

The background image shows a construction site where a large, reddish-brown pipe is being lifted by a crane. Several workers in hard hats and safety vests are visible, some working on the pipe. The scene is set in a dirt area with some wooden pallets and equipment.

Capturing the Moment:

A ROADMAP TO HIGH-ROAD CARBON CAPTURE DEVELOPMENT



NorthStar
POLICY ACTION

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About North Star Policy Action:

North Star Policy Action is an independent research and communications institute that is dedicated to improving the lives of everyday Minnesotans by advancing bold ideas that change the conversation and bring communities together. We develop and promote data-driven solutions to persistent problems that allow working people to thrive, no matter who they are or where they live

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Executive Summary

Carbon management technologies are emerging as a critical tool in the fight against climate change. Private sector companies across the United States are investing in ambitious new carbon capture utilization and storage projects. The Biden Administration and Congress have committed unprecedented resources to carbon management, first by investing billions of dollars in carbon management by providing low-interest loans and grants to private developers as part of the Bipartisan Infrastructure Law, and more recently by substantially increasing the value of Federal 45Q tax credits for carbon capture projects under the Inflation Reduction Act.

Large-scale carbon capture projects and pipeline networks are being planned across the country to reduce carbon emissions associated with ethanol production and other industrial processes. In the Midwest, three firms – Summit Carbon Solutions, Navigator CO₂, and a joint venture between Archer Daniel Midlands Co and Wolf Carbon Solutions – have proposed projects that would capture carbon dioxide (CO₂) from ethanol plants and build a pipeline network to transport CO₂ to geologic injection sites in North Dakota and Illinois. When completed, these projects will allow pipeline developers and ethanol producers to take advantage of 45Q tax credits while earning premium prices for fuel that meets low-carbon standards established by states like California.

In total, Summit, Navigator and ADM/ Wolf's plan to invest more than \$8 billion to install carbon capture technology

systems at existing ethanol plants and build approximately 3,650 miles of new pipeline infrastructure. These projects have the potential to minimize carbon dioxide emissions, while creating thousands of good family-sustaining jobs for local workers across the Midwest. The question for communities living along proposed pipeline right-of-ways, however, is which projects will live up to this potential.

The goal of this report is to examine the projected socioeconomic impacts of the Summit Carbon Capture pipeline, the first and largest of three proposed projects, with a focus on construction employment opportunities. Summit Carbon Solutions plans to invest approximately \$4.5 billion to build a carbon capture and storage project across five states. The project will capture carbon dioxide (CO₂) from 32 ethanol production facilities, transport the CO₂ through a network of nearly 2,000 miles of pipelines, and finally inject it into the Bakken geological formation where the gas will be trapped and eventually mineralized, preventing release into the atmosphere.

Summit Carbon Solutions is currently in the process of permitting the project and securing land easements across Nebraska, Iowa, Minnesota, South Dakota and North Dakota. The company reportedly plans to complete construction in 2024 and begin operations in 2025.

The Summit Carbon Solutions project will receive significant public support through a combination of enhanced

45Q tax credits and price premiums that will be paid to meet low-carbon fuel standards. The 45Q tax credit is designed to incentivize carbon sequestration through a variety of methods. Summit's project was initially proposed, and presumably profitable, even before passage of the 2022 Inflation Reduction Act (IRA) increased the potential value of the 45Q tax credit by nearly 70%. Thanks to the IRA, Summit's investors now have an opportunity to capture a \$2.9 billion tax credit windfall on top of the profits that were anticipated when project development began.

Summit Carbon Solutions has touted the local employment and associated economic benefits of the company's 1,958 mile pipeline project. But it is unclear based on Summit's construction plan to what degree anticipated economic benefits will be realized by communities along the pipeline route, or lost due to reliance on out-of-state construction workers who send paychecks home to communities located thousands of miles from the right-of-way.

This report quantifies the potential socioeconomic benefits of the construction jobs and career opportunities created by construction of a large CO₂ pipeline system of the type proposed by Summit in order to better understand what economic benefits communities along the right-of-way can expect, and how project developers can maximize the benefits of new carbon capture projects.

We find the following:

- ◆ A local pipeline construction worker can be expected to contribute roughly four times more to the local economy than a non-resident worker over the short-term (\$63,000 versus \$16,000 per job-year), and five times more over the long term (\$79,000 versus \$16,000).
- ◆ If half of all construction jobs on the project are filled by local workers – a ratio typical for large energy projects that prioritize local hiring – the total associated economic impact is estimated to be \$726 million.
- ◆ By comparison, if just one in 10 construction jobs is filled by local workforce – a ratio often found on large energy projects that fail to prioritize local hiring – the associated economic impact would drop by nearly half to \$380 million.
- ◆ An economic analysis commissioned by Summit significantly overestimates the local benefits of the project based on a highly unrealistic assumption that local workers will account for over 90 percent of the project's construction workforce.
- ◆ Our analysis shows use of an overwhelmingly traveling workforce to build the project (10% local) could reduce the local economic benefit of associated construction jobs by 65% compared to the company's estimates which are based on overwhelmingly local workforce (90%+).

- ◆ Summit is expected to receive \$7 billion in federal taxpayer dollars (\$585 million annually for 12 years) for building and operating the project.
- ◆ Passage of the IRA is expected to provide a \$2.892 billion windfall on top of the profit built into the original proposal.

Ultimately, we find that the best way to maximize the economic benefit of Summit Carbon Solutions pipeline and other large CO2 pipeline projects is to prioritize the use of local workforce. This can be accomplished by requiring contractors to partner with registered apprenticeship programs that supply skilled local workforce and move local workers into construction careers. Specifically, we recommend that Summit Carbon Solutions take the following steps:

- ◆ Develop a plan and demonstrate capacity to maximize use of skilled local workforce across the project footprint.

- ◆ Commit to publicly filing quarterly reports on use of local workforce consistent with current practice for large energy projects in Minnesota.
- ◆ Work with registered apprenticeship programs that serve the project area to identify, recruit and train skilled local workforce.

Through these simple steps, the Summit Carbon Solutions pipeline project can not only ensure that the project is built safely and well, but also maximize the project's short- and long-term economic benefits by stimulating local payrolls and building the region's skilled construction workforce. These benefits will in turn increase local support and set a positive precedent for future carbon capture infrastructure development.

Introduction

Carbon capture technologies are a key tool in the fight against climate change according to a 2022 Intergovernmental Panel on Climate Change (IPCC) report (Bright and Lockwood 2022; IPCC 2022). While low carbon resources such as wind, solar, hydro, and nuclear power account for the bulk of anticipated CO₂ emissions reductions, most experts recognize that carbon management technologies are needed to control emissions from hard-to-decarbonize sectors like heavy industry and those associated with internal combustion engines. New markets for clean fuels, technological advances and enhanced federal “45Q” tax credits under the Inflation Reduction Act (IRA) are driving major investments in large carbon capture projects.

Large-scale carbon capture projects and pipeline networks have been proposed across the country to reduce carbon emissions associated with ethanol production and other industrial processes. In the Midwest, three firms – Summit Carbon Solutions, Navigator CO₂, and a joint venture between Archer Daniel Midlands Co and Wolf Carbon Solutions – have proposed projects that would capture carbon dioxide (CO₂) from ethanol plants and build a pipeline network to transport CO₂ to geologic injection sites in North Dakota and Illinois.

“There are no guarantees, however, that construction of proposed CO₂ infrastructure will create high-quality jobs for local workers.”

Together these three companies are proposing to build a total of 3,650 miles in new pipeline infrastructure (Eller 2022). These projects have the potential to not only reduce carbon dioxide emissions, but also create thousands of family-sustaining jobs for local workers across the Midwest.

There are no guarantees, however, that construction of proposed CO₂ infrastructure will create high-quality jobs for local workers. Past research on large energy projects has shown that local economic impacts can vary greatly based on use of local and non-local construction labor (Nissen and Zhang 2006; Hatt and Franco 2018; Franco 2019a ; Franco 2019b). In too many instances, reliance on a traveling construction workforce has significantly undercut the local socioeconomic benefit of renewable and other energy projects. Failure to prioritize high quality jobs for local workers can also represent a major lost opportunity in communities where workers and communities already face potential job losses associated with the energy transition.

The goal of this report is to estimate the socioeconomic impact of decisions to employ largely local or non-local workforce on the construction of a large CO₂ capture and pipeline project. Our analysis of the Summit Carbon Solutions pipeline project finds that reliance on non-local workers could cost the states and local communities along the

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pipeline route hundreds of millions of dollars in lost economic activity.

