An Energy Action Plan for Menomonie

March 2021

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ACKNOWLEDGEMENTS

Thank you to the following individuals who contributed many hours of service to developing this Energy Action Plan.

The content of this plan is derived from a series of planning workshops hosted by Xcel Energy's Partners in Energy, a two-year collaboration to develop and implement a community's energy goals. For more information about the planning workshops, see *Appendix 3: Planning Process*.

Energy Action Team	
Ashley DeMuth	Menomonie Area Chamber of Commerce
Don Kuether	Sustainable Dunn, Menomonie resident
Doug Lorenzen	Andersen Windows
Glenn Giesregen	3M
Jeff Heizen	Menomonie resident
Joe Zydowsky	Menomonie School District
Kevin Tomaszewski	Menomonie School District
Lee Schwebs	Ward 6 City Councilmember, City of Menomonie
Lowell Prange	City Manager, City of Menomonie
Megen Hines	Environmental Program Coordinator, City of Menomonie
Randy Eide	Public Works Director, City of Menomonie
Sarah Rykal	University of Wisconsin–Stout
Tony Radle	Mayo Clinic
Xcel Energy and Focus on Energy	
Bob Schultz	Community Service Manager, Xcel Energy
Heather Feigum	Focus on Energy
Rick Kaiser	Key Account Manager, Xcel Energy
Tami Gunderzik	Partners in Energy Program Manager, Xcel Energy
Tim Bartels	Mid-Market Accounts Rep, Xcel Energy
Tony Menard	Focus on Energy
Partners in Energy Facilitators	
Jamie Johnson	Partners in Energy Community Facilitator
Marisa Bayer	Partners in Energy Community Facilitator

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TABLE OF CONTENTS

INTRODUCTION

Menomonie is a small Wisconsin community on the banks of the Red Cedar River, a tributary of the Chippewa River. The city is known for its charming downtown, which has been designated a national Downtown Historic District, as well as its education institutions, like the University of Wisconsin–Stout. The City of Menomonie has worked with community stakeholders to create a vision of promoting energy and natural resource conservation, to preserve the area and its resources for future Menomonie residents.

The City of Menomonie has demonstrated its commitment to sustainability through policy and planning, implementing projects, and joining regional initiatives (*Table 1*).

Table 1: City of Menomonie's Sustainability Initiatives

Recognition & Volunteers
• U.S. Mayors Climate Protection Agreement • Sustainable Dunn membership • Tree City USA • Bird City Wisconsin • Rain to Rivers of Western Wisconsin • Community bicycle and pedestrian advisory committee
Policies & Plans
• Updated Comprehensive Plan 2016–2036 to include strategies to promote conservation, increase renewable energy use, and promote energy efficiency • Passed Resolution 2020-09 to set goal of carbon-free electricity by 2050 • Completed fleet study to determine best path forward to integrating electric vehicles
Projects
• Trail extensions and completion of additional connections, including 17-miles of paved, off-road trails • Preservation of 380 acres of green space in 36 parks • Created gravel bed tree nursery to plant 60–80 new boulevard trees each year • Converted traffics signals and runway lights to LED • Two new stormwater treatment ponds

In January 2020, the Menomonie City Council adopted a resolution committing to prevent continued damage to our climate and to invest in solutions that help to mitigate the changes that have already occurred for current and future generations. In this resolution, Menomonie set an energy vision to ensuring all electricity consumed is 100% carbon-free by 2050.

Why an Energy Action Plan?

The next step our community faces in regard to its 2050 goal is to identify the remaining work to accomplish it. Important stakeholders like residents, businesses, and education institutions, need to be engaged so that conservation strategies reflect their input and perspectives.

The City of Menomonie identified Xcel Energy's Partners in Energy as an opportunity to engage the Menomonie-area community around our 2050 goal and to increase energy efficiency and renewable energy support across all sectors.

Who are we talking about?
The City is the City of Menomonie. **We** and **our** refers to the Menomonie community as a whole. **Energy Action Team** is the group of individuals whose input created this plan. **Energy Action Plan** refers to this document.

Our Energy Action Plan, crafted by the Menomonie community, serves several purposes. It creates intention, helps us lead by example, manages our resources, and outlines our opportunities to collaborate to achieve our carbon-free electricity vision (*Table 2*).

Table 2: Menomonie Energy Action Team Responses to "Why an energy action plan?"

Collaboration	Leading by Example

• Work together
• Learn from each other
• Share best practices
	• Track and demonstrate success
	  ○ For Menomonie
	  ○ For other Wisconsin communities

Intention	**Manage Resources**
• Promote a call to action • Create a roadmap to move forward • Identify priorities and strategies	• Prioritize finite resources (financial, human, natural) • Reduce environmental impacts

Plan Engagement & Outreach Process

The creation of Menomonie's Energy Action Plan was a four-month process endorsed by the Menomonie City Council and included a variety of stakeholders committed to representing our community.

Starting in October 2020, the City of Menomonie and Xcel Energy hosted a series of workshops and planning calls to understand our community's energy use and demographics, identify focus areas, and develop engagement strategies to change our energy future. By the numbers, the Energy Action Team attended five hours of workshops, completed three surveys, and identified nine strategies to achieve our 2050 goal. See *Appendix 3*: *Planning Process* for more information about the planning process and Xcel Energy's Partners in Energy.

WHERE WE ARE NOW

An integral part of the Partners in Energy planning process is reviewing community demographics and historical energy use patterns to ensure data-driven decisions for focus areas and strategies.

See *Appendix 4*: *Baseline Analysis* for a comprehensive overview of the baseline data.

Community Demographics

Data from the U.S. Census Bureau American Community Survey informed the team about Menomonie's community makeup, helping us better understand the characteristics of our population and residences.

Population

Overall, Menomonie is a small, young community. According to the American Community Survey, Menomonie has 16,312 residents and a median age of 23.5 (compared to statewide average of 39.3). The lower median age is attributed to two colleges located in the city — University of Wisconsin–Stout and Chippewa Valley Technical College — with 42% of Menomonie's residents between the ages of 18 and 24.

POPULATION 16,312	MEDIAN HOUSEHOLD INCOME $41,449	HOUSING UNITS 6,285
MEDIAN AGE 23.5	POVERTY RATE* 26.1%	HOUSING BUILT BEFORE 2000 87%
RACE - WHITE 93%	POVERTY RATE WITHOUT STUDENTS* 16.8%	SINGLE-FAMILY HOMES 51%
LANGUAGE OTHER THAN ENGLISH 8%	MEDIAN HOUSING VALUE $143,200	RENTER-OCCUPIED UNITS 60%

Menomonie Quick Facts
Source: American Community Survey

Housing Stock

According to the American Community Survey, Menomonie residents primarily live in homes built before 2000 (87% of all units built) and just over half of the housing units are single-family homes (51%). A large portion of Menomonie's residents are renters, with 60% of all units in

Menomonie being renter occupied, potentially the result of the large number of college students in the community.

