Maximizing The Benefits of Renewable Energy Development Through Local Construction Hiring: Benton Solar Case Study

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Local Jobs
NORTH DAKOTA • MINNESOTA

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Executive Summary

The proposed Benton Solar project will expand Minnesota's clean energy portfolio, while potentially creating 300 family-supporting construction jobs, of which more than 150 could potentially be filled by local workers. Unfortunately, the full economic benefits of the project will only be realized to the extent that local workers are given the opportunity to fill well-paid construction jobs generated by the project. The wages and fringe benefits paid to local workers help to boost local economies, while non-local workers typically take their paychecks home with them when the project is complete.

To better understand the consequences of using local versus non-local workers on the Benton Solar project, I have analyzed potential impacts.

- If between 50% and 70% of construction work on a wind installation the size of the proposed Benton Solar Project is performed by local workers, construction payrolls can be expected to generate approximately $19.4 million to $24.8 million in local economic activity.
- If just 10% to 30% of construction work is performed by local workers, consistent with patterns on recent wind projects, the estimated economic impact would be just $8.7 million to $14.1 million.
- The use of a largely non-local construction workforce (10% to 30% local) to build Benton Solar could cost local communities $10.7 million in lost payroll and local economic activity compared to a project that employs a largely local workforce (50% to 70%).
- When retirement benefits are included, the expected difference between a largely local and non-local project grows by more than $3.6 million to approximately $14.3 million.

The reliance on non-local workers to build clean energy projects in the region is an all too common problem that has cost local communities millions of dollars in lost economic benefits in recent years. For example, a recent wind energy project by the Benton Solar developer, NextEra, cost North Dakota communities millions in lost economic development. Northern Divide Wind greatly expanded North Dakota's clean energy capacity, and yet it created relatively few local job opportunities based on our research. It had the potential to create hundreds of jobs for local residents in the midst of a COVID-induced economic crisis. Instead, the project developers evidently created a

handful of jobs for North Dakotans and residents of neighboring states, while employing hundreds of workers from across the country.

We estimate based on field observations that North Dakota residents accounted for fewer than 10% of construction workers on the project.[1] That cost North Dakota communities millions. We don't want to see the same thing happen in Minnesota.

The clean energy industry's continued reliance on non-local workers comes at a time when many conventional energy workers are facing layoffs. Conventional energy jobs have historically created high-quality local jobs. We should ensure that renewable energy jobs create jobs for local workers that are just as good if not better than conventional energy jobs. Ultimately, I am concerned that Benton Solar will fail to maximize local employment opportunities for Minnesota residents.

Economic Impact of Local versus Non-local Hiring on Construction of the Proposed Benton Solar project

Wages and Benefits

The creation of construction jobs is not the only local benefit of renewable energy development, but it is among the most significant, in terms of economic impacts alongside the lease and tax revenues that wind energy projects typically deliver to local residents and host communities. Renewable energy construction jobs can provide middle-class wages and high-quality health and retirement benefits.

Construction job opportunities are frequently cited as a benefit of renewable energy development in both media coverage and permitting processes. But until recently, little attention has been paid to the impact of decisions by developers and contractors to build projects with a largely local or non-local construction workforce. In 2018, North Star Policy Institute, a policy think tank based in St. Paul, undertook a study of wind energy construction in Minnesota and found that tens of millions of dollars in anticipated local economic benefits are at risk due to use of non-local labor.[2] The findings are published in *Catching the Wind: The impact of local vs. non-local hiring practices on construction of Minnesota wind farms*, a report that was published in June of 2018.[3]

In this brief, I have employed the methodology used in *Catching the Wind* to estimate the local economic impact of the use of local and non-local labor on the construction of

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[1] Lucas Franco, "The High Cost of Labor Outsourcing: A Case Study of Two North Dakota Wind Projects," Local Jobs North Dakota and Minnesota, January 2021.
[2] It is now known as North Star Policy Action.
[3] Katie Hatt and Lucas Franco, "Catching the Wind: The impact of local vs. non-local hiring practices on construction of Minnesota wind farms," North Star Policy Institute, June 2018, available here: https://northstarpolicy.org/catching-the-wind-the-impact-of-local-vs-non-local-hiring-practices-on-construction-of-minnesota-wind-farms

renewable energy facilities, such as the proposed Benton Solar project. My analysis begins by estimating the wages and benefits that would be paid to construction workers.

I estimate pay and benefits rates based on the prevailing wage rates established by the U.S. Department of Labor for heavy industrial construction projects in Minnesota. These prevailing wage rates are calculated based on wage surveys submitted by local construction employers and trade unions. In this case, I believe that the prevailing wage rates provide a conservative, low-end assumption since industry sources indicate that higher levels of fringe benefits are typically paid to Operating Engineers and Laborers on energy construction projects in the region.

