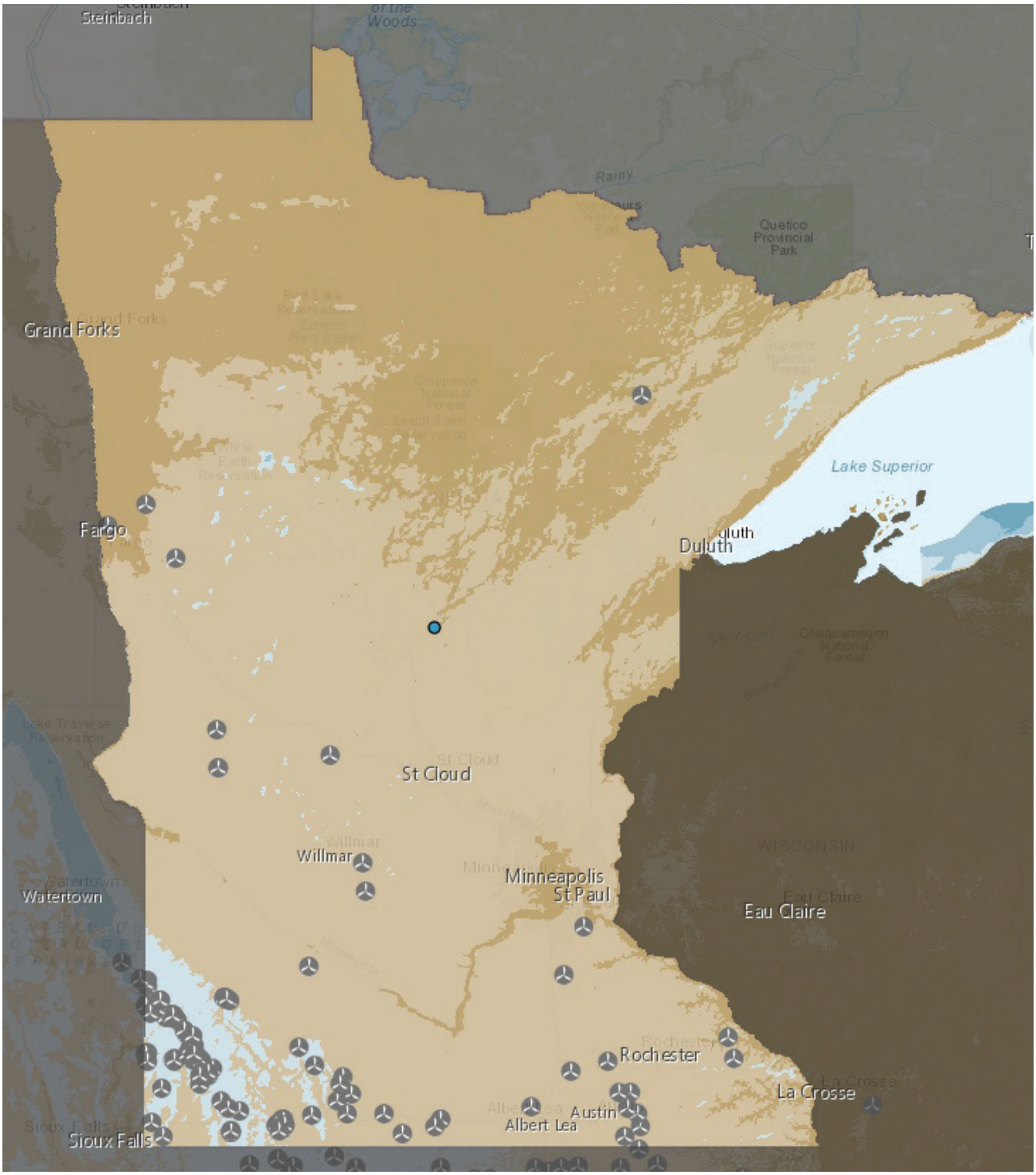
Proposed Project	Size in MW	Developer Job Estimate
Blazing Star 1 & 2	400.00	400.00
Dodge Steele	200.00	230.00
Bitter Root	152.00	150.00
Nobles 2	260.00	200.00
Freeborn	200.00	200.00
Lake Benton Re-power	107.25	25 to 30 over 3 years
Trimont Re-power	100.50	N/A
TOTAL	**1,419.75**	**N/A**