Income

The presence of two colleges also impacts the community's median income and poverty rate. The American Community Survey estimates Menomonie's median household income is $41,440, which is lower than statewide average of $59,209. Menomonie's poverty rate is 26.1%, but poverty among non-college students is lower, at 16.8%. Both figures, however, are higher than the statewide average of 10.4%.

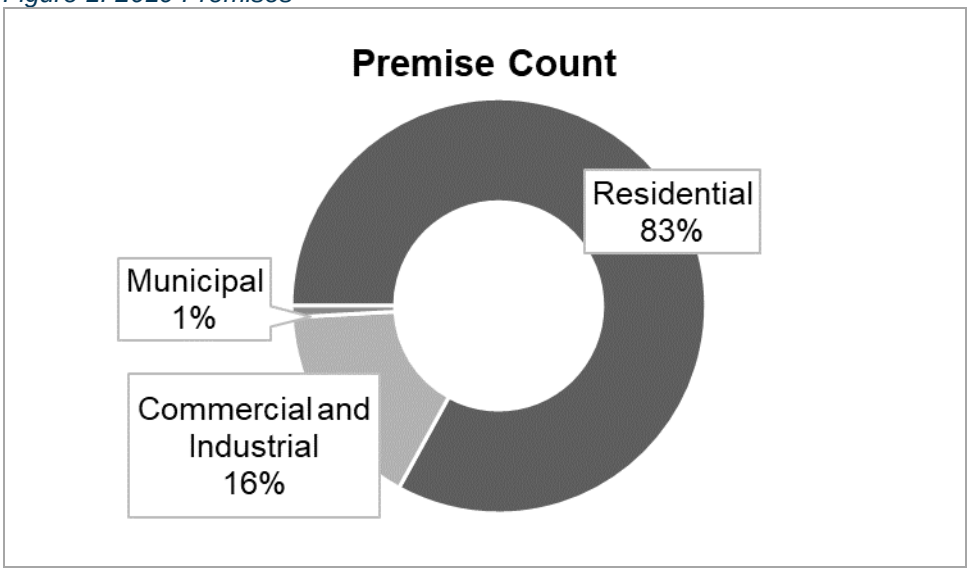
Energy Baseline

Xcel Energy, Menomonie's electric and natural gas provider, supplied data on energy use and utility program participation. Focus on Energy, Wisconsin's energy efficiency and renewable energy program implementer, provided data on energy conservation program participation and energy savings. Data from Xcel Energy and Focus on Energy was used to create a three-year energy baseline from 2017–2019.

Energy Users

There are 7,582 premises in Menomonie. A premise is unique combination of service address and meter. For residential customers, this is the equivalent of an individual house or dwelling unit in a multi-tenant building. For business customers, it is an individual business, or for a larger business, a separately metered portion of the business's load at that address. The majority of premises are residential (6,292), followed by commercial and industrial (1,224) and municipal (66).

Figure 1: 2019 Premises

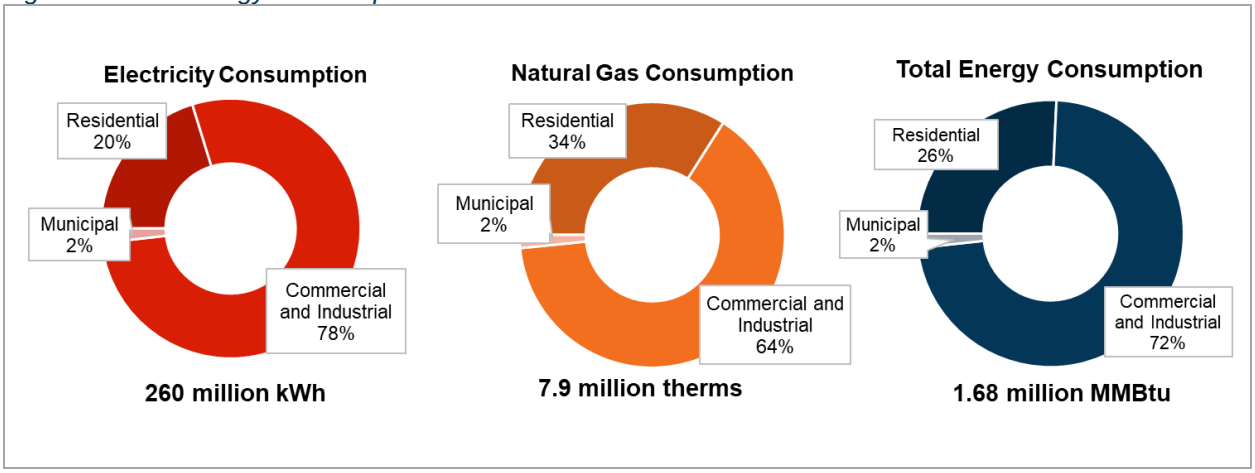


Energy Use & Costs

In 2019, Menomonie residents and businesses consumed 260.3 million kWh of electricity and 7.9 million therms of natural gas, spending $28.4 million on energy in all sectors. Commercial and industrial premises, which represent 16% of total premises, consumed 78% of electricity and 64% of natural gas in 2019. Comparatively, residences make up 83% of all premises and consumed 20% of electricity and 34% of natural gas in 2019. Municipal premises, which were

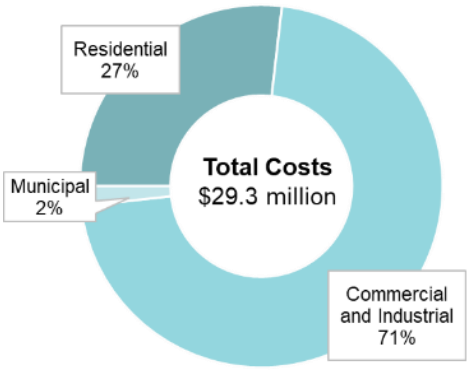
measured separately from the commercial and industrial sector, represent 1% of all premises and consumed 2% of electricity and natural gas in 2019.

Figure 2: 2019 Energy Consumption



The average residential customer spends $1,300 a year. Commercial and industrial premise spending varies with the size of the business (e.g., a retail store versus a large industrial facility) but averages $17,000 per premise.

