MINNESOTA'S POWER PLANT COMMUNITIES: AN UNCERTAIN FUTURE

Developed by Center for Energy and Environment

February 2020

Authors:

Audrey Partridge

Brady Steigauf

Editor:

Dana Rider

cee
Center for Energy and Environment

Acknowledgements

This report was informed by the insight and assistance of representatives from each of the communities included in the study, as well as numerous interviewees, community survey respondents, and experts who provided guidance on this work. We thank everyone who provided information and input throughout this project.

This report was prepared for and funded by the Just Transition Fund; the Coalition of Utility Cities; the Initiative Foundation, a regional foundation; the Southern Minnesota Initiative Foundation; the West Central Initiative Fund; Xcel Energy; and Center for Energy and Environment.

Table of Contents

Note from the Authors 2
Executive Summary 3
How to Read this Report 5
Section 1: Introduction and Background 6
Section 2: Minnesota's Power Plant Host Communities 9
Becker 9
Cohasset 18
Monticello 27
Oak Park Heights 37
Prairie Island Indian Community 46
Red Wing 54
Section 3: Power Plant Workers and Organized Labor 62
International Brotherhood of Electrical Workers 62
Laborers' International Union of North America 66
Boilermakers Local #647 69
Section 4: Findings and Conclusions 73
Appendix A: Study Methodology 80
Appendix A-1: Interview Questions 82
Appendix A-2: Online Community Survey 84
Appendix B: Key State Financial Policies 95
Appendix C: Minnesota's Existing Economic Development and Workforce Programs 99
Appendix D: Literature Review of Transitioning Power Plant Communities 103

Note from the Authors

It was an honor to have been a part of this research study and to hear the stories of individuals living in Minnesota's utility host communities and working in Minnesota's power plants. Visiting each community, we saw firsthand why residents, businesses, and elected officials love the places they call home. We heard community members' concerns and hopes regarding Minnesota's energy future and what they think it will mean for their communities, school districts, employment opportunities, and property values. We learned about businesses that would not exist if not for the neighboring power plant, and we realized how deeply community–utility relationships are woven into the social fabric of these communities.

We also heard the concerns community members have about living in proximity to a nuclear power plant and its stored fuel, as well as the painful history that some people have with neighboring power plants.

We are incredibly grateful to everyone who participated in this study, whether as a member of the Steering Committee, a funder, an advisor, an interviewee, or a survey respondent.

We enjoyed meeting members of these communities and hearing their stories. Yet it is a challenge to represent all those different voices and perspectives in a single report. Our task is to be neutral and mute on our personal and organizational perspectives and to focus on sharing the many stories we heard in an organized, honest, and productive manner. Each community has a unique perspective and voice, which we tried to convey authentically and accurately in our writing.

The findings and conclusions included in this report are based on what we heard in interviews, learned through our literature review, and know based on our own professional expertise. We hope that what is included in this report can be used by host communities to share their own stories, hear stories from other Minnesota host communities, and learn from the experience of communities across the nation who also face power plant closures.

EXECUTIVE SUMMARY

Many of Minnesota's large electric power plants will be eligible for retirement over the next 10 to 20 years. Given the changing economics of different sources of electricity as well as Minnesota's policy goals around reducing greenhouse gas emissions, power plant retirement dates are in flux. Xcel Energy proposed early retirement dates for some of its plants in its latest integrated resource plan, while also proposing to extend the life of one of its nuclear power plants. Other Minnesota electric utilities will file integrated resource plans, proposing power plant retirement dates in the coming years.

Large power plants not only provide electricity for the state, but are also the economic engines of the communities in which they are located. They are often the largest employer and largest single source of tax revenue for the communities that host them. Moreover, power plants and power plant workers play a significant role in shaping host communities. As large central power plants retire, the host cities and communities will transform as well.

To explore the challenges and opportunities associated with power plant retirements, the Center for Energy and Environment (CEE) led an assessment of the social and economic impacts of five power plants across six communities that host them. Table 1 shows each of the power plants and communities included in the study, along with their utility owner, fuel type, and estimated retirement date.

Table 1: Utility Host Communities and Power Plants

Community	County	Power Plants	Utility Owner	Fuel	Estimated Retirement
Becker, MN	Sherburne	Sherburne County Generating Station 1, 2, 3	Xcel Energy	Coal	2023*, 2026*, 2030 (unit respective)
Cohasset, MN	Itasca	Boswell Energy Center 3, 4	Minnesota Power	Coal	2035†, 2036† (unit respective)
Monticello, MN	Wright	Monticello Nuclear Generating Station	Xcel Energy	Nuclear	2040
Oak Park Heights, MN	Washington	Allen S. King Plant	Xcel Energy	Coal	2028
Red Wing, MN	Goodhue	Prairie Island Generating Station 1, 2	Xcel Energy	Nuclear	2033, 2034 (unit respective)
Prairie Island Indian Community					

*Indicates approved retirement date.

†Indicates date of full depreciation (or accounting lifetime) — there are currently no proposed retirement dates.

The study authors conducted interviews with host community members, local government officials, local businesses, leaders of local nonprofit organizations, and representatives of organized labor unions that represent power plant workers. Additionally, the study authors conducted a nonrandomized, online community survey to gather a broader range of

perspectives from the community. The study authors used information gathered through interviews and community survey responses to tell the stories of these communities and workers facing an unclear role in Minnesota's energy future and economy. These stories articulate the concerns and hopes of community leaders, community members, and plant workers, as well as describe ongoing efforts to assist communities and workers through plant retirement transition.

The authors also performed supplemental interviews with state workforce experts and a literature review of case studies on communities across the country that are transitioning through power plant retirements. The interviews highlighted the worker and economic development support that currently exists in Minnesota, and the case studies offered potential lessons from other communities that have undergone power plant transitions. This report covers the findings from this work with the intent of providing communities, stakeholders, and key decision-makers the information needed to plan and prepare for a successful and just transition for communities and workers.

The findings and conclusions from this study include the following:

1. Power plants have played an important role in building vibrant and stable communities across Minnesota. Power plant closures will undoubtedly have a strong economic and financial impact on the communities that host them, and potentially, other Minnesota communities as well.
2. Minnesota's host communities are currently pursuing a variety of strategies to plan and prepare for power plant closures and the economic transition that they will require. None of those preparation strategies are expected to fully offset the economic impact of a plant closure, but they may help mitigate the negative effects.
3. Planning and preparing for a community transition related to a power plant closure requires a long time horizon.
4. Uncertainty or a lack of information around the timing of a power plant closure poses additional challenges for a community's planning and preparation.
5. Land use and redevelopment of power plant sites after a plant has closed is an important issue for Minnesota's host communities.
6. Minnesota plant workers, the unions that represent them, and the host communities have shared interests and concerns regarding power plant closures. Workers, labor unions, and host communities may benefit from close coordination and communication in plant closure transition planning and preparation efforts.
7. In today's economy, power plant jobs are uniquely high in quality. There are no clear options to replace power plant jobs with positions that are similar in terms of pay, benefits, stability, and location.
8. Not all of Minnesota's host communities receive benefits from the power plant they host.

HOW TO READ THIS REPORT

This report is structured as follows:

1. **Section 1** introduces the study's purpose and process and provides a brief overview of the Minnesota communities it includes.
2. **Section 2** provides background and context for each of the communities included in the report as well as a description of the communities' interviews and survey responses.
3. **Section 3** provides information on the role of organized labor in the power plants included in this study as well as a description of interviews with representatives from three labor unions who represent power plant workers.
4. **Section 4** provides the authors' findings and conclusions.
5. **Appendix A** provides a detailed description of the methodology used for this study.
6. **Appendix B** provides a description of key state financial policies that are pertinent to Minnesota's power plant communities.
7. **Appendix C** provides a description of existing workforce services and support offered through the Minnesota Department of Employment and Economic Development that may be helpful for workers and communities facing power plant closures.
8. **Appendix D** is a literature review of four case studies of power plant communities elsewhere in the country that are facing or have experienced a plant closure, as well as the findings and takeaways from those case studies. Appendix D also includes a bibliography of resources consulted for this study.

SECTION 1: INTRODUCTION AND BACKGROUND

Across the United States, evolving economics, aging electric generation infrastructure, and new energy technologies are driving significant changes in the way electricity is generated and consumed. State, local, and corporate goals to reduce greenhouse gas emissions are accelerating the pace of change.

This national trend is also true for Minnesota. In the next 22 years, more than half of the power plants responsible for the state's current electric generation are eligible for retirement. Minnesota's electricity supply, which traditionally began its journey at a central power plant, is shifting to a more complex and diverse mix of generation and demand-side resources. As our state's energy mix transforms and many of our large, central plants retire, the cities and communities that host utility power plants will transform as well.

In addition to powering our homes and businesses, these central power plants have powered the economies of the communities that host them. Most communities that are home to these large, central power plants — host communities — can attribute a large portion of their tax base, economic vitality, and local jobs to the plants. In some instances around the country, the loss of a power plant has resulted in negative social and economic consequences for host or nearby communities as well as plant workers. Many communities, utilities, labor unions, and local and state governments have employed a variety of strategies to assist communities and workers as they transition through a power plant closure.

For Minnesota's host communities looking ahead, power plant retirements carry both anxious uncertainty and reserved optimism. To explore the challenges and opportunities associated with power plant retirements, the Center for Energy and Environment (CEE) led an assessment of the social and economic impacts of five power plants across six communities that host them. Stories from host community members, local government officials, local business owners, leaders of local nonprofit organizations, representatives of organized labor unions, and workers in the power plants were collected through interviews and a nonrandomized community survey. These stories articulate the tensions and perspectives of host communities and workers as they face an unclear role in Minnesota's energy future.

The authors also performed supplemental interviews with state workforce experts and a literature review of case studies on communities across the country that are transitioning through power plant retirements. The interviews highlighted the worker and economic development support that currently exists in Minnesota, and the case studies offered potential lessons from other communities that have undergone power plant transitions. This report covers the findings from this work with the intent of providing communities, stakeholders, and key decision-makers the information needed to plan and prepare for a successful and just transition for communities and workers.

Host Communities

This study includes five different Minnesota electric power plants that face a likely retirement within the next 20 years as well as the six communities that host those plants.[1] The participating communities range in population from approximately 2,000 to 16,500 residents and are located throughout the state of Minnesota. Table 1 provides a list of each community included in the study and its associated power plant, along with the fuel type and estimated retirement date for each plant. Figure 1 provides a map depicting the location of each of these power plants and host communities.

Table 1: Utility Host Communities and Power Plants

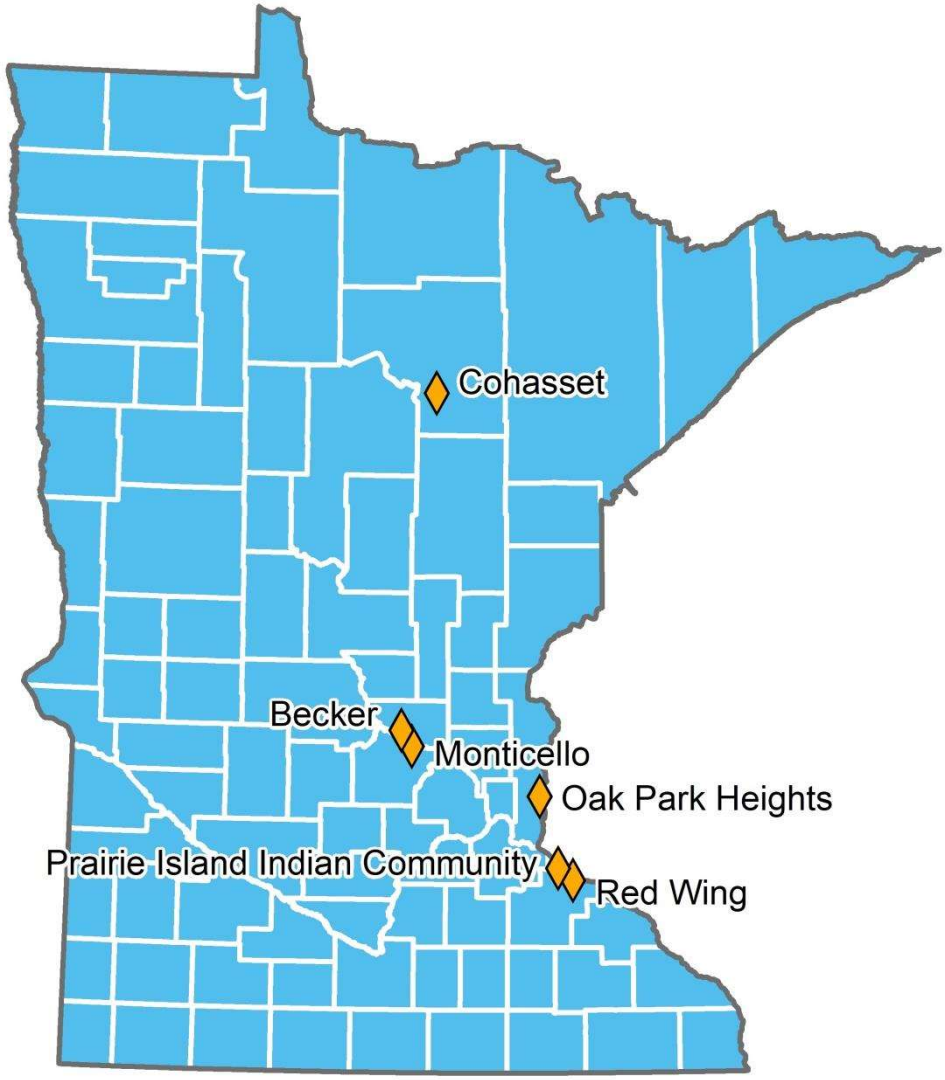
Community	County	Power Plants	Utility Owner	Fuel	Estimated Retirement
Becker, MN	Sherburne	Sherburne County Generating Station 1, 2, 3	Xcel Energy	Coal	2023*, 2026*, 2030 (unit respective)
Cohasset, MN	Itasca	Boswell Energy Center 3, 4	Minnesota Power	Coal	2035†, 2036† (unit respective)
Monticello, MN	Wright	Monticello Nuclear Generating Station	Xcel Energy	Nuclear	2040
Oak Park Heights, MN	Washington	Allen S. King Generating Station	Xcel Energy	Coal	2028
Red Wing, MN	Goodhue	Prairie Island Nuclear Generating Station	Xcel Energy	Nuclear	2033, 2034 (unit respective)
Prairie Island Indian Community					

*Indicates approved retirement date

†Indicates date of full depreciation (or accounting lifetime) — there are currently no proposed retirement dates.

[1] The Prairie Island Nuclear Generating Station is located on City of Red Wing land, but is directly adjacent to the Prairie Island Indian Community reservation. Both Red Wing and the Prairie Island Indian Community were included as host communities in this study.

Figure 1. Map of Minnesota Host Communities



Each community included in this study has unique economic opportunities and social structures, influenced by its size, geographic features, history, regional economy, and proximity to larger metropolitan hubs. For ease of reference, Section 2 offers a brief overview of each of the communities included in the study as well as the power plants they host, directly preceding discussion of the corresponding communities' interviews and survey responses.

SECTION 2: MINNESOTA'S POWER PLANT HOST COMMUNITIES

Becker



Background Information

Table 2: Sherburne County Generating Station (Sherco) Quick Facts

Power Plant Information	
Power plant fuel type	Coal
Projected Closure Date (unit respective)	2023, 2026, 2030*
Generation capacity	2,500 megawatts
Plant employees	301
Average annual plant employee income[2]	$88,556
City information	
City population	4,800
% of plant workers residing in city	20%
% of city's tax base from power plant	77%
County information	
Sherburne County population	94,600
% of plant workers residing in county	31%
% of county's tax base from power plant	14%
School district information	
% of school district's tax base from power plant	54%

*Indicates retirement dates not yet approved by the PUC

Becker is a central Minnesota city located in Sherburne County, about 45 miles from the Twin Cities. Becker has a population of approximately 4,800.[3] Becker is home to the Sherburne County Generating Station, a three-unit coal-fired power plant owned by Xcel Energy, with total capacity of 2,500 megawatts. The first two units at Sherburne County Generating Station, also called "Sherco," were originally commissioned in the mid-1970s, and the third unit was commissioned in 1987. The third unit at Sherco is co-owned by Xcel Energy and Southern Minnesota Municipal Power Agency.

Sherco employs approximately 300 plant employees, 20% of whom live within Becker and 30% of whom live within Sherburne County. Property taxes from Sherco make up approximately 77% of Becker's city tax base, 14% of Sherburne County's tax base, and 54% of the Becker School District's tax base.

In Xcel Energy's 2015 integrated resource plan, the Minnesota Public Utilities Commission approved retirement of two of the three units, in 2023 and 2026.[4] In 2017, the Minnesota legislature passed a law providing Xcel Energy statutory permission to build a combined cycle natural gas plant in Becker to replace the capacity lost with the unit retirements in 2023 and

[2] Average annual plant employee income was calculated using 2018 data provided by the utility.
[3] Estimated by the U.S. Census Bureau in 2017.
[4] "Sherco I & II Decommissioning." City of Becker. Accessed August 6, 2019. https://www.ci.becker.mn.us/262/Sherco-I-II-Decommissioning

2026. The bill was signed into law by Minnesota Governor Mark Dayton.[5] In its 2019 resource plan, Xcel Energy proposes closing the remaining Sherco coal unit by 2030.

Findings from Interviews and Community Survey

The study authors conducted a community survey and multiple interviews with Becker residents, community leaders, and local government officials to gather information about how individuals and organizations are thinking about and planning for the eventual retirement of the Sherco Generating Station.

Nine Becker community members took the survey. In-person interviews with Becker's local government officials included Becker Mayor Tracy Bertram, City Administrator Greg Pruszinske, Sherburne County Commissioner Tim Dolan, Becker Township[6] Board Chair Brian Kolbinger, Becker City Council Member Mike Doering, and Becker Public School Board Vice Chair Connie Robinson. Interviews with Becker community members included one business representative, Chuck Legatt of Liberty Paper, and one local faith leader, Pastor Rob Olsen of Becker Baptist Church.

Community members and officials alike recognize the great importance of the Sherco plant to the local economy as well as the social fabric of the city and its neighboring towns. Becker Mayor Tracy Bertram summarized her apprehension regarding the plant's retirement, stating, "Our biggest concern is tax base and how it will affect jobs for our citizens here. And what it will mean philanthropically. Our charities will have to seek other avenues."

The mayor's concerns are shared by her constituents. Nearly all survey respondents were familiar with the approved and proposed retirement dates for the Sherco plant's units. All but one survey respondent reported feeling concerned about the future of the power plant and the impact a plant closure could have on the community. In both interviews and survey responses, participants emphasized the integral role the Sherco plant has played in shaping the town. "It has defined who we are as a community and allowed excellent schools, golf course, etc. that would not be here without taxing the power plant," stated one Becker business owner in a survey response.

Looking forward, survey participants and interviewees reported optimism that the city will be able to attract new businesses and expand its industrial park to absorb future losses in jobs and tax base due to the power plant retirement. Survey respondents and interviewees hope

[5] Dunbar, Elizabeth. February, 28, 2017. "Dayton signs bills allowing natural gas plant in Becker." MPR News. https://www.mprnews.org/story/2017/02/28/dayton-signs-bill-allowing-natural-gas-plant-in-becker

[6] The Becker Town Board and the City Council have partnered on a variety of projects and services. For many years, the City and Township have collaborated via a Joint Powers Fire Board. Funding for fire services is shared between the two governmental subdivisions. Since 2007, the Township and City have coordinated the jurisdictions' short- and long-term land use and economic development goals through a Joint Planning Agreement. The City of Becker, Becker Township, and five other neighboring governmental subdivisions are part of a Joint Powers Agreement established to drive regional economic development, including capacity building within the regional transportation networks.

that their town will grow, while maintaining its quiet charm, quality of life, great schools, and low taxes.

The following section describes community members' and officials' survey responses and interview discussions.

Host Community Story

The Plant that Built the Town

For the last several decades, the Sherco power plant has powered not only a large portion of Minnesota, but also the growth and development of Becker. Prior to the Sherco plant, Becker was a rural town with only a few hundred residents and very little commerce. After the Sherco plant was commissioned in the mid-1970s, the town's population grew from roughly 360 residents to nearly 4,800 today. Many interviewees stressed that the city itself developed around, and largely because of, the Sherco plant. One community member stated, "[Sherco] has defined who we are as a community."

Council Member Mike Doering explained the town's transformation, saying, "Initially, the general community benefitted [from the plant] as far as population goes. The large majority of them lived in the [Becker] Township because there really wasn't any place for them to live in the city. It stayed that way for several years, but once we built the golf course, the community center, and started to build up the parks and rec stuff, people wanted to live in Becker. That's when the city grew quickly." According to interviewees, as of the late 1990s and early 2000s, Becker was one of the fastest growing communities in Minnesota.

Utility Contributions to the Tax Base

As the community faces the likely closure of the Sherco plant, tax revenue from the plant is top of mind for leaders and members of the community. According to Pastor Rob Olsen of the Becker Baptist Church, many in his faith community are approaching the future with fear. "There are a lot of people who are concerned about the loss of tax flow. Becker has learned to live with that tax base from Xcel. Our city leaders are doing a great job of weaning us off of that dependence. It is a concern about what happens next — particularly to residential taxes."

> "At 76% [of the City's tax base], it's probably easier to point to stuff [Sherco] didn't pay for. It's a much shorter list."
>
> —Sherburne County Commissioner Tim Dolan

Community survey responses reiterated that concern. Six of nine survey respondents expressed concern about their taxes increasing when the plant closes. Other survey respondents noted concerns about cuts to city services and amenities as a result of losing tax revenue from the plant. One survey respondent stated, "I have concerns over the economic impact this will have on the city. We have a very nice city with very exciting amenities, and I fear that will take a huge hit when the plant closes." Other fears noted in surveys included a wave of layoffs, the collapse of the school district, and residents leaving the town for other jobs.

The Sherco plant is, by far, the City of Becker's largest tax contributor. In 2018, tax revenue from the Sherco plant made up 77% of the City's tax base, 14% of Sherburne County's tax base, and 54% of the Becker School District's tax base. Tax revenue from the power plant funds basic operations for the city, county, and schools as well as capital projects, capital purchases, and investments in public safety. Sherco taxes pay for the vast majority of the City's expenses, allowing it to maintain infrastructure and provide services for its residents and businesses while keeping taxes low.

Sherburne County Commissioner Tim Dolan explained how the county uses plant tax revenue, "At the county level, it goes to our general fund. However, we have made a concerted effort to earmark certain percentages of it to help the city and the township with the transition efforts. It's not a hard and fast number, but we have an understanding that we're committed to the transition effort here."

Those collaborative transition efforts are primarily focused on investments in infrastructure to attract and retain businesses within the city. The City of Becker, in partnership with Sherburne County, invested in preparing an industrial park and working to attract new businesses to the city. Currently, Becker and Sherburne County, along with Xcel Energy, are working with a large-scale data company in an effort to bring a data center to Becker as well.

Despite its ambitious economic development plans, the City has been conservative in issuing levies and spending for economic development activities. In the 1980s, Becker created a special tax district that included the Sherco plant to develop an economic development fund to pay for an industrial park. "We didn't do any special levy on the power plant other than the industrial park. That was specifically for the power plant. It was to get the industrial park going," said Becker City Council Member Doering.

With those funds, the City prepared a 70-acre industrial development site with "shovel-ready" land, complete with the necessary infrastructure investments, zoning, planning, and environmental studies for the site. "We're working to get stuff going. Infrastructure is key … without shovel-ready land, [businesses] won't even talk to you," said Council Member Doering. The industrial park also includes access to rail and proximity to the Mississippi River and Highway 10.

The site is already home to several businesses, and the city is working to attract additional businesses to fill the remaining land parcels. One large tenant for the industrial park is Northern Metals Recycling. Northern Metals is in the final construction phase of a 50-acre facility in Becker that will process everything from industrial metals to old cars. The facility is expected to employ 85 workers.[7]

The community's business recruitment efforts are thoughtful and targeted to specific types of businesses. Becker Township Board Chair Brian Kolbinger explained, "Aside from the tax dollars, [the large-scale data company] will provide opportunities for skilled resources in our

[7] Gray, Callan. July 9, 2019. "Northern Metals prepares to open facility in Becker." KSTP 5 Eyewitness News at 10. https://kstp.com/business/northern-metals-prepares-to-open-facility-in-becker-business-/5417660/

community that currently may not exist, opportunities that typically only exist in larger communities."

City Administrator Greg Pruszinske explained that the City is working to attract the types of jobs that match the skill sets of current Sherco plant workers in an effort to provide opportunities for them to transition to other positions within the city. "Some of the jobs at the plant are technology based," Pruszinske explained. "One of the things we're trying to do locally here is capture a large scale data center to use the knowledge base that we already have. That's part of the strategy. It's kind of dry and boring, but a lot of the things we're working on are things like zoning issues, setbacks from the wild and scenic river area — there's a plan to build a water treatment plant to treat surface water to cool a data center, and we're talking about water and sewer lines and streets … it's all rather mundane, but stuff you have to do to accommodate any sort of business."

Social Contributions of the Utility and Plant Workers

Xcel Energy provides a number of benefits to the community beyond its contributions to the tax base. Xcel Energy has partnered with the City of Becker in its efforts to attract new businesses and expand its economy by providing access to its in-house experts to augment county and city staff and resources. For example, a data company issued a request for proposals (RFP) to find a location for a new, large data center. Xcel Energy provided substantial assistance to Becker in developing a proposal to respond to the RFP. "It was a typical RFP process. Talk about access to expertise. Responding to that type of RFP, the City of Becker would have been hard pressed to do that without Xcel Energy," stated Sherburne County Commissioner Tim Dolan.

Sherburne County Commissioner Tim Dolan continued, "Aside from their tax dollars, [Xcel Energy] staff occasionally collaborate with resources in many areas that cities the size of Becker, or even counties the size of Sherburne County, can't necessarily afford to staff full-time. They are a large organization with a lot of resources and access to information and technology that we don't necessarily have. Xcel is a model corporate citizen in our community."

"Xcel is the reason [the large-scale data company] is talking to Becker," said Council Member Doering, "Their expertise and access to resources is huge. They're good corporate partners."

The utility–community partnership is also apparent through the utility's philanthropy and plant employees' philanthropy and volunteerism. Both survey participants and interviewees enthusiastically described Xcel Energy as an excellent community partner. "Xcel has been generous both financially, in terms of supporting events, as well as allowing employees to volunteer in the community," Pastor Rob Olsen stated. "That forges a relationship and a positive attitude between those that live and work here."

Interviewees described in detail Xcel Energy's charitable efforts in Becker, including:

- Supporting an internship program at the plant that allows two high school students to job-shadow at the plant to learn about opportunities to work there;
- Donating $70,000 annually to United Way, as well as sponsoring a golf tournament in Becker where proceeds go to the organization;

- Donating to the Becker School Robotics Club, as well as allowing plant engineers to spend company time advising students on designs;
- Donating to the Becker Joint Operating Fire Fund and Becker Police Department;
- Donating to the Becker Area Senior Center;
- Hosting an annual Mississippi River clean-up event for plant employees;
- Donating to the Becker Youth Association, a nonprofit that funds youth sports teams and a "backpack buddies" program that sends food home with kids that might otherwise go hungry after school;
- Supporting a "Day of Giving" for plant workers to volunteer with the charity of their choice on company time; and
- Donating to Meals on Wheels to deliver nutritious meals to seniors.

Going forward, interviewees and survey respondents fear that these longstanding community contributions will disappear if the power plant closes. Mayor Tracy Bertram noted her concerns about potentially losing the Sherco plant internship program, "Those children won't have the exposure to any of the jobs that come out of that [Sherco] facility …That opportunity would be gone."

A community survey participant expressed their concerns, stating, "Local charities would be affected by losing a large corporate citizen, as well as the loss of jobs that would affect individual giving."

Relationship with Liberty Paper

Liberty Paper, Inc., (Liberty Paper) is an important employer in Becker, with a unique relationship to the Sherco power plant. Liberty Paper is a manufacturing company that recycles corrugated boxes into paper. The company employs approximately 165 people, roughly half the number of employees at the Sherco plant. Located adjacent to Sherco, Liberty Paper purchases steam from the Sherco plant to use for its operations. "We're a business partner as well as neighbors," said a business representative from Liberty Paper. "Our relationship has evolved over the years: As renewables come on board, the way [Xcel Energy dispatches steam] power out of the [Sherco] units has changed, and that has impacted us. But we have a strong relationship … Right now we rely on them for steam, electricity, and gas. They really create our competitive advantage within our industry because it's competitive out there."

When the Sherco plant retires, Liberty Paper will be faced with a difficult choice to either build its own supply of steam or relocate. That situation might be avoided if the Sherco plant is replaced with the planned combined cycle natural gas plant. "With the potential to have a combined cycle plant here, that also benefits our operations here and gives us flexibility on our thermal energy needs." The Liberty Paper relationship highlights the interdependence of Sherco plant and other important Becker businesses.

Transition Efforts and Vision

Becker residents and community leaders hope to see Becker and the surrounding community grow, while also maintaining its small town charm and many other amenities and characteristics that residents value. Community survey respondents as well as local officials noted Becker's

great schools, parks, golf course, and public safety institutions as assets they hope to hold on to long after a Sherco plant closure.

One community survey respondent described their vision of Becker 10 years from today, stating, "[I hope the city] double[s] in size, but still has a 'small town' feel, replaces tax income dependency from the current power plant with other sources, still safe and secure with similar or improved amenities, still strong schools at elementary and high school level."

Continued Role as a Power Provider

Given state legislation permitting Xcel Energy to replace two of Sherco's generating units with a combined cycle natural gas plant, Becker may continue its role as a power provider for the state. This would provide some tax revenue to the county and city as well as jobs to the community, and may also allow Liberty Paper to remain in its current location and to continue purchasing steam from Xcel Energy. The prospect of this plant has eased some community members' fears. According to Pastor Olsen, "It has been a relief knowing that gas would be the replacement as a utility investment."

However, the number of jobs at a new natural gas plant would be significantly lower than the number of jobs at the current Sherco coal facility. It is expected that the combined cycle natural gas plant will require about 15 employees, compared to about 300 employees at the current Sherco coal facility. The city hopes that many of the jobs that would be lost due to a Sherco coal plant retirement would be handled through attrition and reassignment rather than layoffs. "One thing Xcel has done pretty well over the years is control their manpower through attrition. There are some guys in their young 30s that work at the plant right now. If that plant shuts down, are they out of a job? Not necessarily. They might be transferred over to the gas plant," explained Council Member Doering.

Diversifying the Local Economy

To ensure Becker's community transition is a success, Becker's elected officials, City staff, and development authority are working to diversify the city's business community, attract transitional support, and prepare its residents for a different, but still bright, future. As discussed above, Becker has been working with Northern Metals Recycling and the large-scale data company to secure them as anchor tenants in the town's industrial park. Community leaders and members hope that by bringing those large businesses to Becker, more companies will follow. One survey respondent wrote, "[The large-scale data center] coming would be huge. Not because of the 50 jobs expected, but because of the other companies that want to be close to [its] server farm (Intel, Amazon, Microsoft, etc.). Liberty Paper is growing nicely as well."