13 Construction employment in Marshall, Minnesota, for example has yet to recover from Great Recession job losses.

14 Wage levels are based on first quarter employment data for 2017 from Minnesota DEED Occupational Employment Statistics (OES) for Economic Development Regions 6W, 6E, 8, 9 and 10. The average wage across all five areas is $17.48. The statewide average wage is $20.07.

FIGURE 1

Minnesota Wind Farms



U.S. Energy Information Administration, "Minnesota," https://www.eia.gov/state/?sid=MN

LOCAL VERSUS NON-LOCAL LABOR ON A TYPICAL WIND ENERGY PROJECT

The National Renewable Energy Laboratory's (NREL) Jobs and Economic Development Impacts (JEDI) tool models the local impact of wind farm projects.[15] According to the JEDI model, a typical 150-megawatt wind farm project in southwestern Minnesota would create 97 full-time equivalent (FTE) construction jobs.[16] These jobs would require a range of skilled construction professionals including laborers, operating engineers, iron workers, millwrights, and electricians.

The JEDI model allows users to enter specific information on construction materials and labor costs, turbine, tower, blade costs, permitting costs, and annual operating and maintenance costs (personnel, materials, and services) among a range of other inputs. Alternately, the JEDI model can use "default information ... to run a generic impacts analysis assuming wind industry averages." [17]

To determine the economic impact of a hypothetical wind farm project (referred to here as "Buffalo Ridge Wind Farm"), we entered the project location (Minnesota), the project size (150 megawatts), the number of projects (1 total wind farm), and the average turbine size (3,500 kW). Outside of these inputs, we relied on the generic impacts analysis generated by the JEDI model.

Workers and Wages

To determine local economic impact, we need to first calculate worker wages. The JEDI estimates for construction labor hourly wages are $18.58 for foundation labor, $21.04 for erection labor, $27.87 for electrical labor and $37.89 for managerial labor. Additionally, the JEDI model estimates that a project this size would create 97 FTE construction and interconnection jobs.

Because management positions are a small percentage of the 97-job total, and employment is relatively evenly split among the three constructions trades jobs listed above, we averaged the three wages to get an estimated hourly wage of $22.50. This represents a highly conservative wage estimate for wind energy construction work, where informal interviews with workers and industry experts indicate that hourly wage rates range from as low as $20 to as high as $40 depending on skills and experience.[18]

15 The Jobs and Economic Development Impacts (JEDI) Wind model is used to estimate the costs and economic impacts of large wind turbine projects. It relies on wind industry averages to produce economic estimates on a per-project basis. More information is available through the NREL website: https://www.nrel.gov/analysis/jedi/wind.html.

16 The JEDI model is based on FTE jobs that provide 52 weeks of 40-hour-per-week employment for a total of 2,080 hours. In fact, wind energy construction jobs typically last five to seven months and often average 60 hours of work per week for a total of roughly 1,500 hours per year. For this reason, each FTE reported by the JEDI model produces roughly 1.4 full-time wind energy construction jobs.

17 National Renewable Energy Laboratory (NREL), "JEDI Wind Models," https://www.nrel.gov/analysis/jedi/wind.html.

18 Interviews conducted from May 20, 2018 to June 14, 2018 with workers, industry experts and union officials.

The JEDI model assumes that FTEs work 2,080 hours and projects that it will take 201,760 labor hours to complete the Buffalo Wind Farm project (97 FTEs x 2,080 hours per FTE).

Based on insights from a range of industry experts, we know that wind farm work is primarily conducted over the six-month construction season in Minnesota (mid-May to mid-November). During this period, workers work long hours to complete projects, typically working roughly 1,500 hours over six months or 60 hours per week.