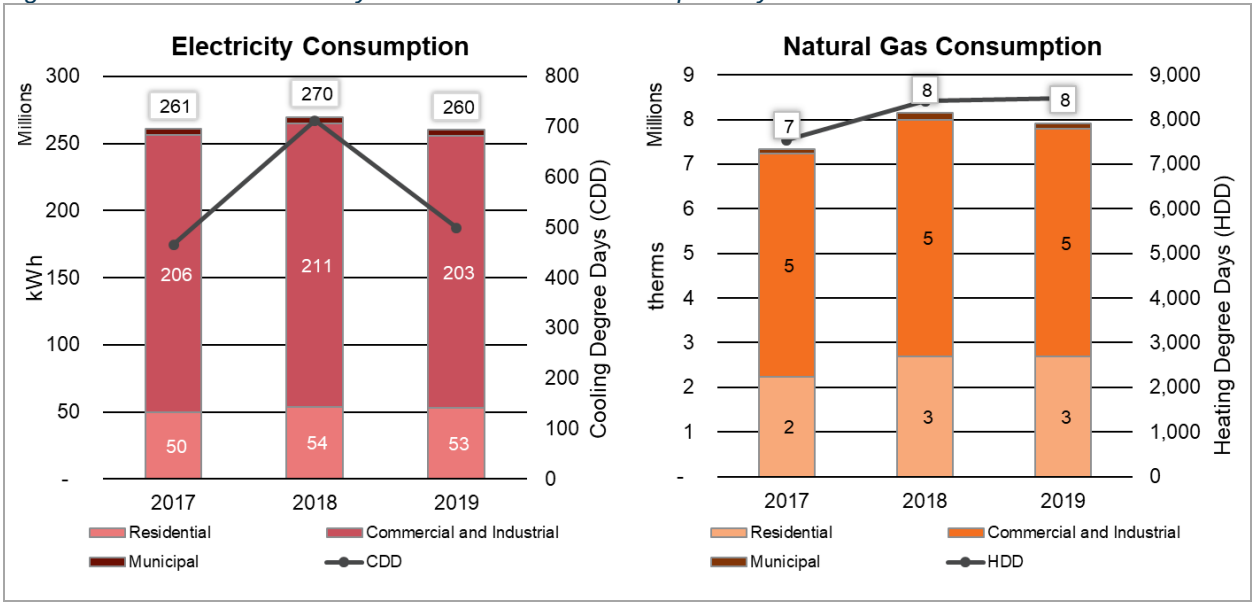
Figure 3: Average Energy Costs



Sector	Electricity Costs	Natural Gas Costs	Costs per premise
Municipal	$438,200	$77,000	$7,900
Commercial & Industrial	$18 million	$2.9 million	$17,000
Residential	$5.9 million	$1.9 million	$1,300

Breaking out consumption by fuel source over the three-year baseline shows how energy use has changed over the past three years. Total electricity consumption decreased 0.2% between 2017 and 2019, and natural gas consumption increased 7.9% for the same time period. The increase in natural gas consumption aligns with an increase in heating degree days.

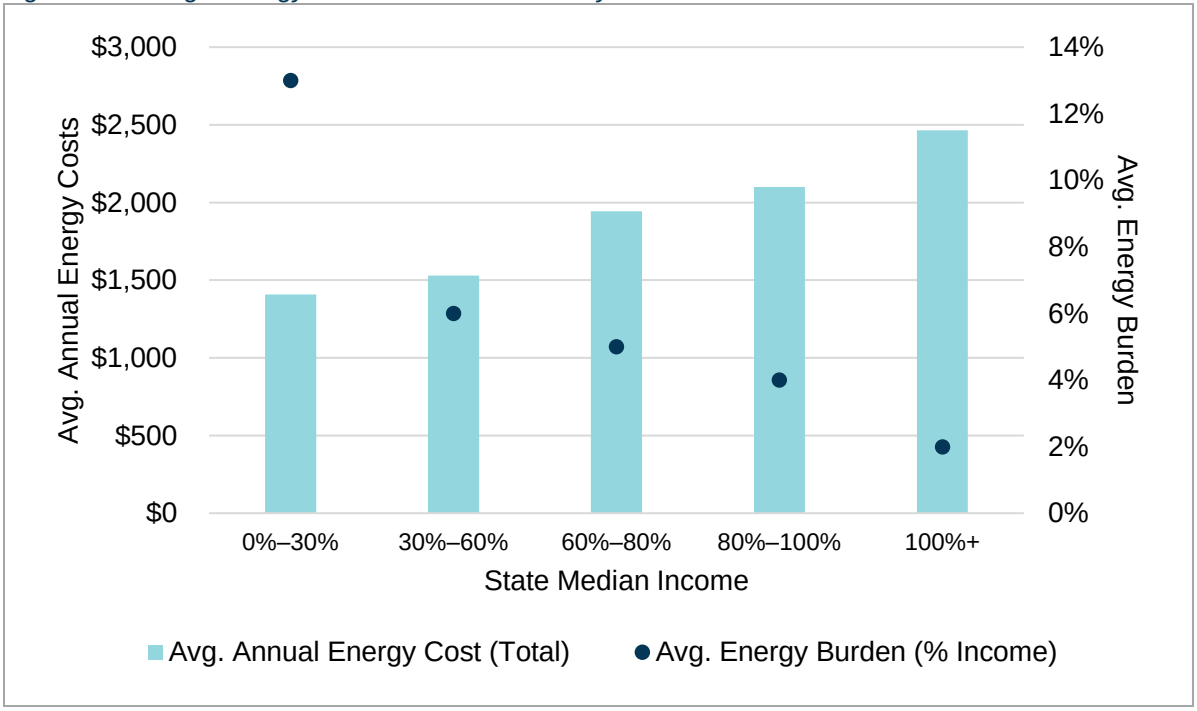
Figure 4: 2017–2019 Electricity and Natural Gas Consumption by Sector



Energy Burden

As a moderate-income community, a high percentage of Menomonie residents' income goes toward energy costs. *Figure 5* shows average annual energy costs across different income brackets, as well as the energy burden, or percentage of income spent on energy. Households at 100% state median income (SMI) spend the most each year on average, but only experience an energy burden of 2%. For different income brackets, energy burden increases as overall dollars spent decreases. The lowest-income households, at 30% SMI, spend the least amount of money on energy but experience the highest energy burden, at 13%.