> "This [transition] is allowing everyone to think about what Becker is — and what it could be.… It would be a lot easier to let the plant leave and everyone with it, but that's not what we're fighting for."
>
> —Pastor Rob Olsen
> of Becker Baptist Church

Pastor Olsen explained, “The whole idea of this snowball effect: You start to get some building — be that the gas plant here or for [the data center] or anything else in the industrial park — that gets other businesses thinking ‘that must be a growing community; we want to be part of that. Maybe we should look at it — they’ve got shovel-ready lots.’”

Olsen continued, “Becker is one or two projects away from being one of the most diverse small town economies. This [transition] is allowing everyone to think about what Becker is — and what it could be.… It would be a lot easier to let the plant leave and everyone with it, but that’s not what we’re fighting for.”

Advocating for Their Transition

Though Becker is a small town with approximately 4,800 residents, it is using its strong voice to advocate for a successful transition for itself and other cities in a similar position. Becker Mayor Tracy Bertram stated, “We tell our story to anybody who will sit and listen. At the legislature, we connect with them on various levels and we tell them our story and how their decisions are impacting us. We ask them if they’ve seen other communities like us and ask what stories they can share to make us successful during this transition time.”

> “We tell our story to anybody who will sit and listen…. We ask them if they’ve seen other communities like us and ask what stories they can share to make us successful during this transition time.”
>
> —Becker Mayor Tracy Bertram

Becker also advocates for itself at the Minnesota Public Utilities Commission on issues related to the Sherco Generating Station and other host community issues. City Administrator Greg Pruszinske explained, “We’ve also been engaged in the decision-making process. Certainly through the Coalition of Utility Cities, but we have also been at key meetings that the Public Utilities Commission has been having when it comes to the decision of decommissioning [units] 1 and 2. We made sure that we were at the table, in the meetings, that the PUC Commissioners know who we are by name and same thing goes with Department of Commerce and environmental groups.… It’s very important to be known, but we have to have a voice…. We want something out of this and we should get something out of this as a host community. We’ve had 2,400 megawatts going to the grid — including to the Twin Cities — for almost 50 years. The thing goes away, we should partner with the State of Minnesota and other stakeholders to have a logical transition pathway forward.”

Cohasset



Background Information

Table 3: Boswell Energy Center Quick Facts

Power Plant Information	
Power plant fuel type	Coal
Projected closure date (unit respective)	2035*, 2036*
Generation capacity	922.5 megawatts[8]
Employees	170
City Information	
City population	2,700
% of plant workers residing in city	10%
% of city's tax base from power plant	69%
County Information	
Itasca County population	45,200
% of plant workers residing in county	90%
% of county's tax base from power plant	13%
School District Information	
% of school district's tax base from power plant	19%

*Indicates date of full depreciation (or accounting lifetime) — there are currently no proposed retirement dates.

Cohasset is located in Itasca County in northern Minnesota along the Mississippi River, on the western edge of the Mesabi Iron Rage. Cohasset is about 185 miles from the Twin Cities and 90 miles from Duluth.[9] Cohasset has a growing population of approximately 2,700 residents,[10] and it is adjacent to Grand Rapids, a town with about 11,000 residents.[11] Cohasset is home to Minnesota Power's Boswell Energy Center, a four-unit coal-fired power plant with a combined capacity of 1,070 megawatts.[12] The first and smallest two units of the Boswell Energy Center were commissioned in 1958 and 1960, respectively, and were retired in 2018. The third unit came online in 1973 and the fourth unit in 1980 — both continue to operate today.

The Boswell Energy Center employs approximately 170 workers, 10% of whom reside in the city of Cohasset and 90% within Itasca County. Property taxes from the Boswell Energy Center make up almost 70% of Cohasset's annual city tax base, 13% of Itasca County's tax base, and 19% of the Grand Rapids School District tax base.

The third and fourth units of the Boswell Energy Center will be fully depreciated in 2035 and 2036, respectively. Minnesota Power has not yet proposed a retirement date for either unit.

Findings from Interviews and Community Survey

The study authors conducted a community survey and in-person interviews with Cohasset residents, community leaders, and local government officials to gather information about how

[8] "Boswell Energy Center." Global Energy Monitor Wiki. Accessed July 2, 2019. https://www.gem.wiki/Boswell_Energy_Center

[9] Duluth is Minnesota's third largest city based on estimates of the U.S. Census Bureau in 2017.

[10] Estimated by the U.S. Census Bureau in 2017.

[11] Estimated by the U.S. Census Bureau in 2017.

[12] "Generation." Minnesota Power. Accessed July 2, 2019. https://www.mnpower.com/Company/Generation

individuals and organizations are thinking about and planning for a possible retirement of the Boswell Energy Center.

Six Cohasset community members participated in the survey. In-person interviews with local officials included Cohasset Mayor Greg Hagy; City Director of Operations and Finance Manager Max Peters; Public Works Supervisor, member of the Cohasset Fire Department, and treasurer of the Cohasset Firefighters Relief Association Duane Kilde; Recreation Coordinator Dave O'Fallon; and Zoning Officer Greg Tuttle. The interview also included one community member, and another community member provided written responses to interview questions at a later date.

Despite there being no proposed retirement dates for the remaining Boswell units, community survey participants and interviewees expressed concern and anxiety regarding a possible loss of the Boswell Energy Center. Most of the concern was focused on the loss of tax revenue for the City, County, and schools, as well as the loss of employment opportunities for community members. Anxiety has been heightened as rumors and discussion of possible early plant closure dates circulate.

The City of Cohasset is actively investing in a number of special projects in an effort to bring new tax revenue and more economic activity to the community. The following describes community members' and community leaders' survey responses and interview discussions.

Host Community Story

The Role of the Boswell Energy Center in Cohasset

Cohasset is the smallest city included in this study. Located on the western edge of Minnesota's Iron Range, it is also the most geographically isolated from larger metropolitan areas that may offer additional employment opportunities. Moreover, other industries like paper mills and mining that have typically provided employment opportunities in Cohasset, like paper mills and mining companies, are in decline and downsizing their workforces. Therefore, the Boswell Energy Center plays an oversized role for Cohasset's economy and identity. Highlighting Boswell's critical role in Cohasset, Cohasset Mayor Greg Hagy stated, "This is almost a death sentence if we lose the power plant."

The Boswell Energy Center is a large and important employer in Cohasset, with approximately 170 full-time plant workers year-round and hundreds more during maintenance outages. Additionally, there are many workers employed indirectly through suppliers, vendors, and contractors. Interviewees noted Boswell's important role in creating jobs (1) on the rail line used to transport the coal; (2) in construction, to maintain the roads and infrastructure that serve the plant; (3) for numerous contractors that supply parts and labor to the plant; (4) for restaurants, hotels, and other hospitality businesses that serve plant workers; and (5) for the 27 firefighters that are paid to be on call to respond to potential emergencies at the plant and in the community.

Broader trends in the regional economy were a significant theme throughout interviews and survey responses. The declining industry and job loss have been themes for the region. Many

community members and local officials mentioned the recent layoffs at Blandin Paper, once the community's largest employer. In 2017, Blandin Paper announced the layoff of 150 employees.[13] Minnesota Power's Boswell Units 1 and 2 were shut down just a few months later, laying off more than 150 plant workers as well. "We've lost a lot of jobs in the last five years," said one community member interviewee.

Another community member stated, "[Boswell] is significant to the community and likely has been in the top three [in terms of employment] over the years. It used to employ more than 250 people locally but now [it has] about 185. It is scary to think about what the community of Grand Rapids would look like in the second poorest county in the state when it loses Boswell and Blandin with no other major prospects."

On interviewee stated, "A lot of these cities [on the Iron Range] are struggling. There's no revenue. For a lot of towns on the Range, there's nothing left. My guess is if [Minnesota Power] left, we would lose people. Taxes would go up, services would go down, we'd lose jobs and we'd lose people."

> "This is almost a death sentence if we lose the power plant."
>
> —Cohasset Mayor Greg Hagy

Cohasset's community survey respondents indicated that there are few to no alternative employment opportunities for plant workers if it were to close. All six survey respondents discussed the job opportunities that the Boswell plant provides to the community. No survey respondents reported optimism regarding an upcoming plant closure. In response to a question about other job opportunities in the community, one respondent wrote, "None!! The mines are closed. The paper mill is laying off. There are no jobs."

Another survey respondent stated, "[Boswell] is a large employer and tax payer, and if it were to close unexpectedly it would have a calamitous effect on the economy."

Utility Contributions to Tax Base

Tax revenue from the Boswell plant makes up a significant portion of the area's various municipal tax bases. As noted above, 2018 revenue from the Boswell plant accounted for approximately 69% of Cohasset's city tax base, 19% of the Grand Rapids School District tax base, and 13% of Itasca County's tax base.

Compared to adjacent cities, Cohasset residents and business enjoy some unique amenities while paying significantly less in property taxes. Tax revenue received from the Boswell power plant funds the majority of the city's operations, services, amenities, and investments, keeping resident and business taxes low. City Director of Operations and Finance Manager, Max Peters explained, "The biggest thing that it allows us is to have a lower than average percentage of tax capacity levy. So that the amount of dollars that we levy to people as a percentage of our tax

[13] October 24, 2017. "UPM Blandin to shutter one Grand Rapids paper machine, cut 150 jobs." Business North. http://www.businessnorth.com/daily_briefing/upm-blandin-to-shutter-one-grand-rapids-paper-machine-cut/article_0fac28e6-b8ca-11e7-8e91-bf2ad7428a24.html

capacity is lower because of Minnesota Power, which allows us to do [special projects] like the industrial park, community center, daycare facility, mountain bike trails. You look at Grand Rapids, it taxes at 84% of tax capacity. We tax at 26% of tax capacity. If we lost Minnesota Power tomorrow, we'd be taxing at 84%, and that's just the local tax implications. If you talk about taking [Minnesota Power's tax revenue] away from the County and the school district, the impacts of that are not small. It allows us to do more projects and keep our taxes low."

Cohasset's strategy of maintaining such low taxes, however, is not without criticism. One interviewee stated, "There is an argument that if we were really smart, we would tax at the highest we could to get [the revenue] while [Minnesota Power is] here. If we are taxing at 26% of our tax capacity, [we could raise it] if we wanted to collect more money from Minnesota Power.… The alternative is that we'll have to raise taxes in the future, and then Minnesota Power won't be in the picture."

"Right, well you're not an elected official. People are really sensitive about taxes," countered Mayor Hagy. Interviewees acknowledged that if the Boswell plant retired, taxes in the city would have to increase either way, and that would likely cause frustration among residents and businesses. "No one wants to pay more in taxes, but no one wants to get rid of the amazing services they're getting either," Public Works Supervisor and Cohasset Firefighter Duane Kilde stated.

While the tax levy remains low in Cohasset, the City currently takes in a healthy amount of tax revenue, which has allowed it to keep an eye toward the future and invest in special projects, discussed in detail below. These projects are intended to attract economic activity and businesses, as well as provide necessary services for the workforce and general public. "We've been trying to do what we can in case the inevitable does come. We're doing what we can to make revenue builders for our city," said Mayor Hagy.

Cohasset is investing in its unique natural assets by building a 500-acre recreational area on two of the region's most unique lakes, which will feature 30 miles of world-class single-track mountain bike, cross country ski, and hiking trails.[14] This area is called Tioga Recreational Area and is modeled after the Cuyuna trail system in Crosby, Minnesota. According to interviewees, the City of Crosby invested in the Cuyuna trail system a number of years ago, and it resulted in about $5 million of additional economic activity in Crosby per year.

Additionally, Cohasset is investing in its downtown area. The City purchased a 30-acre parcel of land in its downtown core along the Mississippi River and plans to prepare the site, construct a roadway, add utilities, develop park space, and build a 50-slip marina on the river. The City will then work to sell smaller parcels of land to private developers to construct multiuse buildings, including dining, retail, hotels, and condominiums.

Cohasset is also investing in an industrial park, business recruitment, and supportive services and amenities for the workforce to come. City Director of Operations and Finance Manager, Max Peters stated, "We invested $5 million into 300- and 400-acre industrial parks, we're

[14] Tioga Recreation. Accessed July 2, 2019. https://tiogarecreation.com/

investing in a community center and a daycare center to be secondary service providers for [residents] when we fill that area, and [we're] trying to grow tax base as much as we can to offset what we're eventually going to lose."

Mayor Hagy explained the strategy, "If someone comes into the community and does really well and both parents have jobs but can't find day care — they'll leave. You have to have daycare."

In addition to the special economic development projects, the City of Cohasset uses its current tax base from the Boswell plant to provide services unique for a community of its size. Cohasset, compared to other similar-sized cities, has a large, well-trained, and well-funded fire department. "The [tax] revenue goes to all of our training. As far as our budget goes, when we needed a firetruck, Minnesota Power basically paid half of it because our tax base from them was over 50%," Public Works Supervisor and Firefighter Duane Kilde explained. "If they have any emergencies, we are trained as first responders to get there. It's been a big asset to us as a fire department and [is] why we have 27 members."

> "A lot of these cities [on the Iron Range] are struggling. There's no revenue. For a lot of towns on the Range, there's nothing left. My guess is if [Minnesota Power] left, we would lose people. Taxes would go up, services would go down, we'd lose jobs and we'd lose people."
>
> —Interviewee, City of Cohasset

Additionally, Cohasset is remodeling and enlarging its local elementary school. That school was nearly closed by the district — students would have moved to other nearby schools outside of Cohasset. The proposal was voted down, and the City of Cohasset worked with the district to keep the school open. "The last referendum, they were going to close the school. People didn't want to lose that school. So we did our part to keep it here," said Mayor Hagy.

"The City paid $985,000 to expand the gym and then on top of that did a $3.6 million project to co-locate daycare and the community center to that school," said Peters.

The City of Cohasset is not the only beneficiary of the tax revenue provided by the Boswell plant. Communities across the region receive indirect financial benefits as well. "Some of the defining aspects of our property tax situation is that we don't collect [Local Government Aid from the State] because we're a utility city. And because we're a part of the Taconite Assistance Area, the Fiscal Disparities Program in place, the businesses in our community contribute a million dollars a year to that fund and we receive zero dollars from it. So that's tax base that's taken away from Cohasset," explained Peters.

"Cohasset is the net contributor to fiscal disparities in the northern fiscal disparities area," said Mayor Hagy. "If we lose [Boswell], we could become the largest net receiver of fiscal disparities funds. So that could really change things across the arrowhead." Analysis provided by the Coalition of Utility Cities estimates that the closure of the Boswell plant would reduce revenue in the Iron Range fiscal disparities pool by about 14%. This could have significant impact on other communities in the region that rely on that funding pool.

The tax base that Cohasset has come to rely on may already be changing. After the closure of Boswell Units 1 and 2 in 2018, the property value at the site went down, and so did its property taxes. Since that devaluation is so recent, Cohasset has yet to fully feel its effects. A future retirement of one or both of the remaining Boswell units would further decrease the plant's contributions in tax revenue.

Social Contributions of the Utility and Plant Workers

According to interviewees, Minnesota Power and its employees contribute to the Cohasset community in a number of ways beyond their contributions to the tax base.

According to one community member, Minnesota Power provides significant philanthropic support to the community. He explained that Minnesota Power has a regional foundation with a $20,000 annual budget to provide donations to the local community. The regional foundation's charitable giving is directed by a committee made up of Boswell plant employees. Additionally, Minnesota Power's foundation provides grants to projects within its broader service territory in northeast Minnesota. He also stressed the important role of plant employees who volunteer their time and contribute financially to local organizations. "[Boswell plant] employees are engaged through [the] Powerful Partners Program in which they can donate $500 to an organization when four employees donate four hours of time," the community member said. Boswell employees also serve on the boards for Second Harvest Food Bank, United Way, and the local Chamber of Commerce.

Another interviewee noted that the Minnesota Power pays to light the city's extensive bike trails and the ski grounds nearby the plant.

Community Perception of the Utility and Plant

Community perception of Minnesota Power and the Boswell plant have become increasingly positive over the years. "Twenty or thirty years ago there wasn't the same conversation as today. The sentiment now is as strong as it's ever been for [Minnesota Power] as a great community asset and partner," City Director of Operations and Finance Manager Max Peters said. "They communicate well with the city. I feel lucky to work with Minnesota Power because they seem like a receptive, willing partner rather than a rigid and adversarial."

Coal ash pollution from the Boswell Energy Center was once a major concern for the community and negatively affected the community's perception of Minnesota Power and the Boswell plant. "I've been living here for 33 years, and we used to have little bits of foam floating around," Public Works Supervisor Duane Kilde described. "When they put Unit 4 in, your cars would have little dots on it from the ash. But they've worked so hard to eliminate that. The dust used to come over our houses and blacken our decks. All that stuff has gone away. They've done a tremendous job of getting rid of that. Twenty years ago it was just like the mines with the iron ore — there was a negative perception. Now, people feel like we need them."

Peters noted that the community would be shocked to see historic pollution data from the plant compared to today. "They used to put a couple hundred pounds of mercury in the air each year. I don't think they've received the credit they deserve from the public for making those [improvement] investments and being proactive about it," Peters stated.

“They just put in new scrubbers on the stack.… It’s kind of shocking that [the plant] would go away with all that they’ve done,” added Kilde.

Transition Efforts and Vision

As discussed above, Cohasset is using its current healthy tax base to invest in an array of economic development efforts as well as supportive services and amenities for the community’s workforce. Additionally, the City streamlined processes for obtaining building permits and changing zoning codes, and also reduced building fees to attract and encourage additional investment by businesses and residents. Nonetheless, City officials do not expect that all those efforts combined would fully replace the tax revenue currently provided by the Boswell plant.

City Director of Operations and Finance Manager Max Peters said, “The challenge is that we could fill our industrial park today and it wouldn’t even be half of what Minnesota Power pays in tax capacity. That’s what’s so daunting.… Boswell is so big and so important.”

An Uncertain Timeline

Though there is not yet an approved or proposed date to retire the Boswell plant, there is increasing conversation about a possible early retirement. This conversation is happening as Minnesota electric utilities are closing coal-fired power plants across the state for economic and environmental reasons. “As I understand it, the accounting perspective is that 2034 is the actual life span that the plant could be operating if there wasn’t such a negative perspective on burning coal,” said Peters.

The timing of a potential plant retirement looms large over City officials, who until recently expected Boswell to operate for decades to come. Peters explained, “For the last eight years I’ve been here, it’s been heating up every year of ‘When are we going to get rid of coal? When does Boswell go down?’ If we were looking at our calendars, it was 2050 or 2065 — somewhere way out into the future where you’ve got a longer runway to plan and adjust for it … We’ve been trying to build tax base to offset what we will eventually lose. The challenge, recently, is that that timeframe is ramping up. What could have been 2050 or 2060 is now 2034 or 2028 or something even sooner than that. Even a year ago, if you’d asked me how important is it, it’s something we’re worried about but not a priority. But today — you know if this plant were to close down in 2028, we would have some very difficult conversations [to start]. It doesn’t give us nearly the runway and time to plan for it.”

An accelerated timeline for retirement would strain the City’s long-term economic development plans and efforts, which may take decades to carry out. Peters stated, “We’re exploring every opportunity that we can within reason, but that industrial park is a 20- to 30-year investment. That won’t be full for 15, 20, or 30 years. The timeline *was* 2050 or 2065, but now you’re talking 2028 and I can’t fill that thing in eight years. Economic development is slow and unreliable.”

For public input on its comprehensive plan, the City of Cohasset is planning to engage residents in its efforts to plan for the possible retirement of the Boswell Energy Center. As part of this, the City will send out a survey reminding residents that the Boswell plant covers nearly 70% of the City’s overall tax capacity and asking what residents are willing to fund or wish to cut from city

services and operations when the plant eventually retires. This question will feed into several others that will be asked to inform the comprehensive plan.

A Continued Role as a Power Provider

> "I understand the issues of global warming and the issues of using coal, but the effects that [plant closure] has on this community and northern Minnesota are not insignificant."
>
> —Max Peters, Cohasset Director of Operations and Finance Manager

According to interviewees, Cohasset would welcome a continued role in Minnesota's energy future. City staff expressed hopes that the plant could be converted to natural gas or other cleaner fuels. According to Peters, "If we were sitting here and saying they [Minnesota Power] are going from 33% coal to 0% coal and it didn't impact the jobs or the tax base or the things that affect this community — then frankly we'd probably support it. If we had a choice of not burning [coal], and [it] was environmentally drastically better and didn't economically hurt us, that's what we're looking for." Peters continued, "For us, it's about losing jobs and the secondary benefits. If you could keep benefits all the same with a different technology, then we wouldn't be so fearful. What we're talking about here is plant closure. Shuttering a plant … If our benefits stayed the same, do we care if they're burning coal or natural gas or if it was wind, solar, hydro? If I had a choice, I'd prefer that it's all clean."

Interviewees went on to state that they are looking for a "unicorn" — a way for the city to continue to generate power and receive substantial economic benefits from it without causing environmental harm.

"I understand the issues of global warming and the issues of using coal, but the effects that [plant closure] has on this community and northern Minnesota are not insignificant," said Peters.

Further, the effects of plant closures may have broader, statewide impacts. Mayor Hagy stated, "Across the state, you've got communities like Oak Park Heights and others in this position. This will affect the state." In the event of a plant closure, City staff hopes that Local Government Aid and Fiscal Disparity Program dollars from the Iron Range Resources and Rehabilitation Board will ease their transition.

Monticello



Background Information

Table 4: Monticello Nuclear Generating Station Quick Facts

Power Plant Information	
Power plant fuel type	Nuclear
Projected closure date	2040*
Generation capacity	671 megawatts
Plant employees	460
Average annual plant employee income[15]	$108,991
City Information	
City population	13,600
% of plant workers residing in city	16%
% of city's tax base from power plant	50%
County Information	
Wright County population	134,286
% of plant workers residing in county	32%
% of county's tax base from power plant	9%
School District Information	
% of school district's tax base from power plant	46%

*Indicates a date not yet approved by the PUC, as it would require a nuclear relicense approval

[15] Average annual plant employee income was calculated using 2018 data provided by the utility.

Monticello is a central Minnesota city located in Wright County, along the Mississippi River — about 40 miles from the Twin Cities. Monticello has a population of approximately 13,600 residents.[16] The city is home to Xcel Energy's Monticello Nuclear Generating Station, which is a boiling water reactor nuclear power plant with 671 megawatts of capacity. The Monticello Nuclear Generating Station began operations in 1971. In 2006, the Nuclear Regulatory Commission renewed the plant's license through 2030.[17]

Xcel Energy built a dry cask storage facility in Monticello in 2008. It is licensed by the Nuclear Regulatory Commission and is allowed to store fuel through the plant's current operation license.[18] Xcel Energy has stated that it is working with federal authorities to encourage the development of a permanent, off-site storage facility for spent nuclear fuel. [19]

The Monticello Nuclear Generating Station employs 460 plant workers, 16% of whom reside within Monticello and 32% within Wright County. Utility property taxes from the plant account for approximately 50% of Monticello's city tax base, 9% of the county's tax base, and 46% of the Monticello School District's tax base.

In its 2019 integrated resource plan, Xcel Energy proposed extending the federal license and operating life of the Monticello Nuclear Generating Station through 2040. The extension proposed in the plan must be approved by the Minnesota Public Utilities Commission; the plant must be relicensed by the Nuclear Regulatory Commission; and the company must receive a Certificate of Need for the plant, also from the Minnesota Public Utilities Commission.

Steps	Process	Expected Timing	Time Required
Step 1	Xcel Energy proposes to the Minnesota Public Utilities Commission to extend the life of a nuclear power plant as part of its preferred plan in its integrated resource plan. The proposal is approved, denied, or modified.	Initial filing on July 1, 2019; Supplemental filing on April 1, 2020	10–24 months
Step 2	Xcel Energy applies to the Nuclear Regulatory Commission to extend the license of a nuclear power plant. The application is approved or denied.	Mid-2023–Early 2025	5–6 years
Step 3	Xcel Energy files for a Certificate of Need with the Minnesota Public Utilities Commission to extend the life of a nuclear power plant. The request is approved or denied.	Mid-2020s	3–4 years

[16] Estimated by the U.S. Census Bureau in 2017.
[17] "Monticello Nuclear Generating Station." Xcel Energy. Accessed June 25, 2019. https://www.xcelenergy.com/energy_portfolio/electricity/nuclear/monticello
[18] "Nuclear Energy." Xcel Energy. Accessed June 25, 2019. https://www.xcelenergy.com/energy_portfolio/electricity/nuclear
[19] "Nuclear Energy." Xcel Energy. Accessed June 25, 2019. https://www.xcelenergy.com/energy_portfolio/electricity/nuclear

Findings from Interviews and Community Survey

The study authors conducted a community survey and multiple interviews with Monticello residents, community leaders, and local government officials to gather information about how individuals and organizations are thinking about and planning for an eventual retirement of the Monticello Nuclear Generating Station (Monticello nuclear plant).

Twelve Monticello community members participated in the community survey. In-person interviews with Monticello City staff included City Administrator Jeff O'Neill, City Finance Director Wayne Oberg, Communications Coordinator Rachel Leonard, and Community Development Director Angela Schumann. Wright County Commissioner Darek Vetsch, Monticello School District Superintendent Eric Olson, and a representative from the local Chamber of Commerce were also interviewed.

Overall, interviewees and survey participants expressed a mix of optimism and concern regarding the future of the Monticello nuclear plant and the surrounding community. Community members and local officials expressed a sense of relief that Xcel Energy requested to keep the plant open for another decade, but also anxiety that when the plant eventually closes, the city will lose tax revenue and a strong community partner.

> "Monticello functions as a 'standalone city' with a great school district … a healthy, comfortable way of life. Everything you need is here."
>
> —Monticello Chamber of Commerce Representative

The most common concern expressed by community survey participants was that closure of the power plant would create a social loss in the community. One survey response read, "The power plant in our community has been a big supporter to our Chamber of Commerce events, Rotary projects, and many other local festivals. Many of its employees are also our neighbors and friends; it is truly a sense of building a great community together."

Another survey respondent stated, "[The Monticello nuclear plant] has been a great partner to our community, and it plays a significant role in contributing the success of our community economic growth."

Survey respondents and interviewees also cited the community's great parks and recreational amenities, a strong volunteer base, and low property taxes as benefits they attribute to the Monticello nuclear plant. The following describes community members' survey responses and interview discussions.

Host Community Story

Utility Contributions to the Tax Base

The Monticello Nuclear Generating Station contributes a substantial amount of tax revenues to the City of Monticello, Wright County, and the Monticello School District. As noted above, property taxes from the Monticello nuclear plant make up roughly 50% of the city's tax base, 9% of Wright County's tax base, and 46% of the Monticello School District's tax base. Tax revenue from the plant goes toward general operating expenses and debt service.

The plant's tax revenue allows the City to keep taxes low for its residents and businesses, while maintaining a health city budget for public services. Monticello has the lowest residential tax rate of any city in Wright County, but also the highest tax base.

This healthy tax base, in part, allows the City to provide services uncommon for a city of its size at relatively low costs for its residents. For example, Monticello has an excellent community center with a water park, fitness center, senior center, and indoor playground area; excellently maintained parks and trails; and modest garbage and storm water utility charges. "The services that we provide make it a nice place to live," stated City Administrator Jeff O'Neill. However, O'Neill stressed that the City has not been excessive in the services it provides to its citizens. Moreover, the City is increasingly transitioning to fund services through user fees, a more typical funding approach for a city of its size. O'Neill stated, "The City of Monticello has not fully exploited the capacity to fund services and amenities. We do have nice things: We have a community center; we did have garbage collection at no cost, which was centralized. That now is shifting becoming more of a user-based fee. And we've shifted our storm water utility to be funded less by Xcel and more by user fees."

The City's transition toward funding more of its services at least partially through user fees is a proactive step in its long-term effort to reduce its dependence on the Monticello nuclear plant. O'Neill explained, "What's driving that is the recognition that we need to, over time, wean ourselves off of our dependence on property taxes that Xcel provides — try to become more like other cities in how they operate and pay for things." O'Neill expects that since Xcel Energy announced its intent to extend the life of the Monticello nuclear plant, the urgency to shift to a more user-fee driven funding model may be lessened. However, he sees the shift as good practice for the long-term stability of the city and expects that the city will continue to move that direction.

Monticello Communications Coordinator Rachel Leonard added, "At some point when the plant goes away, we will have to shift to a more typical financial structure. The [City] Council has been very intentional about realizing that, even if the plant is relicensed for another 10 or 20 years, it is in our best interest to start diversifying now. That's obviously not going to happen overnight. It's going to be a big change."

"What's driving that is the recognition that we need to, over time, wean ourselves off of our dependence on property taxes that Xcel provides — try to become more like other cities in how they operate and pay for things."

—Jeff O'Neill,
Monticello city administrator

In addition to city service and basic operations, the tax revenue from the Monticello plant helps the City fund infrastructure investments necessary to accommodate growth in the area. O'Neill explained, "The other thing that Monticello has going, because we are in a growing area, we have more demands for debt. We have interchanges to build. We've got sanitary sewer and water lines to construct, roads. There's just more pressure for construction. So having Xcel in the neighborhood really helps us out to soften that."

Monticello has been able to pay for much of its investments in road construction — both maintenance and reconstruction — through its property levy, rather than assessing additional

taxes to residents and businesses. O'Neill stated, "Some cities would have charged their property owners through an assessment [for the entire cost of the infrastructure investments], but what we do is we charge some — at least 20%–30% — [through an assessment] but then the rest of it goes on to that general levy. We've had the latitude to do that. That's kind of a hidden benefit of the plant."

Another indirect benefit of the tax revenue that the City receives from the Monticello plant is that residents and local businesses retain more of their earnings, increasing disposable income. "Our public finance system and the way we operate is a bit strange because we have this great property tax wealth that drives the tax rate down," explained City Administrator O'Neill. "That gives us more discretionary money as individuals. Less of our disposable income has to go toward property taxes."

Additionally, average annual base pay for plant employees is above $100,000, significantly higher than the average annual income for the county overall. Commissioner Vetsch stated, "The plant increases the household income in Monticello and the northern part of the county area.… The wages out at the plant are substantially above that of the local community. So it puts our household income far above our peer cities in the county or across the river in Sherburne County." These high-wage workers contribute to the community economically by owning property, spending money in local stores, donating to local nonprofits, and more.

In addition to paying its property taxes, Xcel Energy puts money in a Nuclear Remediation Fund, to which the City and County can apply for funds. "With those funds, they're used for paying for specific pieces of equipment that we would need to respond to a nuclear event. They are useful because the things it funds can be used for other safety needs as well," stated City Administrator O'Neill.