In particular, we make three central arguments in this report. First, we argue Ernst & Young’s analysis of the Summit Carbon Solutions pipeline fails to account for key economic variables, including actual levels of compensation and use of local labor on the pipeline project. This oversight prevents a full understanding of how the potential impacts of the project could vary based on decisions made by the project owner. Specifically, the analysis relies on a highly-unrealistic assumption that more than 90% of the construction workforce will be drawn from areas along the pipeline route, while our research suggests that local workforce utilization will range from 10% to 50% depending on decisions made by Summit and the company’s contractors.

Second, we estimate that the difference in local economic impact between use of a substantially local (~50%) and overwhelmingly non-local (~10% local) construction workforce could amount to hundreds of millions of dollars in lost economic activity. In total, we estimate that the difference between the impact of a project built with a 50% local workforce and 10% local workforce could be \$346 million.

Third, we find that the federal government is providing Summit with sufficient resources to maximize benefits for workers, landowners and taxpayers while delivering robust returns for investors. A project that was apparently profitable before passage of the IRA is now expected to receive a nearly \$3 billion windfall thanks to a 70% increase in the value of carbon capture tax credits. Summit can apparently afford to invest in a local workforce and increase payments to landowners while providing investors with returns that far exceed the company’s original estimates.

“A project that was apparently profitable before passage of the IRA is now expected to receive a nearly \$3 billion windfall thanks to a 70% increase in the value of carbon capture tax credits.”

Section 1: Summit's Flawed Analysis

In April 2022 Ernst & Young LLP (EY) released a report detailing the potential benefits of the Summit Carbon Solutions pipeline project (Ernst and Young 2022). The report analyzes the overall economic and tax impacts of all phases of the project including carbon capture, transportation and sequestration from 2022 - 2045. EY researchers estimate that the project “will support over 11,247 jobs on an annual basis during the construction period (2022-2024)” which includes 7,862 indirect and 3,416 induced jobs.¹ In total, the construction phase of the project will generate \$2.2 billion in labor income and \$6.7 billion in total economic output (Ernst and Young 2022, 4). The report further estimates that the project will generate \$371 million in federal, state and local tax contributions (Ernst and Young 2022, 25). The benefits will be spread across North Dakota, South Dakota, Nebraska, Minnesota and Iowa. The potential economic and environmental benefits of this project are enormous, but these benefits could be significantly undercut without a plan to recruit, train and employ local workers.

We have two central concerns with the EY report. First, the report fails

to adequately explore variation in the use of local versus non-local labor on the overall project impact. The report relies on cross-industry estimates of local and non-local workforce shares that do not reflect the realities of large energy infrastructure construction. This oversight leads the report to assume that more than 90% of the construction workforce will come from local communities along the pipeline route – an assumption that is highly unrealistic and that obscures large variations in hiring patterns resulting from decisions made by project owners and contractors.

Second, the report uses generic compensation data that does not reflect actual wage and benefit rates on large energy infrastructure projects. Researchers provide an estimate for “suppliers and contractors” compensation that is not based on energy infrastructure construction and that falls well below average pay for pipeline workers on similar large-scale pipeline projects like the Dakota Access Pipeline (DAPL) and the more recent Line 3 pipeline project in Minnesota.

Critique 1: Insufficient analysis of local versus non-local employment practices

Our first critique of the EY report is that it fails to adequately account for substantial differences in the socioeconomic impacts of local versus non-local workers. According to Summit Carbon Solutions, the EY analysis

¹ Ernst & Young's report (2022, 8) defines indirect impacts as those “resulting from intermediate purchases from local suppliers, including real estate, utility service, and insurance companies. The indirect effects also include a second-round contribution from local suppliers who support the businesses contributing to Project construction.” The report defines induced impacts as those “resulting from spending by the Summit workforce, employees of other businesses supporting Project construction, and their suppliers' employees.”

relies on cross-industry in-commuting rates to estimate local and non-local employment shares.²

The in-commuting rate is a percentage of employees that work within a region and then commute home to another region (Slovachek 2022). This rate is based on a combination of the Census Bureau's Journey-To-Work (JTW) data and "IMPLAN's own annual estimates of county-level Commuter EC" (Clouse 2019). These flow patterns are determined by survey data primarily from the American Community Survey (ACS) (US Census 2021). These regional patterns are what EY researchers relied on to determine the expected share of local versus non-local employment. For example, in South Dakota, they assume that approximately 94.3% of workers will be local to the state, while 5.7% will be non-local or in-commuters.³

The fatal flaw in the EY analysis is the assumption that local and non-local employment shares for the workforce as a whole can be applied to large energy infrastructure construction. Past research on construction of large energy infrastructure projects suggest that the reality is quite different (Haynes et al. 2017; Hatt and Franco 2018; Haynes et al. 2022). Unfortunately, rather than explicitly grappling with this topic in the report, EY researchers simply relied on generic estimates that are not specific to construction and fail to sufficiently account for vastly different employment practices across industries.

2 South Dakota Public Utilities Commission Docket No. HP22-001. 2022. SCS Carbon Solutions, LLC's Responses to Interrogatories of the Great Plains. Pg. 2.

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For example, the Enbridge Line 3 pipeline project in Minnesota, which prioritized local employment opportunities through partnerships with local trade unions and Tribal training programs, achieved a local employment share that fell slightly below the project's 50% goal over a two year construction period (Haynes et al. 2022). Research on large wind energy construction projects in the Upper Midwest finds levels of local employment that range from 60% to 70% on projects that work with local partners to maximize participation; to 10% or less on projects that fail to do so (Franco 2019b; Pranis and Franco 2022).⁴

The share of local versus non-local labor is a critical factor in assessing the socioeconomic impact of any major energy infrastructure project. Past economic impact analyses of such projects have explicitly explored variable impacts of local versus non-local hiring practices.

Two reports on the Line 3 oil pipeline project in Minnesota by the Area Partnership for Economic Expansion (APEX) at the University of Minnesota Duluth incorporated analysis of local and non-local employment and spending patterns. In a 2017 study on projected impacts, researchers estimated that, "Approximately half

4 In both reports the authors detail major wind energy infrastructure projects that relied heavily on non-local workers in Minnesota and North Dakota. Franco (2019, 5) details how the first Minnesota Public Utilities Commission report on local workforce utilization "showed that just 12% of workers employed by RES Americas to build the Stoneray Wind Project lived within Minnesota or within 150 miles of the project...." Pranis and Franco (2022, 2) cited evidence from field observations on two separate North Dakota projects where "North Dakota residents accounted for fewer than 10% of construction workers on each project."

of the workers employed during the construction of the Line 3 pipeline are expected to come from outside the study area” (Haynes et al. 2017, 6). Ultimately, in a separate 2022 review study, the same research team found that 54% of construction workers on the project were non-local (Haynes et al. 2022). To account for this share of non-local workers, “labor income for the replacement project was reduced by more than half to account for non-local workers’ spending leaving the study area” (Haynes et al. 2022, 22). In both reports, the share of local versus non-local labor was critical to understanding overall socioeconomic impacts.

Economic impact studies of other major energy projects have also highlighted the importance of local versus non-local hiring practices. Researchers found that local workers on wind farm projects in Southern Minnesota can be expected to spend, on average, three to four times more locally than non-local workers (Hatt and Franco 2018; Franco 2019b; Pranis and Franco 2022). The authors further found that non-local workers largely rely on the per diem payments to cover food and lodging, and send hourly wages home to their state of residence. Finally, researchers have reported wide variation in the local share of construction employment on large energy infrastructure projects from a majority-local workforce to as low as 10% local employment (Pranis and Franco 2022).

The reasons for the significant presence of non-local workers and the wide

variance in local workforce share are not difficult to understand. Construction of major pipeline and renewable energy projects is typically performed by specialized national and regional contractors whose employees travel from project to project. In some cases, the prime contractor supplies key personnel and recruits the remainder of the project workforce from nearby communities, often in partnership with local hiring halls or subcontractors which may account for half or more of the workforce. In other instances, the prime contractor relies largely or entirely on their own traveling workforce, which minimizes employment opportunities for local workers.