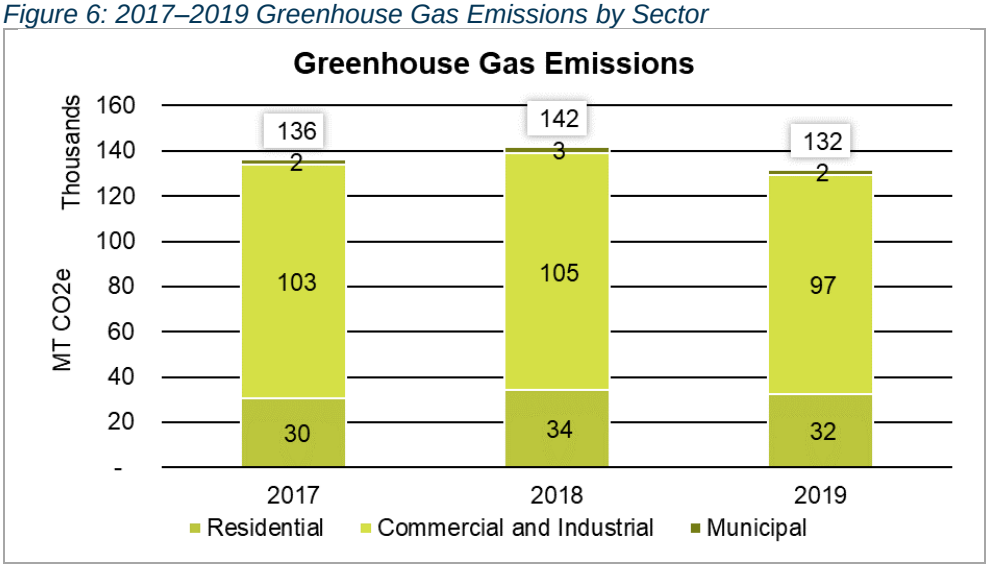
Figure 5: Average Energy Burden in Menomonie by State Median Income



Greenhouse Gas Emissions

In 2019, Menomonie's energy use resulted in 131,700 metric tons of carbon dioxide equivalent greenhouse gas emissions (MTCO2e). This is equivalent to the greenhouse gas emissions from 28,450 passenger vehicles driven for one year.[1] Commercial and industrial premises account for the largest percentage of emissions, representing 73% of total energy-related greenhouse gas emissions in 2019.

Figure 6: 2017–2019 Greenhouse Gas Emissions by Sector



Renewable Energy

Local renewable energy use is a result of both customer subscription programs and on-site installations. In 2019, 506 residential premises and nine commercial and industrial premises subscribed to a renewable energy program. On-site solar installations were less popular, with only seven incentives paid for photovoltaic systems by Focus on Energy from 2017 to 2019.

Table 3: 2019 Xcel Energy Renewable Energy and Focus on Energy Program Participation by Sector

Xcel Energy Subscription Programs	Residential Premises	Commercial & Industrial Premises
Subscriber Count	506	9
Total Annual Electricity Subscribed (kWh)	590,761	63,262
Percentage of Sector Electricity Use	1%	0.1%
Percentage of Premises	8%	0%
On-Site Solar Installations		
Focus on Energy Incentives Paid[2]	5	2

[1] U.S. Environmental Protection Agency Greenhouse Gas Equivalencies Calculator. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

[2] Data from Focus on Energy participation summaries 2017–2019.

Energy Efficiency Program Participation & Savings

Xcel Energy and Focus on Energy offer programs to Menomonie residents and businesses to increase energy savings at their homes or buildings. Rebates for new equipment, audit programs, and discounted and no-cost energy measures are available in addition to load management programs. From 2017 to 2019, more than 7,000 Menomonie residents and businesses participated in Focus on Energy programs, resulting in almost $750,000 in incentives from Focus on Energy. The average incentive paid to program participants is $30 per resident and $900 per business. In addition to the incentives paid by Focus on Energy, Xcel Energy offers additional bonus incentives for certain Focus on Energy rebates and programs. More than $130,000 in bonus incentives were paid in Menomonie over the baseline period.

Table 4: 2017–2019 Program Participation Summary by Sector

	Residential Programs	Business Programs
Total Focus on Energy Program Participation	6,668	623
Total Focus on Energy Electricity Savings (kWh)	858,957	9,409,029
Total Focus on Energy Natural Gas Savings (therms)	39,598	28,367
Total Focus on Energy Incentives Paid	$192,292	$557,676
Total Xcel Energy Bonus Incentives Paid	$48,934	$81,452
Average Focus on Energy Participation	2,223	208
Average Focus on Energy Incentive per Participant	$30	$900

WHERE WE ARE GOING

This section outlines the priorities, focus areas, target audiences, and goals to chart the course toward achieving Menomonie's energy vision.

Energy Priorities

Energy priorities indicate what is most important to the Menomonie community. The Energy Action Team identified the following top priorities: (1) making homes and businesses more energy efficient to save money on energy bills; (2) supporting energy burdened and under-resourced households; (3) inspiring future generations; (4) and protecting our natural resources.

Focus Areas

Focus areas direct the community efforts to address these energy priorities. This plan organizes strategies and resources into the following four focus areas (*Figure 7*).

Figure 7: Energy Action Plan Focus Areas and Target Audiences

Focus Area 1: Public Buildings

This focus area will target publicly owned buildings located in our city, including those owned by the City of Menomonie and Dunn County. Both the City and County are positioned to lead by example for public and private buildings within our community and for the greater Menomonie area. Strategies targeting this audience will include education initiatives and process and policy updates to remove barriers for the community.

Historic Second Street
Photo provided by City of Menomonie

Focus Area 2: Businesses

This focus area targets small and medium-sized businesses as well as large industry to enhance Menomonie's historic downtown and support our large employers. The commercial and industrial sector has a large potential to save energy — it represents 16% of premises but consumes 78% of total electricity and 64% of total natural gas. When businesses act to improve energy efficiency, it can have significant impact on reducing overall energy use and greenhouse gas emissions.

There are also economic development benefits to targeting this sector. The commercial and industrial sector spends an average $2.9 million a year on energy. When a business invests in energy efficiency, they save energy and money through lower energy bills and lower maintenance costs. Those dollars can be reinvested back into the business.

Strategies targeting small and medium-sized businesses and large industry include connecting businesses to the right resources to save energy and money and sharing success stories and testimonials.