The bulk of the work on wind farm projects must typically be completed during a single construction season, and construction contractors hire the number of workers needed to complete the work during this six-month period. As a consequence, the average number of workers required to perform the work of the 97 FTEs predicted by the JEDI model is 134 – 201,070 total hours divided by 1,500 hours per worker.

We can test the validity of our model by comparing our estimate of 134 workers for a 150 MW project to industry job projections for each of the seven wind projects analyzed in this report. It is clear from Table 2 that our estimate is consistent with industry figures which typically project one construction job per megawatt of energy installed.

In order to estimate total wages earned by wind construction workers, we need to account for both straight-time and overtime wages, since overtime is a standard feature of the work. If workers average 60 hours per week, then at a minimum, a third of their work should be compensated at the time-and-a-half overtime rate (anything over 40 hours is considered overtime). Thus, 500 of the 1500 hours worked would be paid at $33.75 per hour – 1.5 times the $22.50 average wage. Over the construction season, we would expect the average wage for a wind construction worker to be roughly $39,375 using the JEDI model.[20]

TABLE 2 [19]

Developer and JEDI Job Estimates		
Proposed Project	**Developer Job Estimate**	**JEDI Job Estimate**
Blazing Star 1 & 2	400	302
Dodge Steele	230	180
Bitter Root	150	135
Nobles 2	200	165
Freeborn	200	165
Lake Benton Re-power	25-30 over 3 years	N/A
Trimont Re-power	N/A	N/A
TOTAL	**N/A**	**N/A**

The earnings estimates above represent wages and exclude the value of any health, retirement, professional development, or other benefits earned by wind construction workers. In reality, however, compensation packages for wind construction workers typically include some form of health and retirement benefits and may also

19 The JEDI model does not have estimates for re-power projects.

20 As we explain later in the report, we do not rely on these wage estimates for our economic impact analysis. Instead, we rely on prevailing wage rates for our estimates, which we believe are more accurate estimates of wage and benefit rates that have historically been paid to local workers employed on wind farm construction projects in Southern Minnesota.

include additional services such as free skills training. Additionally, we know from informal interviews with workers, contractors and union officials that the JEDI wage estimates are $5-$10 below actual wage rates in the industry.[21]

To better estimate wage rates and to account for fringe benefits, we use Minnesota's prevailing wage rates for our economic impact analysis. Prevailing wage rates report the hourly wages and benefit amounts commonly paid to each class of worker based on annual surveys of private employers.[22] For this hypothetical case, we use the prevailing wage rates for an area of Southwestern Minnesota – referred to as Region 8 by the Department of Labor and Industry. Prevailing wage rates and fringe benefit payments for Region 8 are as follows:

TABLE 3 [23]

Prevailing Wage Region 8		
Craft	**Wage**	**Fringe Rate**
Laborer	25.74	18.50
Ironworker/Millwright	37.79	23.74
Operator	36.34	20.30
Electrician	35.61	15.83
AVERAGE (standard)	**33.87**	**19.59**
Overtime	**50.81**	

Not all construction employers pay prevailing wage rates, but many do, including leading wind energy engineering, procurement and construction (EPC) contractors Mortenson Construction and White Construction. The Mankato Building Trades Council estimates that a large majority of Minnesota workers employed on wind energy construction projects over the past decade have been compensated at prevailing wage rates.

Local versus Non-Local Spending Patterns

Local and non-local workers are assumed to perform similar work and earn similar wages. Non-local workers, who we define as workers that live beyond a daily commuting distance and must therefore secure temporary lodging, typically receive per diem payments to off-set travel costs. Workers on wind farms in Southern Minnesota can be expected to receive an estimated per diem of $100.[24]

Per diems are generally provided on working days, so workers on the Buffalo Ridge project would be expected to receive per diem payments six days per week over the six-month duration of the project. Thus, the average per diem on the Buffalo Ridge project would be $15,600 ($100 x six days a week x 26 weeks).

Using prevailing wage rates, the gross pay for non-local workers, including their per diem, would be approximately $74,872.50 excluding benefits, while local workers will earn approximately $59,272.50 in pay. These numbers are calculated based on 1,000 hours of work at the standard pay level (1,000 x $33.87) plus 500 hours of overtime (500 x $50.81). For non-local workers, we add per diem to their total pay ($59,272.50 + $15,600).