Renewable energy construction requires the skills of construction laborers, ironworkers, millwrights, operating engineers, and electricians. Workers in these trades typically earn between $40 and $60 per hour in wages and $25 to $35 in hourly fringe benefit contributions (e.g. healthcare, pension and vacation payments) depending on their trade. We estimate the average wage of a wind energy construction worker based on an average of the rates for each craft.

TABLE 1: Prevailing Wage Minnesota Heavy and Highway		
Minnesota Prevailing Wages - Region 5		
Craft	**Wage**	**Fringe Rate**
Laborer	$44.00	$26.12
Millwright/Ironworker	$40.99	$33.01
Operator	$47.24	$29.40
Electrician	$60.40	$34.39
AVERAGE (standard)	**$48.16**	**$30.73**
Overtime	**$72.24**	

Based on interviews with renewable energy construction workers and contractors, I found that overtime work is common as renewable energy construction workers typically work long hours. In northern climates where the construction season is limited, my research indicates that the typical renewable energy project may last six months, during which time workers average 60 hours per week, for a total of roughly 1,500 hours -- 1,000 hours of straight time and 500 hours of overtime.

Spending Patterns of Local and Non-Local Workers

Local and non-local workers are assumed to perform similar work and earn similar wages on a wind farm construction project. Non-local workers are defined as workers that do not maintain a permanent residence within a daily commuting distance of the project. Non-local workers secure temporary lodgings and generally receive per-diem payments from employers to offset lodging and food costs.

Workers on renewable energy projects in Minnesota typically receive per diem payments of roughly $100 according to interviews with workers and other industry professionals.[4] Per-diems are generally provided on working days, so non-local workers on a Minnesota renewable project could be expected to receive per-diem payments six days per week over the six-month duration of a project. Thus, I estimate the total value of per-diem payments to a non-local worker employed on a Minnesota renewable project to be $15,600.

I expect local workers on a Minnesota renewable project to earn approximately $84,275 in pay, excluding benefits, while non-local workers should receive gross pay totaling $99,875, excluding benefits.

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

TABLE 2: Gross Pay for Local and Non-Local Workers		
	Local Worker at 1500 hours	Non-Local Worker
Wages	$84,275.63	$84,275.63
Per Diem	$0.00	$15,600.00
Gross Earnings	$84,275.63	$99,875.63

I can estimate the amount the average local worker spends in their local area by deducting taxes and savings, and by applying an estimated share income that will be spent in a local area based on the work of economists that have studied the economic impact of local payrolls. The following table presents expected tax payments and savings for each worker:

TABLE 3: Deducations		
Deductions	**Local Worker**	**Non-Local Workers**
Effective Federal (10.37%)	$7,768.00	$7,768.00
Effective FICA (7.65%)	$5,538.00	$5,538.00
Effective State (4.8%)	$3,472.00	$3,472.00
Total Tax	$16,778.00	$16,778.00
After Tax Income	$67,497.63	$67,497.63
Savings (3.9%)	$2,632.41	$2,632.41
After Savings	$65,405.20	$65,405.20
Current Fringe Benefits	$23,047.50	$23,047.50
Deferred Fringe Benefits	$23,047.50	$23,047.50
Total Local Spending Per Worker	**$84,030.06**	**$15,600.00**
Difference in Local vs. Non-Local Spending		**$68,430.06**

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 are situated. Per-diems are generally not treated as taxable income.[5]

The economic contribution of local workers to local economies is not limited to their paychecks. Fringe benefits, which for construction workers typically include health care coverage, and retirement, training, and vacation benefits can also contribute to local economic activity. Among these benefits, health care and retirement benefits account for the lion’s share.

Health care contributions are usually spent in the short-term in local economies as workers and their families patronize local clinics, hospitals, and pharmacies. Retirement funds, on the other hand, are deferred and will only contribute to local economies once a worker retires and begins to draw on pension payments or retirement savings.

For this reason, I conclude that half of fringe benefit contributions have a similar impact to post-tax, post-savings income, and the other half are treated as income that is deferred to be spent after retirement.

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 region in which they live.[6] Thus, I would expect a construction job on a Minnesota solar energy project that is filled by a local worker to directly contribute $84,030 in the regional economy (95% of after tax /after savings income + 50% of fringe benefits in the near term, and an additional $23,047 in deferred fringe benefits over the long term.

My research indicates that non-local workers, on the other hand, seek to restrict their local spending to the amount of their per diem and can be expected to spend the remainder of their wages and benefits in their primary place of residence.[7] Thus, I expect that a non-local worker employed on a Minnesota solar energy project will spend $15,600 locally over the duration of the project.