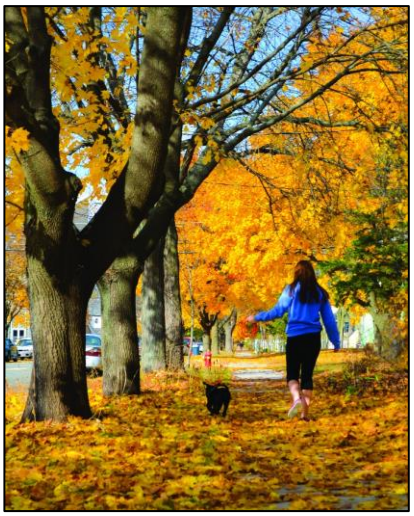


Photo provided by the Menomonie Area Chamber of Commerce

Focus Area 3: Residents

Strategies will target the 16,000-plus people who call Menomonie home, including both homeowners and renters. Residential premises make up 83% of energy users in our community, spending an average $1,300 per year on energy costs. Strategies include connecting residents with resources to improve their home's comfort, access rebates and energy efficiency programs, and learn about different renewable energy opportunities.

Our most vulnerable residents, who make 30% or less of the state median income, spend an average of 13% of their income on energy costs and are also an important target. Strategies to target these residents include connecting them to no-cost resources to improve their home's efficiency and access utility bill assistance.

Unlike homeowners, renters, who occupy 60% of units in Menomonie, are limited by what they can do in their home, even though they typically pay their own utilities. Rental property owners,

who are the property decision makers, will be the primary rental property target audience. Strategies include connecting with property owners to share energy efficiency benefits and program opportunities as well as connecting with renters to help them make behavior changes to reduce their bills.

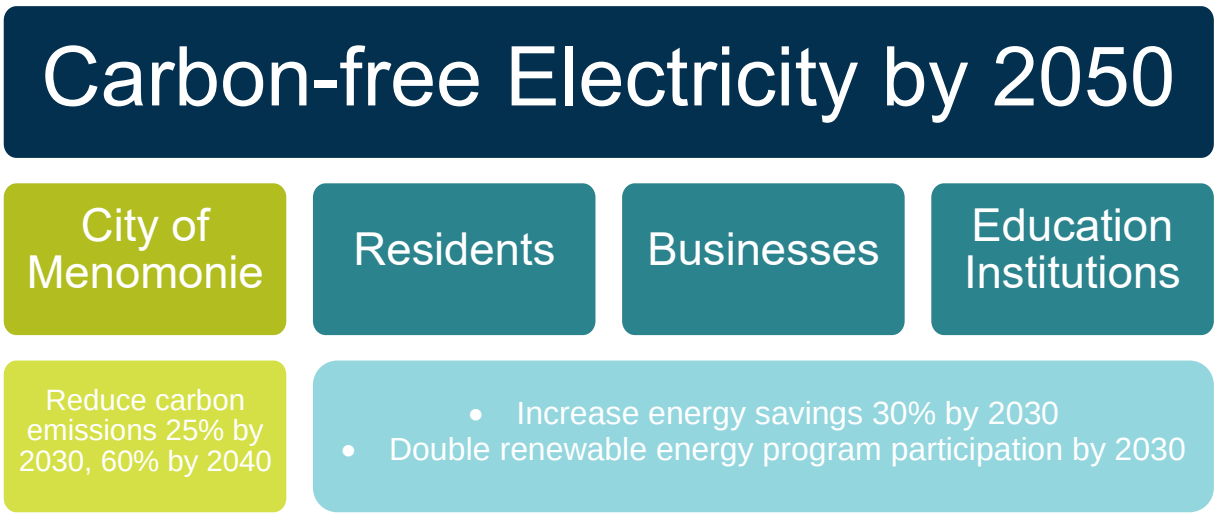
Focus Area 4: Education Institutions

Menomonie's education institutions support the success of future generations. Our target partners include the School District of the Menomonie Area, the University of Wisconsin–Stout, Chippewa Valley Technical College, and parochial schools. These institutions can support engagement in other focus areas, such as residents who rent their homes, and can lead by example for their staff, students, and fellow institutions. Strategies targeting education institutions include sharing success stories and case studies of demonstration projects as well as connecting schools with resources to support renewable energy.

Goals

The City of Menomonie set goals to reduce carbon emissions by 25% by 2030 and by 60% by 2040 on the path toward carbon-free electricity by 2050. The Energy Action Team set additional subgoals for each of the four focus areas. These subgoals specifically target increasing energy efficiency and supporting renewable energy.

Figure 8: Menomonie's Energy Goals



HOW WE ARE GOING TO GET THERE

The Energy Action Team developed actionable strategies targeting different sectors of the community. For each strategy, the team identified tactics, implementation resources, communication channels, and timelines. See *Appendix 1*: Implementation Work Plan for a detailed overview of strategy implementation.

Strategies

The Energy Action Team identified nine strategies to achieve our vision of carbon-free electricity by 2050. Our recipe for success includes leading by example, allowing the City of Menomonie, businesses, institutions, and residents to demonstrate best practices; education and awareness about the benefits of energy efficiency and renewable energy; and community connections to increase engagement across all sectors in Menomonie.

Ranging from education and outreach to policy development, each strategy includes near-, medium-, and long-term tactics to prioritize our financial, human and natural resources.

- **Strategy A**: Update government processes and policies to increase building energy efficiency and renewable energy support.
- **Strategy B**: Prioritize energy efficiency and renewable energy in government buildings.
- **Strategy C**: Help public and private buildings track their energy use.
- **Strategy D**: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to residents.
- **Strategy E**: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to businesses.
- **Strategy F**: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to education institutions.
- **Strategy G**: Engage property owners and renters to increase rental property energy efficiency.
- **Strategy H**: Increase support for renewable energy among residents, businesses, and institutions.

- **Strategy I**: Recognize Menomonie residents, businesses, and institutions that support our Energy Action Plan.

Near-Term Tactics

The Energy Action Team chose the following high priority tactics to implement through 2022, while the City of Menomonie is receiving direct implementation support from Xcel Energy's Partners in Energy. Although these tactics are considered near-term priorities, these actions will continue through 2030, using lessons learned to influence future implementation activities.

Figure 9: Focus Area Key

Each strategy will indicate the focus area impacted by outreach tactics using the icons below. Multiple focus areas may be included or concentrate on a single audience.

Strategy A: Update government processes and policies to increase building energy efficiency and renewable energy support.			
A1. Create new sustainability web page including Energy Action Plan strategies from Xcel Energy, Focus on Energy, and other organizations and other information.	**A2**. Pursue SolSmart designation to reduce barriers to on-site solar installation.	**A3**. Integrate energy efficiency and renewable energy program information into development project review and permitting processes.	**A4**. Track annual progress toward goals identified in this plan for public buildings and report to City and County leadership.