Social Contributions of the Utility and Plant Workers

The Monticello nuclear plant provides more than tax and employment benefits to the community. Through both interviews and survey responses, community members and local officials described Xcel Energy as a good partner, stating that the company plays an important role in the social fabric of the community. One survey respondent stated, "[Xcel Energy is] a good neighbor that supports our community in various ways." Interviewees and survey respondents described how the Monticello nuclear plant enables the community's stable schools, robust volunteerism, and a strong business community.

In addition to the substantial tax revenue the Monticello School District receives from the nuclear plant, it also enjoys a consistently high student population thanks to the plant's workforce. Monticello School Superintendent Eric Olson explained, "Even back into the '70s, '80s, and '90s, Monticello has been a thriving district. At one time, we even had the largest elementary school in the whole state. Being a successful school district can be connected to the power plant and the workforce they bring to our community.…The stability that the power plant has sustained for several decades has provided an amazing structure to keep our district strong. We are proud of our slow, steady growth. And I owe that in large part to the power plant." The consistent growth in student population allows the Monticello School District to maintain stable funding. Superintendent Olson continued, "Consistent growth equates to

consistent funding and ultimately gives our district a better opportunity to maintain and retain quality programming for students, staff, and beautiful facilities."

Superintendent Olson continued, "We have a great working relationship with the plant. The plant provides quality jobs for families, as well as expertise and quality volunteers to ensure kids get a great education."

Additionally, the school district partners with Xcel Energy to identify workforce trends and prepare the district's students for emerging opportunities and workforce needs. A representative from Xcel Energy sits on a Wright County Educational Task Force to share the company's perspective and knowledge about emerging job opportunities in the energy field. Superintendent Olson stated, "Xcel also sits on our school committees as well to look at our job force and how the needs of our job force are changing. They've been key partners. They represent a unique business structure. They have everything from entry-level labor positions all the way to professional management and engineering positions."

The Monticello Nuclear Generating Station has also benefited the community's nonprofits and charitable organizations. Xcel Energy encourages its employees to volunteer in the community and allows plant workers to take a day of service for an annual clean-up along the Mississippi River. Last year, plant workers also contributed to a local arts campaign to create a public display at the City's public works facility, which will be used to invigorate the downtown area.

Interviewees noted that plant employees contribute substantially to the local United Way and the local Lions Club. Xcel Energy and its employees are also strong supporters the Monticello Chamber of Commerce. A representative of the Monticello Chamber of Commerce stated, "Xcel is always quick to sponsor our events. Committed volunteers are few and far between these days, but [Xcel Energy] always send[s] staff to our events as well."

Xcel Energy is also a sponsor of the Monticello Riverfest, the city's largest annual summer event. Interviewees indicated that last year, Xcel Energy was integral in securing a well-known band for the event to draw in more people to the city.

Interviewees also noted that Xcel Energy donates to the local Girl Scouts and Cub Scouts, as well as the Chamber of Commerce's Royal Ambassadors Scholarship program, which awards scholarships to young people for volunteering with Monticello events and charitable activities.[20]

City staff noted the importance of Xcel Energy's open and regular communication and coordination with the City. Xcel Energy communicates changes at the state legislature and Internal Revenue Service that affect the Monticello nuclear plant's tax assessments. This communication is critical for City staff and local officials to plan and budget.

[20] "Monticello Chamber Royal Ambassadors Program." Monticello Chamber of Commerce and Industry. Accessed June 25, 2019. http://www.monticellocci.com/list/member/monticello-chamber-royal-ambassadors-prog-monticello-822

Additionally, City staff and Xcel Energy meet quarterly to discuss city and plant news, such as refueling events and ongoing safety efforts and inspections. Refueling events, in particular, have a huge impact on the city's economy. Each event brings 500–800 people to town, who eat, stay, and use local clinics and other facilities for their one-to-two-month visit, which occurs roughly every two years.

Many local retail vendors in Monticello receive a major boost during the power plant's refueling outages. The representative from the Monticello Chamber of Commerce mentioned in her interview that local hotels are often full during these times. The Chamber offers welcome bags to these visitors with information about local restaurants, shopping opportunities, medical clinics, dental offices, and other businesses.

Refueling event

Nuclear power plants typically refuel every 20 to 24 months. At that time, the reactor is shut down and produces no electricity. Workers remove a portion of the used fuel in the reactor, securely store the old fuel, and place some new fuel rods into the reactor. In addition, power plant workers do other preventative maintenance during this time. The utility typically schedules refueling outages during the fall and spring when electricity demand is relatively low.

Swan Park



Shortly after the Monticello nuclear plant became operational, this microclimate attracted five endangered trumpeter swans to over-winter in Monticello. A Monticello community member, Sheila Lawrence, now nicknamed "the Swan Lady," began feeding the trumpeter swans, attracting more and more to join the initial five. Today, over one thousand of the 10-foot-wing-span birds congregate in Monticello during the winter. The swans have become part of the town's identity and a major attraction for visitors. Thousands of visitors come to Monticello to

see the trumpeter swans each year, visiting local shops and restaurants. The trumpeter swan is now featured on the City logo and in a large bronze sculpture outside of Monticello City Hall. Xcel Energy and Monticello co-fund the "SwanCam" so that people can watch the swans on a live stream all winter long.[21]

Transition Efforts and Vision

Community survey respondents, nearly all of whom reported that they live and work in Monticello, expressed little optimism about or support for closing the nuclear plant. Respondents said that the power plant provides economic vitality to the community, clean electricity to the state, cheaper utilities for residents, and a great corporate community partner. Similarly, local officials who were interviewed, though they are actively planning and preparing for the plant's eventual retirement, expressed hope that the plant will continue to operate beyond its current end-of-license date in 2030.

A Proposed Extension

As noted above, Xcel Energy's most recent integrated resource plan filing proposed extending the Monticello Nuclear Generating Station's retirement date from 2030 to 2040. Though the proposal does not guarantee an extension of the plant's life — the proposal requires approval by the Minnesota Public Utilities Commission and the federal Nuclear Regulatory Commission — it has lessened the sense of urgency and anxiety around transition planning and efforts for the community. According to City Finance Director Wayne Oberg, "Xcel's [integrated resource plan] reduced anxiety about the plant. Now we can balance infrastructure plans with diversifying our tax base. It no longer feels as dire of an issue."

Even so, the Monticello community will continue efforts to reduce its reliance on the nuclear plant and to diversify City revenue. As discussed above, the City will continue to gradually transition storm water and sewer service as well as garbage collection to user-based fee models. City staff are also discussing plans to incrementally increase residential property taxes to more closely match the average property taxes of neighboring cities. "We're trying to think about the plant retirement as a personal retirement," said City Administrator Jeff O'Neill. "You have to put some money away for the time that you won't have it."

Wright County also expects to continue its preparations for a future without tax revenue from the Monticello nuclear plant. Commissioner Vetsch expects that all of the County's 60-year capital projects will be completed by the power plant's current license expiration date of 2030, meaning that all buildings will have been sufficiently upgraded and retrofitted and the associated debt service will be balanced by that time.

The City of Monticello is also considering the future of the plant site as staff begin a comprehensive planning process. During that process, the City intends to work with Xcel Energy and community members to consider a future in which Monticello is less dependent on the power plant. Interviewees discussed one possible redevelopment opportunity: a river crossing to

[21] "Swan Cam." Fibernet Monticello. Accessed August 8, 2019. http://www.fibernetmonticello.com/swan-cam/

allow for better traffic flow to and from Becker, Minnesota, and along U.S. Highway 10 as well as business development along the corridor.

Nuclear Waste Storage

Any future use of the land on which the Monticello nuclear plant sits may be limited due to the presence of spent nuclear fuel. As noted above, spent nuclear fuel is being stored on-site at the plant. Interviewees noted that the community never expected be a storage site for the plant's spent nuclear fuel. Today, there are roughly 30 dry casks of nuclear waste located at the Monticello nuclear plant. The future of that spent fuel will undoubtedly affect potential future developers' interest in the site.

Local officials and community members alike hope to see progress in relocating or reusing the spent fuel stored at the plant. Monticello City staff participates in the Nuclear Waste Strategy Coalition — a collective of cities, electric power providers, and state regulators that seeks to secure a timely, safe, and cost-effective storage site for nuclear fuel waste in a permanent repository using the federal Nuclear Waste Fund.[22]

One community survey respondent stated, "The power plant in our community plays an important part of our lives. So I sincerely hope to see it continue its operation beyond 2030. Meanwhile, finding a way to recycle its waste will be a great innovative 'renewable energy' concept."

If the Plant Retires

Though Xcel Energy's proposal to extend the life of the Monticello nuclear plant has eased concerns, Monticello residents and local officials expressed significant fears about the future of the community if the plant were to retire. Community survey respondents stated that a power plant closure could result in lost jobs with no comparable replacements, an exodus of residents, reduced resources for the school district, and higher taxes for residents and businesses.

One survey respondent stated, "[If the plant closes,] well paid, educated workers would relocate out of the community, schools would be negatively affected by the loss of taxes, potential loss of students, and loss of a community partner."

Wright County Commissioner Vetsch echoed these concerns, "My main concern is the economic loss of high-wage jobs out of Xcel Energy. Not only would people's taxes go up, but we'd have a mass exodus and a large boom of real estate for houses over $500,000. That those jobs just won't exist in our community, and that will have a rippling effect through our community."

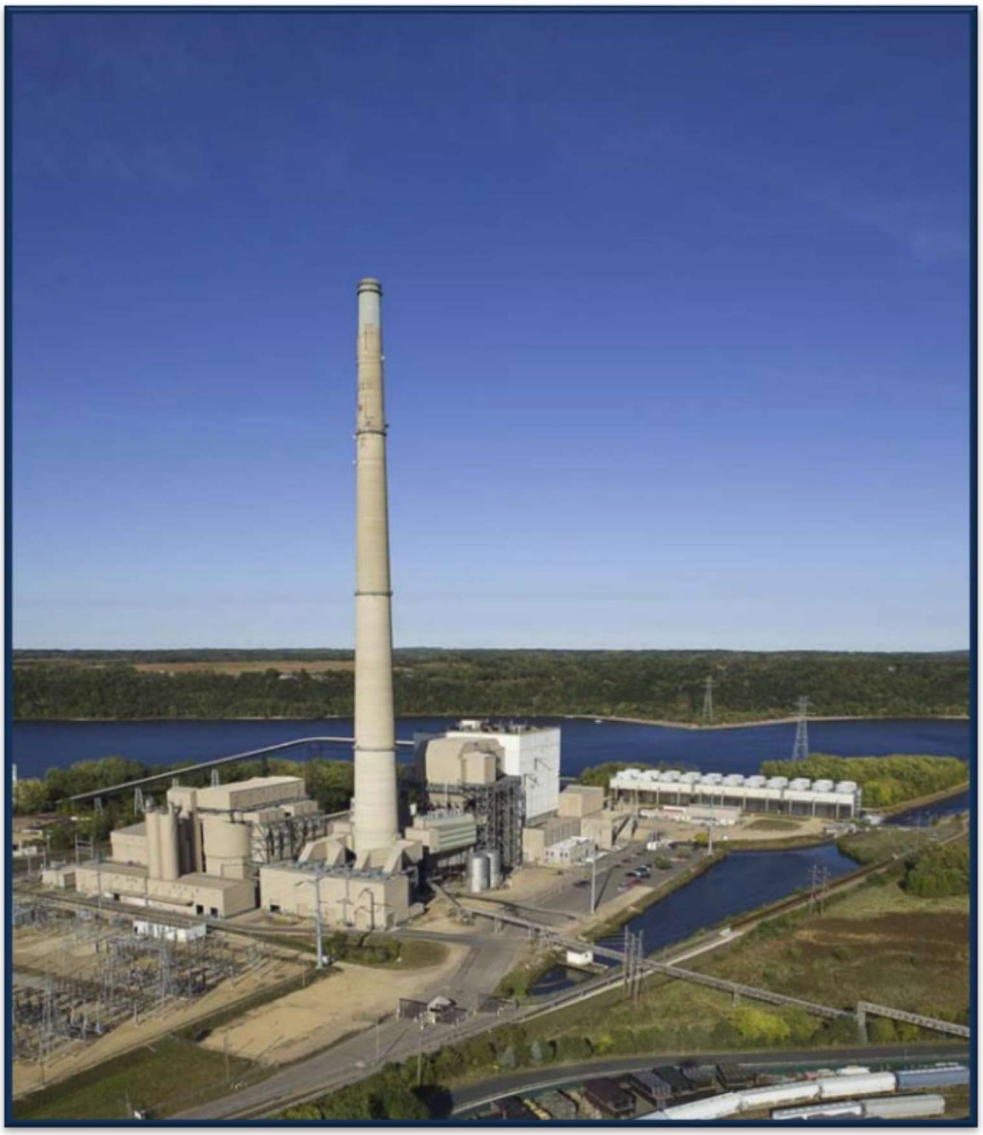
> "How do we even talk about the transition without making people feel fearful? This is just a process and we want to move through as responsibly as possible."
>
> —Rachel Leonard, Monticello communications coordinator

[22] "Member Organizations." Nuclear Waste Strategy Coalition. Accessed August 8, 2019. http://thenwsc.org/about-us

Monticello Communications Coordinator Rachel Leonard suspects such fears could actually initiate or worsen transition challenges for the community. Leonard said, “And how do we prevent that from becoming a self-fulfilling prophecy, meaning that uncertainty causes people to feel nervous and anxious.” She continued, “How do we even talk about the transition without making people feel fearful? This is just a process and we want to move through as responsibly as possible.”

Despite the overall notes of concern, some survey respondents and interviewees expressed hope that the community will be able to capitalize on its many assets to diversify the economy and successfully grow even if the plant closes. Community members and some local officials noted the opportunity for the city to become a regional distribution hub given its proximity to the Twin Cities, St. Cloud, and Interstate-94. Interviewees hope to see Sherburne County and Wright County to do more joint regional transportation planning to improve traffic flow and business development. Additionally, interviewees discussed the potential for the Bertram Chain of Lakes Regional Park, which will feature nearly 1,200 acres of natural land, a campground, and a fully off-road triathlon facility, to attract new tourism to the city.

Oak Park Heights



Background Information

Table 5: Allen S. King Generating Station Quick Facts

Power Plant Information	
Power plant fuel type	Coal
Projected closure date	2028*
Generation capacity	511 megawatts
Plant employees	87
Average annual plant employee income[23]	$92,831
City Information	
City population	4,900
% of plant workers residing in city	2%
% of city's tax base from power plant	38%–40%
County Information	
Washington County population	256,348
% of plant workers residing in county	24%
% of county's tax base from power plant	<1%
School District Information	
% of school district's tax base from power plant	5%

*Indicates retirement dates not yet approved by PUC

Oak Park Heights is located in Washington County along the St. Croix River, Minnesota's eastern border, about 25 miles from the Twin Cities. Oak Park Heights has a population of approximately 4,900 residents.[24] Oak Park Heights is home to Xcel Energy's Allen S. King plant, a 511 megawatt coal-fired power plant. The Allen S. King plant was commissioned in 1968 and underwent rehabilitation between 2004 and 2007.[25]

The Allen S. King plant employs approximately 87 workers, 2% of whom reside within Oak Park Heights and 24% of whom reside within Washington County. Utility property taxes from the Allen S. King plant make up approximately 40% of Oak Park Heights' annual city tax base.

The Allen S. King plant would be fully depreciated in 2037. However, in its 2019 integrated resource plan, Xcel Energy proposed that the Allen S. King plant be retired in 2028, nine years ahead of schedule. The proposed early retirement requires approval from the Minnesota Public Utilities Commission.

Findings from Interviews and Community Survey

The study authors conducted a survey and multiple interviews with Oak Park Heights residents, community leaders, and local government officials to gather information about how individuals and organizations are thinking about and planning for the eventual retirement of the Allen S. King coal-fired power plant.

[23] Average annual plant employee income was calculated using 2018 data provided by the utility.
[24] Estimated by the U.S. Census Bureau in 2017.
[25] "Allen S. King Generating Station." Xcel Energy. Accessed August 13, 2019. https://www.xcelenergy.com/energy_portfolio/electricity/power_plants/allen_s._king

Nine Oak Park Heights community members participated in the community survey. In-person interviews with Oak Park Heights local government officials included Oak Park Heights Mayor Mary McComber, City Council Member Chuck Dougherty, City Council Member Carly Johnson, City Council Member Mike Liljegren, County Commissioner Gary Kriesel, Deputy Administrator for Washington County Kevin Corbid, Stillwater Area Public School Superintendent Denise Pontreli, and Executive Director of Finance and Operations for Stillwater Area Public Schools Kristen Hoheisel. Additionally, a local restaurant owner and representative from the Stillwater Chamber of Commerce were interviewed.

By and large, interviewees and community survey participants expressed concern over a power plant closure. Six out of nine survey respondents said they are concerned about the future of the plant as it relates to their community, specifically citing worries about hikes in property taxes, loss of jobs, and higher energy costs. All community respondents except one expect the King plant to close in the near future.

Despite concerns about the plant's future, interviewees and survey participants expressed optimism regarding the potential to redevelop the plant site. Oak Park Heights, though a small city, boasts impressive parks and recreation amenities and is located along the St. Croix National Scenic Riverway. One survey responded wrote, "The land on which the plant stands, located as it is on the river, could be redeveloped for housing, recreation, or other positive social good."

The following describes community members' responses and discussion from the survey and interviews.

Host Community Story

The Oak Park Heights community has had a mixed relationship with the Allen S. King plant over the 50 years it has been in operation. Many survey respondents noted the positive impact that the power plant has had on the community: as a source of significant tax revenue, a job provider, a community partner, and a supplier of reliable electricity. Others, however, noted the unattractive smokestacks along an otherwise scenic St. Croix River and the coal dust and pollution the plant has emitted into the community.

One community survey respondent stated, "[The King plant] donates money to local schools and nonprofits, and taxes paid go to schools." Another community survey respondent stated that the plant provides "tax revenue, employment, [and] business opportunity."

Another community member wrote of the plant, "[It has] ugly smokestacks and coal piles in an otherwise scenic valley." And yet another stated that the negative aspects of the King plant include, "pollution, coal dust, [and] occasional steam blow-offs that alarm residents."

No matter how community members feel about the plant, however, they all acknowledge that it plays an important role in the local economy and feel uncertain about what will happen to the community when the plant retires. Oak Park Heights City Council Member Carly Johnson stated, "I think people are nervous about [the plant closing]. That's the question my neighbors

ask me, 'What's going to happen in eight years? How's that going to impact our taxes?' I think people are nervous, but with the lack of information, it's just a wait-and-see game."

Utility Contributions to the Tax Base

As noted above, in 2018, tax revenue from the King plant accounted for approximately 40% of Oak Park Height's city tax base, 5% of the Stillwater School District's tax base, and less than 1% of Washington County's tax base.

For Washington County and the City of Oak Park Heights, tax revenue from the plant goes to general funds and helps pay for basic operations and capital expenses. Deputy Administrator for Washington County Kevin Corbid explained, "Of the units of government here, the county is the least affected. We would likely be able to spread the impact [of a plant retirement] across our tax base without it being apparent." Xcel Energy is one of the largest contributors to Washington County's tax base by dollars. However, the county includes a large part of the Twin Cities metropolitan area, and so the King plant represents a relatively small portion of the county's tax base overall.

For the City of Oak Park Heights, however, the King plant is a major and important source of tax revenue. Tax revenue from the King plant allows the City to maintain basic operations and services, while keeping taxes low for its residents and other businesses. "[Without tax revenue from the King plant], it would [be] an increased burden on our tax payers to pay for the services that we have. It pays for our parks, streets, and other services," stated City Council Member Carly Johnson.

The importance of the plant's tax revenue is heightened because Oak Park Heights is such a small city, with just under 5,000 residents. In Minnesota, cities with fewer than 5,000 residents do not receive municipal state-aid street funding, which is the state's largest source of transportation-related assistance to cities.[26] Oak Park Heights Mayor Mary McComber explained, "We're a city under 5,000, so we don't get any assistance for municipal street aid. So by having the [plant tax revenue], it fills that gap. We also work hard on having a good, long range maintenance plant. Where some cities our size, if they didn't have that tax base, wouldn't be able to keep up the way we have."

Tax revenue from the King plant plays an important, but less direct, role for the Greater Stillwater School District. Tax revenue from the King plant keeps property taxes relatively low for residents in the school district. Interviewees indicated that this likely plays a role in voters' willingness to support additional funding for the school district. Kristen Hoheisel, executive director of finance and operations for Stillwater Area Public Schools, explained, "The more commercial and industrial [tax base], the less that the residential people are taxed. The less residents are taxed, the more opportunity we have to do things in our schools, such as having voter-approved technology, voter-approved improvements to our buildings, and increases to our general fund operation. If residents are paying taxes elsewhere or feeling over-taxed elsewhere, we aren't going to get that money. Remember the schools are the only public entity that has to

[26] August 2019. "Small Cities Assistance." Minnesota House Research. https://www.house.leg.state.mn.us/hrd/pubs/ss/sssmcities.pdf

ask for funding. If we need to do any big initiative, we need our voters to support it." Hoheisel continued, "There's only so many dollars to go around."

County Commissioner Gary Kriesel noted concerns about the need to increase residential property taxes as a result of losing tax revenue from the plant, which could exacerbate another issue plaguing the area — affordable housing. Kriesel stated, "One of the big issues in Washington County is affordable housing and workforce housing. If property taxes start going up, that is not a good thing for affordable housing and workforce housing."

Social Contributions of the Utility and Plant Workers

Xcel Energy contributes to Oak Park Heights and the surrounding community in a number of ways beyond tax revenue. Xcel Energy has helped fund and build a number of community projects in Oak Park Heights and is a significant source of philanthropy for local nonprofits. City and county officials as well as community members describe Xcel Energy as a valuable community partner. One community survey respondent stated, "Xcel is a good community partner in many of the activities and programs that happen in our city."

Oak Park Heights Mayor Mary McComber described one community project for which Xcel Energy played a crucial role, "When Xcel closed the fly ash pit [at the King plant], they turned it over to the City with a $600,000 grant to cover for the fact that we could never build there again. [Xcel Energy] built the first set of trails that went through there at their expense, and then out of that $600,000 we were able to put up the gazebos, benches, and other things. And there is still some money there too. Then the playground that's there was a joint venture from another grant through Playful Cities. And that had to be a community build. We worked with Xcel to get the ground cleared and then we all went together to build the playground."

Mayor McComber went on to describe another project for the Oak Park Heights community funded by Xcel Energy, "Last year, [Xcel Energy] put in pollinator gardens under the transmission lines at their expense. It's beautiful. They've been very good to our city."

> "Xcel is a good community partner in many of the activities and programs that happen in our city."
>
> —Community survey respondent

A representative from the local Stillwater Chamber of Commerce explained, "We're really happy to have Xcel Energy here. They're wonderful to work with.… Xcel Energy is a big contributor [to the Chamber] and there would be a big piece missing if they left."

In addition to the utility's philanthropic contributions, local government officials and community members see the plant as a major source of economic vitality for the community. For example, in the past three years, Xcel Energy has shut down the plant from April to July for planned maintenance. Each four-month maintenance outage brings approximately 400 temporary workers to town to stay, eat, and shop in the surrounding area, giving businesses a boost for the rest of the year.

Pollution and Emissions

Over the years, pollution from the Allen S. King plant has been a concern for Oak Park Heights residents and local officials. Xcel Energy upgraded the plant's environmental controls in 2007 as part of Minnesota's Metro Emissions Reduction Project, significantly reducing mercury, sulfur dioxide, nitrogen oxide, and particulate emissions.

Mayor McComber, also a long time resident of Oak Park Heights, described coal ash from the plant prior to the environmental upgrades, "Everything's a lot cleaner. You can actually eat food out of your garden. I've lived in a lot of houses, but I've never lived in a house before where you can dust at eight in the morning and by 8:10 it looks like you hadn't dusted. And that was with the windows closed."

Since the environmental upgrades were made, the community's concerns about pollution have diminished. Interviewees stated that many in the community have said the air seems cleaner and that the plant is less noisy and disruptive. However, carbon emissions are a concern for some community members. Once community survey respondent stated, "While [the plant's emissions are] EPA controlled, it is a coal-burning plant and, therefore, environmentally not ideal in this time of climate change."

Transition Efforts and Vision

As noted above, in its latest integrated resource plan, Xcel Energy proposed closing the Allen S. King plant in 2028, nine years ahead of schedule. This proposal, while not yet approved by the Minnesota Public Utilities Commission, has increased urgency around transition planning for the community.

"We can't kick the can down the road," said Mayor McComber. "Pretending the elephant in the living room isn't there won't make anything better." While the City waits for the Public Utilities Commission to make a decision on a retirement date for the King plant, the Mayor and other Oak Park Heights representatives are poised to start having conversations about the future of the community and the King plant site.

"We aren't a day early in this," said one local business owner. "We have to start having meetings and dialogue around this and think about what that property could be used for."

Uncertainty and Anxiety

Several interviewees and survey respondents noted that people were overall not well informed about how plant retirement could affect the community or what plans were in place to mitigate the negative effects. One local business owner stated, "It's the sleeping giant in town. We haven't heard the details or the impact it'll have."

When asked what conversations were happening in the community regarding the power plant, a community member said, "It has been fearful. It's been there so long and provided financial support. When you don't know, it's fearful."

Mayor McComber explained that the City is trying to keep community members informed, but is also working with limited information. She stated, "Our city has done a really good job in putting

it in our newsletters and getting the word out that we don't have the answers at this time and we aren't going to have them until after this integrated resource plan is done. Then we'll have an idea once the [Public Utilities Commission] says, 'this will be the date.'"

Deputy Administrator for Washington County Kevin Corbid predicts that community members will become more informed and involved once the financial impact of a plant closure starts to affect budgeting and taxation plans for the city, schools, and county. Corbid stated, "Eventually we'll have to start working a plant closure into our budgeting, and that's when it'll hit the public."

To continue to raise awareness and begin a community dialogue, the Stillwater Chamber of Commerce is planning to open one of its regular morning forums, called Toast and Topics, to the public — allowing the City to share information about the potential power plant closure and community members to ask questions and provide input.

Future Use of the Land

The future use of the King plant property was a persistent and hopeful theme throughout interviews and survey responses. The King plant sits along the St. Croix River, which is a designated National Scenic Riverway. The river is an important natural asset for the community, and many community members and local officials hope to redevelop the King plant site in a way that highlights it and its natural beauty.

> "The worst case scenario is that the plant will just sit there."
>
> —Oak Park Heights Mayor Mary McComber

Interviewees were unanimous and steadfast in their desire that upon a plant retirement, the King plant be fully decommissioned and the land cleaned and restored to be redeveloped for another purpose. Mayor McComber stated, "The worst case scenario is that the plant will just sit there." The Mayor continued, "I would hate to see it be like Granite Falls. They closed that plant and it has been sitting there empty for 15 years. It's just a blighted area. With [the King plant] being on the river, I don't want to see that. I don't think anyone wants to see that."

Another interviewee stated, "Empty properties act like a cancer."

Council Member Mike Liljegren expressed surprise that there was a possibility that a plant could sit vacant after retirement. Liljegren stated, "I come from the mining side of the world, and they have reclamation plans set up. When that mine closes, you know exactly what that land is going to look like. I'm surprised that the [Public Utilities Commission] doesn't have that in place."

Interviewees and survey respondents see great promise in the King plant site, once cleaned and restored. Washington County Deputy Administrator Corbid stated, "We've got a power plant on the key unique feature of this area, the river… [When the plant closes] all of a sudden we could have a lot of riverfront. What could it become that could become a real attraction for the city and the region? There's a potential for it to become an unbelievable attraction."

Several interviewees and community survey respondents noted the opportunity to create a recreational area where the King plant currently sits, perhaps paired with a resort property or some other type of lodging. One survey participant said, "[A retirement of the King plant] opens that waterfront to new recreational or nature possibilities." Some interviewees pointed to the river development in the neighboring city of Bayport, Minnesota, which includes a large marina, resort, and recreational area, as a possible example of what the King plant site could become in the future.

Other interviewees expressed an interest in filling the property with another business that could replace some or all of the King plant's tax revenue. Interviewees noted potential industrial uses, including a possible expansion of Anderson Windows, one of Oak Park Height's largest employers.

However, most interviewees indicated that replacing the King plant's contribution to the tax base should not be a driving factor in determining how the land is used in the future. Deputy Administrator Kevin Corbid stated, "You almost have to separate the impact on the City and the use of the land. We have to say we did the best thing and that was the best use of that land. You can't hold out for something that you think will replace that tax base."

Oak Park Heights Council Member Mike Liljegren agreed. "We're never going to get back to what we have [in terms of tax base]. It's about finding the best solution down there and then getting creative with how we're going to move forward."

Given the river's National Scenic Riverway designation, interviewees expect any conversation about redeveloping the King plant site to be complex and include a number of important stakeholders. Washington County Commissioner Kriesel stated, "I think environmentalists will have a very strong voice in how that property will be used in the future." Kriesel indicated that the county will also likely have a strong voice in the conversation, stating, "Washington County views the St. Croix River as a critical resource for us to protect." Other important stakeholders in this conversation will likely include the St. Croix River Association, the Minnesota Department of National Resources, the Army Corps of Engineers, and the National Wildlife Refuge.

> You have to turn the clock back to about 1968 when the plant was built. Oak Park Heights accepted [the King] plant and was supportive of [it]. So I think there should be some fairness in spreading that burden through the whole state rather than isolate on one community. If they're going to be successful and get everybody to embrace green energy, then everybody's got to row the boat."
>
> —Washington County Commissioner Gary Kreisel

Additionally, as the land owner of the King plant site, Xcel Energy will be a key stakeholder in the conversation about how that site is used. Washington County Deputy Administrator Corbid stated, "Xcel Energy is the land owner, so we don't know what their plan is. Is there a potential to repurpose it to continue to be a power generator?" Other interviewees questioned whether the site could be used for renewable electricity generation, noting that the transmission infrastructure for power generation already exists at the site.

Support for the Community Transition

Finally, interviewees noted that Oak Park Heights played an important role in providing power throughout Minnesota for many decades. Now that the community is facing a plant closure, interviewees hope the State will help the community through its transition. Washington County Commissioner Kriesel stated, "I would hope the State would recognize the hit that the City and school district are going to take. You have to turn the clock back to about 1968 when the plant was built. Oak Park Heights accepted [the King] plant and was supportive of [it]. So I think there should be some fairness in spreading that burden through the whole state rather than isolate on one community. If they're going to be successful and get everybody to embrace green energy, then everybody's got to row the boat."