21 Interviews conducted from May 20, 2018 to June 14, 2018 with workers and union officials.

22 A full list of prevailing wage rates can be found here: http://workplace.doli.state.mn.us/prevwage/highway.php.

23 The Ironworker/Millwright wage and fringe rate is based on a blended rate.

24 Per diem rates are based on interview and survey data from past and current wind farm construction workers.

TABLE 4

Gross pay for local and non-local Workers		
	Local Worker at 1500 hours	**Non-Local Worker**
1500 hr Wages	59,272.50	59,272.50
Per Diem	-	15,600.00
Gross pay	**59,272.50**	**74,872.50**

We can estimate the amount the average local worker spends in his or her local area by deducting taxes and savings, and by applying an estimated share of local spending based on the work of other economists. The following table presents expected tax payments and savings per worker:

TABLE 5

After Tax and Savings Income		
Deductions		
Effective Federal (13.42%)	7,954.37	7,954.37
Effective FICA (7.65%)	4,534.35	4,534.35
Effective State (7.05%)	4,178.71	4,178.71
Total Tax	**16,667.43**	**16,667.43**
After Tax Income	42,605.07	42,605.07
Savings (3.1%)	1,320.76	1,320.76
After savings	41,284.32	41,284.32
Fringe Benefits	14,694.38	14,694.38
Deferred Fringe Benefits	14,694.38	14,694.38

These calculations are based on standard tax rates for Minnesota. The "effective" tax rate is based on an analysis of the income bracket in which workers in this income bracket fall. Per diems are non-taxable.

On top of estimated state and federal taxes, the average American currently saves approximately 3.1% of their income.[25] If we assume this trend holds, the average after tax and after savings income of both local and non-local workers would be about $42,605.07. On top of this income, however, non-local workers receive a $15,600 per diem.

Fringe benefit contributions largely fall into two categories: health benefits that are paid out to health providers on behalf of plan participants; and retirement benefits that are deferred until retirement. Health and retirement benefits are generally not taxed, and the local economic impact of retirement contributions are deferred until the participant retires. Our review of available information on fringe benefits supports a rough 50/50 split between current and deferred fringe benefits.

While local workers spend their fringe benefits locally, non-local workers tend to utilize their fringe benefits near home. Those funds will be spent later. Fringe benefit payments include health care coverage, vacation money and retirement benefits. Since local workers spend 50% of their fringe benefits locally in the short-term, we include 50% of fringe benefits as a form of current local spending in our analysis.

In past efforts to measure the local economic impact of local employment, economists have estimated that, on average, local workers spend 95% of their income within the

25 Tax estimates corroborated by Smart Asset's online tax estimator. The full estimator is available at: https://smartasset.com/taxes/income-taxes#SRQvQjkXhc.

region in which they live.[26] Thus, we would expect the average local construction worker on the Buffalo Ridge Wind Farm to spend approximately $53,179.76 in the regional economy (95% of after tax /after savings income + 47.5% of fringe benefits or 95% of $41,284.32+ $14,694.38).

Non-local workers, on the other hand, tend to restrict their local spending to the amount of their per diem.[27] Thus, we expect that Buffalo Ridge Wind Farm workers would spend $15,600 locally over the duration of the project. The difference in local spending per worker is approximately $37,579.76. This is $37,579.76 less per worker that would be spent at neighborhood grocery stores, car dealerships, restaurants and clothing stores. It amounts to the direct economic stimulus gained or lost when a decision is made to hire local or non-local workers.

The potential gain or loss in local spending becomes significant when we consider total employment on a wind farm project. Based on the JEDI model, the Buffalo Ridge Wind Farm would employ a total of 134 construction workers, and the local economic impact of the particular project changes substantially based on how many of the 134 are local residents.

It is rare that a project uses either 100% local workers or 100% non-local workers. Instead, most projects fall within a range. Wind developers typically hire a single general contractor to provide EPC services.