The owners of the Dakota Access pipeline (DAPL) and the Line 3 Replacement projects worked closely with trade unions to recruit and train local workers, resulting in projects where locals accounted for roughly half of total project workforce according to first-hand accounts and public filings. On the other hand, recent analyses of wind energy projects have found projects where local workers account for less than ten percent of the workforce (Pranis and Franco 2022). Summit has not yet announced local hiring goals, disclosed plans, or provided assurances that the company is committed to maximizing local employment, and the unrealistic assumptions in the EY report are cause for concern that the company does not understand the need to incorporate local hiring in the construction planning process.

Critique 2: Limited discussion of job quality and construction worker compensation

A second critique of the EY analysis is that the model fails to consider how the economic impacts could vary based on the compensation practices of construction firms that will account for the lion's share of jobs created by the project. The compensation earned by construction workers differs widely, not only by sector and occupation, but also by contractor.

A typical skilled union laborer in Southwest Minnesota, for example, earns \$32 an hour on the check and an additional \$18 in fringe benefits, including hourly employer contributions to joint-labor management health care, pension and training funds. On the other hand, lower-wage construction workers performing similar work may earn as little as \$20 per hour and receive few or no fringe benefits.

The authors of the EY report evidently chose not to follow the example of Haynes et al by using actual or estimated wage rates provided by the project owner. Instead, the EY report apparently relied on generic wage data that does not necessarily reflect wages and benefit levels paid to pipeline construction workers generally, let alone the specific rates that will be paid on this project. The lack of industry- or project-specific wage and benefit rates increases the risk that the authors will over- or undershoot the mark when

estimating economic effects. After all, the economic impact of the job described above that offers \$50 per hour in total compensation is twice that of a job that pays just \$25 an hour.

The EY report assumes that employees of suppliers and contractors, including construction workers, will earn an average of approximately \$64,000 per year across the project footprint. For purposes of the EY analysis, an annual job is defined as just over 2,000 hours of work per year.⁵ Based on these estimates, EY researchers are assuming that construction workers will earn an average of \$32 per hour in total compensation, which “is comprised of wages and salaries plus non-wage income” and must account for both straight-time and overtime pay.⁶

Given often extensive use of overtime in pipeline construction, an average compensation of \$32 per hour puts expected compensation on the Summit Carbon Solutions pipeline on the low-wage end of the range described above, and well below rates paid on other large pipeline construction projects.⁷ Workers were paid significantly more on two comparative projects in the region, the Dakota Access Pipeline Project and the Line 3 pipeline project, based on contract data for the project or

5 South Dakota Public Utilities Commission Docket No. HP22-001. 2022. SCS Carbon Solutions, LLC's Responses to Interrogatories of the Great Plains. Pg. 4.

6 Ibid. Pg. 6.

7 For example, a worker who averages 60 hours per week – a common schedule in the pipeline industry – would earn \$62,000 in a year at an hourly rate of roughly \$25 per hour on the check plus just \$3 per hour in employer health savings account or 401K contributions (1,350 straight-time hours at \$25 per hour in wages and \$3 per hour in benefits plus 665 overtime hours at \$37.50 per hour in wages and \$3 per hour in benefits).

Table 1: DAPL and Line 3 Wage Rates

Construction Craft	DAPL		Line 3	
	Rate	Fringe	Rate	Fringe
Laborer	\$22.58-25.70	\$10.22-13.68	\$36.60-38.05	\$18.24-18.84
Operator	\$34.89-35.44.17	\$17.50-17.95	\$33.06	\$22.45
Pipefitter/Welder	\$24.58-51.93	\$18.28-26.14	\$25.22-53.97	\$22.42-32.80
Average	\$32.44	\$17.78	\$36.02	\$22.40

prevailing wage rates.⁸

The average hourly compensation package for the primary crafts that worked on DAPL in South Dakota and North Dakota was \$50.22, while hourly compensation for the same crafts on the Line 3 replacement project was \$58.42. These rates are 57% - 83% higher than the estimated rates for

work on the Summit Carbon Solutions pipeline project. The comparison suggests either that Summit intends to pay workers abnormally low compensation, or that the EY report missed the mark by relying on data that does not accurately reflect compensation levels in the pipeline industry.

⁸ Laborers, operators and pipefitters/welders are the three largest crafts on major pipeline projects including DAPL and Line 3. Teamsters members also worked on both projects and play a critical role in pipeline construction, but make up a smaller share of overall hours. We only include laborer, operator and pipefitter/welder rates because these are the three largest trades on a major pipeline project and we have the most complete wage data for these three crafts.

Section 2: A Closer Look at Potential Economic Impacts

In the first section, we demonstrate that the EY report misses the mark based on the authors' failure to incorporate realistic estimates of local workforce participation into the analysis and due to the authors' questionable assumptions regarding compensation. While it might be tempting to assume that overestimates of local workforce utilization and underestimates of wage and benefit rates cancel out, the reality is much more complex. To the degree that Summit retains pipeline contractors that hire and pay local workers in a manner similar to projects like DAPL and Line 3, their estimates may land in the ballpark as higher levels of compensation make up for somewhat lower local share of workforce. On the other hand, where Summit's contractors rely on either non-local or low-wage workforce, the economic benefits of the project are likely to fall far short of expectations.

In order to better understand likely socioeconomic impacts of the project, we use a previously developed socioeconomic impact model (Hatt and Franco 2018; Franco 2019a). We find that the local share of construction employment is the most important variable affecting the project's local socioeconomic impact. We also show that a realistic plan to maximize local workforce participation could increase the local economic benefits of the project to surrounding communities by as much as \$346 million.

OUR CONSTRUCTION EMPLOYMENT IMPACT MODEL

Our economic impact estimates are based on the North Star Policy Institute (NSPI) model developed in *Catching the Wind* (Hatt and Franco 2018). This model allows us to analyze variable impacts of local and non-local labor and better understand the economic impact of fringe benefits contributions, which tend to be underestimated in economic models that rely on compensation data collected by the U.S. Bureau of Labor Statistics.⁹ Retirement and healthcare benefits are critical components of the total compensation package for many construction workers. These inputs are often overlooked.

9 The Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wage (QCEW) is one of the most frequently cited sources of employment and wage data, including data used to derive compensation estimates employed in the EY report. But QCEW appears to systematically underestimate the economic impact of union jobs by failing to sufficiently account for fringe benefits - a share of total compensation for a union construction worker. In some cases QCEW includes "employer contributions to certain deferred compensation plans, such as 401(k) plans." However, "covered employers' contributions to old-age, survivors, and disability insurance; health insurance; UI; workers' compensation; and private pension and welfare funds are not reported as wages." This means that QCEW substantially underestimates the value of most construction industry jobs since employer health and pension contributions can represent 30-40% of union wage rates in the construction industry. These fringe benefits are spent in the economy much like wages (health care in the short term and pension benefits in the long term). This undercounting of total compensation for union workers is a major concern and an area for future research. You can find more information on key QCEW concepts here: <https://www.bls.gov/opub/hom/cew/concepts.htm>.

WAGES AND BENEFITS

The creation of construction jobs is not the only local benefit of carbon capture development, but it is among the most significant in terms of economic impacts, alongside the easement and tax revenues that these projects typically deliver to local residents and host communities. Construction jobs building carbon capture infrastructure can provide middle-class wages and high-quality health and retirement benefits. Such benefits are all-too-scarce for blue-collar workers in many of the rural areas across Iowa, Nebraska, Minnesota, South Dakota and North Dakota. The project could also provide a pathway for many to start family-supporting careers in construction.

As with other types of energy development, job opportunities are frequently cited as a benefit of carbon capture pipeline development in both media coverage and permitting processes. It has often been assumed that such construction jobs largely benefit local workers. However, research conducted by the North Star Policy Institute in 2018 documented reliance on non-local workers for construction of large energy infrastructure projects and detailed the high cost to local communities of failures to maximize local employment opportunities (Hatt and Franco 2018).