The near-term difference in local spending patterns between a local and a non-local worker employed on a Minnesota solar energy project is $68,430. This is $68,430 less per worker than non-local workers can be expected to spend at neighborhood grocery stores, car dealerships, restaurants and clothing stores. This amount is the economic stimulus gained or lost by decisions to hire local or non-local workers.

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

[6] 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.

[7] This assumption is based on survey analysis and interviews with current and past clean energy construction and other sectors that typically employ traveling workforce.

The potential gain or loss in local spending is considerable when I consider total anticipated employment on a large wind energy development such as the proposed Benton Solar project. The applicant indicates that the project is expected to create 150-300 construction jobs, but the local economic impact of the project will differ greatly depending on how many of the workers come from the local area, or from hundreds or even thousands of miles away.

It is rare for a solar energy project to employ an entirely local workforce. The leading U.S. renewable energy EPCs pursue national business models and employ a national workforce that includes key personnel who are essential to the safe and successful execution of the company's wind energy projects. There can be significant differences, however, between projects built by EPCs that partner with local workforce providers and deliver projects where a large majority (50% to 70%) of hours worked on the project are performed by local workers, and projects that rely largely on out-of-state crews where local workers account for a small share of hours worked (10% to 30%).

The following table lays out estimates of total payroll and total local spending for a project similar to Benton Solar at different hypothetical levels of local and non-local construction hiring:

TABLE 4: Total Spending

Percent Local Workers	Total Payroll	Total Local Spending
100%	$24,147,703.13	$18,906,764.33
70%	$25,200,703.13	$14,287,735.03
50%	$25,902,703.13	$11,208,382.17
30%	$26,604,703.13	$8,129,029.30
10%	$27,306,703.13	$5,049,676.43
0%	$27,657,703.13	$3,510,000.00

The differences in local impacts continue to grow when I 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.[8]

In this report, I focus on the earnings multiplier. In Nissen and Zhang's 2006 study of the economic impact of local hiring on two major construction projects in Florida, they provide an earnings multiplier of 1.7377 for new construction work. This means that

[8] The following is an example of using multiplier effects on a major pipeline project in Minnesota: 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.

every dollar spent in a local economy will result in an additional 73.77% in economic activity, beyond the earnings of those employed on the project.[9]

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

TABLE 5: Total Local Spending with Multiplier	
Percent Local	Total Economic Impact with Multiplier
100%	$32,854,284.38
70%	$24,827,797.16
50%	$19,476,805.69
30%	$14,125,814.21
10%	$8,774,822.74
0%	$6,099,327.00

When I include economic multipliers, the present value difference in total economic impact of using 50% to 70% local workers versus 10% to 30% is $10.7 million. When deferred retirement benefits are included, the total difference in economic impact between 70% and 30% local increases to $14.3 million. For rural areas of Minnesota, these differences in local economic impacts could amount to meaningful boosts to local household and business incomes and tax base for local schools and governments.

The Positive Impact of Partnering with Skilled Trades

There is no excuse for NextEra not to use local workers. There is a clear track record of maximizing local employment on projects in the region. LIUNA and other Building Trades unions have participated in construction of similar projects where locals made up a majority of the workforce. The use of a majority of local workers is simply the choice of developers and their EPCs. Historical data shows that when developers partner with local unions and commit to using local workers, they can easily meet majority local worker goals.

Based on an analysis of a combination of data sources including publicly available data from Minnesota Public Utility Commission quarterly labor statistics reports and field

[9] 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 Minnesota.

observations by LIUNA staff in Minnesota and North Dakota, I found many projects that have relied primarily on local workers in Minnesota and North Dakota.