Strategy B: Prioritize energy efficiency and renewable energy in government buildings.			
B1. Inform public building officials quarterly about importance of energy efficiency to prioritize funding in budgets.	**B2**. Conduct energy audits in buildings with the highest return on investment, leveraging benchmarking data.	**B3**. Initiate low-hanging fruit projects with a payback of five years or less, and pursue rebates.	**B4**. Revisit Fleet Study to prioritize fleet replacements with electric vehicles based on study recommendations.

Strategy C: Help public and private buildings track their energy use.	
C1. Track public building energy use and greenhouse gas emissions through a benchmarking platform, like ENERGY STAR® Portfolio Manager and share on public dashboard on City websites.	**C2**. Promote free tools to help businesses benchmark their own energy use and track their progress towards goals.

Strategy D: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to residents. 		
D1. Create informational materials and leverage existing community communication channels to promote resources.	**D2**. Conduct an outreach campaign targeting residents with free energy-saving packets from Focus on Energy.	**D3**. Create a series of workshops, webinars, and pop-up events to promote energy efficiency and EV programs and energy-saving behaviors.

Strategy E: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to businesses. 		
E1. Create informational materials and leverage existing community communication channels to promote resources.	**E2**. Host a series of workshops, webinars, and events educating businesses about different programs and incentives related to energy efficiency and electric vehicle programs.	**E3**. Form facility manager group to share energy management best practices and education resources, and to connect to the right informational materials with utility contacts.

Strategy F: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to education institutions. 	
F1. Create informational materials and leverage existing community communication channels to promote resources.	**F2**. Encourage institutions to join facility manager group (tactic E3) to share energy management best practices and education resources.

Strategy G: Engage property owners and renters to increase rental property energy efficiency. 	
G1. Create informational materials and leverage existing community communication channels to promote resources.	**G2**. Conduct outreach to rental property owners with energy audit information and rebate programs.

Strategy H: Increase support for renewable energy among residents, businesses, and institutions. 		
H1. Create informational materials for each target audience identifying renewable energy opportunities available, benefits of different options, and financing resources.	**H2**. Challenge residents to subscribe to a renewable energy program and offer prizes to those who participate.	**H3**. Co-host webinars and meetings that educate residents and businesses about renewable energy and programs available to support renewable energy.

Strategy I: Recognize Menomonie residents, businesses, and institutions that support our Energy Action Plan.	
I1. Recognize residents who participate in different programs with yard signs, social media banners, and shared testimonials.	**I2**. Share testimonials and case studies from different businesses and education institutions on community communication channels.

Resources for Implementation

For successful implementation of our near-term tactics, the Energy Action Team identified several resources including communication channels to increase education and awareness and community connectors to champion the Energy Action Plan.

Communication Channels

The following channels will be leveraged to share informational materials, promote resources and events, and engage our community.

Example Community Channels to be Used During Implementation

- Newspapers: Dunn County News and Eau Claire Leader Telegram
- TV news: WEAU and WQOW
- City of Menomonie website, social media, environmental newsletter, and contacts
- Chamber of Commerce website, social media, newsletter, events, and kiosks
- Downtown Menomonie website and social media
- Explore Menomonie community events
- Sustainable Dunn community group
- Community Facebook groups
- Service clubs: AM and Noon Rotary
- Dunn County website and social media
- Volume 1 Magazine Green Issue
- Radio: NPR and WPR
- Xcel Energy emails
- Public Library common areas, website, and poster boards
- Rains to Rivers consortium
- UW–Stout event flyers, staff emails, social media, alumni network, and student emails
- Community events: farmers market
- Community groups and environmental listserv
- Pushpin boards at restaurants, grocery stores, and other areas
- Word of mouth

Community Connectors

Community connectors — individuals and organizations who will champion the Energy Action Plan — are an important resource for implementation success. A community connector uses their network of contacts to share and champion calls to action, advocating for the Energy Action Plan strategies. Community connectors for our implementation include the Energy Action Team, City of Menomonie staff, Menomonie City Council, and Xcel Energy.

Medium- and Long-Term Tactics

In addition to the near-term tactics identified above, the Energy Action Team created medium- and long-term tactics to achieve our energy goals. These tactics will be prioritized 2023–2030, building off the successful implementation of the near-term tactics.

Strategy A: Update government processes and policies to increase building energy efficiency and renewable energy support.		
A5. Explore incentives to increase energy efficiency in new and existing buildings, such as a revolving loan fund.	**A6**: Support State of Wisconsin effort to update building energy codes as noted in Task Force on Climate Change Report.	**A7**. Explore policies that promote energy efficiency during time of sale and rent.

Strategy B: Prioritize energy efficiency and renewable energy in government buildings.		
B5. Update purchasing policy to prioritize energy efficient equipment and electric vehicles when replacing equipment.	**B6**. Identify renewable energy opportunities for public buildings.	**B7**. Explore alternative energy sources for the community, including biogas with wastewater treatment.

Strategy D: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to residents.
D4. Explore incentives to reduce the cost of home energy audits and host outreach campaign promoting reduced cost if available.

Strategy E: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to businesses.	
E4. Target businesses with refrigeration systems to reduce HFC use and emissions.	**E5**. Create information materials that promote beneficial electrification, electric vehicles, geothermal systems, and other air- and ground-source systems and share with one-on-one outreach.
E6. Identify energy exhibitor opportunities to showcase resources available to businesses.	**E7**. Advocate to industry leadership the importance of reducing their energy use and greenhouse gas emissions.

Strategy F: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to education institutions.	
F3. Update materials from Tactic E5 to engage education institutions through one-on-one outreach.	**F4**. Explore creating a beneficial electrification or renewable energy demonstration project to highlight for community.

Strategy G: Engage property owners and renters to increase rental property energy efficiency.	
G3. Host landlord discussion forum to talk about trends in rental properties and opportunities for energy efficiency.	**G4**. Collaborate with a rental property owner to serve as a model property for energy efficiency for other landlords.

Strategy H: Increase support for renewable energy among residents, businesses, and institutions.		
H4. Facilitate partnerships to support solar garden development in the Menomonie area, including group-buy opportunities.	**H5**. Highlight demonstrative projects to increase visibility of existing renewable energy systems in the community.	**H6**. Identify funding and incentives to make it easier for businesses and institutions to adopt renewable energy, including on-site solar installations.