In this analysis, we employ the same 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 the Summit Carbon Solutions pipeline. We begin by estimating the wages and benefits that would be paid to construction workers. While the EY report relies on average wages for employees of suppliers and contractors across multiple construction sectors, we instead use inputs that reflect actual levels of compensation on projects of similar size and scope such as the DAPL and the Enbridge Line 3 Replacement projects. While we believe that the data used in our analysis reflects the “going rate” for large pipeline construction, we recognize the possibility that the actual rates paid on the Summit project could be lower, diminishing the benefits of the project to local workers and communities

Pipeline construction work requires the skills of several construction trades, including laborers, operating engineers, and welders. Workers in these trades typically earn between \$30 and \$40 per hour in wages and \$15 to \$25 in hourly fringe benefit contributions (e.g. healthcare, pension and training contributions) depending on their trade. Using data from the DAPL and Line 3 Replacement projects, the following are reasonable wage and fringe benefit estimates for workers on the proposed Summit Carbon Solutions pipeline:

Table 2: Estimated Wage Rates

Construction Craft	DAPL		Line 3		Summit Pipeline Estimate	
	Rate	Fringe	Rate	Fringe	Rate	Fringe
Laborer	\$24.40	\$12.37	\$37.33	\$18.54	\$30.86	\$15.46
Operator	\$35.17	\$17.73	\$33.06	\$22.45	\$34.11	\$20.09
Pipefitter/Welder	\$38.26	\$22.21	\$39.60	\$27.61	\$38.93	\$24.91
Average	\$32.61	\$17.44	\$36.66	\$22.87	\$34.63	\$20.15

The DAPL and Line 3 Replacement projects are two comparable pipeline projects in the region. We are relying on these rates since there is not publically available data on wage rates for the Summit project. Pipeline wage rates are generally difficult to estimate. Due to a rather unique circumstance, DAPL rates are relatively easy to estimate because current prevailing wage rates for counties where DAPL construction occurred were set by wage surveys from work on the pipeline project.¹⁰

Based on insights from former and current pipeline workers, we know that overtime is a common feature of pipeline construction. In northern climates where the construction season is limited, our research indicates that workers on a large-scale pipeline project like Summit's may last seven months, during which time workers average at least 60 hours per week, for a total of roughly 1,650 hours — 1,090 hours of straight time (\$34.63 per hour) and 560 hours of overtime (\$51.95 per hour). Thus, we expect a pipeline worker on the project to earn approximately \$66,841 in pre-tax wages and another \$33,249 in total fringe benefits.

Construction workers employed on pipeline and other large energy projects often receive per diem payments to offset the cost of work travel, in addition to hourly wages and benefit contributions. While per diem rates vary, a review of previous research and statistics published by the federal government suggests that \$98 is a reasonable daily estimate (Haynes et al. 2022).¹¹ Per diems are generally provided on working days, so workers who are offered per diem payments on a pipeline project in the region could be expected to receive \$15,876 for seven months of working six days per week.

Table 3: Average Wages

Craft	Rate	Fringe
Laborer	\$30.86	\$15.46
Operator	\$34.11	\$20.09
Pipefitter/Welder	\$38.93	\$24.91
Average	\$34.63	\$20.15
Overtime	\$51.95	
Estimated Annual Gross Earnings	\$100,090.14	

¹⁰ An example of a Davis-Bacon Act prevailing wage determination for heavy construction were wages from work on DAPL established the prevailing wage rate. This wage determination is for Burleigh County: <https://sam.gov/wage-determination/ND20210049/7>.

¹¹ Per diem rates are based on standard Government Service Administration (GSA) rates for all five states. Standard rates are the same for Minnesota, Iowa, South Dakota, North Dakota, and Nebraska. All rates are available here: <https://www.gsa.gov/travel/plan-book/per-diem-rates>.

Per diem payments are not always reserved for non-local workers. In some instances, employers offer per diems to both local and non-local workers as a perk or to avoid the administrative burden of determining which workers qualify. Here, however, we make the conservative assumption that per diems are reserved for non-local workforce.

Based on this assumption, we would expect the typical local worker on the Summit project to earn approximately \$66,841 in gross pay, excluding benefits, while a non-local worker would receive gross pay totaling \$82,717, excluding benefits. These estimates are calculated based on 1,090 hours of work at the standard pay level plus 560 hours of overtime. For non-local workers, we add per diem to their total pay (\$66,841+ \$15,876).

Table 4: Gross Pay for Local and Non-Local Workers		
	Local Worker	Non-Local Worker
Wages	\$66,841.26	\$66,841.26
Per Diem	\$0.00	\$15,876.00
Gross Earnings	\$66,841.26	\$82,717.26

SPENDING PATTERNS OF LOCAL AND NON-LOCAL WORKERS

Non-local workers are generally defined as workers that do not maintain a permanent residence within a daily commuting distance of a project site. For a pipeline project of this size, non-local workers are defined as those from outside the five project states.

We 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 an average of expected tax payments across all five states and estimated savings for each worker:

Table 5: Deductions		
Deductions	Local Worker	Non-Local Worker
Effective Federal (11.66%)	\$7,793.69	\$7,793.69
Effective FICA (7.65%)	\$5,113.36	\$5,113.36
Effective State (2.96%)	\$1,978.50	\$1,978.50
Total Tax (22.27%)	\$14,885.55	\$14,885.55
After Tax Income	\$51,955.71	\$51,955.71
Savings (5.1%)	\$2,649.74	\$2,649.74
After Savings	\$49,305.97	\$49,305.97
Current Fringe Benefits	\$16,624.44	\$16,624.44
Deferred Fringe Benefits	\$16,624.44	\$16,624.44
Total Local Spending Per Worker	\$62,633.89	\$16,624.44
Difference in Local vs. Non-Local Spending	\$46,757.89	

These calculations are based on an average of standard tax rates across the region. The “effective” tax rate is based on an analysis of federal, state and local tax obligations for a single person

with no dependents.¹² Per diems are generally not treated as taxable income.

The average American currently saves approximately 5.1% of their income.¹³ If we assume this trend holds, the average after-tax and after-savings income of both local and non-local workers would be about \$46,758. On top of this income, non-local workers are expected to receive \$15,876 in per diem payments.

The economic contribution of local workers to local economies is not limited to their paychecks. Fringe benefits, which for construction workers often include family health care coverage, pension or other retirement contributions, and training among others, can also contribute to local economic activity. Among these benefits, health care and retirement benefits account for the majority.

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.

Based on our review of industry compensation practices we estimate

that roughly half of fringe benefit contributions (\$33,248/2 or \$16,624) support health, training and vacation pay plans that resemble post-tax, post-savings income in their economic impact. The remainder of fringe benefit contributions which consists of pension, annuity, and other retirement savings plans can be expected to function as 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 where they live (Nissen and Zhang 2006). Thus, we would expect an annual construction job on a pipeline project that is filled by a local worker to directly contribute \$62,634 in the regional economy (95% of after tax/after savings income + 50% of fringe benefits) in the near term, and an additional \$16,624 over the long term.

Our 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.¹⁴ Thus, we expect that a non-local worker employed on the Summit Carbon Solutions pipeline will spend \$15,876 locally over the duration of their year of employment.

¹² Tax estimates corroborated by Smart Asset's online tax estimator. The full estimator is available at: <https://smartasset.com/taxes/income-taxes#SRQvQjkXhc>.

¹³ Savings rates are available through Statista Research. Rates listed are from June 2015 to June 2022. Data available here: <https://www.statista.com/statistics/246268/personal-savings-rate-in-the-united-states-by-month/#statistic-Container>.

¹⁴ This assumption is based on survey analysis and interviews with current and past wind energy construction and other sectors that typically employ traveling workforce.

The near-term difference in local spending patterns between a local and a non-local worker employed on the Summit Carbon Solutions pipeline is \$46,758. For local communities, this represents the loss of \$46,758 that would otherwise have been spent at neighborhood grocery stores, car dealerships, restaurants and clothing stores. The gap grows to approximately \$63,382 when deferred spending associated with retirement benefits is taken into account.

The potential gain or loss in local spending is significant when we consider total anticipated employment on a large carbon capture pipeline project like the Summit project. Based on developer estimates, we expect the project will create approximately 10,636 construction jobs in the five state project area over a three year period (Ernst and Young 2022). The local economic impact of the project could differ greatly depending on how many of the workers come from the local area or hundreds or even thousands of miles away.

It is rare for a pipeline project to employ an entirely local workforce. Leading pipeline contractors pursue national business models and employ a traveling workforce that includes key personnel who are essential to the safe and successful execution of the company's projects. There can be a vast difference, however, between the economic impact of a project built by contractors that partner with local providers to employ a majority-local workforce (50%+), and a project that relies largely on out-of-state crews where local workers account for as little as 10% of hours worked.

The following table lays out estimates of total local spending for the Summit Carbon Solutions pipeline at different levels of local and non-local construction hiring:

Table 6: Direct Local Spending	
Total Local Spending 100% local	\$666,174,033
Local Spending 50% local	\$417,515,584
Local spending 10% local	\$218,588,826

The projected difference in cumulative direct local spending between a project that relies on a 50% local workforce and a 10% local workforce would be roughly \$199 million. When direct spending associated with deferred retirement benefits is included, the projected difference increases by 34% or by \$67 million to \$266 million.