Prairie Island Indian Community



Background Information

The Prairie Island Indian Community is a federally recognized Indian tribe under the Indian Reorganization Act of 1934. The tribe's reservation is located on the ancestral homeland of the Mdewakanton Dakota on Prairie Island, which is formed at the confluence of the Vermillion and Mississippi Rivers in southeastern Minnesota. The Mdewakanton, or "those who were born of the waters," have lived on Prairie Island for countless generations. The tribe's land base (including both trust and fee lands) has grown through various federal acts beginning in 1891, and area directly purchased by the tribe now totals over 3,000 acres (including both land and water).[27]

Xcel Energy's Prairie Island Nuclear Generating Station operates immediately adjacent to the Prairie Island Indian Community reservation. Xcel Energy stores spent nuclear fuel in dry cask storage on-site in the Independent Spent Fuel Storage Installation. A full description of the plant is provided in the following section.

[27] "Community: Prairie Island Indian Community History." Prairie Island Indian Community. Accessed July 2, 2019. http://prairieisland.org/community/

There are close to 1,000 members of the Prairie Island Indian Community;[28,] and about 200 members live on the reservation. [29] The Prairie Island Indian Community operates the Treasure Island Resort and Casino on the reservation. The Treasure Island Resort and Casino is a major revenue source for the Prairie Island Indian Community and tribal government, and is the largest employer in the surrounding Goodhue County.[30] The revenue from the Treasure Island Resort and Casino has enabled the Prairie Island Indian Community to maintain financial self-sufficiency. No Prairie Island Indian Community members living on the reservation are employed at the adjacent Prairie Island Nuclear Generating Station. The Prairie Island Indian Community receives no tax revenue from the nuclear generating station.

Xcel Energy has not yet announced whether it will seek to extend the Nuclear Regulatory Commission license for the Prairie Island Nuclear Generating Station. Xcel Energy has stated that it is working with federal authorities to encourage the development of a permanent, off-site storage facility to house used fuel from nuclear facilities around the country as an alternative to its current practice of on-site dry cask storage.[31]

Findings from Interviews and Community Story

The study authors conducted a survey and multiple interviews with stakeholders and leadership of the Prairie Island Indian Community. All five members of the Prairie Island Tribal Council, President Shelley Buck, Vice President Lucy Taylor, Council Secretary Nicci Lehto, Treasurer Johnny Johnson, Assistant Secretary and Treasurer Melanie Urich, as well as the tribe's director of housing Darelynn Lehto, General Counsel Jessie Seim, and the tribe's long-time consultant Heather Westra participated in interviews for this study. Two community members provided survey responses. The following section summarizes the content of those interviews and survey responses.

> "We are the closest community in the entire nation to a nuclear plant and dry cask storage full of spent nuclear fuel — currently there are 44 [casks]. The effects that this community feels are greater than any other community in this nation."
>
> —Tribal Council President Shelley Buck

Host Community Story

Prairie Island Indian Community's host community story is inherently different than all the other host communities included in this report. While residents of the Prairie Island Indian Community live extremely close to the Prairie Island Nuclear Generating Station, not a single member of the tribe works at the plant and tax revenue from the plant goes to the City of Red Wing,

[28] "FAQs: How many Tribal Members are there in the Prairie Island Indian Community?" Prairie Island Indian Community. Accessed July 2, 2019. http://prairieisland.org/faqs/#squelch-taas-accordion-shortcode-content-3
[29] Updated enrollment count provided by a Prairie Island Indian Community representative.
[30] "Home: The People of Prairie Island welcome you!" Prairie Island Indian Community. Accessed July 2, 2019. http://prairieisland.org/
[31] "Nuclear Energy." Xcel Energy. Accessed July 2, 2019. https://www.xcelenergy.com/energy_portfolio/electricity/nuclear

not the tribe.[32] Therefore, the Prairie Island Indian Community does not receive many of the economic benefits typically experienced by communities that host power plants.

The community does, however, experience the negative implications of living next to a nuclear generating facility and its stored spent fuel. The nuclear facility occupies land that once belonged to the tribe, but is no longer accessible or usable to the tribe. Moreover, the tribal community and leadership are deeply concerned about the health and safety implications for residents of living so near to the nuclear facility. Another concern shared by leadership is that there are limited evacuation options for the community in the event of a nuclear incident. Both the reservation and the nuclear plant are located on a peninsula surrounded by the Mississippi River and a large chain of lakes, with only one road that leads out of the area. Additionally, the tribe's sentiment about the plant is inextricably linked to a long and painful history of how the Mdewakanton people have been treated historically.

The Community's History with the Prairie Island Nuclear Generating Station

The Prairie Island Nuclear Generating Station was originally expected to be a natural gas or coal-fired power plant. An article in the November 19, 1958, issue of the Daily Republican Eagle stated that "[Northern States Power] Company [was] planning a million kW steam plant on Prairie Island" in the late 1960s or early 1970s, with no mention of nuclear power.[33] According to the tribe, the Mayor of Red Wing at that time was a proponent of nuclear technology and played a key role in the plant's shift to nuclear fuel.

Prior to the plant's construction, the land it occupies was part of Burnside Township,[34] which was part of the Prairie Island Indian Community reservation. The City of Red Wing and Burnside Township were consolidated into a single City of Red Wing in 1971, which meant that Red Wing then received property tax revenue from the plant. According to interviewees, Northern States Power (NSP), now Xcel Energy, received a right-of-way for a portion of Sturgeon Lake Road (the only road in or out of Prairie Island) from the Bureau of Indian Affairs (BIA) for just over $100. The BIA has a fiduciary role to protect and improve the trust assets of American Indians, Indian tribes, and Alaska Natives.

According to those interviewed, BIA representatives likely never even visited the Prairie Island Indian Community until the 1980s. "Their fiduciary responsibility is to protect the tribe," one

[32] The Prairie Island Indian Community did not receive any financial benefit from the plant until 2003. In 2003, the Prairie Island Indian Community and Xcel Energy entered into an agreement that the company would provide an annual payment to the tribe to be used to purchase additional tribal lands further away from the nuclear plant. Currently, the tribe receives $2.5 million each year. A full description of the settlement agreement can be found in the June 23, 2016, Order by the Minnesota Public Utilities Commission in Docket Number E-002/M-15-922.

[33] November 19, 1958. "Huge Steam Power Plant to Be Constructed by Northern States Power on Prairie Island." *Daily Republican Eagle*.

[34] "Map of Burnside Township: Townships 113 & 114 N; Range 15 W of the 5th PM. [Page 7: Atlas and farmers' directory of Goodhue County Minnesota]." Minnesota Historical Society Collections. http://collections.mnhs.org/cms/largerimage?irn=10221182&catirn=10870072&return=q%3DBurnside%2520Township

council member said. “That doesn’t mean bringing in a power plant next door. Obviously they didn’t do their job, and they still don’t do their job.”

Tribal Council President Shelley Buck explained, “We didn’t have the money or the education to fight this.” Vice President Lucy Taylor went on to say, “Our people had no idea what a nuclear plant was.” Taylor remembered her grandmas selling beads for food. “They were just trying to survive,” she said. “They picked on a community that couldn’t fight back. NSP [at that time] had sited locations in Wisconsin and others — but people raised hell there.”

Two of the tribe members interviewed remember the construction of the plant. Vice President Taylor was one of them. “When they first decided to site the plant, the tribe wasn’t consulted at all. We were then told that it would be a steam generation plant. People down here were recruited to help build the thing. I remember my uncle telling me he was excited because it was a job opportunity. People were thrilled to have these labor opportunities. The tribe didn’t have high education — so these were good jobs.”

> “Our story is about history and the value of that. Prairie Island is very spiritual. There is a connection we have to the land. It is sacred to the Dakota people. It’s threatened by something we didn’t have a say in.”
>
> —Tribe member, Prairie Island Indian Community

However, this economic opportunity was only temporary. According to the council members, tribe members were only employed during the construction — they were not offered permanent jobs at the plant after it was finished. Taylor stated, “The day it was done, they were fired.” Vice President Lu Taylor continued, “Growing up, my dad and uncle were given jobs building the plant. They helped build the plant. They were let go as soon as construction stopped. They were not continued on at the plant as others were.”

Plant jobs, or the lack thereof, were important given the economic conditions and lack of economic opportunity in the community. Tribal Council Treasurer Jonny Johnson stated, “The opportunities for our male tribal members were to work on the rail or for [NSP]. I remember when we were struggling to put food on the table. With income [from working to build the plant], I remember the first time we were actually able to buy food.”

“Growing up here, we had to fend for ourselves. Many had to stand in the welfare lines,” Vice President Taylor shared. At the time that the power plant was constructed, the Prairie Island Indian Community had little to no running water or sewer systems and no electricity. Vice President Taylor went on to say that as a result of the poor living conditions, her sister got hepatitis when they were children. “These were the conditions we were living in,” she said. “A lot of people can talk about their childhood and about how good they had it — but not one person who grew up here through the ’60s and ’70s will say that.”

The plant became the community’s backdrop. Taylor and Johnson described the loud sound that came from the steam tower vents, which occurred every other hour, as “terrible.” Two council members noted that the community received a donation to build a playground on the reservation in the 1970s. The playground was located directly under high-voltage power lines

coming from the plant. Taylor recalled, “We used to play a game of who could go up the slide the fastest. All of [the playground] was metal, and we’d see who could get up with the least shocks.” Johnson added, “As kids we used to think it was funny when you would go down the slide and your hair would stand up straight.” Taylor continued, “As a kid, you don’t know what’s going on.”



Children in Prairie Island Indian Community playing on trampoline with nuclear plant in background

For hundreds of years, the land was home to the Mdewakanton Band of Eastern Dakota, ancestors of the Prairie Island Indian Community. One tribal member explained, “Our story is about history and the value of that. Prairie Island is very spiritual. There is a connection we have to the land. It is sacred to the Dakota people. It’s threatened by something we didn’t have a say in.”

There were burial sites on the land, many of which were destroyed or disturbed during construction of the plant. According to the tribal council members, the artifacts and remains that were uncovered during construction of the plant were sent to Hamline University — some, but not all, have since been returned to the tribe. Council President Buck stated, “We have no idea where the objects taken from the site went. People dug up our ancestors. We don’t do that to other people.” The tribe has concerns over other burial grounds that are located within the

boundaries of the plant that have not yet been disturbed, but could be in the eventual decommissioning of the plant.

The Prairie Island Indian Community Today

Today, the community's primary concern is the health, safety, and well-being of tribe members living on reservation land. "We are the closest community in the entire nation to a nuclear plant and dry cask storage full of spent nuclear fuel — currently there are 44 [casks]. The effects that this community feels are greater than any other community in this nation," explained Council President Buck.

The community says their cancer rates have gone up in recent years, particularly of the brain and the thyroid. They worry that the proximity of the plant and the stored spent fuel may be to blame. Johnson said that his sister lives across the street from the plant and all nine of the dogs that she has owned have died prematurely of tumors. "People say our change in diet is the cause," Council Secretary Nicci Lehto commented, "but dogs don't smoke or eat McDonalds. Why do these dogs have tumors too? Especially thyroid tumors are common here."

Being so close to the power plant is a constant source of anxiety for people living on the island. "A lot of people you're interviewing for this study will think about dollars and cents, dollars and cents. For us, it's a different story," explained Secretary Lehto. "There is a psychological impact here. When 24 hours a day you have [the plant] in the back of your mind. When you come out of your home, when you have a barbeque and feel that mist coming off the nuclear power plant — that's a psychological impact. When you lay your head down at night and you have nuclear power plant that's 600 yards away from your pillow.… Wherever you go, the plant is there. You bring a new baby home, you see the plant. You bury your grandma and the plant overlooks it. And yet if it decommissions then you know that your ancestors will be going off to Red Wing — or we don't even know what will happen to them. It's not about dollars and cents. It's about emotions and history and culture and things that cannot be monetized."

According to the tribe, researchers at the University of Minnesota conducted a study in the 1990s to understand the psychological and social implications for children in the tribe living close to the nuclear power plant. Several of the interviewees had children who participated in the study. Vice President Taylor stated, "Our kids were worried that something would happen and there would be no home or parents for them to come back to because of the plant."

Fears of a nuclear accident are heightened because the federal Lock and Dam No. 3 frequently causes flooding in the area, sometimes blocking access to the island's only permanent evacuation route.[35] Darelynn Lehto, director of housing for the tribe, stated, "We have tribal members that don't want to live here because of our flooding and the proximity to the nuke plant." Even aside from flooding, Darelynn Lehto voiced traffic and safety concerns around the roughly 127 families, 300 plant workers, and 1,700 casino employees attempting to leave the island at once in the event of an emergency.

[35] In 1938, the U.S. Army Corps of Engineers built Lock and Dam No. 3, which flooded Prairie Island Indian Community land, reducing the tribe's livable area and creating a larger floodplain.

In 2018, the Federal Emergency Management Agency conducted its biennial Emergency Response Drill exercise at the Prairie Island nuclear plant, the results of which bore significant implications for the community. The drill exercise, which centered around a leak scenario, revealed that the Prairie Island Indian Community would be left in an "exclusion zone" in such an event, displacing tribe members, residents, employees, and businesses for two years. The exclusion zone included the Treasure Island Resort and Casino, which is the community's livelihood, the largest taxpayer in Goodhue County, and the second biggest hotel in Minnesota. An incident at the plant would threaten not only the health and safety of tribe members, but also their prosperity.

> "If the plant closes, the tribe should take back that land and the state and federal government should clean the site up and restore the land."
>
> —Darelynn Lehto, housing director for Prairie Island Indian Community

In the past, Xcel Energy has not always notified the community of emergencies that occurred at the plant. In mid-1979, a tube ruptured in a steam generator at the plant and an emergency was declared. Workers were told to evacuate the facility and island. In interviews, members of the tribe recalled seeing vehicles from the plant kicking up dust as they sped off the island, only to learn much later that that an emergency had been declared. Again in 2008, a chlorine gas leak from a steam generator forced a 12-hour evacuation at the plant. The tribe was notified of this incident right away, but off-site news stations called it a radiation incident, and some schools shutdown, adding to the general confusion.[36]

The community's relationship with Xcel Energy has improved dramatically in recent years. Members of the tribe expressed feeling more informed about refueling events, possible incidents, and other updates. Tribal President Buck said that now, she is able to call or text the current regional President of Xcel Energy, Minnesota, South Dakota, North Dakota, Christopher Clark, directly when she needs to. He also visits the community regularly to meet with the Tribal Council. One council member said, on the tribe's current relationship with the utility, "Now our communication is a lot better. What was it like in the past? Terrible! It was horrible."

Vision for the Future

Ideally, the tribe would like to see the plant decommissioned, the nuclear waste removed, and land restored to its original state and returned to them. "If the plant closes, the tribe should take back that land and the state and federal government should clean the site up and restore the land," said Housing Director Darelynn Lehto.

Removing the nuclear waste from Prairie Island is a critical component of the tribe's vision for the future. The tribe wants to see all of the nuclear waste currently stored on Prairie Island moved to a permanent repository, as promised by the federal government during nuclear energy's proliferation in the 1960s and 1970s. However, the council members are wary of a

[36]"Nuclear Positions: Prairie Island Nuclear Power Timeline." Prairie Island Indian Community. Accessed October 22, 2019. http://prairieisland.org/policy-positions/nuclear-positions/#squelch-taas-accordion-shortcode-content-0

plant closure because they understand the challenges of relocating nuclear waste. Secretary Lehto expressed concern that if the plant closed before a new storage location has been established, there would be less attention paid to maintaining and ultimately removing the spent nuclear fuel being stored on-site.

Another important part of the tribe's vision is that the remaining burial mounds remain protected if the plant is decommissioned.

Continued communication from Xcel Energy is also very important to the tribe. Darelynn Lehto explained, "I would expect Xcel Energy staff to staff community meetings with the Prairie Island Indian Community and to manage the community relations and let them know directly what's going on. It would ease a lot of the tension that currently exists because of [Prairie Island Indian Community] being left out."

The community would also like to see more research studies into the short-term and long-term health implications of living so close to a nuclear power plant and nuclear waste storage.

Finally, the Prairie Island Indian Community's future vision includes the entire community relying on net-zero carbon energy. The tribe has already hired a consultant to model strategies required to reach this goal, which would include demand response, energy efficiency, and solar photovoltaic developments on site. The tribe is particularly interested in adding solar over the parking lots of Treasure Island Resort and Casino.[37] The tribe is seeking funding from the Renewable Development Account (RDA) via the Minnesota legislature. The state legislature requires Xcel Energy to pay $500,000 per year per storage cask at the Prairie Island plant (and $350,000 per cask per year stored at Monticello) into the RDA. Grants are awarded out of the RDA to fund innovative renewable energy projects. Thus far, the Prairie Island Indian Community has not received any grant funding from the RDA. One council member said, describing the community's hopes for the future, "We would like to see the tribe obtain RDA funds so that [we can] transition to net zero."

[37] Orenstein, Walker. April 3, 2019. "The Prairie Island Tribe wants to get to net-zero emissions. Its biggest roadblock may be house DFLers." *MinnPost*. https://www.minnpost.com/environment/2019/04/the-prairie-island-tribe-wants-get-to-net-zero-emissions-its-biggest-roadblock-may-be-house-dflers/

Red Wing



Background Information

Table 6: Prairie Island Nuclear Generating Station Quick Facts

Power Plant Information	
Power plant fuel type	Nuclear
Projected closure date (unit respective)	2033, 2034
Generation capacity	1,100 megawatts
Plant employees	600
Average annual plant employee income[38]	$109,023
City Information	
City population	16,500
% of plant workers residing in city	31%
% of city's tax base from power plant	54%
County Information	
Goodhue County population	46,304
% of plant workers residing in county	39%
% of county's tax base from power plant	22%
School District Information	
% of school district's tax base from power plant	40%

[38] Average annual plant employee income was calculated using 2018 data provided by the utility.

Red Wing is located on Minnesota's eastern border in Goodhue County, along the Mississippi River, about 60 miles from the Twin Cities. Red Wing has a population of approximately 16,500.[39] Red Wing is home to the Prairie Island Nuclear Generating Station, which has two pressurized water reactors that generate about 1,100 megawatts combined. The Unit 1 reactor started operating in 1973, and the Unit 2 started operating in 1974.[40] The two units are licensed with the Nuclear Regulatory Commission to operate through 2033 and 2034, respectively.[41]

Xcel Energy built a dry cask storage facility at Prairie Island in 1995, which also operates under a license from the Nuclear Regulatory Commission. The Minnesota Public Utilities Commission approved on-site storage of up to 64 casks and other equipment needed for storage. Currently, the storage facility holds 40 casks.[42]

The Prairie Island Nuclear Generating Station employs approximately 700 plant workers, 31% of whom reside in Red Wing and 39% of whom reside within the county. Utility property tax revenue from the plant makes up about 54% of Red Wing's annual tax base.

Xcel Energy has not yet announced whether it will seek to extend the Nuclear Regulatory Commission license for the Prairie Island Nuclear Generating Station. If the plant's license is not extended, the Prairie Island Nuclear Generating Station units would close on or before 2033 (Unit 1) and 2034 (Unit 2). Xcel Energy has stated that it is working with federal authorities to encourage the development of a permanent, off-site storage facility to house used fuel from nuclear facilities around the country as an alternative to its current practice of on-site dry cask storage.[43]

Findings from Interviews and Community Survey

The study authors conducted a survey and multiple interviews with Red Wing residents, community leaders, and local government officials to gather information about how individuals and organizations are thinking about and planning for an eventual retirement of the Prairie Island Nuclear Generating Station.

Twelve Red Wing community members participated in the community survey. In-person interviews with Red Wing's local government officials included Red Wing Mayor Sean Dowse, Goodhue County Commissioner Paul Drotos, Red Wing School District Superintendent Karsten Anderson, and Red Wing's Administrative Business Director Marshall Hallock. Interviews with

[39] Estimated by the U.S. Census Bureau in 2017.
[40] "Prairie Island Nuclear Generating Station." Xcel Energy. Accessed July 15, 2019. https://www.xcelenergy.com/energy_portfolio/electricity/nuclear/prairie_island
[41] "Nuclear Energy — A Clean Energy Future." Xcel Energy. Accessed July 15, 2019. https://www.xcelenergy.com/staticfiles/xe/Corporate/Corporate%20PDFs/PI_license_renewal_fact_sheet_external.pdf
[42] "Nuclear Energy." Xcel Energy. Accessed July 15, 2019. https://www.xcelenergy.com/energy_portfolio/electricity/nuclear
[43] "Nuclear Energy." Xcel Energy. Accessed July 15, 2019. https://www.xcelenergy.com/energy_portfolio/electricity/nuclear

Red Wing community members included two local business owners and the leader of a local arts nonprofit.

Without exception, Red Wing interviewees and community survey participants emphasized the many assets of the Red Wing community. From its scenic bluffs and riverfront to the iconic Red Wing Shoes company and Lock and Dam No. 3, Red Wing residents find a lot of reason to love their city, as well as its engaged volunteer network, small-town feel, and vibrant arts community and economy. While the Prairie Island nuclear plant is not directly responsible for those community assets, it has played a significant role in making the city what it is today. "I don't know Red Wing before the plant," said Marshall Hallock, Red Wing's administrative business director. "You have generations that have spent careers there. It's hard to compare Red Wing to what it was before that."

Community survey participants and interviewees expressed mixed optimism and concern over the Prairie Island Nuclear Generating Station's approaching end of license date. The following describes community members' comments and discussion from interviews and survey responses.

Host Community Story

Utility Contributions to the Tax Base

Tax revenue from the Prairie Island nuclear plant makes up a significant portion of Red Wing's city and school district tax bases, as well as Goodhue County's tax base. That revenue amount, however, has fluctuated significantly over time. In the early 2000s, tax revenue from the plant was at a low. Legislative reforms to the State's property tax system and changes at the Department of Revenue for utility valuation rules, along with normal asset depreciation, resulted in Xcel Energy paying significantly less in property taxes for the plant. In 2012, Xcel Energy began making significant investments in the plant, replacing the generators and other original components as well as improving safety features. The market value of the Prairie Island plant doubled from 2012 to 2017, and its property tax obligation increased dramatically.[44]

As noted above, today revenue from the plant accounts for approximately 54% of the City of Red Wing's property tax base, 40% of the Red Wing School District tax base, and 22% of the Goodhue County tax base. The plant's tax revenue primarily goes toward expenses related to general operation for the city, county, and schools. However, the City is using some of that tax revenue strategically to invest in upgrading and renewing its aging infrastructure.

> "The cost of roads and bridges keeps increasing.… A mile of pavement costs about a $1 million and we have over 400 miles. Climate change is already creating issues. We had roads this spring that exploded from flooding. That's a concern when 22% of the county's revenue won't be there eventually."
>
> —Goodhue County Commissioner Paul Drotos

[44] "Red Wing 2040." City of Red Wing. Accessed August 9, 2019. http://www.red-wing.org/DocumentCenter/View/509/Red-Wing-2040-Powerpoint-PDF

According to Red Wing's Administrative Business Director, Marshall Hallock, "A significant portion [of taxes received from Xcel Energy] go to fund daily operations, cops, firefighters, just guys like me that are funded out of the general fund. But a more significant thing that our taxes are funding are all the capital projects that we've undertaken to try to position the community for success going forward."

Prior to the recent major upgrades to the nuclear plant, nearly all the tax revenue the City received from Xcel Energy went to the general fund to pay for daily operations. Today, the previous base of tax revenue from the plant still goes to the general fund for basic operations. However, the additional revenue that the City receives as a result of the upgrades goes toward significant capital renewal and investments. The City is investing in its infrastructure and paying down those investments today in preparation for the power plant's eventual end of license.

It is important to note that Minnesota cities face limitations on saving tax revenue to use in future years. Hallock explained, "It would make sense for us to keep levying and stockpile a war chest to use in the future. We're not allowed to do that. What we do is levy on current year expenses." He continued, "It comes up a lot as I talk to the public, 'Well, why don't you put aside a bunch of money right now?' But we can't over-levy to put a bunch of money away for future years. The state auditor would come knocking." Given that limitation, rather than saving money for future use, the City is buying down debt associated with its investments in infrastructure.

"The City gets credit for investing now and taking advantage of the revenue they have," said County Commissioner Drotos. "The City knew in advance that Xcel would invest in the plant and that would increase the plant's valuation," explained the Commissioner, who previously worked at Xcel Energy and more recently served as Red Wing's environmental officer. "They also knew that infrastructure was crumbling. They decided to make investments while Xcel was still contributing to the tax base."

Hallock elaborated on the strategy, "We're trying to invest in capital assets without increasing our operating expenses." This includes redoing the streets, fixing water and sewer mains, fixing public buildings with leaky rooves, and investing in building efficiency to lower costs. "We don't want to wait until the Xcel tax base is gone and this work falls solely on residents. Red Wing took on debt to invest in all this, but we'll have paid it off in the next eight years."

Commissioner Drotos said this is a model he hopes to bring to Goodhue County. "The cost of roads and bridges keeps increasing," he said. "A mile of pavement costs about a $1 million and we have over 400 miles. Climate change is already creating issues. We had roads this spring that exploded from flooding. That's a concern when 22% of the county's revenue won't be there eventually."

The Prairie Island nuclear plant also contributes substantially to Red Wing's school system, and though the school district would not see a shortfall in funding if the plant retired, the amount of school funding currently provided by Xcel Energy would fall to residents and local businesses. The school district recently passed a $22 million referendum to upgrade facilities over the next eight years, while the power plant's property taxes are available. "Xcel is paying 40% of that [referendum amount]. If Xcel wasn't here, then everybody else would have to pay the debt

service payments," explained Red Wing School District Superintendent Karsten Anderson. He went on to say that where the tax revenue for the school district comes from is important for maintaining support for continued funding for Red Wing's schools. "If Xcel wasn't here, it absolutely would have lessened the chances of that [referendum] passing."

Superintendent Anderson also discussed the impact of potentially losing students in the district due to a plant closure, noting that a lot of the plant employees have kids in the district. "If the plant closed, it would have a dramatic impact on the school district. And as the school goes, so goes the community. People move to better districts so the housing market crashes and the economy dominos."

Social Contributions of the Utility and Plant Workers

Survey respondents and interviewees stressed the vital role that power plant employees play in the Red Wing community. According to data provided by Xcel Energy, approximately one-third of Prairie Island nuclear plant employees live within the city of Red Wing. These employees are highly skilled and paid well-above the area median, providing both economic and social benefits to their community. During one interview, a local business representative stated, "Having a nuclear power plant brings in an educated workforce to the community with a six-figure salary."

These highly educated and highly paid employees invest in their own properties, spend money at local businesses, and support local government investments in schools, infrastructure, and advanced technology. "The plant employees have created residual value in the community by investing in their homes and properties. That won't go away overnight," said Goodhue County Commissioner Paul Drotos. "Xcel brings people into the community that demand better education and services. For example, Red Wing was early to expand internet technology in the area. It's a progressive community."

> "If the plant closed, it would have a dramatic impact on the school district. And as the school goes, so goes the community."
>
> —Red Wing School District Superintendent Karsten Anderson

Additionally, Xcel Energy and Prairie Island nuclear plant employees provide vital support for Red Wing's local nonprofit organizations, including the United Way of Goodhue, Wabasha, and Pierce Counties; Hispanic Outreach; Every Hand Joined; and the YMCA. According to one survey respondent, "As a nonprofit leader, my agency benefits greatly from [Xcel Energy's] commitment to community. It would be devastating to the community to lose them." This survey participant went on to say that if the nuclear plant closed, several local nonprofits would likely have to close their doors as well, noting that this would result in a gap in the services that they currently provide for the community.

Interviewees specifically discussed the substantial contributions that Xcel Energy and its employees have made to Red Wing's strong arts community. "From an arts perspective, [Xcel Energy is] a great partner," said Mayor Sean Dowse. "Over the years, they've given thousands a year in ticket subsidies for students and kids to go to Sheldon Theatre matinees." Xcel Energy also donates annually to Red Wing Arts, a nonprofit with the mission to support an arts culture

and appreciation for the work of local artists.[45] According to Red Wing Art's Executive Director Emily Guida Foos, Xcel Energy makes up 5%–10% of many local organizations' total revenue. "Everywhere you look, Xcel Energy and Red Wing Shoes are the two funders," Guida Foos said. "Without them, other organizations wouldn't have the confidence to contribute funds as well."

The power plant and its workers also support local businesses in town. "Plant workers have been here for so long and are so integrated to the community that it's hard to know what Red Wing might be like without the plant. There are small businesses that work with the plant and may not even acknowledge how much they rely on it," commented Superintendent Anderson. Interviewees noted that welding shops and other trades and businesses receive significant revenue from the power plant. However, the exact economic value provided to local business is hard to quantify. "Even think about Red Wing Shoes. Everyone at that plant needs a pair of steel-toe boots," noted a Red Wing business owner.

Other Important Community Considerations

Interviewees as well as nearly all survey respondents discussed Red Wing's shortages of housing, particularly for affordable housing, and childcare. Though these issues are not directly connected to the Prairie Island nuclear plant, they constrain current and future economic growth opportunities. "We're behind on workforce housing," Mayor Drowse admitted. "Employers are consistently down 20 people for hiring, and Treasure Island Casino is down a hundred. Some people who want to live here can't find a place to live."

With a growing population of retired residents, some of the City's efforts to attract a new generation of workers and diversify its economy have been stymied by the lack of housing. "Housing variety doesn't exist here," said one interviewee. "What you're looking for doesn't exist, or if it does, you have to be the first one there because it will sell."

When asked about the greatest needs in their community, one resident responded, "Affordable housing, affordable childcare." Another respondent reiterated the point, "Our community is very short on housing for lower-income workers and childcare."

Transition Efforts and Vision

As discussed above, Red Wing is already preparing for an eventual plant retirement by using some of the tax revenue it receives from the plant to strategically pay down infrastructure investments while the revenue is available. It is important to note that while this strategy may reduce the need for a future tax increases to pay for capital investments in infrastructure, it does not address a loss in revenue for general operations. The City, County, and school district will still have to address a significant loss in funding along with a number of other issues if the Prairie Island plant retires.

[45] "Our Mission & Vision." Red Wing Arts. Accessed October 7, 2019. https://redwingarts.org/mission-vision

Nuclear Waste Storage

As noted above, spent nuclear fuel is stored on-site at the Prairie Island facility. Many interviewees and survey participants noted concerns about the future of that nuclear waste. Study participants recognized the challenges of relocating the stored spent fuel given federal inaction in developing a permanent storage facility and noted concerns related to future land use options and redevelopment opportunities. "The community would be very upset if the spent fuel was indefinitely left there. A huge concern of the community is if Xcel leaves, what happens to the waste? Will they just leave it here?" stated one community member interviewee.

The City of Red Wing is actively looking for options to remove and relocate the stored nuclear waste. "We're participating in any venue we can to remove that waste," said Hallock. This includes participating in the Nuclear Waste Strategy Coalition, a collective of cities, electric power providers, and state regulators that seeks to secure a timely, safe, and cost-effective storage site for nuclear fuel waste in a centralized interim storage facility or a permanent repository using the federal Nuclear Waste Fund.[46]

In a separate interview, Mayor Dowse stated that relocating the spent nuclear fuel was a top priority. In thinking about the potential for extending the plant's current license, he recognized the difficult situation that the Prairie Island Indian Community faces with respect to the stored nuclear waste. "They don't want to see 40-plus storage casks 600 yards from them. It should be tough for the state to tolerate that too … and even Red Wing may have a problem with it."