When an EPC contractor has existing workforce or partnerships with workforce providers in a local area, local workers can account for roughly 50% to 70% of hours worked. In other cases, the EPC contractor may employ non-local crews to perform the vast majority of work on a project, and local workers might account for anywhere from 30% to as little as 10% of work hours.

Total cumulative spending by workers at these different levels of local versus non-local workforce are as follows:

TABLE 6

Total Payroll and Total Local Pre-Multiplier Spending

Percent local workers	Total Payroll (wages, per diem & fringe)	Total Local Spending
100%	11,880,607.50	7,126,087.33
70%	12,507,727.50	5,615,381.13
50%	12,925,807.50	4,608,243.67
30%	13,343,887.50	3,601,106.20
10%	13,761,967.50	2,593,968.73
0%	13,971,007.50	2,090,400.00

If a project similar to the hypothetical Buffalo Ridge Wind Farm relies on 70% local workers versus 30% local workers, the difference in cumulative local spending would be about $2 million in direct spending – a substantial difference. After including deferred fringe benefits that will be spent once a worker retires, the difference in local spending between 70% local workers and 30% local workers rises to approximately $2.8 million.

26 Bruce Nissen and Yue Zhang, "Hiring Our Own? The impact of local vs. non-local hiring practices in two county GOB projects," August 16, 2006, Research Institute on Social and Economic Policy at Florida International University.

27 This assumption is based on survey analysis and interviews with current and past wind energy construction and other sectors that typically employ traveling workforce.

These differences in local impact grow when we account for multiplier effects of local spending. Wages earned by local construction workers are re-circulated within local economies through secondary purchases and other economic transactions. This spending creates additional jobs via multiplier effects that have been well-documented by economists.[28]

In this report, we focus on the earnings multiplier. In Nissen and Zhang's 2006 study of the economic impact of local hire on two major construction projects in Florida, they rely on a earnings multiplier of 1.7377 for new construction work. This means that every dollar spent in a local economy will result in 73.77% additional earnings, beyond the earnings of those employed in doing the original work.[29]

If we replicate the multiplier used by Nissen and Zhang (2006), total local spending would be as follows:

TABLE 7

Local Spending After Applying Multiplier Effects (in dollars)	
Percentage of Local Workers	**Economic Impact**
100% local workers	12,383,001.95
70% local workers	9,757,847.79
50% local workers	8,007,745.02
30% local workers	6,257,642.24
10% local workers	4,507,539.47
0% local workers	3,632,488.08

Now the difference in current local spending if the hypothetical Buffalo Ridge Wind Farm project relies on 70% local workers or 30% local workers is approximately $3.5 million. When deferred benefits are included, the total difference in economic impact between 70% and 30% local is $4.8 million. For a small community in Greater Minnesota, these differences in local economic impact could provide a boost in the tax base for local schools and a substantial stimulus to local businesses.

28 The following is Minnesota specific example of a report using multiplier effects: Bureau of Business and Economic Research (BBER) at the University of Minnesota Duluth (UMD) Labovitz School, "Enbridge Pipeline Construction: Economic Impact Study," prepared for Area Partnership for Economic Expansion (APEX), April 18, 2017.

29 Bruce Nissen and Yue Zhang, "Hiring Our Own? The impact of local vs. non-local hiring practices in two county GOB projects," August 16, 2006, Research Institute on Social and Economic Policy at Florida International University, pg. 8. Nissen and Zhang use an earnings multiplier specific to their region of analysis – Miami-Dade County, Florida. We do not have a regionally specific RIM II earnings multiplier for Southern Minnesota. However, we expect only minor variation from the regionally specific earnings multiplier used by Nissen and Zhang. Additional research is needed to determine the exact earnings multiplier for Southern Minnesota.

THE CUMULATIVE IMPACTS OF LOCAL VERSUS NON-LOCAL LABOR

There are currently seven major wind projects in Southern Minnesota either moving through the permitting process or in pre-construction.