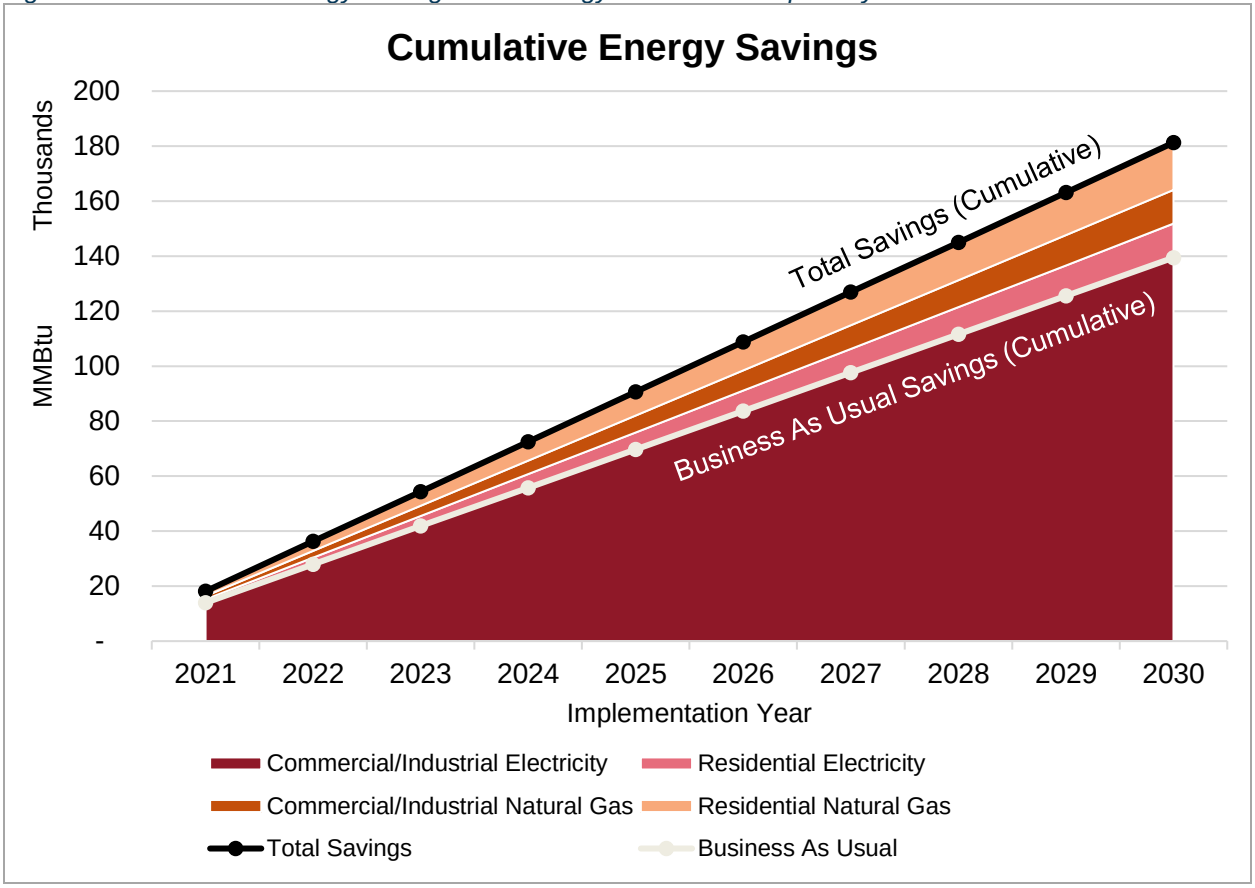
Strategy I: Recognize Menomonie residents, businesses, and institutions that support our Energy Action Plan.
I3. Create a green recognition program to recognize small and medium-sized businesses and large industry.

Energy Action Plan Impact

In a business as usual scenario, where there is no additional support or collaboration with our community, Menomonie residential premises will save 286,300 kWh and 13,200 therms, and commercial and industrial premises will save 3.1 million kWh and 9,500 therms. Successful implementation of our strategies, including engaging residents, businesses, rental property owners, and education institutions, will allow us to achieve our goal to increase cumulative energy savings 30% by 2030.

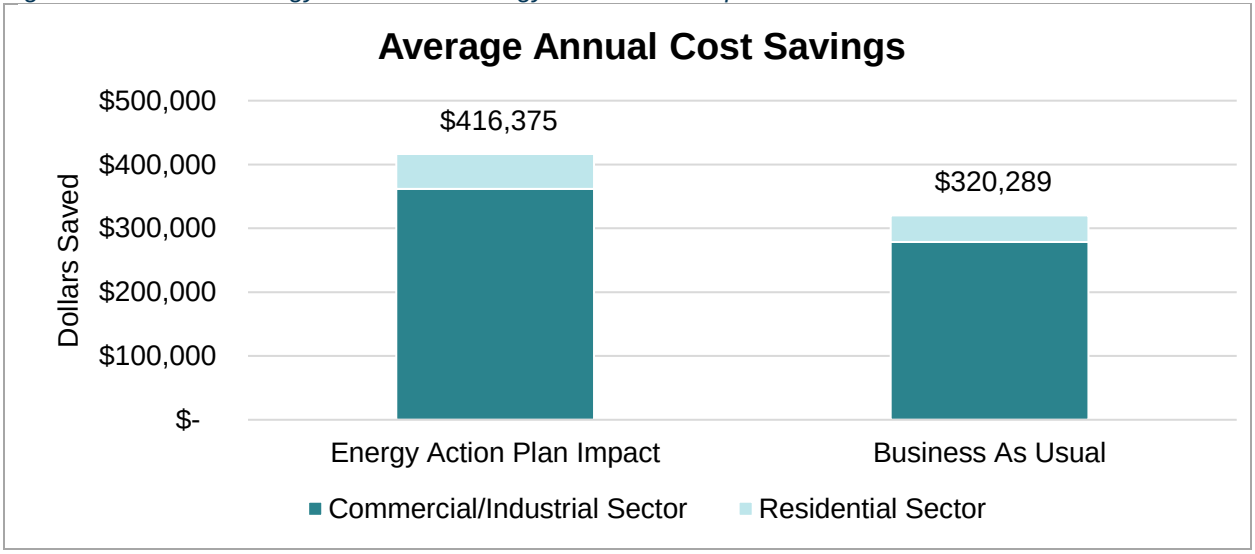
Achieving our goal in 2030 will result in residential premises saving 3.7 million kWh and 172,000 therms, and commercial and industrial premises will save 40.8 million kWh and 123,00- therms. *Figure 10* illustrates each sector's potential contribution, with commercial and industrial electricity savings contributing the most toward our energy savings goal.