Diversifying the Economy

The City of Red Wing is considering ways it can attract new businesses and community members to diversify its reliance on the power plant for tax revenue. The City's 2040 Comprehensive Plan references its heavy tax dependence on the Prairie Island nuclear plant and the need to consider a future without that revenue source. In all interviews and survey responses, there was a general sentiment that business diversification is possible and essential going forward. "The impact [of a potential plant closure] is going to be there regardless," said one community member interviewee. "It's what can you do to blunt that. Expand employment and diversify employment. Make Xcel a smaller piece of the economy as a share."

> "Together, we're going to have to figure out with Xcel and the State how we will survive this."
>
> —Red Wing Mayor Sean Dowse

Many interviewees agreed that Red Wing's creative community and scenic setting has the potential to attract innovative new possibilities to the city. One survey respondent offered a suggestion, saying, "Tourism should be strengthened [in Red Wing] with a more integrated approach to recreational assets and the creative economy." The Mayor hopes to see new businesses emerge and grow from the local Minnesota Southeast Technical College campus. He also stated that he would like to see more immigrants settling in Red Wing to support new industries and enjoy the natural and cultural amenities the area has to offer. "Small cities in cold

[46] "Member Organizations." Nuclear Waste Strategy Coalition. Accessed October 7, 2019. http://thenwsc.org/about-us

climates, as I understand it," he elaborated, "need a strong immigrant community to stay vital. We've got to get over this idea that immigrants are a threat. Immigrants are going to save this country, as they always have."

The City of Red Wing also sees itself continuing to play an important role in Minnesota's clean energy economy. County Commissioner Drotos said, "I would like to see a resurgence of people who are hungry for knowledge, education, and success come to Red Wing. The clean energy economy can come here. The security, infrastructure, and the workforce are all here. I think we are poised for a technological economy in the energy field — maybe nuke, maybe something else. I'm not in favor of replacing [the Prairie Island plant] with gas. That reactor is going to be done when it's done, but there are other things out there."

Mayor Dowse also said that he hopes to keep the City's strong relationship with Xcel Energy. "We don't ever want to lose them. We want to help Xcel reach their carbon goals and we want them to reach 100% carbon free by 2050. Nuclear has got to be a part of that for baseload power."

Uncertain Future

According to the City, its biggest obstacle in planning and implementing its transition strategy is uncertainty. While the community holds a resounding hope that Xcel Energy will seek to relicense the Prairie Island nuclear plant, there is no guarantee that the company will or that such a request would be approved by regulators. The Prairie Island nuclear plant's license is not discussed in Xcel Energy's current integrated resource plan filing, so the community will have to wait for the next resource plan for an update. City Business Administrator Hallock commented, "I will welcome a decision on the plant either way so that the city can have certainty. Once a decision is made, it will mobilize the community."

"Together, we're going to have to figure out with Xcel and the State how we will survive this," said Mayor Dowse.

SECTION 3: POWER PLANT WORKERS AND ORGANIZED LABOR

Power Plant	International Brotherhood of Electrical Workers	Building Trades	Total Permanent Unionized Plant Workers	Short-term Maintenance Workers
Sherburne County Generating Station	250	50	300	150–200
Boswell Energy Center	116	0	116	10
Monticello Nuclear Generating Station	185	15	200	230
Allen S. King Generating Station	75	10	85	75–100
Prairie Island Nuclear Generating Station	322	69	391	230

Power plant workers will be the individuals most affected by a power plant retirement. Plant workers, whether direct utility employees or employees of contractors, devote their careers to working in and on power plants. Power plant jobs are typically specialized, high paying, and stable — an increasingly rare combination in today's economy. Workers and their families face great uncertainty around power plant retirements regarding how, and even whether it will be possible, to replace their jobs and incomes. Recognizing this, the study authors conducted interviews with the labor unions that represent power plant workers. Labor unions represent their members in negotiations with employers on a wide range of issues and also provide members with training and job placement and relocation support.

Interviews were conducted with the International Brotherhood of Electrical Workers, Laborers' International Union of North America, and the International Brotherhood of Boilermakers to better understand the perspective of power plant workers and the effects that Minnesota's energy transition has on them. The following description of interviews with labor unions aims to illuminate their perspective and the effect that a power plant closure may have on workers and the unions that represent them.

International Brotherhood of Electrical Workers

The International Brotherhood of Electrical Workers (IBEW) is a labor union that represents electrical industry workers in the United States and Canada, including plant operators, wiremen, line workers, and other employees of public utilities. Five different IBEW local unions represent workers in each of the five Minnesota power plants included in this study. Representatives from each of those five locals participated in an interview for this study.

IBEW local unions represent hundreds of workers across these five power plants. IBEW members are high-skilled workers who have spent two to four years in apprenticeships with additional training and education throughout their careers. Typical occupations for IBEW members in Minnesota power plants include electrical maintenance workers, equipment operators, plant engineers, instrument and controls technicians, and coal yard workers.

IBEW's leadership and membership pay very close attention to proposed and approved power plant retirement dates. The majority of full-time workers in Minnesota's utility-owned power plants are members of the IBEW. Thus, IBEW's local unions, members, and members' families will be among the most affected by power plant retirements in the state. "In short, anyone working full-time at the plant is likely an IBEW member," summarized one IBEW representative. "We're the ones that will be most affected," another representative said. "We're in those plants 24/7."

"We're the ones that will be most affected," another representative said. "We're in those plants 24/7."

—IBEW representative

IBEW's top concern regarding power plant closures is the loss of jobs for its members. Similarly, IBEW's top priority in the face of a power plant closure is ensuring that all of its members retain or find employment in jobs that allow them to maintain the same quality of life as they had in their previous position. That includes comparable wages, benefits, and hours, as well as a working location that allows members to return to their homes and families between shifts. As Minnesota reduces the number of central power plants in the state, the union's effort to transition laid-off workers to similar positions within other plants will become increasingly difficult. Moreover, the high-quality jobs within utility-owned central power plants — in terms of pay, benefits, and stability — are exceedingly rare elsewhere in the energy industry and as well as outside of it. Moving potentially hundreds of laid-off workers to positions of comparable quality outside of power plants would also prove challenging.

Strategies for Dealing with Plant Closures

Most of the union's business representatives and managers interviewed for this study have experience with power plant downsizing or closure in the past. "Our number one goal is to place those members so that they are gainfully employed and not laid off." Another representative added, "So far we've been successful in doing that." However, most of the previous closures with which the union has experience modeling and negotiating agreements were smaller plants. The pace and scale of Minnesota's current energy transition will strain the union's traditional strategies for managing layoffs.

During small or more isolated plant closures, the union would often seek out similar positions for members in other utility-owned power plants. That strategy is less viable in the face of multiple plant retirements in a similar timeframe, with far fewer replacement plants coming online. "A machinist at a coal plant could be a machinist at a nuclear plant. In the past, we had options to move people to other sites. We don't have that anymore," said one representative. The Boswell plant representative stated, "Boswell operations folks are highly knowledgeable, but if they can't

move to another plant with some sort of boiler, there's little value to their skill set. If you're a plant operator, there are very few opportunities for you unless you get retrained."

> "In the past, we had options to move people to other sites. We don't have that anymore."
>
> —IBEW representative

Retraining can be an option for plant workers who face layoffs and may be an especially good fit for younger workers who have years or decades of time to pursue a new career. However, investing in additional years of retraining may be unattractive for workers who are nearing retirement. IBEW's goal is to ensure that workers who are retraining are doing so for jobs of comparable quality to those they are leaving. IBEW indicated that they do not know of opportunities for members to retrain for comparable quality jobs outside of the industry, and electric utility positions are decreasing in number overall.

Another strategy of the unions is to move workers from one state to another for work in their specialty. This is also becoming less effective, as states across the country are facing the same energy transition as Minnesota, moving away from centralized generating plants toward more renewable energy resources. Even when possible, this strategy of moving workers across states is typically a last resort because it requires families to relocate.

Retention bonuses can assist workers who face future layoffs and also help keep experienced staff on the job and plants operating smoothly through plant retirement. IBEW representatives stated that they have asked Xcel Energy about retention bonuses for workers at plants slated for retirement, but that the utility has not yet engaged in those conversations. "[Retention] will be a problem," one representative explained. "If people say 'we have to save ourselves' then you'll have an inexperienced workforce operating the plant." Experienced, knowledgeable operators are needed at a plant site until the very last day of operation. Workers who stay through plant retirement, however, may be more likely to experience a gap in employment.

IBEW and both utilities involved in this study have agreed to some wage protections for workers in the event of a plant closure. However, any further wage protections, job transfers, or support for workers will be determined through future negotiations. As one representative noted, "Ultimately, [the utilities] have to bargain the effects of any closure with the unions."

Workers Nearing Retirement

Approaching closure dates for Minnesota's regulated power plants creates special challenges for workers nearing retirement age but not yet able to retire. "[One] of the biggest issues we face is that people will be 50 years old when the plant closes. They invested their whole career and retirements into those plants." These workers will not have earned full or sufficient retirement benefits and may be limited in the types of jobs they could transition to as well as opportunities to retrain for a new role. Based on proposed and approved retirement dates for the power plants in this study, IBEW representatives expect that there are a significant number of workers who fall into this category.

One union representative for the Allen S. King plant stated, "[Members are] nervous because if the plant goes in 2028 or sooner, I'm going to have about 47 people or so that are 50 years old and need seven to eight more years to finish up." A representative for the Sherco plant estimated that if the plant retired in 2030, as proposed by Xcel Energy, about 95 people would have one to 10 or more years left before they could retire with full pension.

One representative explained, "If I'm 50 years old, my pension will be crap. After 50, your average earnings would be higher, and that's where most of your retirement is built up. It's like a hockey stick [graph]." Another representative added, "They'll still get their retirement, but it's going to be a much smaller pension than what they would have had. So their lifestyle will have to change dramatically."

Additionally, the uncertainty around power plant closure dates makes career and retirement planning difficult for workers. The representative from the Boswell plant stated, "At Boswell, we have daily conversations with members that view [plant retirement] as a moving target. Minnesota Power wanted to keep [Boswell's Unit 1 and Unit 2] open longer but the [Public Utilities Commission] had them shut down sooner because the investments were so costly to keep it running. It's hard for [workers] to make career decisions because seven years earlier makes a big difference."

Transferring workers who are nearing retirement age to other open positions at the utility can pose challenges as well. One representative noted, "You take a guy that's 50 years old that has been an operator his whole life, and now you're going to move him to the line or construction. It's going to be way more physical. To learn how to be climbing polls at age 50, you tell me how that's going to go."

Worker Opportunities in the Energy Sector Going Forward

To date, IBEW has yet to see evidence that the clean energy industry will replace the number and quality of jobs associated with utility-owned power plants. Interviewees cited several reasons for this. First, the utilities often buy solar and wind farms after construction with a five-year contract for continued maintenance with the third-party developer. IBEW representatives noted that often these are built with nonunion labor and therefore are maintained by nonunion workers. Second, solar and wind fields require very few permanent jobs for operation and maintenance. The majority of jobs associated with wind and solar are temporary jobs during the construction process. One representative stated, "Permanent green jobs are essentially a myth." He continued, "Minnesota Power put up 500 megawatts of wind and through that we gained four members. Most was built in North Dakota largely with nonunion workers and is still staffed nonunion."

"You take a guy that's 50 years old that has been an operator his whole life, and now you're going to move him to the line or construction. It's going to be way more physical. To learn how to be climbing polls at age 50, you tell me how that's going to go."

—IBEW representative

The IBEW representatives admitted that they have been caught off guard by the pace of Minnesota's transition toward wind and solar generating

resources. “Clean energy really started getting pushed around 2005. Everyone thought it couldn’t be done, yet here we are and half of the plants in Minnesota are gone.”

As a result of diminishing jobs in energy generation, some union representatives expect their membership to downsize and to potentially merge with other locals. “Local 23 will go down through the attrition,” one representative said of the union representing workers at the Allen S. King plant. Others responded with, “We’ll have to make decisions on increasing members’ dues or look at merging with other locals, because we can’t sustain that number and still serve the membership,” and, “it will dramatically affect all of us.”

Support for Workers and Communities

IBEW members expressed hopes that Minnesota’s energy transition would include support from utility employers for IBEW members in finding gainful, quality employment. “Give them a soft landing and make sure they get retrained,” one interviewee said. Other interviewees hope that clean energy organizations that have advocated for closing power plants would offer support for dislocated workers. Another representative suggested that there should be a state program offering a two-year degree to retrain workers displaced from power plant closures at no cost to workers.

The representative for the Boswell Energy Center mentioned that the Iron Range Resources and Rehabilitation Board (IRRRB) could offer a good model to draw upon. The IRRRB has a retraining program for when manufacturing facilities or mines close. Instead of a property tax, these companies pay a production tax on what they extract or produce. Some of these taxes are then allocated for retraining and assistance for dislocated workers.

IBEW interviewees also discussed the interconnectedness of impacts on workers and the communities that host retiring power plants. “It’s going to be a huge issue for the communities,” one representative stated. “Now towns will have to pick up property taxes within those [host] communities. And if our people are still living there, and they do find employment elsewhere, they’re going to have lower wages and they’ll be paying more in taxes. That’s going to change those communities.”

Laborers’ International Union of North America

The Laborers’ International Union of North America (LIUNA) represents workers in the United States and Canada. LIUNA members reflect a diverse array of workers that specialize in the construction and energy industries. In the context of power plants, LIUNA’s workers are involved with building and decommissioning plants, nuclear refueling outages and dry cast storage, retrofitting plants for upgraded safety or for a natural gas conversion, as well as building renewable energy resources like wind and solar. The business manager of a LIUNA local union participated in an interview for this study, and a regional representative for LIUNA provided written input.

LIUNA represents hundreds of workers who are employed with utilities, including Xcel Energy and Minnesota Power, and has a running contract for all of Xcel Energy’s power plant facilities.

This contract covers LIUNA members who are direct employees of Xcel Energy, in Xcel Energy's special construction department, as well as employees of specialty construction contractors who work on Xcel Energy facilities. In total, LIUNA estimates that 300–400 of its members work as an Xcel Energy employee or employee of a contractor. One LIUNA business manager said regarding their members' roles on-site at power plants, "Our laborers are there first and they're there last." Because of this, LIUNA's locals in Minnesota work closely with utilities and track their integrated resource plans to keep apprised of potential power plant closures and the resulting implications for their members.

Energy Transition and Changing Opportunities

Given the nature of LIUNA's members' work, they have the benefit of some continued opportunity even as large central power plants retire. As plants are either decommissioned or retrofitted, LIUNA expects to see a significant, albeit temporary increase in the amount of work available to its members. Nonetheless, working to build and upgrade fossil fuel and nuclear power plants is a significant source of work for LIUNA members. If power plants are decommissioned and not replaced, work opportunities for LIUNA members could diminish substantially over time.

In the face of these diminishing opportunities in fossil fuel and nuclear plants, LIUNA is trying to think about the future and act proactively. The local union representative stated, "We take an 'all of the above' energy approach." Both LIUNA's local and national unions are working to transition members to the renewable energy field, where they see an opportunity for union market share to grow. LIUNA's local representative stated, "As plant closures come down, and jobs go away after decommissioning, how do we ensure that our members have jobs on the renewable energy side? We want to make sure that our members on the fossil side that are losing jobs are able to maintain good-paying union jobs on the renewable side. We are trying to work with Xcel to ensure that that opportunity is available."

LIUNA is especially interested in wind energy, which necessitates much more work for laborers than solar photovoltaic developments due to licensing and electrical codes. Locally, LIUNA coordinates and communicates with the operators, ironworkers, and millwrights' unions to say aware of upcoming and ongoing wind farm developments.

> "[Developers] are bringing in a lot of out-of-staters, nonunion to build wind farms. They don't have prevailing wage attached to them, so they don't pay the area standard."
>
> —Local LIUNA representative

Despite the opportunities that may come in the renewable energy sector, a lot of uncertainty remains. According to LIUNA's local representative, its members' biggest concern about power plant closures across the state is the loss of good, family-sustaining jobs. As the largest building and construction trade organization employed by Xcel Energy, LIUNA representatives are concerned that their members could disproportionately lose in Minnesota's energy transition. "A lot of our members at Xcel are very concerned about their jobs. They don't know what will happen when these jobs change," one LIUNA representative stated.

A major driver of uncertainty and concern for LIUNA and its members is that clean energy jobs have so far not been a one-for-one replacement for utility-owned power plant jobs. Even utility-scale renewable energy projects have often been built with non-local and nonunion labor. This affects both LIUNA members and Minnesota's local communities and workforce more broadly. The local LIUNA representative described, "We are trying to gain market share in the renewable industry, where much of it has been done nonunion. A lot of projects are not benefiting communities where they're being built in regard to jobs. [Developers] are bringing in a lot of out-of-staters, nonunion to build wind farms. They don't have prevailing wage attached to them, so they don't pay the area standard. They are undercutting."

Recently though, LIUNA has seen increased local hiring for Minnesota's renewable energy projects. The regional LIUNA representative stated, "[It's] been changing rapidly thanks to hard work on both sides. We've seen significant efforts on the part of both utilities and clean energy developers to do a better job of creating high-quality opportunities for local workers. By our estimates, we've gone from a wind construction workforce that was less than 20% local (Minnesota or within commuting distance of project) in 2017 and 2018 to more than 60% local in 2019, and we expect the trend to continue into 2020."

Community Impacts

The local LIUNA representative, whose father was a union member who worked at Xcel Energy plants for nearly 30 years, spoke from personal experience describing the benefits that he, his family, and his community have experienced from the high-quality jobs and the tax base that utility-owned power plants provide. "Xcel Energy built up this whole area," he stated. "That's how I grew up. I had a very good childhood because we didn't necessarily want for anything. I had healthcare. I never had to worry about that. Xcel itself has sustained thousands of households in our communities."

He went on to commend Xcel Energy for its ongoing work in the community, "In my mind it's incredibly important that as they brought forward this plan to shutdown Sherco early they have made an effort to help redevelop that area." He went on to say, "However, the businesses that are moving in aren't all using union contractors. If those were Xcel projects, they would have been ours. So these aren't just transitioning over one-for-one quality jobs."

"[It's] been changing rapidly thanks to hard work on both sides. We've seen significant efforts on the part of both utilities and clean energy developers to do a better job of creating high-quality opportunities for local workers."

—Regional LIUNA representative

He spoke of one company that is considering moving into Becker, Minnesota — home to the Sherco Generating Station — with plans to power its facility with renewable energy. But the existing wind farm slated to serve that business was built with nonunion labor outside of Minnesota.

Regarding communities' economic transition as power plants retire, the local LIUNA representative stressed the importance of maintaining well-paying jobs. "As the redevelopment happens, it's important that we take note of the jobs that we're losing and ensure that we're

replacing them with well-paying jobs. When you're competing on costs the easiest way to compete is paying your employees less. [LIUNA has] a standard we set for all of our contractors to pay. This is something that has to be at the forefront of these jobs and the renewable energy economy coming in."

LIUNA's Hopes for Minnesota's Energy Transition

What does a successful transition look like for LIUNA members? First, LIUNA hopes that the plant sites do not stay idle for long periods of time before decommissioning. When the site contains an abandoned building, not only have people lost their former jobs, but no new jobs are transitioned into its deconstruction. "Leaving a plant dormant does very little for us," the LIUNA representative said. Further, as plants are decommissioned, LIUNA hopes "that Xcel will self-perform that work."

More broadly, LIUNA hopes that state regulators, policy-makers, and Xcel Energy do as much as possible to ensure that energy infrastructure creates local jobs. LIUNA would like to see "the [Public Utilities Commission] attach a prevailing wage requirement to new [renewable energy] projects. The local labor hire reporting requirements were a big step in the right direction." Though LIUNA workers and contractors have an advantage over many other contractors — providing a more skilled workforce, which increases productivity and safety — it can be difficult to compete against contractors using low-paid, low-skilled, and often non-local workers for some contracts that focus primarily on cost.

Boilermakers Local #647

Founded in 1936, the Boilermakers Local #647 (Local 647 or Boilermakers) is located in Ramsey, Minnesota, and serves Minnesota, North Dakota, and South Dakota. Local 647 is a construction lodge of the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers.[47] Local 647's membership includes about 550 workers that that do a substantial amount of contract work in power plants, including all of the plants included in this study. Two representatives of the Boilermakers Local #647 participated in an interview for this study.

Members of Local 647 are highly trained with a very specialized skillset. Members go through a four-year apprenticeship and training program and graduate to become certified welders and certified crane riggers, with ongoing education throughout their careers. While members work in industries and facilities other than the energy industry and power plants, about 75% of members' work hours happen in power plants. Local 647 members' work in power plants includes everything from erection to dismantling, repairs, tube work, and work on environmental controls, bag houses, scrubbers, ducts, and stacks. Boilermakers are not direct employees of the utility. They perform work in power plants as employees of contractors.

Given the amount of work Local 647 members do in power plants, as well as the highly specialized nature of their work, power plant retirements are top of mind for Local 647

[47] "About Us." Boilermakers Local #647. Accessed October 11, 2019. http://boilermakerslocal647.com/about-us/

leadership and members. “The members themselves keep up on the current events as to what Xcel is saying, the latest plan,” said one representative.

The Effects of Closing Plants

The representatives interviewed said that their biggest concern regarding plant closures is the loss of work and livelihood for members. Local 647’s members are relatively young. According to the Local 647 representatives, the average age of its members is about 37 to 38 years. This is important, as most of Local 647’s members will not be at retirement age when many of the plants included in this study are expected to close.

The Boilermakers are already seeing a decline in work due to power plant closures. One representative stated, “It’s already on the decline. [Utilities] have a date out there when they know they’re going to shut down [a plant] and their tendency is just to not spend any more money on them than they have to. That’s been happening for a couple of years now.” Reduced hours for Boilermakers in the electrical sector is happening alongside a decrease in work at a major Minnesota refinery as well. As work dwindles in both of these key areas, Boilermakers are seeing fewer available positions and work hours, and less and less opportunity in the future. “Take a Boilermaker that’s been in for six, seven, eight, maybe 10 years looking at his career disappearing before his eyes,” said one representative.

> “We’re already being impacted by [plant retirements] heavily. There’s a loss of man-hours, the average hours per year per member is declining. We have people leaving the trade and looking for work elsewhere.”
>
> —Boilermakers representative

Another representative explained, “We’re already being impacted by [plant retirements] heavily. There’s a loss of man-hours, the average hours per year per member is declining. We have people leaving the trade and looking for work elsewhere.” The power plant work has good pay and benefits, which helps support the entire union membership. The alternative work opportunities, however, are not equal replacements for the lost work in power plants. “Unfortunately [members are finding other work] in places that pay less with crummier benefits, which also affects our pension fund.” Members who are looking for jobs outside of power plants are in many cases moving toward shop work, which pays less than power plant work.

As opportunities decline, Boilermakers face a shrinking membership as well. Some members are leaving the Boilermakers and moving to other trades and others are working in nonunion positions in local shops. Recruiting new members is becoming more difficult as well. “We’re having trouble bringing new people into the apprenticeship program,” one representative stated.

Worker Opportunities in the Electric Sector Going Forward

According to the representatives interviewed, Boilermakers have few to no opportunities associated with renewable energy resource development or maintenance. The specialized work that Boilermakers do does not apply to renewable generation. They do not anticipate that

the construction or maintenance of additional renewable generation in the region will benefit their members.

When asked if the Boilermakers would have any opportunities from decommissioning work when a power plant retires, they emphasized the short-term nature of those jobs. According to the representatives, decommissioning work is short lived and does not lead to future prospects for members, but rather forecloses an opportunity. "It's like getting a piece of granite and asking you what you want written about you on your tombstone," one representative said of opportunities related to decommissioning.

> "The idea of green jobs is a lie. They are including all sorts of things in there like decommissioning or little projects and calling them jobs. Those aren't jobs, those are temporary projects."
>
> —Boilermakers representative

The representatives stated that the Boilermakers do have some work opportunities in the construction and maintenance of natural gas plants. To the extent that retiring coal and nuclear plants may be replaced with or converted to natural gas-fired power plants, the Boilermakers may see continued opportunities in the electric sector. However, they still expect to see a significant decline in work in the sector, even if additional natural gas plants are brought online. The representatives explained that natural gas power plants require significantly fewer workers and work hours from their trade compared to coal and nuclear plants. "The problem with a gas plant is that you might have 50 to 60 guys for about a year, and then it's done, and we might go back in for maintenance and it'd be six to eight guys for a week. Compared to maintenance at a plant like Sherco, where you have 100 guys a shift with two shifts for five to six weeks every year or every other year."

Both representatives expressed concern about what will happen to host communities that lose plants. One representative stated, "The loss of highly skilled highly paid jobs, the economic impact is going to be devastating." The representatives interviewed were skeptical about the quality of employers and jobs that may replace power plants. "Do they pay $60 an hour, total package? I'm pretty sure they don't," one representative said. He went on to say, "Even on the wind turbine and solar side, the vast majority of what's being built is being done by nonunion companies using low-wage scales. The contractors are from down south or out west, so all the dollars leave the state."

The representatives also expressed skepticism and concern about power reliability if all the plants included in this study were to retire in a short timeframe. They believe it is unrealistic to think that all the plants in this study could be replaced with renewable energy resources without major outages during peak winter and summer periods.

Support for Workers

When asked what types of support the Boilermakers hope to see for workers, one representative stated, "The type of support that our members would like to see is a job, and therein lies the big issue. When they are closing the plants for green energy, it's going to wipe

us out." He continued, "There's going to be a gross loss of jobs due to this [energy transition] that aren't coming back. There is no green job that's going to replace this stuff, and that's not just for the Boilermakers, it's for all of power generation and a lot of other crafts too and support businesses."

One representative stated, "The idea of green jobs is a lie. They are including all sorts of things in there like decommissioning or little projects and calling them jobs. Those aren't jobs, those are temporary projects. You're creating something that lasts two weeks long and giving it a credit like you would a permanent job."

The representatives do see opportunity for their trade and members in carbon capture and sequestration technology. "I'd like to see [utilities] build new [coal] plants with carbon capture on them." The representatives mentioned a project in North Dakota that will add carbon capture technology to an existing coal plant. A representative stated, "The vast majority of carbon capture work would go to [Boilermakers]."

> "The type of support that our members would like to see is a job, and therein lies the big issue. When they are closing the plants for green energy, it's going to wipe us out."
>
> —Boilermakers representative

However, the representatives worry that political opposition to coal may be too strong in Minnesota for carbon capture technology to truly take off. "The biggest misconception out there is that coal is dirty. Boilermakers have been putting the pollution controls on these plants for decades." The representatives believe that carbon capture technology could be the next generation of environmental controls for coal plants and would like to see greater attention paid to the technology and its potential in the state.

Finally, the representatives interviewed would like to see greater communication and consideration for the Boilermakers as plans are developed around the future of power plants and any related workforce plans or support. The Boilermakers will be greatly impacted by power plant closures in the state, but so far have not been included in the conversation around plant closures. "[Xcel Energy] never asked for input from us," stated one representative.

SECTION 4: FINDINGS AND CONCLUSIONS

1. Power plants have played an important role in building vibrant and stable communities across Minnesota. Power plant closures will undoubtedly have a strong economic and financial impact on the communities that host them, and potentially, other Minnesota communities as well.

The power plants included in this study have been instrumental in helping to build many of the communities in which they are located. Through interviews and survey responses, community members and local government officials stressed the many contributions of the power plant to their communities. Power plants are so intertwined with the communities that they call home, community members and officials struggle to even imagine what their community would be like without the plant.

Power plants contribute directly to a community by providing a stable, healthy tax base; utility contributions to local charities and nonprofit organizations; contributions to local parks and recreational investments; and commerce with local businesses that serve the plant. Plants contribute indirectly by attracting plant workers and their families to these communities, which includes new businesses and commerce to serve workers and their families, the contributions that workers and their families make to the community through charitable giving and volunteering, and the value that workers and families build through investments in their own homes and property. Additionally, power plant jobs are typically relatively high-paying and stable, with good benefits. These jobs help to build stable families within power plant communities and the surrounding areas.

The power plants included in this study also contribute to other nearby communities and, more broadly, the region in which they are located. The property tax revenue that power plants provide helps to fund important state aid programs like the Local Government Aid program, the Fiscal Disparities program, and the Department of Iron Range Resources and Rehabilitation. These programs provide aid to communities that need additional funding to meet residents' needs. Power plant communities contribute significant revenue to these programs, while receiving little or no funding in return, which benefits other communities and the region. For more detailed information about these state and regional financial aid and taxation programs and how Minnesota's host communities contribute, see **Appendix B: Key State Financial Policies**.

Given the important contributions that power plants make, power plant retirements will result in significant impacts on Minnesota communities. Host communities will have to shift more of their tax burden to residents and other businesses. Local charities and nonprofits will need to look elsewhere for revenue that once came from the utility and power plant workers. Residents and businesses may also face fewer or different job or business opportunities. Other communities throughout the state may also face financial impacts due to shifts in revenue and breakdown of recipients and contributors for state financial aid programs. The degree to which communities experience the economic and social impacts of a power plant closure will depend on a number

of factors, such as proximity to other economic and employment opportunities, trends in the regional economy, and the success of local economic development efforts.

Other power plant communities across the nation that have faced power plant closures offer a glimpse at what Minnesota's host communities could also experience when their power plants retire. These communities across the nation and the strategies they employed throughout their transition may also be informative as Minnesota considers how to manage the impact of power plant retirements. **Appendix D: Literature Review of Transitioning Power Plant Communities** of this report contains a literature review describing the experience of four different communities across the country that are facing or have faced a power plant retirement, along with key takeaways from those communities' transitions that may be relevant and useful for Minnesota.

2. Minnesota's host communities are currently pursuing a range of strategies to plan and prepare for power plant closures as well as the economic transition those closures will require. None of those strategies are expected to fully offset the economic impact of a plant closure, but they may help mitigate the negative effects.

Many of the Minnesota communities included in this study are proactively planning and preparing for the eventual retirement of the power plants they host. These host communities are currently deploying a number of different strategies to assist with their forthcoming economic transition. Through interviews, local government officials stressed that, given the magnitude of the tax revenue associate with power plants, they do not expect that their efforts will fully replace the benefits currently provided by the power plants. However, they hope that a combination of their own strategies and efforts, along with some other potential future efforts at the state and regional levels, may help mitigate the effects of a power plant closure and allow their communities to continue to grow and prosper.

Some communities included in this study are investing to renew and revitalize their aging infrastructure now, with the aim to pay those investments off before the power plant retires and they lose its tax revenue. Other communities are investing in infrastructure to attract new businesses, such as preparing shovel-ready industrial parks, and actively working to recruit new businesses. Some communities have plans to develop recreational areas that highlight the natural assets of the community to attract new visitors and tourists. Nearly all of the communities included in this study noted plans to engage community members on issues related to transition planning, whether through comprehensive planning efforts or public discussion forums.