The differences in local impacts continue to 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 (Haynes et al. 2022)

In this report, we 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 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 (Nissen and Zhang 2006).¹⁵

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

Table 7: Total Economic Impact with Multiplier	
Percent Local	Total Economic Impact with Multiplier
100%	\$1,157,610,617
50%	\$725,516,831
10%	\$379,841,802

When we include economic multipliers, the difference in total economic impact of using 50% local workers versus 10% rises to \$346 million. When deferred retirement benefits are included, the total difference in economic impact

¹⁵ 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 North Dakota.

between 50% and 10% local increases to \$462 million. For primarily rural areas of the Upper Midwest, these differences in economic impact mean meaningful boosts to local household and business incomes and tax base for local schools and governments.

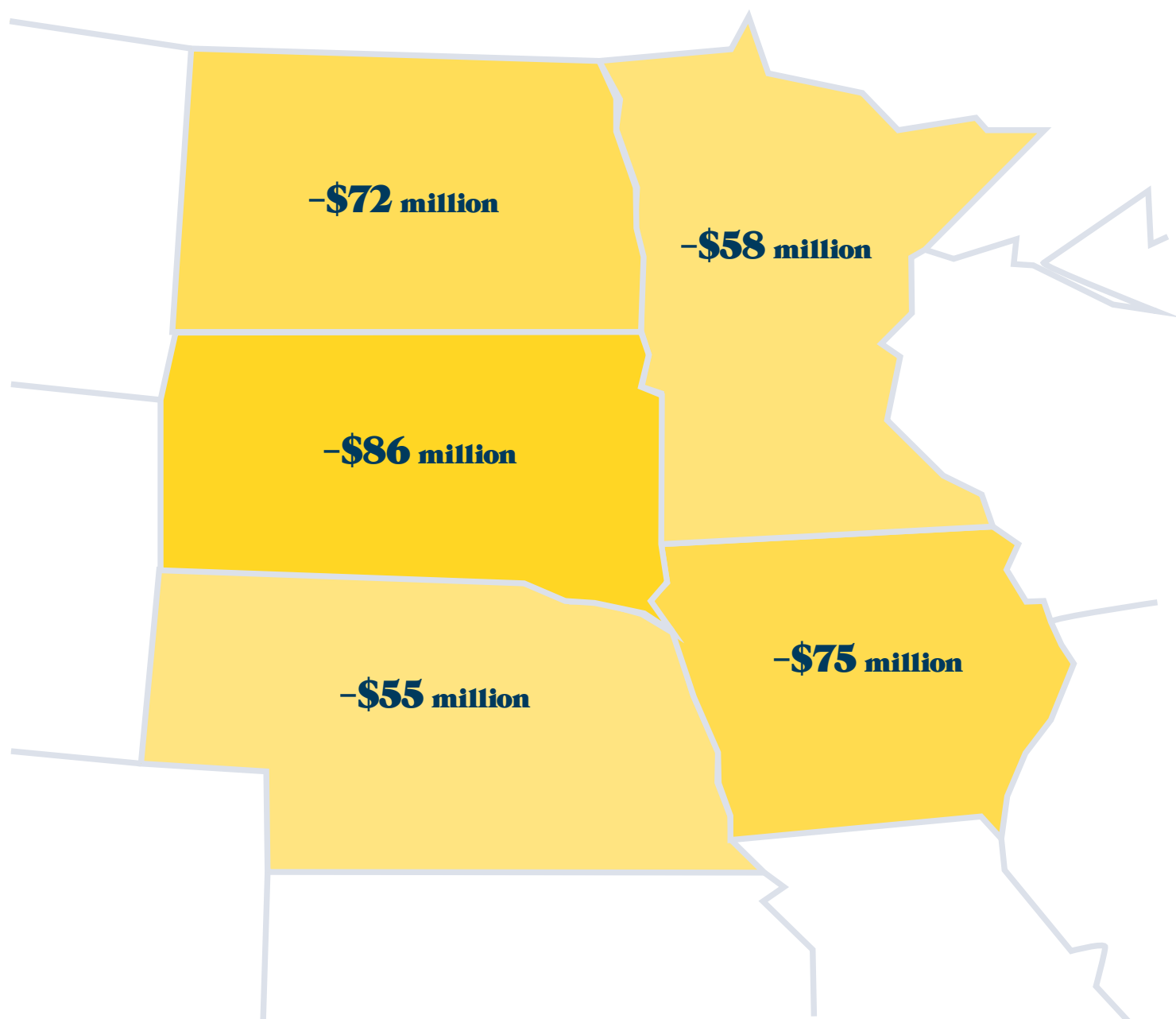
The potential losses in economic impact are magnified when we look at state level data.¹⁶

The difference in total economic impact of using 50% local workers versus 10% ranges from \$55 million in Nebraska to \$86 million in Iowa.

¹⁶ Construction job estimates are based on data from the Ernst and Young (2022) report. They do not provide specific construction job estimates per state. Instead they combine suppliers and contractors into a single category. The authors estimate that 38% of “the annual jobs supported are expected to occur in the construction sector” (Ernst & Young 2022, 20). We use this percentage to calculate construction job totals per state. The total job estimate is based solely on individual state estimates and does not include jobs created outside of Minnesota, North Dakota, South Dakota, Iowa and Nebraska. The Ernst & Young report estimates that approximately 18% of all jobs will be created outside of the primary five state project area.

Table 8: State Level Impacts						
State	Estimated Jobs	Miles of Pipe	Total Economic Impact - 10% Local Workers	Total Economic Impact - 50% Local Workers	Difference in Economic Impact	Difference in Economic Impact - Deferred Fringes
Minnesota	1,796	155	\$64,140,267	\$122,511,116	\$58,370,849	\$78,033,200
North Dakota	2,205	329	\$78,746,820	\$150,410,362	\$71,663,543	\$95,803,567
South Dakota	2,646	474	\$94,496,184	\$180,492,435	\$85,996,251	\$114,964,281
Iowa	2,301	683	\$82,175,253	\$156,958,841	\$74,783,588	\$99,974,607
Nebraska	1,688	317	\$60,283,280	\$115,144,078	\$54,860,798	\$73,340,781
Total	10,636	1,958	\$379,841,802	\$725,516,831	\$345,675,029	\$459,434,363

LOST ECONOMIC IMPACT FROM RELIANCE ON NON-LOCAL WORKERS



Section 3: An Opportunity to Train the Next Generation of Workers

Prioritizing local hiring on the Summit project would not only create good, family-supporting jobs for local workers and hundreds of millions of dollars in local economic activity, but also provide a pathway into a career in the construction industry for area workers. Hundreds of thousands of workers are currently employed in low-wage jobs across Summit's five-state footprint. Many of these workers would welcome an opportunity to secure a well-paid, full-time job with benefits.

The potential hiring pool for the Summit project includes skilled pipeline construction workers; non-pipeline construction workers for whom the project could be an opportunity to secure better pay and benefits and new skills; and workers new to construction who could fill entry-level positions. Now is an ideal time to recruit and train workers for a career in construction, as the IRA and Infrastructure and Investment Jobs Act (IIJA) will inject billions of dollars into infrastructure work throughout the project area and require hundreds of thousands of workers.

One way to maximize local benefits and train the next generation of construction workers is to ensure that contractors building the Summit project are affiliated with registered apprenticeship programs. Registered apprenticeship programs have a long track record of successfully transitioning workers into a career in the construction industry -- a fact that was recognized

by the U.S. Department of Labor in rulemaking on Industry Recognized Apprenticeship Programs (Bruno and Manzo 2016).¹⁷ These educational programs provide a cost-effective model to recruit and train skilled workers and they ensure high-quality construction work.

Research by Mathematica Politica Research for the U.S. Department of Labor Employing and Training Administration found that participants that complete a registered apprenticeship program "receive an average of \$301,533 more in compensation than nonparticipants over their careers" (Reed et al. 2021). Apprenticeship programs also reduce the probability that workers will suffer long-term unemployment (Bruno and Manzo 2016). Further, University of Utah economist, Peter Philips, found that apprenticeship programs create a safer and more productive workforce (Philips 2015). The Summit Carbon Solutions pipeline provides a unique opportunity to bolster apprenticeship programs in the region.