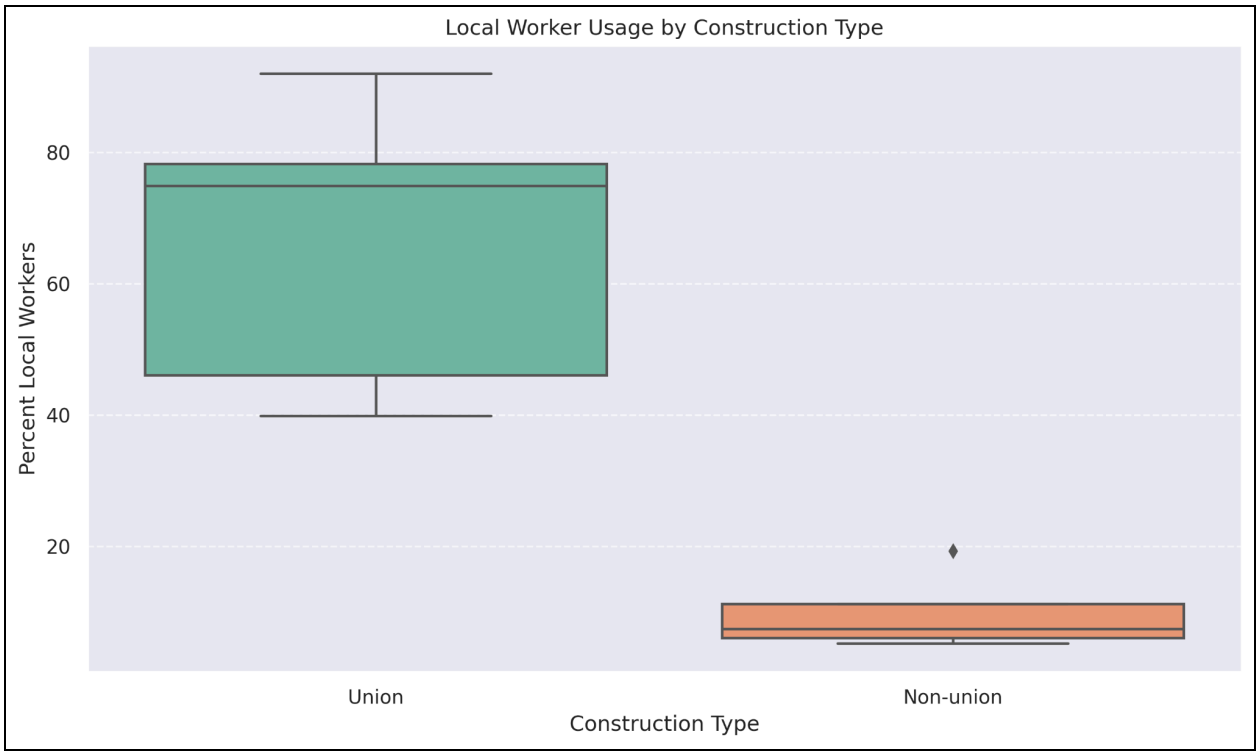
Table 6: Minnesota and North Dakota Clean Energy Projects			
Project	**Energy Type**	**Construction Type**	**Percent Local**
Louise Solar	Solar	Union	92.0%
Sherco Solar	Solar	Union	84.3%
Nobles 2	Wind	Union	74.9%
Zephyr Wind	Wind	Union	43.4%
Mower Wind	Wind	Union	76.2%
Buffalo Ridge	Wind	Union	39.9%
Walleye Wind	Wind	Union	78.3%
Northern Wind	Wind	Union	46.1%
Emmons Logan	Wind	Non-union	6.38%
Northern Divide	Wind	Non-union	8.51%
Oliver IV	Wind	Non-union	5.26%
Community Wind	Wind	Non-union	19.3%

I also discovered that not a single non-union project has achieved over 20% local workers in our dataset. Further, I found that not a single non-union NextEra project in Minnesota and North Dakota has achieved over 10% local workforce utilization based on publicly available data and our field observations. On the other hand, I found that no union project has reported less than 40% local workforce utilization and most are above 60% for wind and 80% for solar.[10]

TRADE SECRET DISCUSSION

There is a clear relationship between using union labor and building with a majority local workers:

[10] Our field observations were validated by trade secret documents which showed similar local/non-local estimates.



The central role of construction unions in the mobilization of local workforce is not a coincidence. Use of union labor helps to maximize local labor content because area construction trade unions are deeply embedded in local communities, and local governance structures and collective bargaining agreements prioritize the dispatch of local members to fill job opportunities on area construction projects. The Minnesota Building and Construction Trades unions represent members throughout Minnesota, including many in Southwest Minnesota where the proposed project would be located. These unions have a deep bench of qualified workers who stand ready and willing to build new renewable energy projects.

The Minnesota Building Trades are at the forefront of recruiting and training the next generation of skilled construction workers. These unions invest substantial time and resources in recruitment, including the organization's Construct Tomorrow program which regularly draws thousands of students from across central Minnesota for a hands-on introduction to construction careers, along with participation in numerous job fairs across the region. Beyond recruiting young people into the construction industry, Minnesota Building and Construction Trades union work to recruit those with both extensive or little to no construction experience into a family-supporting career in the construction industry.[11]

[11] For more information on Minnesota Building Trades career programs and partnerships see https://mntrades.org/apprenticeship and https://constructioncareers.org/programs/

Conclusion

The Benton Solar project has the potential to create hundreds of family-supporting jobs for Minnesota residents and to inject millions of dollars into the region's economy. NextEra can maximize the benefit of the project to Minnesota by working with Building Trades unions to prioritize local hiring and ensure that the majority of construction work on the project is performed by local workers.

About the Author

Lucas Franco is the Research Manager for LIUNA Minnesota & North Dakota, which represents more than 13,500 unionized construction laborers across Minnesota and North Dakota and is affiliated with the 550,000 member Laborers' International Union of North America. He holds a Ph.D. in Political Science from the University of Minnesota. He has published numerous articles and reports on employment trends in the construction industry.