Appendix D: Literature Review of Transitioning Power Plant Communities of this report provides a description of some of the strategies that other communities facing power plant retirements have deployed to mitigate the effects of their plant closure.

3. Planning and preparing for a community transition related to power plant closure requires a long time horizon.

Many strategies that Minnesota communities may want to employ to mitigate the impacts of a power plant closure are long term in nature and require years to fully execute. This was a common theme throughout a number of interviews with local government officials.

For example, economic development projects may require significant planning, zoning changes, infrastructure investments, and long-term business recruitment or development efforts. Similarly, investing in and paying down debt for infrastructure renewal for a city, county, or school district ahead of a power plant retirement requires significant time for planning, construction, and debt service. Additionally, negotiating a community transition package amongst a diverse range of interested stakeholders can take years, as was the case for the Diablo Canyon Nuclear Plant, discussed in **Appendix D: Literature Review of Transitioning Power Plant Communities**.

The earlier communities begin planning and deploying transition strategies ahead of plant retirements, the more likely it is that those strategies mature and provide benefits to the community.

4. Uncertainty or a lack of information around the timing of a power plant closure poses additional challenges for a community's planning and preparation.

Unknown, uncertain, or changing timelines for a power plant retirement can make community and worker transition planning more difficult. Several local government officials, community members, and labor union representatives discussed the hardship associated with transition planning and preparation when a plant retirement date is not known or changes.

When plant retirement timelines seem uncertain or unknown, it can be difficult to know how and when to select and implement effective transition strategies. Moreover, if a retirement date is accelerated significantly, it may mean that transition plans and efforts will not be fully effective in time for the plant's closure. This, in turn, increases the likelihood that the community and plant workers will experience negative economic and socioeconomic impacts from a closure.

Additionally, uncertainty around power plant retirement dates can affect how communities and workers respond to and prioritize the need for transition efforts. When a date is unknown or perceived to be uncertain, it may be difficult to galvanize support for investing in effective economic transition strategies. Moreover, unknown, uncertain, or changing timelines for a plant retirement can exacerbate anxiety and tension for plant workers, host community members, and local government officials, making it more difficult to reach agreement, build support for, and carry out a community and worker transition plan.

Some uncertainty regarding power plant retirement dates is unavoidable. Minnesota utilities and the Minnesota Public Utilities Commission must make resource decisions, including determining plant retirement dates, in response to changing plant, economic, and policy conditions. However, some uncertainty may be avoided or lessened by ongoing and open communication between the utility, regulators, communities, labor unions, and workers. Open and frequent communication may also increase levels of trust and cooperation in developing and implementing transition strategies.

Appendix D: Literature Review of Transitioning Power Plant Communities includes examples of how communities have responded to and experienced uncertain or changing power plant retirement dates and how some communities developed strategies to facilitate communication and information-sharing to improve transition planning and implementation.

5. Land use and redevelopment of power plant sites after a plant has closed is an important issue for Minnesota's host communities.

Through interviews and community survey responses to this study, local government officials and community members expressed great interest in how the property currently occupied by a power plant will be used after the power plant retires. Community members and local officials voiced concern about retired power plant sites remaining vacant, as well as hopes for using the land that their power plant currently occupies in new ways after the plant retires.

Almost without exception, the Minnesota host communities included in this study stressed that once their local power plant retires, they do not want the shuttered plant to remain on-site. Study participants expressed hopes that when the local power plant retires, the utility owner will fully decommission the plant and remediate the property. Study participants noted concerns about leaving a closed plant in place, including the inability to redevelop that land for other valuable uses and that the retired plant building and property could become a blighted, problem property.

Many study participants expressed hopes about using the current power plant property for other purposes after plant retirement. In some cases, participants hoped to see the power plant property land cleaned and restored to its natural state to be enjoyed by the community, and potentially to attract tourists and visitors as well. In other cases, participants hoped to see the land redeveloped for other business purposes to provide economic value to the community. Several participants also noted the opportunity to use the existing power plant property to site new energy resources, which could then use the existing transmission and distribution infrastructure from the current plant. Interview participants discussed the need to balance the best use of the power plant property with the desire to use the property to bring in additional tax revenue.

Appendix D: Literature Review of Transitioning Power Plant Communities provides examples of how some power plant communities facing a plant retirement in other parts of the country have addressed decommissioning, remediation, and land use of power plant properties after retirement. The case of Centralia, Washington, provides an example of how decommissioning and remediation efforts can be designed with the future land use in mind to manage costs and take advantage of existing infrastructure.

Nuclear spent fuel storage will present serious challenges for decommissioning, remediation, and redevelopment of power plant property for some Minnesota host communities. Study participants from communities with a nuclear power plant expressed concerns about the stored nuclear waste staying on-site indefinitely even after a plant closed. Participants voiced a number of questions and concerns about how and by whom stored nuclear waste will be secured, maintained, and monitored if the plant retires. The Prairie Island Indian Community, where residents live closer to stored nuclear spent fuel than people do anywhere else in the country,

expressed concern that if their local nuclear plant closed, political and public attention to addressing the spent nuclear fuel waste could wane, leaving them with a permanent problem and little support.

With no federal permanent or interim storage option available, nuclear spent fuel storage has remained unmoved from plant sites in other parts of the country for decades after plant retirement and decommissioning. **Appendix D: Literature Review of Transitioning Power Plant Communities** describes the experience of Wiscasset, Maine, where a nuclear plant retired in 1997 and stored nuclear waste remains at the plant site to this day.

6. Minnesota plant workers, the unions that represent them, and the host communities have shared interests and concerns regarding power plant closures. Workers, labor unions, and host communities may benefit from close coordination and communication in plant closure transition planning and preparation efforts.

Minnesota's power plant workers and power plant host communities are closely connected in terms of their relationships with their power plants. In some cases, workers and host communities are indistinguishable, as plant workers are often members of the host community.

Host community members and local government officials discussed the importance of power plant workers to their communities. Power plant workers often own property in their host community, send their children to local schools, pay taxes, give to local charities, and volunteer. One local official of a host community even stated that their biggest fear in facing a power plant closure was not lost tax revenue, but the prospect of plant employees leaving the community.

Similarly, the labor unions that represent power plant workers expressed the importance of the host communities to workers and workers' families. A major issue for workers facing a power plant retirement is the prospect of uprooting their families and moving away from the host community to find employment opportunities elsewhere.

In many ways, host communities and power plant workers face a shared fate around power plant retirement. Workers, labor unions, and host communities may find value in collaborating, coordinating, and supporting one another throughout community and worker transition efforts.

Appendix D: Literature Review of Transitioning Power Plant Communities provides examples of organized labor and host communities that worked together to achieve community and worker transition agreements in response to a power plant closure.

7. In today's economy, power plant jobs are uniquely high in quality. There are no clear options to replace power plant jobs with positions that are similar in terms of pay, benefits, stability, and location.

The labor unions that represent power plant workers emphasized the high quality of power plant jobs and the difficulty, if not impossibility, of replacing those power plant jobs with jobs of equal quality. Labor union representatives noted the relatively high pay, the stability of employment, the good benefits, and the location of power plant jobs. In each interview with representatives of organized labor, they stressed that it is critical to think beyond simply replacing a total number of

jobs when considering plant worker transitions. Rather, one must consider the quality of the jobs available to plant workers who are displaced due to a power plant closure.

Power plant jobs are career positions. Power plant jobs are often high-skilled positions that require extensive apprenticeships and training, which can take years to complete. Accordingly, power plant jobs pay relatively high wages, well above Minnesota's state median income. Table 7 provides a comparison of the average annual base wages for workers at each of the power plants included in this study to the Minnesota median average household income.

Table 7: Annual Power Plant Wages Compared to the Minnesota Median Income

Power Plant	2018 Average Annual Base Wages per Power Plant	2014–2018 Minnesota Median Household Income (2018 Dollars)
Sherburne County Generating Station	$88,556.39	$68,411[48]
Boswell Energy Center	$88,317.25	
Monticello Nuclear Generating Station	$108,990.86	
Allen S. King Generating Station	$92,830.97	
Prairie Island Nuclear Generating Station	$109,023.41	

*Note that the Minnesota median income figure refers to a household, while the power plant wages refers to the individual.

Power plant jobs are very stable with a low risk of elimination due to outsourcing or other factors. Additionally, power plant jobs provide high-quality benefits, including a retirement pension. This is notable as, according to the Bureau of Labor Statistics, only 17% of private industry jobs offered a retirement pension plan in 2018.

The combination of pay, stability, and benefits make power plant jobs uniquely high in quality in today's economy. These jobs allow for workers to provide financial stability for their families and to invest in their communities.

As more of Minnesota's central power plants retire, power plant workers facing job loss due to plant retirement likely will not be able to simply move to a different power plant within the state. In fact, as power plants retire across the country, even workers willing to move out of state will be less likely to find open positions at power plants. Far fewer permanent workers are needed for natural gas power plants, and even fewer are required for renewable energy resources. Therefore, as Minnesota transitions toward more renewable energy resources and natural gas generation, the total number of jobs in the electric generation sector will decline.

[48] "Minnesota Compass." U.S. Census Bureau. Accessed January 28, 2020. https://www.census.gov/quickfacts/fact/table/MN/INC110218#INC110218

It will not be easy to replace power plant jobs with jobs of equal quality, and indeed, it is not clear if it is possible. This is especially true in communities facing economic downturns in other important local industries.

8. Not all of Minnesota's host communities receive benefits from the power plant they host.

The Prairie Island Indian Community's relationship to the power plant they host is distinctly different from that of any other community in this study. Their relationship with the nuclear plant is rooted in decades of history, including how the plant came to be, the history of the land on which the plant sits, how the tribe was treated during construction and early operation of the plant, and how the utility communicated with the tribe.

Moreover, despite its proximity to the plant, the Prairie Island Indian Community does not receive tax revenue from it, and no tribe members work at the plant. The nuclear plant and on-site spent fuel storage deters many community members from living on tribal land. Additionally, the nuclear plant is seen as a threat to the tribe's main source of income, the Treasure Island Resort and Casino, in the event of a nuclear incident.

Today, the Prairie Island Indian Community and Xcel Energy have open communication and the relationship is as good as it has ever been. Nonetheless, the tribe does not receive many of the economic and social benefits of hosting a power plant that are typical of the other communities included in this study. The community does, however, experience the negative aspects of hosting a power plant.

The Prairie Island Indian Community would like to see the plant retired, the land restored to its previous condition, and returned to tribal ownership. However, they acknowledge that this is likely unrealistic until the spent nuclear fuel stored on-site is removed.

APPENDIX A: STUDY METHODOLOGY

Literature Review

This study began with a literature review of existing resources and research about community transitions due to power plant closures. This included resources on the "just transition" framework, academic journal articles on lessons learned from transitioning communities, and technical reports regarding environmental remediation after plant retirements. Citations for those resources are provided in the bibliography of the literature review.

Through this broad research, the study authors selected four specific case studies of power plant closures in the United States. Authors reviewed these case studies and summarized that research herein to illustrate how community transitions have unfolded under different sets of circumstances, as well as the challenges and opportunities that emerged. The case studies reflect two nuclear power plant retirements and two coal-fired power plant retirements. The authors researched each of the four community transitions through a variety of sources; wrote a summary description of the transition stories, highlighting key takeaways that may be informative for Minnesota's communities; and received and incorporated input on the summary descriptions and key takeaways from national experts who are familiar with each of the transition stories.

The information gathered through the literature review informs the findings and conclusions included in this report.

Qualitative Research

The study authors convened a Steering Committee of community representatives from each of the host communities included in this study, a representative from each of the utilities included in the study, and a representative from the Coalition of Utility Cities.[49] The Steering Committee helped shape and guide this study by and providing input on desired outcomes, providing their expertise on local issues, and drawing upon their local networks. The community representatives included mayors, city administrators, staff from economic planning and development departments, and a community liaison to the Prairie Island Indian Community.

The Steering Committee and the study authors determined the qualitative methods for this study would include an online community survey that was sent to approximately 10 members of each host community, as well as in-person, group interviews with local governmental officials and experts and local community leaders.

Interview participants and survey respondents were not randomly selected. Participants were selected by the Steering Committees in collaboration with their respective local officials. Therefore, while the perspectives captured and documented in this report may or may not be reflective of the individual

[49] The Coalition of Utility Cities (CUC) consists of eight Minnesota cities that host the state's largest power plants owned by investor-owned utilities. The CUC advocates to protect the interests of local residents and businesses by ensuring that local taxpayers don't bear a disproportionate share of the public infrastructure and safety costs of hosting power plants, and serves as a collective voice for these communities when large facilities are retired or converted to a new fuel source.

community or host communities as a whole, the stories included offer a sampling of what actively engaged community members are feeling, thinking, and doing with regard to the potential impact a power plant closure could have on the places they live, work, and play.

Interviews

The study authors conducted in-person, group interviews with each of the host communities included in this study. Interview participants for each host community were identified and selected by members of the Steering Committee. Interview participants included elected city and county officials, city and county staff, school district staff and superintendents, local business owners, representatives of local nonprofit and religious organizations, and community leaders.

Interview questions were designed to elicit conversation among interviewees about how a potential power plant retirement would affect the community, including effects on the local government tax base, including city, county, and school district budgets; businesses that interact with the power plant; and residents that live in the city or work at the plants. Interview questions used for local government officials and city, county, and school district staff can be found in **Appendix A-1.**[50]

The study authors conducted additional interviews to understand the perspectives of labor unions that represent power plant workers and learn about state support systems and programs that could be available to workers and communities. This input was gathered through interviews with representatives of the International Brotherhood of Electrical Workers, representatives of the Laborers' International Union of North America, representatives of the Boilermaker's Local #647, and a group interview with staff from the Minnesota Department of Employment and Economic Development.

All interviews were recorded to ensure accuracy of quotations. All quotes attributed in this report were approved by those who were attributed.

Community Surveys

To further capture the perspectives of the community, the study authors conducted an online survey questionnaire. The questionnaire was developed by the study authors in close collaboration with the Steering Committee. The questions included in the survey can be found in **Appendix A-2.**

The Steering Committee members shared the survey with roughly 10 community members each; survey participants were not the same individuals as those interviewed. Once participants responded and submitted their questionnaire, answers were coded for similar and different themes to supplement each community narrative.

[50] A similar, but modified, set of interview questions were used for community business and nonprofit leader interviews and for labor union representative interviews.

Appendix A-1: Interview Questions

Questions for Local Government Interviews

Questions refer to City, County, School Board, etc.

Project Introduction:

- CEE is partnering with the Coalition of Utility Cities, Xcel Energy, Minnesota Power, and community representatives to study the economic and social impact of the power plants in communities that host them.
    - Communities include:

Community	Power Plants	Fuel	Estimated Retirement * indicates approved retirement date
Becker, Sherburne, MN	Sherco 1, 2, 3	Coal	2023*, 2026*, 2030 (unit respective)
Oak Park Heights, Washington, MN	Allen S. King Plant	Coal	2028
Cohasset, Itasca, MN	Boswell 3, 4	Coal	2035, 2036 (unit respective)
Red Wing, Goodhue, MN Prairie Island Indian Community	Prairie Island Nuclear Plant	Nuclear	2033, 2034 (unit respective)
Monticello, Wright, MN	Monticello Nuclear Plant	Nuclear	2040

- Study includes economic modeling to assess the direct and indirect economic value of power plants to these communities and a qualitative analysis to assess the role the power plants play in people's lives and how key state stakeholders are thinking and planning for power plant closures.
- Goal of this study is to provide communities and state and local decision makers with information so that they can adequately plan and prepare for an eventual closure of the power plant.

Preliminary Questions

1. Do you know approximately how much the power plant contributes to your tax base?
    a. If yes
        i. City
        ii. County
        iii. School District

Interview Questions

2. In reference to question number one, please tell us what is funded through the taxes received from the power plant (utility)? (i.e. special projects, infrastructure, emergency services, etc.)

3. Do any of your local philanthropic efforts or charities benefit from the power plant? (E.g. a sports team sponsorship, community organizations)
    a. If so, please explain.

4. What is the community sentiment toward the plant / utility?
    a. What is it like today?
    b. Do you expect it to change going forward?
    c. How does that differ across local government entities?

5. What types of conversations are you having or hearing about the plant's future in your community?
    a. Are they positive or negative? Fearful/hopeful?

6. What are your main concerns regarding a potential power plant closure?
    a. Who will be directly impacted, that you know of?
    b. Who will be indirectly impacted, that you know of?

7. Do you anticipate any opportunities or benefits for your community from a power plant closure?
    a. If so, what?

8. What efforts have already been made around a transition? Are there any plans for what happens next in the community?
    a. Are there any stakeholder groups, advisory committees, or economic development efforts underway?
        i. If so, what do you think has been particularly successful or informative?
        ii. If an advisory committee or stakeholder group were to be formed, whom would you invite?

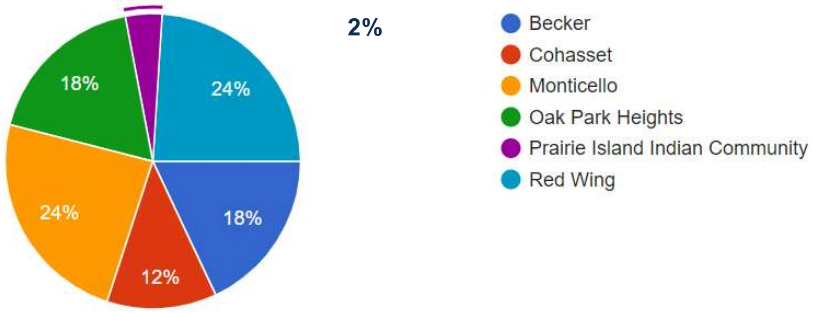
9. Does your city's comprehensive plan (or other planning document if applicable) address the future of your plant?
    a. If yes, how does it address the future of the plant?
    b. If no, do you have plans to address it in future planning documents?

10. What vision do you have for a successful transition for your community?

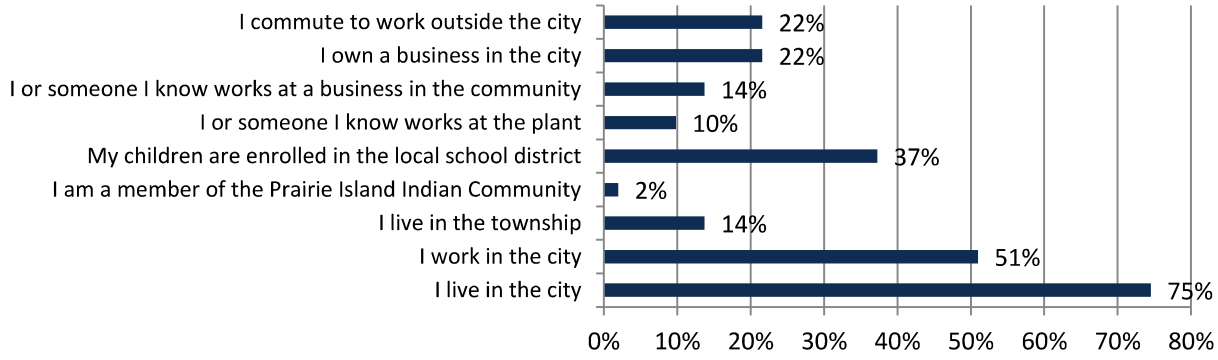
Appendix A-2: Online Community Survey

This survey was distributed by members of the Host Community Steering Committee, who were asked to distribute the study to up to 10 community members and business owners. In total, the survey received 51 responses. While the actual responses of the survey contain some unique identifiers, and thus are not shared for the sake of anonymity, the results below show high-level findings and response trends.

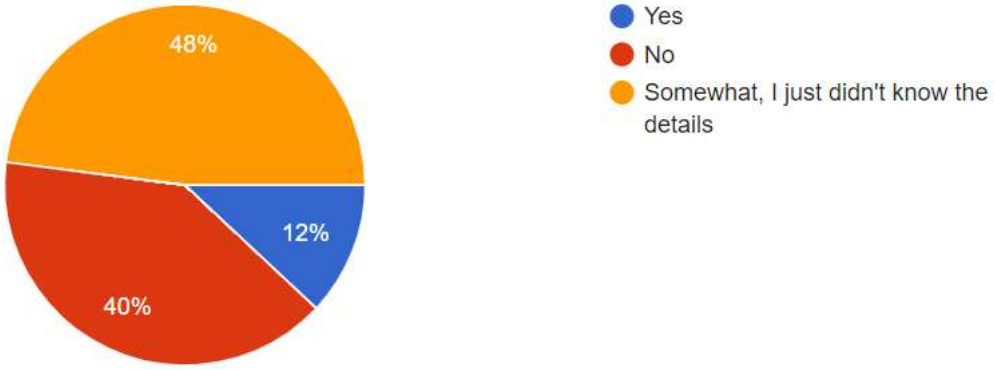
1. In which Minnesota community do you either live or work?



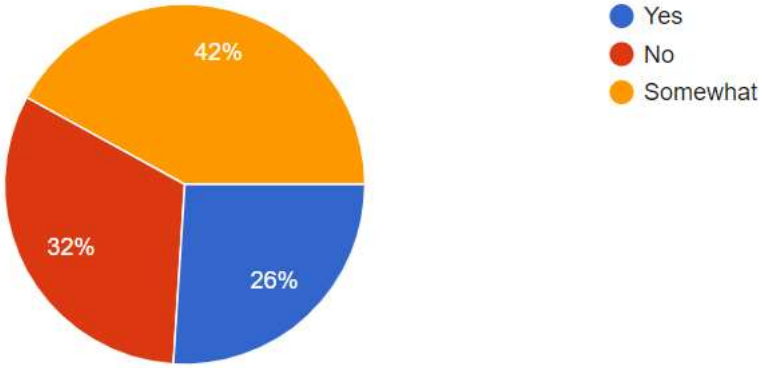
2. Please describe yourself. (Check all that apply)



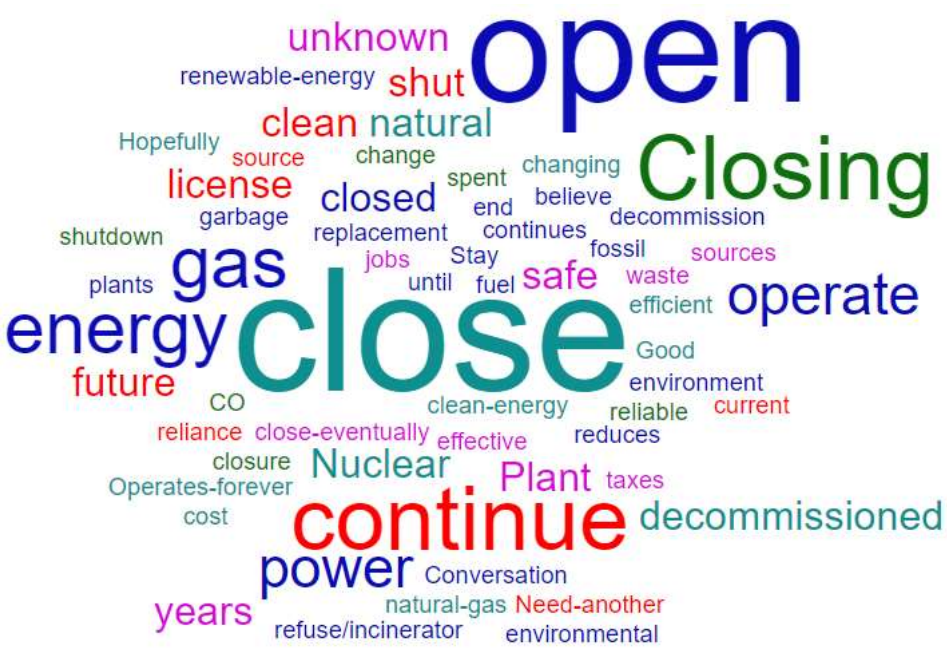
3. In Minnesota, utilities are required to regularly file their long-term plans for how they will cost-effectively meet customer energy needs called an Integrated Resource Plan (IRP). The Minnesota Public Utilities Commission reviews each Resource Plan and often makes changes before approving the utility's plan. Are you familiar with the utility resource planning process?



4. The Minnesota Public Utilities Commission is made up of five appointed commissioners that regulate Minnesota's utilities to ensure safe, reliable, and affordable energy. Are you familiar with the role of the Minnesota Public Utilities Commission?



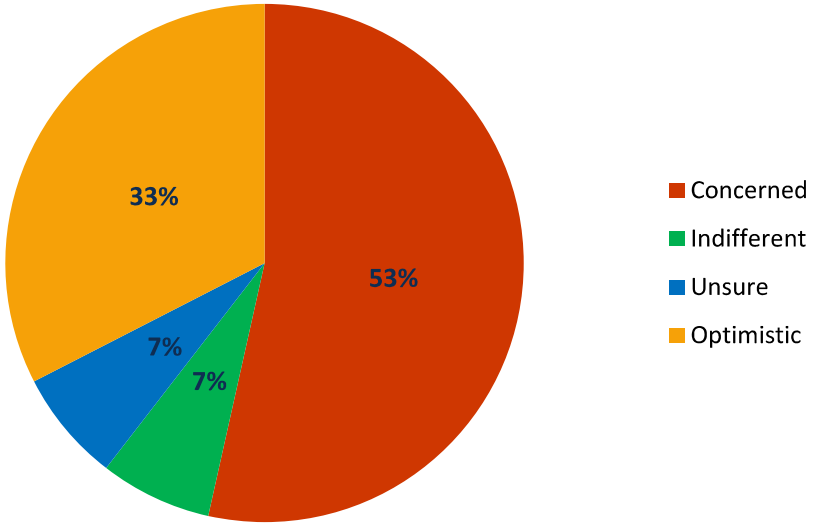
5. What do you think is the likely future of the power plant in your community?



6. When do you think this future will happen?



7. How do you feel about this future?



8. What are some of your favorite things about your community?



9. What is unique about your community?



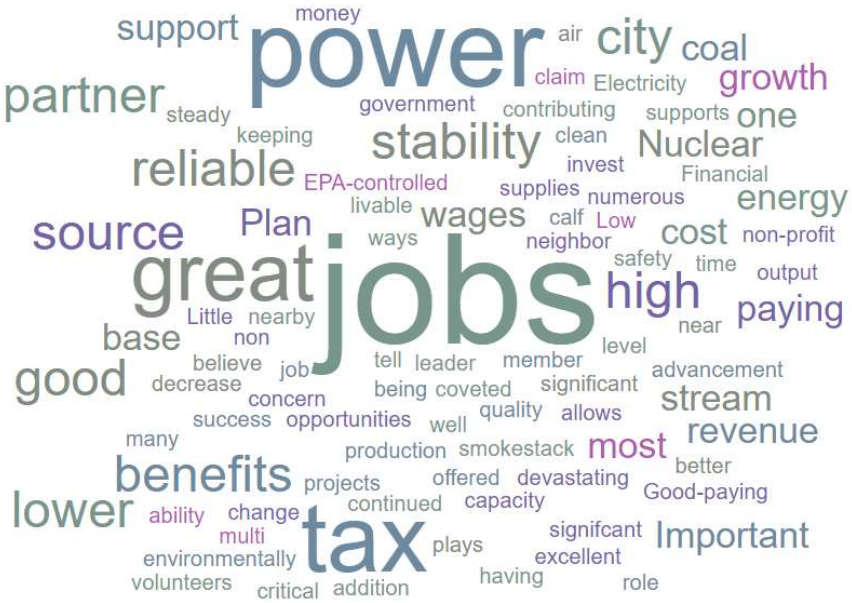
10. Ten years from now, what vision do you have for your community? Consider the local economy, your family, your neighborhood, etc.



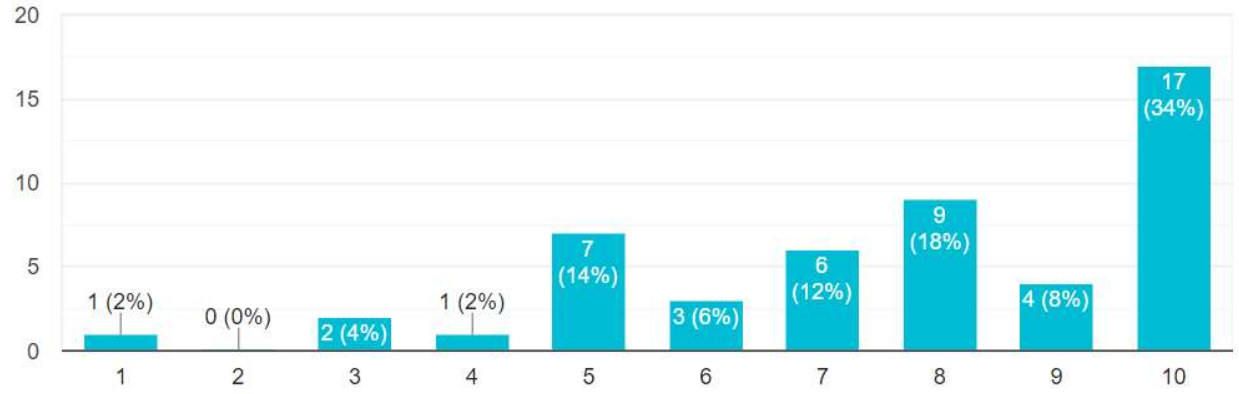
11. What are some of the greatest needs in your community?



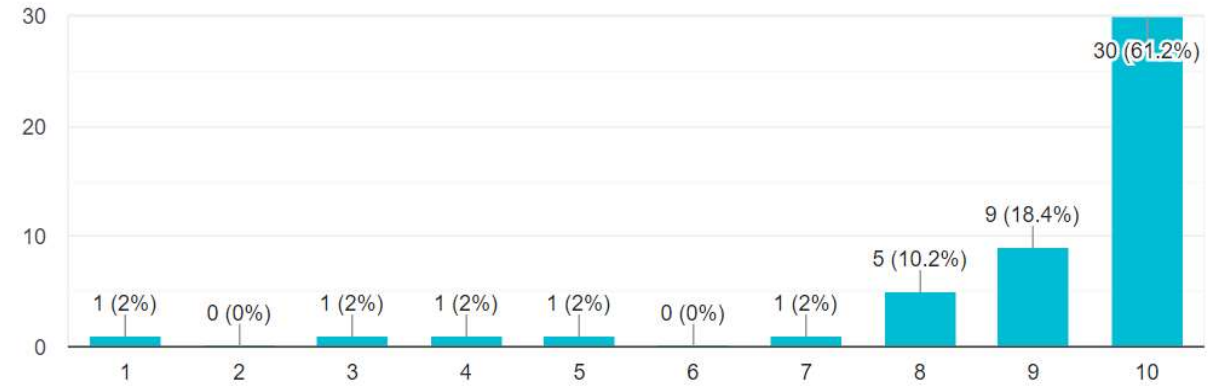
12. What does the power plant mean to your community?