Construction apprenticeship programs are typically three to four years. Construction Craft Laborers, for example, must complete 288 hours of classroom training and 4,000 work hours over a three-year period.

¹⁷ See U.S. Department of Labor Final Rule RIN 1205-AB85 for a discussion of the U.S. Department of Labor's decision to exclude construction from new Industry Recognized Apprenticeship Program rules based on the success of the existing system of registered construction apprenticeships <https://aboutblaw.com/Pnh>

**Table 9:
LIUNA Apprenticeship Program**

Level of Apprenticeship	Hours of Training	Hours of Work	% of Journey Worker Wage
Level 1	0 - 100	0 - 1,500	80%
Level 2	101 - 200	1,501 - 3,000	87%
Level 3	201 - 288	3,001 - 4,000	95%

Apprentices complete 100 hours of training and 1,500 work hours each year.

As new apprentices move through the training, their hourly wages steadily increase as they approach journeyworker status. Workers could make significant progress toward completion of an apprenticeship program through work on the Summit project.

Apprenticeship programs in other building trades have a similar structure. For example, the apprenticeship for heavy equipment operators requires 4,000 hours of on-the-job training and 288 hours of related instruction which is provided at a fully-equipped training center. The program is usually completed in three years.¹⁸ Summit Carbon Solution pipeline workers that complete an apprenticeship program will gain skills needed to build vital infrastructure in the area and contribute millions to the regional economy.

Registered apprenticeship programs are a great way to recruit new workers currently employed in low-wage precarious jobs into the construction industry. There are hundreds of thousands of workers employed in low-wage service industry jobs across the

region. These jobs are often extremely precarious (Kalleberg 2011). One of the top five occupations across the Summit Carbon Solutions footprint are Food Preparation and Serving occupations. Jobs in this occupational category pay an average of \$12.77 per hour or \$26,550 per year.¹⁹ This is nearly \$10,000 less than what the Economic Policy Institute estimates an individual needs to “attain a modest yet adequate standard of living.”²⁰ Workers employed in such low-wage jobs typically require social service support that is funded by taxpayers and local charities, including subsidized affordable housing and food stamps. Many workers in this occupational group would likely welcome an opportunity to begin a family-sustaining job in construction.

We estimate that the average construction worker on the Summit Carbon Solutions pipeline would earn approximately \$2,424 per week (40 hours at straight time rate of \$34.63 per

¹⁸ See list of training courses: <https://www.local49training.org/apprenticeship/heavy-equipment-operator-apprentice/>

¹⁹ Employment data is for Q2 2022. Wage and employment data is based on averages for Minnesota, North Dakota, South Dakota, Iowa, and Nebraska. All data is available here: <https://data.bls.gov/cgi-bin/dsrf?en>.

²⁰ The EPI's Family Budget Calculator estimates that \$35,044 is the minimum income that a single worker with no children needs in order to attain a modest yet adequate standard of living in across following counties: Jackson (MN), Spink (SD), Richland (ND), Sioux (IA) and Merrick (NE). These five counties are the counties with the most planned miles of pipeline construction per state. You can find more information on the Family Budget Calculator here: <https://www.epi.org/resources/budget/>.

Table 10: Top 5 Occupations - All States

Occupation (SOC code)	Employment	Hourly mean wage	Annual mean wage	Average Weekly Wage
Office and Administrative Support Occupations(430000)	745,850	\$17.55	\$36,510	\$702
Sales and Related Occupations(410000)	554,290	\$20.76	\$43,180	\$830
Transportation and Material Moving Occupations(530000)	518,130	\$18.07	\$37,580	\$723
Food Preparation and Serving Related Occupations(350000)	461,000	\$12.77	\$26,550	\$511
Production Occupations(510000)	399,840	\$20.54	\$42,733	\$822
Average	535,822	\$17.94	\$37,311	\$718

hour and 20 hours at an overtime rate of \$51.95 per hour) excluding fringe benefit payments. This is four to five times the average weekly earnings of a worker in sales or food preparation and serving.

There are jobs on a project like the Summit Carbon Solutions pipeline project that require little construction experience. Some workers who are new to construction could perform such jobs with minimal training. Those currently employed by contractors that participate in registered apprenticeship programs would also benefit from classroom, hands-on, and on-the-job training to improve their skills and career prospects. Further, the Summit Carbon Solutions pipeline will create

jobs that could be filled by workers who currently hold lower-paid positions with building and civil contractors, which would in turn create openings for new workers.

We expect, based on past experience with large energy construction projects, that many of the workers employed in industries that pay substantially less than pipeline jobs would be eager to seize an opportunity to earn higher wages in the construction industry. Regional building and construction trades unions are ready and willing to work with carbon capture infrastructure developers and contractors to help dispatch the existing skilled workforce, and to recruit and train a new workforce.

Section 4: Summit's Inflation Reduction Act Windfall

When Summit originally proposed building a five-state CO₂ pipeline network, the company was counting on a combination of price premiums from the sale of low-carbon fuel and the value of Federal Section 45Q tax credits – then worth \$50 per ton of CO₂ captured and permanently stored – to make the project profitable. Since that time, however, passage of the IRA has nearly doubled the value of the tax credit to \$85 per ton.

Summit estimates that the credit will be worth \$585 million annually, according to documents filed with the Public Utilities Commission of South Dakota.²¹ This represents a roughly \$241 million annual windfall compared to the \$344 million that the company would have received pre-IRA. The 45Q credit lasts for 12 years and is indexed for inflation beginning in 2027. Over 12 years, this project is projected to receive over \$7 billion in tax credits. We estimate the

total windfall for Summit resulting from the enhancement of carbon capture credits at \$2.892 billion.

A nearly \$3 billion windfall for what was evidently an already-profitable project gives Summit an extraordinary opportunity to build a project that provides well-paid jobs to local workers and generous compensation for landowners while hitting a home run for investors.

A relatively small investment in better-paying, local jobs would go a long way to enhancing the economic benefit of the project to workers and their communities. Summit has budgeted \$4 billion for construction of this project (Ernst and Young 2022, 3). Of that, the labor cost for contractors and suppliers is only \$1.6 billion (Ernst and Young 2022, 4). Summit can apparently afford to add a billion dollars or more to the company's budget for land acquisition and contractors, and still deliver a project that far surpasses investors' initial expectations.

²¹ South Dakota Public Utilities Commission Docket No. HP22-001. 2022. SCS Carbon Solutions, LLC's Responses to Interrogatories of the Great Plains. Pg. 12.



Conclusion

Carbon capture, transportation, and sequestration projects are a nascent, growing industry. Policy makers have incentivized their development and gradually expanded the types of projects that qualify for federal tax credits. But the IRA will jump start the market for these projects like never before. Now is the time to set the standard for how they are built, and to maximize their economic impact to communities and the workers who make the projects a reality.

Taxpayers are supporting the development of these important tools to reduce carbon emissions. This report shows that whether an individual

project uses local labor or relies on traveling construction workers can mean the difference in hundreds of millions of dollars in economic benefit to the communities where they are built. If a project works with contractors that commit to paying family-supporting wages and maximizing local employment, it will leave a legacy in the project-area that continues for decades after construction ends. Policy makers and the public should demand that their investment in these projects give the maximum benefit to workers and communities, not to corporate profit margins.

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STATE FACT SHEET:

Minnesota

Summit Carbon Solutions plans to invest approximately \$4.5 billion to build a carbon capture and storage project across five states including 155 miles of new pipeline in Minnesota. The project will capture carbon dioxide (CO₂) from five ethanol production facilities across the state, transport the CO₂ through a network of nearly 2,000 miles of pipelines, and finally inject it into the Bakken geological formation where the gas will be trapped and eventually mineralized, preventing release into the atmosphere.

The project has the potential to create thousands of jobs and generate millions of dollars in economic benefits for Minnesota communities. These benefits will only be realized if Summit Carbon Solutions prioritizes the use of local labor. In analyzing the project, we find the following potential impacts for Minnesota

- ◆ A local pipeline construction worker can be expected to contribute roughly four times more to the local economy than a non-resident worker over the short-term (\$63,000 versus \$16,000 per job-year), and five times more over the long term (\$79,000 versus \$16,000).
- ◆ If half of all construction jobs on the project are filled by local workers – a ratio typical for large energy projects that prioritize local hiring – the total associated economic impact is estimated to be \$123 million.
- ◆ By comparison, if just one in 10 construction jobs is filled by local workforce – a ratio often found on large energy projects that fail to prioritize local hiring – the associated economic impact would drop by nearly half to \$64 million.
- ◆ An economic analysis commissioned by Summit significantly overestimates the local benefits of the project based on a highly unrealistic assumption that local workers will account for over 90 percent of the project's construction workforce.
- ◆ Our analysis shows use of an overwhelmingly traveling workforce to build the project (10% local) could reduce the local economic benefit of associated construction jobs by 65% compared to the company's estimates which are based on overwhelmingly local workforce (90%+).
- ◆ Summit is expected to receive \$7 billion in federal taxpayer dollars (\$585 million annually for 12 years) for building and operating the project.
- ◆ Passage of the IRA is expected to provide a \$2.892 billion windfall on top of the profit built into the original proposal.