TABLE 8

Major Wind Farm Projects in Southern Minnesota		
Proposed Projects	**Size in MW**	**Job Estimate**
Blazing Star 1 & 2	400	400
Dodge Steele	200	230
Bitter Root	152	150
Nobles 2	260	200
Freeborn	200	200
Lake Benton Re-power	107	50
Trimont Re-power	101	50
TOTAL	**1,420**	**1,280**

These projects will cumulatively lead to over 1,400 MW in new wind production and create over 1,200 jobs.[30] They have the potential to greatly benefit the regional economy of Southern Minnesota. However, Southern Minnesota communities will miss out on new construction jobs and the full positive economic benefits if these projects rely primarily on non-local workers.

To calculate the cumulative economic impact on the above projects, we replicate the economic model used to determine the impacts of the Buffalo Ridge Wind Farm project. The following table provides an overview of our findings:

TABLE 9

Cumulative Impact of Proposed Wind Farm Projects	
Megawatts	1,419.75
Jobs	1280
Total Local Spending Pre-Multiplier	
100% local workforce	64,887,765.18
70% local workforce	51,177,835.63
50% local workforce	42,037,882.59
30% local workforce	32,897,929.55
10% local workforce	24,723,747.92
0% local	19,188,000.00
Total Employment-Driven Economic Output	
100% local workforce	112,755,469.55
70% local workforce	88,931,724.97
50% local workforce	73,049,228.58
30% local workforce	57,166,732.19
10% local workforce	41,284,235.80
0% local workforce	33,342,987.60

30 The job estimate is based on developer estimates provided in PUC application materials or as documented in media sources. For purposes of estimating job creation associated with re-power projects, we reduced the number of jobs typically associated with construction of a new wind farm (1 per MW) by roughly 50% based on a rough assessment of labor involved in relevant work scopes.

We rely on an average wage and fringe benefit rate of the four prevailing wage regions that cover Southern Minnesota including regions 6, 7, 8 and 10. There is only small variation in wage and fringe benefit rates for each region. The prevailing wage rates across all four regions are as follows:

TABLE 10

Average Prevailing Wage for Southern Minnesota

Craft	Wage	Fringe Rate
Laborer	27.01	18.78
Ironworker/Millwright	37.61	23.55
Operator	32.31	19.95
Electrician	36.09	17.71
AVERAGE (standard)	**33.25**	**20**
Overtime	**49.88**	

Similar to our analysis of the hypothetical Buffalo Ridge Wind Farm project, we focus on the difference in economic impact of projects using 50-70% local workers versus those that rely on non-local workers and only use 10-30% local workers. The differences in cumulative economic impact at these two levels are striking.

If local workers comprise between 10% and 30% of the workforce, the economic benefit to Southern Minnesota communities will be between approximately $41 and $57 million. If, however, local workers comprise 50% to 70% of the workforce, the economic benefit will be between approximately $73 and $89 million. Thus, the difference in local economic output of a largely local (50-70%) versus non-local (10-30%) workforce would be approximately $32 million. If we include deferred fringe benefits, that will be spent down the road by local workers, the difference grows by $13 million to approximately $45 million. For a region of the state that has historically lagged much of the rest of Minnesota in construction job creation and overall economic vitality, this is a particularly concerning loss in economic activity.

CONCLUSION

Wind farm construction has the potential to create new job opportunities for Southern Minnesota residents and to inject millions of dollars into the region's economy. Unfortunately, some wind developers have relied largely on non-local labor for new wind farm construction. The region's residents will continue to miss out on hundreds of new jobs and millions of dollars in local investment if nothing is done to shift industry practices.

To increase the community benefits of new wind farm projects, we recommend that state officials and local communities take the following actions.

(1) Secure specific commitments from developers and EPC contractors to set local hire goals for new wind farm projects during the project approval process.

(2) Require developers to regularly report data on their use of local workers. There is very little information publicly available on workforce utilization. To better understand the economic impact of wind farm projects, we must have improved public data on hiring and employment practices.

(3) Encourage collaboration with state-registered apprenticeship programs, which can help recruit and train local workers in skills needed to build wind energy facilities.

Through these modest policy proposals, we can assure that we are efficiently using resources and maximizing local benefits.

NORTH STAR
POLICY INSTITUTE