13. Rank how important the power plant is to your community's identity. (10 being very important)



14. Rank how important is the power plant to your community's economy. (10 being very important)



15. What benefits, if any, does the power plant provide to your community?



16. What negatives, if any, does the power plant provide to your community?



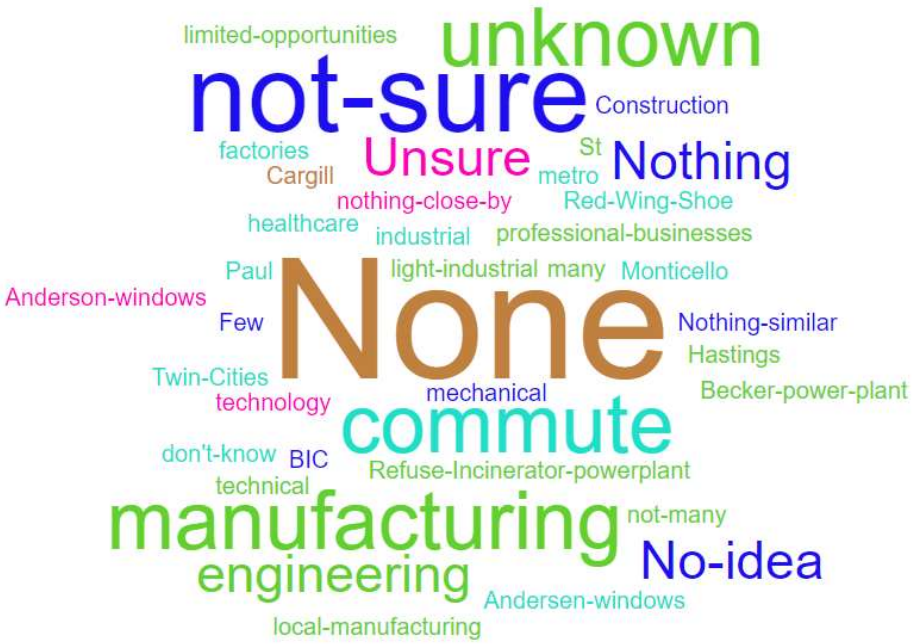
17. What new or positive opportunities would occur in your community if the power plant were to close at some point in the future?



18. What concerns would you have if the power plant were to close at some point in the future?



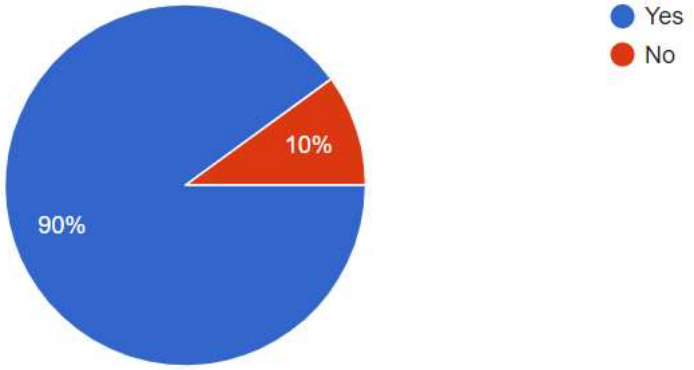
19. What other jobs are available nearby for the plant workers?



20. What industries, beyond the power plant, have the most promise in your community?



21. (A) Do you think the schools and local charities would be affected if the plant were to close at some point in time?



21. (B) If yes, how so?

"There will be financial impacts for both. The school district gets most funding from the state and federal governments, but referendums will be impacted, which impacts what services and other items our school will be able to provide in the future. Local charities will also see a decline in revenue from the closure of the power plant."

"Any time you remove taxes from the community it puts more of a burden on other payers."

"Loss of any current financial contribution coming to them - would have to fight for other resources that may come from the city or other individuals (with the loss of the tax base from the power plant - funding other programs will have to come from somewhere)"

"Well paid, educated workers would relocate out of the community; schools would be negatively affected by the loss of taxes, potential loss of students, loss of community partner"

APPENDIX B: KEY STATE FINANCIAL POLICIES

Minnesota state policies regarding how state and regional tax revenue is distributed among local governments are important considerations in community, regional, and state planning for power plant retirements in Minnesota. Minnesota's host communities contribute significant revenue to these policies and programs and currently receive little in return. Power plant retirements will affect these policies and programs in terms of the total revenue amounts generated and the breakdown of which jurisdictions contribute and which receive funds. The following section provides an overview of some of those relevant state policies.

Local Government Aid

Minnesota's cities and counties receive funding from a number of sources. One important source of funding for many cities and counties is state aid. In Minnesota, the largest portion of state aid to cities and counties comes from the Local Government Aid (LGA) program. LGA is a general purpose aid that Minnesota cities and may receive from state tax dollars. The LGA program is intended to reduce disparities in education and local services between jurisdictions with relatively high tax values and those with relatively low tax values. The idea underlying this program is that no matter where a person happens to live in Minnesota, the quality of services should remain fairly consistent.[51]

Cities may use LGA funds on any lawful expenditure such as infrastructure, public safety, or economic development.[52] LGA is distributed annually to cities based on need, which is determined through a formula. The formula considers a city's revenue needs (calculated using variables that are correlated to city spending) and its tax base from two years prior. For example, LGA funding levels for 2020 are based on cities' 2018 tax data. Further, a key determinant in LGA funding awards is the amount that a jurisdiction received in the prior year.

Host Communities and LGA

Most of the cities included in this study do not receive LGA funding because of the significant tax base they receive from the power plants they host. The table below shows the 2020 estimated LGA funding for each of the cities included in this study, assuming no changes to the LGA program or tax base for each of the cities.

Table 8. Host Community 2020 LGA Overview

City	Total Need	Tax Base	Unmet Need	2020 LGA
Red Wing	$11,800,000	$14,400,000	$0	$800,000
Cohasset	$1,800,000	$4,900,000	$0	$0
Becker	$2,600,000	$7,800,000	$0	$0
Oak Park Heights	$2,900,000	$4,300,000	$0	$0
Monticello	$7,400,000	$13,100,000	$0	$0
**Tax Base determined by multiplying a city's adjusted net tax capacity (ANTC) by the statewide average city property tax rate (43.5561% in 2020) — rounded to nearest hundred thousand.*				

[51] "The basics of local government aid in Minnesota." MPR News. September 9, 2010. https://www.mprnews.org/story/2010/09/09/ground-level-city-budget-101

[52] "Local Government Aid (LGA) Certification for Cities." Minnesota Department of Revenue. Accessed November 5, 2019. https://www.revenue.state.mn.us/local-government-aid-lga-certification-cities

Losing the local tax base associated with the power plants included in this study would leave several host communities with an unmet revenue need, making those communities eligible for LGA funding. The following table estimates the unmet revenue need for each of the cities included in this study if the power plant within those communities were to retire and provide no property taxes to the cities.

Table 9. Host Community 2020 LGA Overview Assuming Plant Closures

City	Total Need	Tax Base	Unmet Need
Red Wing	$11,800,000	$6,200,000	$5,600,000
Cohasset	$1,800,000	$2,400,000	$0
Becker	$2,600,000	$2,000,000	$600,000
Oak Park Heights	$2,900,000	$3,200,000	$0
Monticello	$7,400,000	$5,500,000	$1,900,000
**Tax base determined by multiplying a city's adjusted net tax capacity (ANTC) by the statewide average city property tax rate (43.5561% in 2020) — rounded to nearest hundred thousand.*			

As noted above, a city's unmet need would not be addressed by the LGA program for two years after the unmet need occurs and LGA funding for cities included in this study may be lessened because the cities have either received no LGA funds or very little LGA funding in prior years.

Fiscal Disparities Program

Minnesota has two programs to share the tax base from commercial and industrial development in the state. These programs are called the Metropolitan Fiscal Disparities Program and the Taconite Fiscal Disparities Program. The Metropolitan Fiscal Disparities Program covers the Twin Cities' seven-county metropolitan area, while the Iron Range Fiscal Disparities Program covers communities in the Taconite Relief Area. The programs were created to improve equity across regions of the state by reducing disparities in property tax wealth and to discourage inter-regional competition between communities for businesses and tax base. Both programs distribute a portion of commercial, industrial, and utility tax base growth, over a base level, to the communities within the respective regions. Both programs distribute 40% of the growth in commercial, industrial, and utility tax base to their respective regions.

For a host cities located within either of the two fiscal disparity regions, the fiscal disparity programs would help offset a portion of any lost tax base resulting from a power plant closure. Such power plant closures would, however, reduce the overall revenue generated through the fiscal disparity program for all jurisdictions in that region.

Among the host communities included in this study, Oak Park Heights is within the Metropolitan Fiscal Disparities Program and Cohasset is within the Iron Range Fiscal Disparities Program. No other host communities are part of a fiscal disparities program. The Allen S. King plant in Oak Park Heights and the Boswell Energy Center in Cohasset contribute significant amounts of tax capacity to the area-wide pools for the respective fiscal disparities programs.

Iron Range Resources and Rehabilitation

The Department of Iron Range Resources and Rehabilitation (IRRR) is a Minnesota state agency with a mission to promote and invest in business, community, and workforce development for the betterment

of northeastern Minnesota.[53] The Department of IRRR was established in 1941 and serves the 53 cities, 134 townships, and 15 school districts located within the Taconite Relief Area.[54],[55] The agency is jointly led by a commissioner appointed by the governor and a nine-member board, the Iron Range Resources and Rehabilitation Board. The IRRR is funded primarily through taconite production taxes paid by mining companies in lieu of property taxes.

The Department of IRRR provides grants and loans to businesses, local units of government, educational institutions, and nonprofits. IRRR funding for local governments may be used for commercial and residential redevelopment, infrastructure projects, and downtown investments.

Cohasset, Minnesota, is located within the Taconite Relief Area territory and therefore is currently eligible to apply for funding from the IRRR's community programs. Additionally, businesses currently in Cohasset or looking to relocate to Cohasset may be eligible for assistance from one of IRRR's various business development programs. Cohasset is the only community included in this study that is located within the Taconite Relief Area.

Wind and Solar Energy Production Taxes

In Minnesota, owners of wind and solar energy installations pay a production tax rather than traditional property taxes. The production tax is structured differently for wind and solar resources. The tax on wind energy is a progressive rate that increases with the size of the wind energy system. Any Minnesota-sited solar energy system with a capacity of one megawatt or more is taxed at $1.20 per megawatt-hour. Solar energy systems with a capacity below one megawatt are exempt from the solar energy production tax.

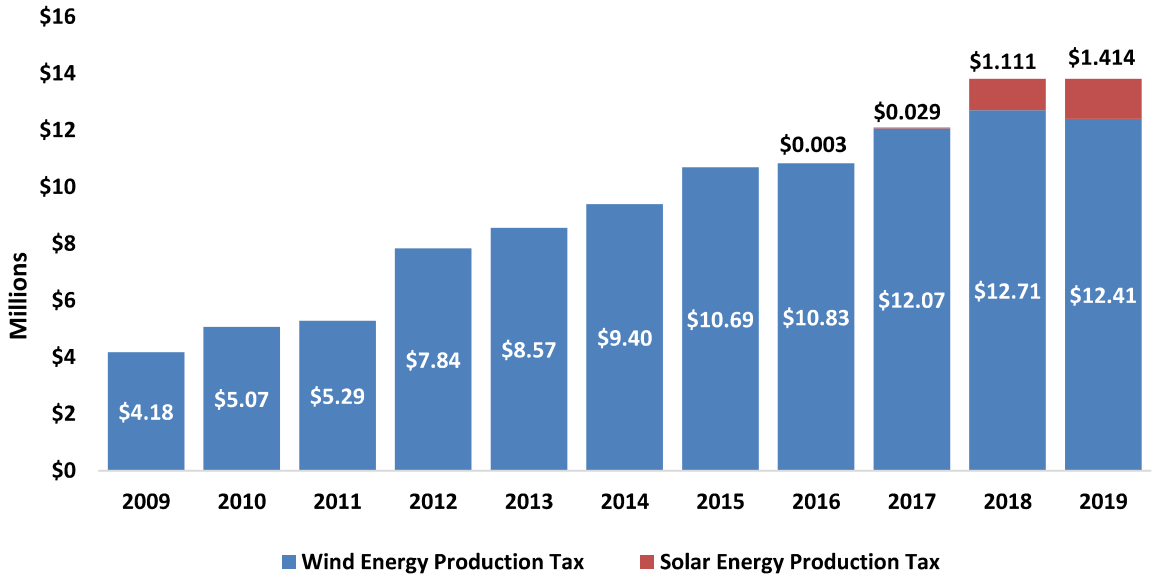
The total revenue from both solar and wind energy taxes go to local governments; 80% of the total production tax revenue is distributed to the county in which the system is located and 20% is distributed to the city or township in which the installation is located.

[53] "About us." Minnesota Department of Iron Range Resources and Rehabilitation. Accessed November 5, 2019. https://mn.gov/irrrb/about-us/

[54] Taconite Assistance Area map. Minnesota Department of Revenue. Accessed November 5, 2019. https://www.revenue.state.mn.us/sites/default/files/2019-01/Map_Taconite_Assistance_Area%20pdf.pdf

[55] Minnesota Statute 273.1341

Figure 2. Total wind and solar energy production tax revenues



Source: Minnesota Department of Revenue

Though revenue from the wind and solar energy production taxes has risen quickly over the past decade, wind and solar production tax revenue remains far below property tax revenue paid by Minnesota's utilities.

APPENDIX C: MINNESOTA'S EXISTING ECONOMIC DEVELOPMENT AND WORKFORCE PROGRAMS

The Minnesota Department of Employment and Economic Development assists with state and local economic development efforts, workforce training and recruitment, and provides assistance to workers after layoffs or business closures. The study authors conducted interviews with representatives of DEED to better understand the workforce and economic development services and support that are currently available in Minnesota. These services and support may be helpful for workers and communities facing power plant retirements in Minnesota.

Minnesota Department of Employment and Economic Development (DEED)

DEED is the state's principal economic development agency. DEED programs aim to promote business recruitment, expansion, and retention; international trade; workforce development; and community development.[56] DEED's community, business, and workforce assistance programs may be helpful for communities in Minnesota facing power plant retirements and subsequent transitions.

DEED has experience supporting large employers and dislocated workers during large layoffs, including ones associated with a retiring power plant. DEED is also aware that several power plants across Minnesota have proposed or approved closure dates. However, DEED does not currently a formal response plan for each of the respective host communities.

Through a group interview for this study, DEED's Workforce Strategy Consultants and Rapid Response Team shared existing services and best practices for Minnesota communities facing economic transitions as a result of retiring power plants.

Existing DEED Services

The following programs and services offered by DEED are listed in order of nearest to longest term strategies that utility employers and host communities could pursue to assist with the transition associated with a power plant closure.

Regional Workforce Strategy Consultants

In preparation for power plant closures, DEED's Workforce Strategy Consultants may be a starting point for accessing DEED support. Workforce Strategy Consultants are assigned to six different areas in Minnesota to help align resources, facilitate regional collaboration, and leverage DEED's workforce and economic services to drive economic opportunity.[57] With their regional and strategic focus, Workforce Strategy Consultants can serve as a central point of contact for communities to navigate assistance options and coordinate key stakeholders at the state and local level. For host communities,

[56] "About." Minnesota Department of Employment and Economic Development. Accessed August 6, 2019. https://mn.gov/deed/about/

[57] "Workforce Strategy Consultants." Minnesota Department of Employment and Economic Development. Accessed August 6, 2019. https://mn.gov/deed/business/help/workforce-assistance/wf-strategy.jsp

this could potentially include coordination with DEED's Business Development Specialists and Labor Market Analysists to develop a data-driven, regional labor market plan for their community to attract new businesses and workforce talent in high-growth areas as well as secure federal and state Economic Development Assistance funding opportunities. Workforce Strategy Consultants could also work with Xcel Energy and Minnesota Power to encourage the utilities to transition existing plant workers into decommissioning work after the plant retires and ensure that workers are aware of local CareerForce locations to access career development services.

While DEED offers a wide portfolio of services to communities, employees and jobseekers, and businesses, navigating those services can be confusing. For these reasons, early engagement by the community with Workforce Strategy Consultants could lead to a better understanding of available support for communities and workers impacted by plant closures.

Dislocated Worker Program and Rapid Response Team

In the event of a large (over 50 employees) or small (under 50 employees) layoff or business closure, the State Rapid Response Team (SRRT) provides employers and employees with support to move forward. The program provides resources for laid off employees — including helping them find and prepare for a suitable new job — as well as helping the employer notify employees of their layoff in an orderly, legal manner. Federal law requires employers to notify DEED at least 60 days prior to a large layoff or facility closure.[58]

Proactive engagement with the SRRT may provide Xcel Energy and Minnesota Power time to strategize and leverage services intentionally to help plant workers experience a smoother, quicker transition into suitable employment. Key information to communicate with DEED includes the timeframe, size, and job types that will be laid off. The utilities and host community city staff may also collectively approach their Regional Workforce Strategy Consultant, described above.

Up to six months prior to a plant closure, the SRRT will implement the services offered through the Dislocated Worker Program, by connecting the workers with a Dislocated Worker Service Provider.[59] The SRRT is the first responder when businesses close down or prepare for a layoff. The SRRT supports employers and affected workers in several ways. First, the SRRT conducts an on-site meeting with the employer and union leaders (if applicable) to understand the timeframe, size, and job types of employees that will be laid off. Shortly after, DEED's SRRT and Unemployment Insurance representatives meet with employees to share an overview of available state resources including the Dislocated Worker and Unemployment Insurance programs. The Dislocated Worker services include:

- Career Planning and Counseling, in which a Dislocated Worker Counselor assesses the talents and interests of employees to come up with a personalized job or career plan for each individual.

[58] "Considering Layoff." Minnesota Department of Employment and Economic Development. Accessed August 19, 2019. https://mn.gov/deed/business/starting-business/management-basics/considering-layoff.jsp

[59] "Service Providers for the Dislocated Worker Program." Minnesota Department of Employment and Economic Development. Accessed August 19, 2019. https://mn.gov/deed/job-seekers/recently-unemployed/layoff/dwp-service-providers.jsp

- Job Search Assistance, including help with resumes, cover letters, and LinkedIn profiles as well as practice interviewing.
- Counselor Approved Training/Retraining, as the Dislocated Worker Counselor deems necessary. For example, funds are available for short or long-term training to obtain a General Education Diploma or acquire new workplace skills.
- Need-Based Support, as eligible, to cover the costs of new uniforms, tools and books, transportation to job sites, and childcare. Dislocated workers often also receive unemployment insurance.

In all cases, the SRRT tries to transition workers to jobs that pay close to their original wages and benefits, in fields that interest them. The team also offers additional support for veterans and jobseekers facing language, disability, or educational barriers to re-employment.

DEED also assists with the recruitment and facilitation of a Planning and Selection Committee to oversee Dislocated Worker Service Provider process in the case of large layoffs. This committee is made up of company management, employees, and union leaders to identify site-specific worker needs.

Other Services

An important consideration for communities is the indirect impact the power plant retirement could have on their economy. When a large employer leaves a community or closes, the economic impact often affects more than just those who work at the plant. Some small businesses and restaurants that rely on customers that work in the plant can struggle if customers lose their employment or leave. DEED can similarly assist these smaller employers during layoffs, as described in the section above, by helping direct those laid off to eligible support.

If others in the community find themselves seeking a new job, DEED offers "universal services" that any resident of Minnesota could be eligible for. These include the following:

- No-fee online job database
- Veterans assistance
- Labor market analysis
- Apprenticeship programs
- Job search assistance
- Referrals to food, health, and childcare support

As communities consider their future after the power plant, land use and environmental pollution at the plant site may become central issues. Communities can apply for DEED's Cleanup Revolving Loan Program and Minnesota Pollution Control Agency grants to conduct full environmental remediation at former plant sites to expand their options for economic redevelopment.[60]

[60] "Cleanup Revolving Loan Program." Minnesota Department of Employment and Economic Development. Accessed August 19, 2019. https://mn.gov/deed/government/financial-assistance/cleanup/cleanuprevolvingloanprogram.jsp "Doing It Right II: Job creation through Colstrip cleanup." Northern Plains Resource Council. April 2019. https://northernplains.org/wp-content/uploads/2019/04/DIRTII_FINAL_WEB.pdf

Finally, DEED staff recommended host communities also form Community Redevelopment Advisory Committees. These committees can be comprised of strategic, well-connected community members to advise the community planning process and implementation as well as to help recruit new economic opportunities to the community.

DEED Service Takeaways

1. DEED has services that may be helpful for plant workers and other workers affected by a power plant closure.
2. Utilities and host communities should communicate as early as possible with DEED to collaborate on a transition plan in advance of a closure.
3. Workforce Strategy Consultants are an entry point for DEED assistance for communities facing power plant closures.
4. DEED's Rapid Response Team cannot get involved until six months away from plant layoffs, but other strategies can be pursued in advance.
5. DEED's Business and Community Development staff can work together with city planning departments to supply regional labor market trends and opportunities as well as leverage larger networks and EDA funds.
6. Host communities can form Community Redevelopment Advisory Committees to advise the community planning process and implementation as well as to help recruit new economic opportunities to the community.
7. Communities can apply for DEED's Cleanup Revolving Loan Program and Minnesota Pollution Control Agency grants to conduct environmental remediation at former plant sites to expand options for economic redevelopment.

APPENDIX D: LITERATURE REVIEW OF TRANSITIONING POWER PLANT COMMUNITIES

This appendix contains a copy of a standalone report compiled by the authors (Audrey Partridge and Brady Steigauf of Center for Energy and Environment) in January 2020.

National Case Studies of Communities in Transition: After the Power Plant

The authors of this study selected four case studies of communities around the country that have experienced a community transition as a result of a power plant closure. Each community has a unique story and all are at varying stages of their transition. Below the authors provide a brief overview of each community's transition story along with key takeaways that may be informative for Minnesota's host communities, and other host communities, as they anticipate and plan for eventual power plant closures.

Case Studies from Around the Country

Diablo Canyon Power Plant, California

Table 10: Diablo Canyon Nuclear Plant Quick Facts

Power Plant Information	
Fuel type	Nuclear
Closure date	2025
Generation capacity	2,200 megawatts (10% of California's capacity)
Plant employees	1,500
Plant site (acres)	1,000
Community Information	
Avila Beach & San Luis Obispo population	~ 62,000
San Luis Obispo County population	280,000
Estimated economic contribution to local community	$1 billion

Diablo Canyon Power Plant is a two-unit, nuclear power plant located in Avila Beach, California, just a few miles from San Luis Obispo, California. Avila Beach and San Luis Obispo have a combined population of about 62,000 residents — the surrounding county, San Luis Obispo County, has a population of about 280,000 residents. Diablo Canyon Power Plant sits on the Pacific coast and has been in operation since 1985. The Diablo Canyon Power Plant produces roughly 10% of California's electricity and is the largest private employer in San Luis Obispo County with an estimated $1 billion impact on the local economy.[61]

[61] Leslie, Kaytlyn. September 19, 2018. "Governor signs bills to give SLO County $85 million Diablo Canyon settlement." *The Tribune*. https://www.sanluisobispo.com/news/local/article218698490.html

In late 2016, after seven years of negotiation, California utility Pacific Gas and Electric (PG&E), International Brotherhood of Electrical Workers Local 1245, local communities, and environmentalist organizations reached an ambitious transition plan settlement agreement for the closure of Diablo Canyon, California's last operating nuclear plant. Though this plant closure and the associated transition plan is not yet complete, the components of the settlement agreement and the process stakeholders used to achieve the settlement terms may be informative for Minnesota's community transition efforts. Below is an overview of the settlement agreement and process as well as additional transition efforts by the local affected communities.

The settlement agreed upon by parties[62] was to close the Diablo Canyon nuclear plant at the end of its license, in 2025, replace the electricity provided by the plant with other carbon-free resources, and create a smooth transition for workers and local communities.

Transition Package for Workers and Communities

For workers, the agreement created a 25% retention bonus for workers who remain employed and working at the plant until closure. For workers who wished to continue working after the plant closed, the plan provided an opportunity to remain in the community and expand their skills through a program to transition plant workers from operational plant jobs to the ongoing work of decommissioning the plant. This retraining program is aimed at enabling PG&E to use its existing workforce in the decommissioning process as opposed to contracting that work to outside companies.[63,64] The agreement called for $350 million in funding from PG&E for the worker retention and retraining program.

In addition to the transition plan for workers, the deal also included assistance for the local community.[65] The total settlement package paid for by PG&E totals between $122.5 million and $147.5 million,[66] including:

- $85 million in aid to seven nearby cities, the San Luis Unified School District, and San Luis Obispo County to help offset the economic impacts of the plant closure.[67]

[62] The full list of parties to the Diablo Canyon settlement agreement include Pacific Gas and Electric, International Brotherhood of Electrical Workers Local 1245, Coalition of California Utility Employees, Friends of the Earth, Natural Resources Defense Council, Environment California, California Energy Efficiency Industry Council, Alliance for Nuclear Responsibility, the County of San Luis Obispo, the Coalition of Cities (Arroyo Grande, Atascadero, Morro Bay, Paso Robles, Pismo Beach and San Luis Obispo) and the San Luis Coastal Unified School District.

[63] Dalzell, Tom. November 30, 2018. "Diablo Canyon: A Just Transition for Workers and the Environment." UC Berkeley Labor Center. http://laborcenter.berkeley.edu/diablo-canyon-just-transition-workers-environment/

[64] News Release: June 21, 2016. "In Step with California's Evolving Energy Policy, PG&E, Labor and Environmental Groups Announce Proposal to Increase Energy Efficiency, Renewables and Storage While Phasing Out Nuclear Power Over the Next Decade." Pacific Gas & Electric Company. https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20160621_in_step_with_californias_evolving_energy_policy_pge_labor_and_environmental_groups_announce_proposal_to_increase_energy_efficiency_renewables_and_storage_while_phasing_out_nuclear_power_over_the_next_decade

[65] Dalzell, Tom. November 30, 2018. "Diablo Canyon: A Just Transition for Workers and the Environment." UC Berkeley Labor Center. http://laborcenter.berkeley.edu/diablo-canyon-just-transition-workers-environment/

[66] Leslie, Kaytlyn. November 28, 2016. "PG&E to pay $85 million to cities, SLO County, school district for Diablo Canyon Closure." *The Tribune*. https://www.sanluisobispo.com/news/local/article117604388.html

[67] Leslie, Kaytlyn. November 28, 2016. "PG&E to pay $85 million." See note 67.

    - Of that, $75 million is expected to go to offset property tax losses by the school district, the county, and 69 other special districts, and
    - $10 million will go for economic development efforts in the county and cities.
- Between $37.5 million and $62.5 million toward local emergency planning efforts until all spent fuel is in dry cask storage and the two nuclear reactors are fully decommissioned.[68]

The Process for Approving the Settlement

Despite support from the broad coalition of parties to the settlement, the full settlement agreement was not approved by the California Public Utilities Commission. In January 2018, the Commission denied portions of the settlement package due to its cost and its expected impact on electric rates.

Supporters of, and parties to, the settlement turned to the California legislature after the CPUC decision to reject portions of the agreement.[69] The state legislature introduced California Senate Bill 1090, which was reflective of the original settlement agreement between parties and PG&E. The bill, which received bipartisan support, was signed into law on September 19, 2018, directing the California Public Utilities Commission to approve the $85 million Diablo Canyon settlement agreement and PG&E's full $350 million proposed employee retention and retraining program.[70]

Transition Efforts to Date

The funding from the new law is just beginning to be allocated. In late April 2019 San Luis Obispo County, the county most directly affected by the plant closure, approved a $300,000 grant to fund an employment development project and create an employment action plan to ease the plant closure's impact on the community.[71] The project will act regionally and develop an employment plan across two counties and 12 cities, seeking to unify regional efforts to support economic vitality and job creation and retention.[72]

Additionally, as the community looks toward transition, they are receiving advice from other cities through the Alliance for Nuclear Responsibility. The Alliance is a federal roundtable for sharing lessons learned and resources for tax and job loss in communities going through nuclear plant closure transitions.[73] Communities that had undergone similar transitions emphasized the importance of engaging the plant, the public, and policymakers early to strategize on an economic mitigation plan.

---

[68] Leslie, Kaytlyn. January 11, 2018. "Diablo Canyon will close in 2025 — without SLO County's $85 million settlement." *The Tribune*. https://www.sanluisobispo.com/news/local/article194189949.html

[69] Press Release: September 20, 2018. "California Gov. Brown Signs Historic Diablo Canyon Nuclear Plant Bill." *Power Magazine*. https://www.powermag.com/press-releases/california-gov-brown-signs-historic-diablo-canyon-nuclear-plant-bill/

[70] Leslie, Kaytlyn. September 19, 2018. "Governor signs bill." See note 62.

[71] April 24, 2019. "SLO County supervisors approve grant funding for job creation project." *KSBY 6 News*. https://ksby.com/news/local-news/2019/04/24/slo-county-supervisors-approve-grant-funding-for-job-creation-project

[72] Johnson, Peter. April 25, 2019. "Mapping the future: County pours $300,000 into private sector led Hourglass Project." *New Times*. https://www.newtimesslo.com/sanluisobispo/mapping-the-future-county-pours-300000-into-private-sector-led-hourglass-project/Content?oid=8302489

[73] Becker, Rochelle. April 25, 2019. "Losing Diablo will be tough on SLO's economy. Feds are looking at ways to help." *The Tribune.* https://www.sanluisobispo.com/opinion/readers-opinion/article229700029.html

Maine Yankee Nuclear Plant, Maine

Table 11: Maine Yankee Plant Quick Facts

Power Plant Information	
Fuel type	Nuclear
Closure date	1997
Generation capacity	840 megawatts
Employees	600[74]
Plant site (acres)	820
Community Information	
Wiscasset population	3,600
Lincoln County population	34,000
Estimated economic tax contribution to city	$13 million

The Maine Yankee nuclear power plant was one of the nation's first nuclear power plants, and began producing electricity for Maine and other parts of New England in 1972. The Main Yankee plant contained a single-unit pressurized water reactor with about 840-megawatts of capacity.[75] The Maine Yankee plant was located along the Back River in the historic village of Wiscasset, Maine, which has a population of about 3,600 residents.[76] Wiscasset is also home to a number of historic sites and a large part of the village is a part of the National Register of Historic Places.[77] In addition to the Maine Yankee plant, Wiscasset is a tourist destination and has one of the State's most vibrant working waterfronts, with summertime activities of lobster fishing, sport fishing, and clam and worm digging.[78]

From 1972 to 1996, the Maine Yankee plant, generated 119 billion kilowatt-hours of electricity[79] and was Maine's largest power plant. The Maine Yankee plant was a significant revenue source for Wiscasset. Maine Yankee permanently closed the plant in August 1997 because the plant was no longer economically viable to operate.[80] The plant closure was abrupt and occurred eleven years earlier than expected.[81]

An Economic Downturn

Wiscasset flourished during the years that the Maine Yankee plant was in operation. In 1996, just before the plant closed, Maine Yankee paid $13 million in property taxes, more than 90% of it the city's

[74] Barlow, Daniel. September 1, 2013. "Maine Yankee: A case study on decommissioning." *Rutland Herald*. https://www.rutlandherald.com/opinion/perspective/maine-yankee-a-case-study-on-decommissioning/article_fb00391e-1b09-56ff-bdaa-7902ccbce843.html

[75] Riddle, Lyn. November 2, 1987. "Maine Voters to Decide Fate of Nuclear Plant." *New York Times*. https://www.nytimes.com/1987/11/02/us/maine-voters-to-decide-fate-of-nuclear-plant.html

[76] Estimated by the U.S. Census Bureau in 2017.