Ultimately, we find that the best way to maximize the economic benefit of Summit Carbon Solutions pipeline and other large CO₂ pipeline projects is to prioritize the use of local workforce.

This can be accomplished by requiring contractors to partner with registered apprenticeship programs that supply skilled local workforce and move local workers into construction careers. Specifically, we recommend that Summit Carbon Solutions take the following steps:

- ◆ Develop a plan and demonstrate capacity to maximize use of skilled local workforce across the project footprint.
- ◆ Commit to publicly filing quarterly reports on use of local workforce consistent with current practice for large energy projects in Minnesota.

- ◆ Work with registered apprenticeship programs that serve the project area to identify, recruit and train skilled local workforce.

Through these simple steps, the Summit Carbon Solutions pipeline project can not only ensure that the project is built safely and well, but also maximize the project's short- and long-term economic benefits by stimulating local payrolls and building the region's skilled construction workforce. These benefits will in turn increase local support and set a positive precedent for future carbon capture infrastructure development.

Table 8: State Level Impacts

State	Estimated Jobs	Miles of Pipe	Total Economic Impact - 10% Local Workers	Total Economic Impact - 50% Local Workers	Difference in Economic Impact	Difference in Economic Impact - Deferred Fringes
Minnesota	1,796	155	\$64,140,267	\$122,511,116	\$58,370,849	\$78,033,200
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South Dakota	2,646	474	\$94,496,184	\$180,492,435	\$85,996,251	\$114,964,281
Iowa	2,301	683	\$82,175,253	\$156,958,841	\$74,783,588	\$99,974,607
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Total	10,636	1,958	\$379,841,802	\$725,516,831	\$345,675,029	\$459,434,363

STATE FACT SHEET:

North Dakota

Summit Carbon Solutions plans to invest approximately \$4.5 billion to build a carbon capture and storage project across five states including 329 miles of new pipeline in North Dakota. The project will capture carbon dioxide (CO₂) from one ethanol production facility and inject it into the Bakken geological formation where the gas will be trapped and eventually mineralized, preventing release into the atmosphere.

The project has the potential to create thousands of jobs and generate millions of dollars in economic benefits for North Dakota communities. These benefits will only be realized if Summit Carbon Solutions prioritizes the use of local labor. In analyzing the project, we find the following potential impacts for North Dakota

- ◆ A local pipeline construction worker can be expected to contribute roughly four times more to the local economy than a non-resident worker over the short-term (\$63,000 versus \$16,000 per job-year), and five times more over the long term (\$79,000 versus \$16,000).
- ◆ If half of all construction jobs on the project are filled by local workers – a ratio typical for large energy projects that prioritize local hiring – the total associated economic impact is estimated to be \$150 million.
- ◆ By comparison, if just one in 10 construction jobs is filled by local workforce – a ratio often found on large energy projects that

fail to prioritize local hiring – the associated economic impact would drop by nearly half to \$79 million.

- ◆ An economic analysis commissioned by Summit significantly overestimates the local benefits of the project based on a highly unrealistic assumption that local workers will account for over 90 percent of the project's construction workforce.
- ◆ Our analysis shows use of an overwhelmingly traveling workforce to build the project (10% local) could reduce the local economic benefit of associated construction jobs by 65% compared to the company's estimates which are based on overwhelmingly local workforce (90%+).
- ◆ Summit is expected to receive \$7 billion in federal taxpayer dollars (\$585 million annually for 12 years) for building and operating the project.
- ◆ Passage of the IRA is expected to provide a \$2.892 billion windfall on top of the profit built into the original proposal.

Ultimately, we find that the best way to maximize the economic benefit of Summit Carbon Solutions pipeline and other large CO₂ pipeline projects is to prioritize the use of local workforce. This can be accomplished by requiring contractors to partner with registered apprenticeship programs that supply skilled local workforce and move local

workers into construction careers. Specifically, we recommend that Summit Carbon Solutions take the following steps:

- ◆ Develop a plan and demonstrate capacity to maximize use of skilled local workforce across the project footprint.
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- ◆ Work with registered apprenticeship programs that serve the project area

to identify, recruit and train skilled local workforce.

Through these simple steps, the Summit Carbon Solutions pipeline project can not only ensure that the project is built safely and well, but also maximize the project's short- and long-term economic benefits by stimulating local payrolls and building the region's skilled construction workforce. These benefits will in turn increase local support and set a positive precedent for future carbon capture infrastructure development.

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Iowa	2,301	683	\$82,175,253	\$156,958,841	\$74,783,588	\$99,974,607
Nebraska	1,688	317	\$60,283,280	\$115,144,078	\$54,860,798	\$73,340,781
Total	10,636	1,958	\$379,841,802	\$725,516,831	\$345,675,029	\$459,434,363

STATE FACT SHEET:

South Dakota

Summit Carbon Solutions plans to invest approximately \$4.5 billion to build a carbon capture and storage project across five states including 474 miles of new pipeline in South Dakota. The project will capture carbon dioxide (CO₂) from seven ethanol production facilities across the state, transport the CO₂ through a network of nearly 2,000 miles of pipelines, and finally inject it into the Bakken geological formation where the gas will be trapped and eventually mineralized, preventing release into the atmosphere.

The project has the potential to create thousands of jobs and generate millions of dollars in economic benefits for South Dakota communities. These benefits will only be realized if Summit Carbon Solutions prioritizes the use of local labor. In analyzing the project, we find the following potential impacts for South Dakota

- ◆ A local pipeline construction worker can be expected to contribute roughly four times more to the local economy than a non-resident worker over the short-term (\$63,000 versus \$16,000 per job-year), and five times more over the long term (\$79,000 versus \$16,000).
- ◆ If half of all construction jobs on the project are filled by local workers – a ratio typical for large energy projects that prioritize local hiring – the total associated economic impact is estimated to be \$180 million.
- ◆ By comparison, if just one in 10 construction jobs is filled by local workforce – a ratio often found on large energy projects that fail to prioritize local hiring – the associated economic impact would drop by nearly half to \$94 million.
- ◆ An economic analysis commissioned by Summit significantly overestimates the local benefits of the project based on a highly unrealistic assumption that local workers will account for over 90 percent of the project's construction workforce.
- ◆ Our analysis shows use of an overwhelmingly traveling workforce to build the project (10% local) could reduce the local economic benefit of associated construction jobs by 65% compared to the company's estimates which are based on overwhelmingly local workforce (90%+).
- ◆ Summit is expected to receive \$7 billion in federal taxpayer dollars (\$585 million annually for 12 years) for building and operating the project.
- ◆ Passage of the IRA is expected to provide a \$2.892 billion windfall on top of the profit built into the original proposal.

Ultimately, we find that the best way to maximize the economic benefit of Summit Carbon Solutions pipeline and other large CO₂ pipeline projects is to prioritize the use of local workforce.

This can be accomplished by requiring contractors to partner with registered apprenticeship programs that supply skilled local workforce and move local workers into construction careers. Specifically, we recommend that Summit Carbon Solutions take the following steps:

- ◆ Develop a plan and demonstrate capacity to maximize use of skilled local workforce across the project footprint.
- ◆ Commit to publicly filing quarterly reports on use of local workforce consistent with current practice for large energy projects in Minnesota.

- ◆ Work with registered apprenticeship programs that serve the project area to identify, recruit and train skilled local workforce.

Through these simple steps, the Summit Carbon Solutions pipeline project can not only ensure that the project is built safely and well, but also maximize the project's short- and long-term economic benefits by stimulating local payrolls and building the region's skilled construction workforce. These benefits will in turn increase local support and set a positive precedent for future carbon capture infrastructure development.