[77] "Historic and Prehistoric Overview." Town of Wiscasset. Accessed August 20, 2019. https://www.wiscasset.org/visit/historic-and-prehistoric-overview

[78] "Visit Wiscasset." Town of Wiscasset. Accessed August 20, 2019. https://www.wiscasset.org/visit

[79] Brogan, Beth. December 17. 2016. "Maine Yankee fallout: A town's turmoil, 20 years in the making." *Bangor Daily News*. https://bangordailynews.com/2016/12/17/news/midcoast/maine-yankee-fallout-a-towns-turmoil-20-years-in-the-making/

[80] Maine Yankee. Accessed August 20, 2019. http://www.maineyankee.com

[81] February 2005. "A Model for Public Participation in Nuclear Projects." The Maine Yankee Decommissioning Advisory Panel. http://www.maineyankee.com/public/cap%20final.pdf

tax base.[82] Once the plant closed, Wiscasset faced a dramatically different financial reality. In 2005, as decommissioning of the plant came to a finish, the total tax revenue from Maine Yankee was $1 million and in 2018 it was around $700,000, according to town figures. As a result, taxes were raised for residents and local businesses, municipal jobs went unfilled, and the village started charging for sewer service.[83] By 2013, Wiscasset ranked as the fourth-poorest community in Maine, the Boston Globe reported at the time, and property taxes had increased more than tenfold.[84]

After the plant closed, falling enrollment led the town to close its primary school and reshuffle all students into the former middle and high schools. According to the Bangor Daily News, the impact on Wiscasset's sense of community was abrupt and evident. School athletic teams dwindled to the point that the middle school had no baseball team for two years, the Wiscasset Newspaper reported.[85]

The transition from being a town with abundant resources to one with a limited budget created tensions for local governance and local residents. Wiscasset, however, was helped by long-term investment ahead of the shutdown that left some $12 million in reserve, money used years later to mitigate property tax increases.[86]

However, many community members have hope that the community will bounce back, as tourism grows and the local historic society protects the town's valuable historical assets.[87]

Decommissioning

Maine Yankee nuclear plant was one of the first large commercial nuclear reactors to complete decommissioning.[88] Decommissioning took from 1996 to 2005, which is considered very quick for a nuclear plant of its size. The decommissioning of the plant was largely hailed a success. In fact, the Maine Yankee company was the recipient of the 2005 New England Business Council's Outstanding Environmental Innovation Award in recognition of the approaches and technologies used during the decommissioning and environmental restoration of the Maine Yankee nuclear power plant.[89] This success was in spite of the fact that Maine Yankee was forced to take on the job of removing fuel from the reactor and dismantling buildings itself after the contractor it hired could not finish the $250 million job.[90]

One important step that Maine Yankee undertook for decommissioning is that the company created the Maine Yankee Community Decommissioning Advisory Panel, a vehicle for communication with the public. The panel of community stakeholders became the resident experts on issues related to the looming questions about the future of the 800+ acre site and the inventory of 1,434 spent nuclear fuel

[82] Brogan, Beth. December 17, 2016. "Maine Yankee Fallout." See note 80.
[83] Zambito, Thomas C. June 19, 2019. "Decades later, Maine Yankee plant stuck with spent nuclear fuel as feds pick up $10M tab." *The Journal News*. https://www.lohud.com/story/news/investigations/2019/06/19/maine-yankee-nuclear-plant-stuck-spent-fuel/1345799001/
[84] Brogan, Beth. December 17, 2016. "Maine Yankee Fallout." See note 80.
[85] Brogan, Beth. December 17, 2016. "Maine Yankee Fallout." See note 80.
[86] Zambito, Thomas C. June 19, 2019. "Decades later." See note 84.
[87] Brogan, Beth. December 17, 2016. "Maine Yankee Fallout." See note 80.
[88] Maine Yankee. Accessed August 20, 2019. http://www.maineyankee.com
[89] Maine Yankee. Accessed August 20, 2019. http://www.maineyankee.com
[90] Zambito, Thomas C. June 19, 2019. "Decades later." See note 84.

assemblies.[91] The panel held its first meeting just two weeks after the plant closure was announced; all panel meetings were publicly noticed and open to all.[92] In total the panel hosted 50 public meetings to educate the public about issues related to decommissioning. They also enabled stakeholders to urge the company to comply with clean-up standards that were more stringent than what the law required — the company agreed and met those more rigorous requirements. Additionally, the company was open to public input and included considerations of public perception in its project review process.[93]

Spent Fuel Storage

The Maine Yankee plant site is still home to spent nuclear fuel. Twenty-three years after the plant closed, an 11-acre site on Bailey Point Peninsula continues to host 60 cement and steel canisters loaded with decades' worth of spent nuclear fuel, each weighing 150 tons.[94]

Maine Yankee sued the U.S. Department of Energy to recover ratepayer funds to be directed toward spent fuel storage. The owners of Maine Yankee and two other Yankee plants decommissioned in Connecticut and Massachusetts won around $472 million from the federal government for failing to create an underground repository for the nation's nuclear waste, as it had promised.[95] Nonetheless, in recent years there has been little to no progress toward the development of a federal repository for nuclear fuel.

After decommissioning was complete, the advisory panel shifted to become the Maine Yankee Community Advisory Panel on Spent Nuclear Fuel. The new advisory panel works toward open communication, public involvement, and education on the interim storage of spent nuclear fuel at the Maine Yankee site, and advocating for removal to a safe location outside of New England.[96] Today, the panel meets just once a year and its primary business is drafting a letter to federal lawmakers urging them to back legislation to aid towns saddled with nuclear waste.[97]

Efforts to redevelop the 800-acre site on which it stood have not advanced—and many community members believe that redevelopment opportunities for the Maine Yankee site are limited until the spent fuel is gone.[98] "The surrounding communities are stuck with a spent fuel installation, which is safe and secure, and I don't think anybody doubts that, but it's an impediment to any future use of this property," said Don Hudson, the chairman of Maine Yankee's Community Advisory Panel. "Once it's out of there, then you can imagine a number of things happening."[99]

[91] February 2005. "A Model for Public Participation in Nuclear Projects." See note 82.
[92] February 2005. "A Model for Public Participation in Nuclear Projects." See note 82.
[93] February 2005. "A Model for Public Participation in Nuclear Projects." See note 82.
[94] Zambito, Thomas C. June 19, 2019. "Decades later." See note 84.
[95] Zambito, Thomas C. June 19, 2019. "Decades later." See note 84.
[96] "Maine Yankee Community Advisory Panel on Spent Nuclear Fuel Storage & Removal Charter." Maine Yankee. Accessed August 20, 2019. http://www.maineyankee.com/public/capcharter05.pdf
[97] Zambito, Thomas C. June 19, 2019. "Decades later." See note 84.
[98] Zambito, Thomas C. June 19, 2019. "Decades later." See note 84.
[99] Zambito, Thomas C. June 19, 2019. "Decades later." See note 84.

Colstrip Coal Plant, Montana

Table 12: Colstrip Coal Plant Quick Facts

Power Plant Information	
Fuel type	Coal
Closure date	2019: Units 1 & 2 2027: Units 3 & 4
Generation capacity	2,094 megawatts
Employees	320
Community Information	
Colstrip population	2,300
Rosebud County population	9,200
Estimated economic tax contribution to local community	$25 million

Colstrip power plant is a four-unit, coal-fired power plant located in the rural town of Colstrip, Montana. It is the second largest coal-fired power plant west of the Mississippi River[100] and supplies electricity to parts of Montana, Pennsylvania, Washington, Oregon, and South Dakota. As a rural community, Colstrip's economy has relied heavily on the power plant and the Rosebud coal mine that fuels it.[101]

The Colstrip plant is jointly owned by six different companies.[102] The oldest and least efficient units (unit 1 and 2) are owned equally by Talen Energy and Puget Sound Energy, whereas the newer units (unit 3 and 4) are owned by Puget Sound Energy, Talen Energy, Portland General Electric, Northwestern Energy, Avista Corporation, and PacifiCorp in order of decreasing percentage of ownership.

A Single Industry Economy

In many ways Colstrip is a "coal town," with nearly 80% of its residents depending on the power plant or coal mine for employment.[103] The plant employs roughly 320 people and the coal mine employs even more. The future of the mine is uncertain following a recent bankruptcy for the mine's owner and the eminent closure of two of the four units at the plant by the end of 2019.[104]

Taxes from the mine and power plant have contributed significantly to the town's impressive infrastructure. With 32 public parks, seven miles of trails, an Olympic-sized indoor swimming pool, and good public schools, the town has enjoyed a sense of prosperity rare to most rural communities.[105]

---

[100] Haggerty, Julia, Kathryn Bills Walsh, Mark Haggerty, and Jackson Rose. July 2017. "Colstrip: The Status of Key Policies and Decision Processes." Energy & Local Economies. https://headwaterseconomics.org/wp-content/uploads/Colstrip_Status_Report.pdf

[101] Wohlfeil, Samantha. June 20, 2019. "Colstrip to close two coal-fired units early." *Inlander*. https://www.inlander.com/spokane/colstrip-to-close-two-coal-fired-plants-early/Content?oid=17812536

[102] "Colstrip Steam Electric Station." Talen Energy. Accessed August 5, 2019. https://www.talenenergy.com/generation/fossil-fuels/colstrip

[103] Lutey, Tom. January 10, 2016. "At a Crossroads: Colstrip residents face uncertain future as pressures build on coal." *Billings Gazette*. https://billingsgazette.com/news/state-and-regional/montana/colstrip-residents-face-uncertain-future-as-pressures-build-on-coal/article_b726eb29-ad56-558f-a2b3-ca8f8aa171ea.html

[104] June 19, 2019. "Two coal-fired units at Montana's Colstrip Power Station to close at year's end." Energize Weekly, reprinted by EUCI. https://www.euci.com/two-coal-fired-units-at-montanas-colstrip-power-station-to-close-at-years-end/

[105] Lutey, Tom. January 10, 2016. "At a Crossroads." See note 104.

The median annual income per household in Colstrip is $84,000, roughly twice the state average.[106] The plant alone provides $25 million in property taxes to the local governments in Rosebud County. According to an economic analysis, retirement of the Colstrip units would cause a significant decrease in tax revenue for the city, county, and state of Montana.[107]

Financial Trouble for the Plant and Mine

The Colstrip power plant has faced a number of challenges in recent years. In 2008 several owners of the Colstrip plant paid $25 million to settle a groundwater contamination lawsuit brought by residents in the area.[108] In 2012, the Montana Environmental Information Center, Sierra Club, and the National Wildlife Federation sued Colstrip's owners again for coal ash water contamination and won a settlement for operational changes at the plant to limit groundwater contamination.[109] In 2013, the Sierra Club and Montana Environmental Information Center sued Talen Energy and Puget Sound Energy for breaching air quality standards.[110] In response to that latest lawsuit, the plant owners agreed to an early retirement of the plant's least economic units (unit 1 and 2) by no later than 2022 and $10 million in funding to mitigate the economic impact of closing those two units.[111]

Talen Energy, a merchant energy provider, began experiencing additional financial strain, competing with cheaper electricity generated from natural gas and renewables.[112] Then state legislation was passed in Washington and Oregon to phase out coal-generated electricity by 2025; most of the Colstrip plant's owners have service territory in those states.[113]

---

[106] Bernton, Hal. March 1, 2018. "As Washington state looks for cleaner power, a Montana coal town faces an uncertain future." *Seattle Times*. https://www.seattletimes.com/seattle-news/environment/as-washington-state-looks-for-cleaner-power-a-montana-coal-town-faces-an-uncertain-future/

[107] Barkey, Patrick M. June 2018. "The Economic Impact of the Early Retirement of Colstrip Units 3 & 4." Bureau of Business and Economic Research, prepared for Montana Chamber Foundation. http://www.bber.umt.edu/pubs/econ/Colstrip2018.pdf

[108] Cates-Carney, Corin. July 12, 2016. "Settlement Calls for Colstrip Units 1 & 2 To Close by 2022." *Montana Public Radio*. https://www.mtpr.org/post/settlement-calls-colstrip-units-1-2-close-2022

[109] Puckett, Karl. July 21, 2016. "Colstrip deal hailed as 'significant victory' for environment." *Great Falls Tribune*. https://www.greatfallstribune.com/story/news/local/2016/07/21/settlement-reached-control-colstrip-coal-ash-pollution/87398118/

[110] Brown, Matthew. March 6, 2013. "Colstrip power plant sued over pollution controls." *Associated Press*, reprinted in *Billings Gazette*. https://billingsgazette.com/news/state-and-regional/montana/colstrip-power-plant-sued-over-pollution-controls/article_2724c769-2000-5076-baa7-bf2584de206a.html

[111] Cates-Carney, Corin. July 12, 2016. "Settlement Calls." See note 109.

[112] Lutey, Tom. June 11, 2019. "Colstrip Units 1 and 2 will close in 2019." *Billings Gazette*. https://billingsgazette.com/news/state-and-regional/colstrip-units-and-will-close-in/article_cac5e705-d9e6-5954-af8f-9dc26b584a0e.html

[113] Lutey, Tom. January 15, 2019. "Washington state lawmakers eyeing earlier closure of Colstrip." *Billings Gazette*. https://billingsgazette.com/news/state-and-regional/washington-state-lawmakers-eyeing-earlier-closure-of-colstrip/article_a71df3b4-0daa-54fc-a998-76b0c4dd9818.html

By 2017, the owners of Colstrip's Units 3 and 4 signed on to a settlement agreement advancing retirement dates for those units to no later than 2027.[114,115,116] In June of 2019, Talen Energy unexpectedly announced that Units 1 and 2 would retire by the end of the year — three years ahead of schedule —– saying that those units were no longer economic to run. The Colstrip plant's coal supply contract expires at the end of 2019. Many Colstrip residents worry that coal prices may increase, making the remaining units (Units 3 and 4) uneconomic and attractive for an even earlier retirement as well.[117]

Colstrip's Transition Story

Despite years of lawsuits and economic strain on the Colstrip power plant and the Rosebud mine, Colstrip's local and state officials hoped that the plant and mine would continue to operate and provide economic benefits for the town. Officials and the community were caught off-guard by the accelerating retirement dates for the plant's units.[118]

Many Montana state officials have largely focused attention on efforts to support the Colstrip mine and power plant and expand coal markets.[119] Montana Senate Bill 331, locally referred to as the "Save Colstrip Bill," was proposed to allow NorthWestern Energy to skirt the state's regulatory process to purchase an additional 150 MW from Colstrip's fourth unit and pass $75 million in associated ownership costs to ratepayers.[120] Though the bill was rejected, it illustrates some elected officials' efforts to support the Colstrip plant and associated mine. Colstrip's state representative Duane Ankney, a former coal miner and proponent of Bill 331, has since looked to the Trump Administration for a federal grant to explore new technologies to reduce the plant's carbon emissions.[121] According to a Colstrip community leader, "A lot of people in Colstrip are not willing to admit that the shutdowns are going to happen. They think the Trump administration is going to save them.[122]" In the meantime, officials report that Colstrip's property values in the area are falling.[123]

Clean energy advocates in Colstrip have argued that the same economics that are driving the coal industry's decline also favor less costly energy alternatives. Clean energy proponents argue that Colstrip's interconnection and robust transmission system could be used to export and distribute local

---

[114] Sedwick, Mary. June 23, 2019. "Montana, workers should prepare for life after coal." *Bozeman Daily Chronicle*. https://www.bozemandailychronicle.com/opinions/letters_to_editor/montana-workers-should-prepare-for-life-after-coal/article_bf2f11f8-1177-57a4-b782-7f6538d91aa6.html

[115] Wohlfeil, Samantha. June 20, 2019. "Colstrip to close two coal-fired units early." See note 102.

[116] Lutey, Tom. February 18, 2019. "Avista accelerates preparations for Colstrip exit." *Billings Gazette*. https://billingsgazette.com/news/state-and-regional/avista-accelerates-preparations-for-colstrip-exit/article_fc72186c-f036-55df-8d96-297e0c959227.html

[117] Lutey, Tom. June 11, 2019. "Colstrip Units 1 and 2 will close in 2019." See note 113.

[118] Sedwick, Mary. June 23, 2019. "Montana, workers should prepare." See note 115.

[119] Walton, Robert. April 17, 2019. "Montana House unexpectedly rejects bill to save Colstrip coal plant." Utility Dive. https://www.utilitydive.com/news/montana-house-unexpectedly-rejects-bill-to-save-colstrip-coal-plant/552885/

[120] Cates-Carney, Corin. April 8, 2019. "House Committee Hears Controversial 'Save Colstrip' Bill." *Montana Public Radio*. https://www.mtpr.org/post/house-committee-hears-controversial-save-colstrip-bill

[121] Bernton, Hal. March 1, 2018. "As Washington state looks for cleaner power." See note 107.

[122] Bernton, Hal. March 1, 2018. "As Washington state looks for cleaner power." See note 107.

[123] Larson, Aaron. June 12, 2019. "In a Surprise Announcement, Colstrip Units 1 and 2 to Close by Year-End." *Power Magazine*. https://www.powermag.com/in-a-surprise-announcement-colstrip-units-1-and-2-to-close-by-year-end/

renewable energy, retaining local electrician jobs and the community's identity as an energy provider.[124,125]

Centralia Coal Plant, Washington

Table 13: Centralia Coal Plant Quick Facts

Power Plant Information	
Fuel type	Coal
Closure date	2020, 2025
Generation capacity	1,340 megawatts
Employees	~300
Community Information	
Colstrip population	17,000
Lewis County population	78,200
Estimated economic tax contribution to local community	$25 million

Centralia is a small town in Washington that began as a logging and coal mining town. When the largest coal-fired power plant in the state opened in 1972, the town's population steadily grew to nearly 17,000 people today.[126] In 2006, the local coal mine closed and 600 workers lost their jobs. At the same time, the economic viability of coal-fired electrical generation diminished across the nation. Also in 2006, Washington State voters passed Initiative 937 to reduce utilities reliance on fossil-fuel energy sources.[127]

Group Consensus: Centralia's Success Story

This prompted then-Governor Christine Gregoire to request a negotiation between the local International Brotherhood of Electrical Workers (IBEW) labor union, representatives from power plant owner TransAlta, community members, and environmentalists to agree on the best path forward for the 300 plant workers and the economy of Centralia.[65]

Negotiations successfully delivered a settlement agreement for a plant closure. While environmental groups pushed for an early retirement of the plant due to pollution violations, the final settlement called for a staged retirement of the plant. The first boiler unit was settled to retire in 2020 and the second by the 2025, corresponding with the legislative deadline for Washington to become a coal-free energy state.[128] This compromise won support from the local IBEW union for allowing 40% of employees to reach retirement age while giving others eight years to transition before the plant closure.[129] In return, TransAlta would be allowed to explore opportunities to build natural gas generation. TransAlta also

[124] Lutey, Tom. June 11, 2019. "Colstrip Units 1 and 2 will close in 2019." See note 113.
[125] June 13, 2019. "Gazette opinion: Challenges, opportunities for Colstrip." *Billings Gazette*. https://billingsgazette.com/opinion/gazette-opinion-challenges-opportunities-for-colstrip/article_e568171f-25ea-5e44-a934-15fea155a918.html
[126] O'Leary, Sean. November 25, 2018. "A community adapts to life after coal." NW Energy Coalition. https://nwenergy.org/uncategorized/a-coal-town-transitions-to-a-clean-energy-future/
[127] O'Leary, Sean. November 25, 2018. "A community adapts to life after coal." See note 127.
[128] Martelle, Scott. January 2012. "Kick Coal, Save Jobs Right Now." *Sierra Magazine*. https://vault.sierraclub.org/sierra/201201/kick-coal-save-jobs.aspx
[129] Martelle, Scott. January 2012. "Kick Coal, Save Jobs Right Now." See note 129.

agreed to invest a total of $55 million over time into a Coal Transition Fund for the community's areas of high poverty.

The Coal Transition Fund is administered by a board of representatives from rural Lewis County, TransAlta, local economic development and labor councils, and the Northwest Energy Council. As part of this historic arrangement, the funding delivers grants to local businesses, nonprofits, and local governments to:

- Provide energy efficiency and weatherization services to residents, employees, business, nonprofits, and local governments ($10 million);
    - Fund residential energy efficiency and weatherization projects for low-to-moderate income households (up to $1 million);
- Fund education, retraining, economic development, and community enhancement projects ($15 million);
- Fund retraining and education for workers dislocated by the Centralia plant closure ($5 million); and
- Fund energy technology projects with the potential for environmental benefits within the state of Washington ($25 million).[130]

The agreement between TransAlta and other stakeholders was eventually finalized into memorandums of understanding and, ultimately, state legislation in 2015.[131]

In 2017, the federal Department of Commerce's Economic Development Administration awarded a $100,000 grant to the Industrial Park at the TransAlta site to analyze the interest and compatibility of businesses around the region to move to the Centralia area.[132]

Since the agreement, the population of Centralia has stayed relatively stable and even grown slightly.[133] The former mine located nearby the Centralia plant, now a brownfield site, will soon become a 1,000 acre, utility-scale solar array developed by TransAlta. The solar field will support roughly 300 construction jobs and make use of the existing transmission lines that formerly served the power plant.[134]

Additionally, using the retired mine land for solar provides cost savings and land use advantages. Natural Resource Defense Council senior attorney Noah Long noted in a recent article that, "Full reclamation of the site itself can be expensive." Under the Surface Mining Control and Reclamation Act

---

[130] Paulos, Ben. January 4, 2018. "Washington State leaves coal behind, but not its workers." Energy Transition. https://energytransition.org/2018/01/washington-state-leaves-coal-behind-but-not-its-workers/

[131] Paulos, Ben. January 4, 2018. "Washington State leaves coal behind." See note 131.

[132] Tomtas, Justyna. November 25, 2016. "Industrial Park at TransAlta Works to Land Tenants as Another Site Reaches Completion." *The Daily Chronicle*. http://www.chronline.com/industrial-park-at-transalta-works-to-land-tenants-as-another/article_21254d50-b38f-11e6-9f0e-a79fcbb44c3b.html

[133] O'Leary, Sean. November 25, 2018. "A community adapts to life after coal." See note 127.

[134] June 13, 2018. "Major Coal-Fired Power Plant in Washington to Go Solar." Natural Resources Defense Council, reprinted by EcoWatch. https://www.ecowatch.com/coal-plant-washington-solar-2577731987.html

of 1977, coal companies are required to restore land once they have finished mining it to prevent groundwater contamination and erosion—and avoid leaving behind an eyesore. “By putting solar on the land, it maintains an industrial use,” says Long. “This good use of a brownfield brings the costs of reclamation down quite a bit.”[135] It should be noted that while the solar field will create 300 jobs in the short term, it’s estimated to offer only 5 permanent jobs.[136]

Takeaways from National Case Studies of Transitioning Power Plant Communities

Collaboration and Coalitions Increase Odds of Success

- Engaging with diverse perspectives of affected stakeholders on a transition plan, including labor, environmental organizations, the utility, and policy makers, can lead to a more comprehensive and successful transition plan package, as shown in the cases of Centralia and Diablo Canyon.

- Similarly, a broad coalition of parties to a settlement agreement may increase the political viability of the agreement. This was illustrated by the broad support and relatively quick adoption of the Diablo Canyon settlement agreement by the California legislature and Governor.

- A community transition plan may require a combination of regulatory action and legislative action. As in the case of Diablo Canyon, the full package of community transition funding and programming may require enabling legislation along with approval from the Public Utilities Commission.

- Interested stakeholders, host communities, and utilities should begin discussing transition plans early to bring in all necessary stakeholders, allow time for the negotiation of an agreed upon plan, and the regulatory and legislative processes required to execute that plan.

- Utilities that own power plants are important stakeholders to engage, both as a funding source for community transitions and potential owners or partners in new economic development activities.

- A community advisory panel can be helpful to facilitate successful, two-way communication between the power plant owner and the broader community. The Maine Yankee Community Advisory Panel Report provides detailed information about the community advisory group activities and lessons learned throughout the panel’s activities.[137]

[135] Vartan, Starre. June 11, 2018. "In Washington, a Coal-Fired Power Plant Will Put Its Money on the Sun." National Resources Defense Council. https://www.nrdc.org/stories/washington-coal-fired-power-plant-will-put-its-money-sun
[136] Vartan, Starre. June 11, 2018. "In Washington, a Coal-Fired Power Plant.” See note 136.
[137] February 2005. “A Model for Public Participation in Nuclear Projects.” See note 82.

Local Investments Can Help Offset Impacts of Plant Retirements

- Existing transmission and distribution assets associated with a power plant can provide opportunities to site new replacement resources, which may help to add or maintain some jobs and other economic benefits in the area.

- Environmental remediation efforts after a plant closure should be done with the future use of that site in mind. Full environmental remediation of the plant site allows for economic opportunities in the community — both for labor and for new business development. However, partial remediation with siting of replacement energy resources or other industrial uses can moderate remediation costs, while still providing jobs and economic benefits to the community.

- Investments in energy efficiency work and other local clean energy resources may help to add or maintain jobs and other economic benefits in the area, as well as reduce the economic burden of utility bills to local residents and business.

- Investing in existing community assets and industries can create new economic opportunities for host communities. Communities may begin this work by engaging with economic development authorities and experts at the local, regional, or federal level.

Certain Characteristics of a Plant Closure Create Extra Challenges

- Abrupt closure of a power plant poses additional challenges as communities may not be well-situated or prepared to execute an adequate transition effort. The Maine Yankee, Colstrip, and Centralia plants closed early and very abruptly, which had negative implications for the towns' preparation and readiness for a smooth transition. Abrupt closure appears particularly common for coal-fired power plants due to the current economic and environmental pressures on coal.

- Nuclear plant retirements include complicated and long decommissioning and remediation processes. Those processes can create short-term, local job opportunities, but can limit land use and redevelopment options. Further, nuclear plants with onsite spent fuel storage will likely require federal action before spent fuel can be moved. Without federal action, spent fuel may continue to be stored on-site long after a plant closure, potentially limiting opportunities for future land use and redevelopment.

- Community or local governmental resistance to accepting that a plant will retire can delay efforts to transition. In the case of Colstrip, even with several economic analyses highlighting early retirement impacts and mitigation strategies, implementation of those recommendations were hindered by political will to support the plants.

- Cutting local services abruptly due to decreased tax revenue after a plant closure can be challenging and upsetting for community members and may lead to tension at the local government level.

Bibliography

Benn, Annie, Paul Bodnar, James Mitchell, and Jeff Waller. September 2018. “Managing the Coal Capital Transition: Collaborative Opportunities for Asset Owners, Policymakers, and Environmental Advocates.” Rocky Mountain Institute. https://rmi.org/wp-content/uploads/2018/09/RMI_Managing_the_Coal_Capital_Transition_2018.pdf

Dennis, Brady and Steven Mufson. March 28, 2019. “In small towns across the nation, the death of a coal plant leaves an unmistakable void.” *The Washington Post*. https://www.washingtonpost.com/national/health-science/thats-what-happens-when-a-big-plant-shuts-down-in-a-small-town/2019/03/28/57d62700-4a57-11e9-9663-00ac73f49662_story.html?noredirect=on

Dillon, Caitlin. August 2017. “In Transition: Stories from Coal Plant Communities.” Delta Institute. https://delta-institute.org/delta/wp-content/uploads/In-Transition-Stories-From-Coal-Plant-Communities-Delta-Institute-Aug-2017.pdf

Donaue, Marie and John Farrell. March 28, 2019. “A Massachusetts Town Realizes a Community Vision to Transition from Coal to Sol.” Local Energy Rules Podcast, Episode 73. https://ilsr.org/community-vision-transition-coal-sol-holyoke-mass-lena-entin-ler-73/

Haggerty, Julia, Mark Haggerty, Kelli Roemer, and Jackson Rose. August 2018. "Planning for the local impacts of coal facility closure: Emerging strategies in the U.S. West." *Resources Policy* (57): 69–80. https://doi.org/10.1016/j.resourpol.2018.01.010

Hamilton, Lisa Anne, Valova Raaina, and Karl Rabago. March 2017. “Transition Support Mechanisms for Communities Facing Full or Partial Coal Power Plant Retirement in New York.” Pace University. https://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1009&context=environmental

Northern Plains Resource Council and International Brotherhood of Electrical Workers (Local 1638). July 2018. “Doing it Right, Colstrip’s Bright Future with Clean Up.” https://northernplains.org/wp-content/uploads/2018/07/DoingItRight_FullStudy_FNL_WEB.pdf

Power, Mick, Michael G. Williams, Kari Mosley, Jeffery Frankel, and Philip Hanser. July 9, 2015. “Managing the Employment Impact of Energy Transition in Pennsylvania Coal Country.” BlueGreen Alliance. https://www.bluegreenalliance.org/wp-content/uploads/2016/08/Managing-the-Employment-Impact-of-Energy-Transition-in-Pennsylvania-Coal-Country-vFINAL.pdf

Rosenfeld, Ethan. 2015. “Transition Plans for Coal-Fired Power Plant Closings: Stability, Opportunity, & Community.” *Journal of Energy & Environmental Law* (6, 2): 71–82. https://gwjeel.com/wp-content/uploads/2015/07/jeel_vol6_issue2_rosenfeld.pdf

Sanzillo, Tom. June 2017. “A Transition Plan for Communities Affected by the Closings of Navajo Generating Station and Kayenta Mine.” Institute for Energy Economics and Financial Analysis. http://ieefa.org/wp-content/uploads/2017/06/IEEFA-Transition-Plan-for-Navajo-Generating-Station-and-Kayenta-Mine-060617.pdf

Siegner, Katie. January 23, 2019. “Flipping the Switch: A coal plant’s retirement and a community’s response (Part 1).” *Sage Magazine*. http://www.sagemagazine.org/flipping-the-switch-a-coal-plant-retirement-and-a-communitys-response-part-i/

Just Transition Fund. April 2019. “How to Get Started: A Guide to Help Local Governments Engage on Coal Plant Transition.” http://www.justtransitionfund.org/

Trahant, Mark. March 25, 2019. “The Navajo Nation’s Transition Beyond Coal ‘Starts now.’” *Indian Country Today*. https://newsmaven.io/indiancountrytoday/news/the-navajo-nation-s-transition-beyond-coal-starts-now-xGu5FYYqoUOzdLwcgGPhOA/