Table 8: State Level Impacts

State	Estimated Jobs	Miles of Pipe	Total Economic Impact - 10% Local Workers	Total Economic Impact - 50% Local Workers	Difference in Economic Impact	Difference in Economic Impact - Deferred Fringes
Minnesota	1,796	155	\$64,140,267	\$122,511,116	\$58,370,849	\$78,033,200
North Dakota	2,205	329	\$78,746,820	\$150,410,362	\$71,663,543	\$95,803,567
South Dakota	2,646	474	\$94,496,184	\$180,492,435	\$85,996,251	\$114,964,281
Iowa	2,301	683	\$82,175,253	\$156,958,841	\$74,783,588	\$99,974,607
Nebraska	1,688	317	\$60,283,280	\$115,144,078	\$54,860,798	\$73,340,781
Total	10,636	1,958	\$379,841,802	\$725,516,831	\$345,675,029	\$459,434,363

STATE FACT SHEET:

Iowa

Summit Carbon Solutions plans to invest approximately \$4.5 billion to build a carbon capture and storage project across five states including 683 miles of new pipeline in South Dakota. The project will capture carbon dioxide (CO₂) from twelve ethanol production facilities across the state, transport the CO₂ through a network of nearly 2,000 miles of pipelines, and finally inject it into the Bakken geological formation where the gas will be trapped and eventually mineralized, preventing release into the atmosphere.

The project has the potential to create thousands of jobs and generate millions of dollars in economic benefits for Iowa communities. These benefits will only be realized if Summit Carbon Solutions prioritizes the use of local labor. In analyzing the project, we find the following potential impacts for Iowa

- ◆ A local pipeline construction worker can be expected to contribute roughly four times more to the local economy than a non-resident worker over the short-term (\$63,000 versus \$16,000 per job-year), and five times more over the long term (\$79,000 versus \$16,000).
- ◆ If half of all construction jobs on the project are filled by local workers – a ratio typical for large energy projects that prioritize local hiring – the total associated economic impact is estimated to be \$157 million.

- ◆ By comparison, if just one in 10 construction jobs is filled by local workforce – a ratio often found on large energy projects that fail to prioritize local hiring – the associated economic impact would drop by nearly half to \$82 million.
- ◆ An economic analysis commissioned by Summit significantly overestimates the local benefits of the project based on a highly unrealistic assumption that local workers will account for over 90 percent of the project's construction workforce.
- ◆ Our analysis shows use of an overwhelmingly traveling workforce to build the project (10% local) could reduce the local economic benefit of associated construction jobs by 65% compared to the company's estimates which are based on overwhelmingly local workforce (90%+).
- ◆ Summit is expected to receive \$7 billion in federal taxpayer dollars (\$585 million annually for 12 years) for building and operating the project.
- ◆ Passage of the IRA is expected to provide a \$2.892 billion windfall on top of the profit built into the original proposal.

Ultimately, we find that the best way to maximize the economic benefit of Summit Carbon Solutions pipeline and other large CO₂ pipeline projects is to prioritize the use of local workforce.

This can be accomplished by requiring contractors to partner with registered apprenticeship programs that supply skilled local workforce and move local workers into construction careers. Specifically, we recommend that Summit Carbon Solutions take the following steps:

- ◆ Develop a plan and demonstrate capacity to maximize use of skilled local workforce across the project footprint.
- ◆ Commit to publicly filing quarterly reports on use of local workforce consistent with current practice for large energy projects in Minnesota.

- ◆ Work with registered apprenticeship programs that serve the project area to identify, recruit and train skilled local workforce.

Through these simple steps, the Summit Carbon Solutions pipeline project can not only ensure that the project is built safely and well, but also maximize the project's short- and long-term economic benefits by stimulating local payrolls and building the region's skilled construction workforce. These benefits will in turn increase local support and set a positive precedent for future carbon capture infrastructure development.

Table 8: State Level Impacts

State	Estimated Jobs	Miles of Pipe	Total Economic Impact - 10% Local Workers	Total Economic Impact - 50% Local Workers	Difference in Economic Impact	Difference in Economic Impact - Deferred Fringes
Minnesota	1,796	155	\$64,140,267	\$122,511,116	\$58,370,849	\$78,033,200
North Dakota	2,205	329	\$78,746,820	\$150,410,362	\$71,663,543	\$95,803,567
South Dakota	2,646	474	\$94,496,184	\$180,492,435	\$85,996,251	\$114,964,281
Iowa	2,301	683	\$82,175,253	\$156,958,841	\$74,783,588	\$99,974,607
Nebraska	1,688	317	\$60,283,280	\$115,144,078	\$54,860,798	\$73,340,781
Total	10,636	1,958	\$379,841,802	\$725,516,831	\$345,675,029	\$459,434,363

STATE FACT SHEET:

Nebraska

Summit Carbon Solutions plans to invest approximately \$4.5 billion to build a carbon capture and storage project across five states including 317 miles of new pipeline in Nebraska. The project will capture carbon dioxide (CO₂) from six ethanol production facilities across the state, transport the CO₂ through a network of nearly 2,000 miles of pipelines, and finally inject it into the Bakken geological formation where the gas will be trapped and eventually mineralized, preventing release into the atmosphere.

The project has the potential to create thousands of jobs and generate millions of dollars in economic benefits for Nebraska communities. These benefits will only be realized if Summit Carbon Solutions prioritizes the use of local labor. In analyzing the project, we find the following potential impacts for Nebraska

- ◆ A local pipeline construction worker can be expected to contribute roughly four times more to the local economy than a non-resident worker over the short-term (\$63,000 versus \$16,000 per job-year), and five times more over the long term (\$79,000 versus \$16,000).
- ◆ If half of all construction jobs on the project are filled by local workers – a ratio typical for large energy projects that prioritize local hiring – the total associated economic impact is estimated to be \$115 million.
- ◆ By comparison, if just one in 10 construction jobs is filled by local workforce – a ratio often found on large energy projects that fail to prioritize local hiring – the associated economic impact would drop by nearly half to \$60 million.
- ◆ An economic analysis commissioned by Summit significantly overestimates the local benefits of the project based on a highly unrealistic assumption that local workers will account for over 90 percent of the project's construction workforce.
- ◆ Our analysis shows use of an overwhelmingly traveling workforce to build the project (10% local) could reduce the local economic benefit of associated construction jobs by 65% compared to the company's estimates which are based on overwhelmingly local workforce (90%+).
- ◆ Summit is expected to receive \$7 billion in federal taxpayer dollars (\$585 million annually for 12 years) for building and operating the project.
- ◆ Passage of the IRA is expected to provide a \$2.892 billion windfall on top of the profit built into the original proposal.

Ultimately, we find that the best way to maximize the economic benefit of Summit Carbon Solutions pipeline and other large CO₂ pipeline projects is to prioritize the use of local workforce.

This can be accomplished by requiring contractors to partner with registered apprenticeship programs that supply skilled local workforce and move local workers into construction careers. Specifically, we recommend that Summit Carbon Solutions take the following steps:

- ◆ Develop a plan and demonstrate capacity to maximize use of skilled local workforce across the project footprint.
- ◆ Commit to publicly filing quarterly reports on use of local workforce consistent with current practice for large energy projects in Minnesota.

- ◆ Work with registered apprenticeship programs that serve the project area to identify, recruit and train skilled local workforce.

Through these simple steps, the Summit Carbon Solutions pipeline project can not only ensure that the project is built safely and well, but also maximize the project's short- and long-term economic benefits by stimulating local payrolls and building the region's skilled construction workforce. These benefits will in turn increase local support and set a positive precedent for future carbon capture infrastructure development.

Table 8: State Level Impacts

State	Estimated Jobs	Miles of Pipe	Total Economic Impact - 10% Local Workers	Total Economic Impact - 50% Local Workers	Difference in Economic Impact	Difference in Economic Impact - Deferred Fringes
Minnesota	1,796	155	\$64,140,267	\$122,511,116	\$58,370,849	\$78,033,200
North Dakota	2,205	329	\$78,746,820	\$150,410,362	\$71,663,543	\$95,803,567
South Dakota	2,646	474	\$94,496,184	\$180,492,435	\$85,996,251	\$114,964,281
Iowa	2,301	683	\$82,175,253	\$156,958,841	\$74,783,588	\$99,974,607
Nebraska	1,688	317	\$60,283,280	\$115,144,078	\$54,860,798	\$73,340,781
Total	10,636	1,958	\$379,841,802	\$725,516,831	\$345,675,029	\$459,434,363



NorthStar
POLICY ACTION