Figure 10: Cumulative Energy Savings from Energy Action Plan Impact by Sector and Fuel



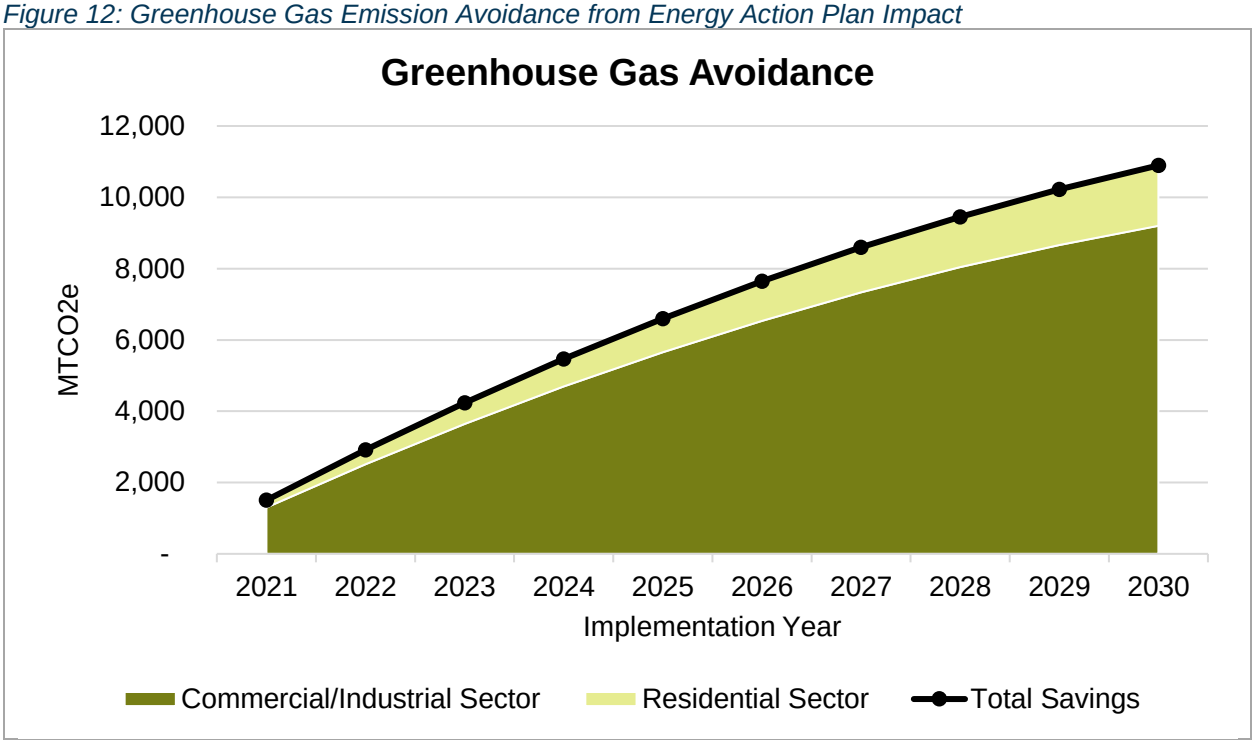
The cumulative impact of these energy savings will result in our community avoiding almost $4.2 million in energy costs, keeping those dollars in Menomonie to invest in our homes and buildings and to spend at local businesses.

Figure 11: Avoided Energy Costs from Energy Action Plan Impact



Increasing energy savings will also benefit our environment by reducing energy-related greenhouse gas emissions. A 30% increase in energy savings results in approximately 10,900 MTCO2e avoided, which is equivalent to removing 2,355 passenger vehicles from the road for a year.[3] In addition, 515 new renewable energy subscribers will result in more than 1.3 million kWh of electricity coming from renewable sources, a 100% increase above 2019 renewable energy support.

Figure 12: Greenhouse Gas Emission Avoidance from Energy Action Plan Impact

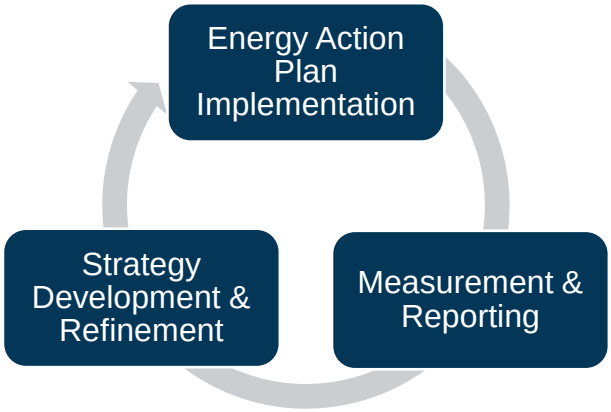


[3] U.S. Environmental Protection Agency Greenhouse Gas Equivalencies Calculator. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

HOW WE STAY ON COURSE

This Energy Action Plan is a living document. Goals and strategies will be assessed and refined as needed based on data and community staff capacity.

Figure 13. Actions and Tracking



Data and Reporting

Partners in Energy will provide biannual progress reports with metrics of success and overall progress toward goals from Xcel Energy and Focus on Energy during the first phase of implementation. These reports will include program participation, energy savings by sector, and energy consumption by sector. All reports will be public and shared with both the Energy Action Team and the Menomonie community.

If available, ad-hoc participation reports for specific programs will be provided to measure success of campaigns and to determine whether we need to change course.

Project Management and Tracking

Partners in Energy will host regular project management check-in calls with City staff to ensure that we stay on course to achieve our strategies for the first 18 months of implementation. In addition, Partners in Energy facilitators will also support one-on-one outreach to the Energy Action Team and community connectors to facilitate strategy implementation.

At the implementation midpoint, we will convene the Energy Action Team to check-in on implementation, assess progress toward goals, and discuss strategy refinement.

Roles & Responsibilities

Implementing the strategies outlined in this plan will require leadership and collaboration among the City of Menomonie, members of Energy Action Team, community representatives, Focus on Energy, and Xcel Energy. To ensure we are successful, this section outlines the roles and responsibilities of the implementation team.

City of Menomonie

The City of Menomonie will provide a primary point of contact for implementation and will assign members to attend regular project management check-ins. The City commits to leveraging existing communication channels and community connections to promote the Energy Action Plan. In addition, the City of Menomonie will lead strategies specific to City-owned buildings and policies.

Energy Action Team

The Energy Action Team formed to create this plan will support implementation by serving as community connectors to their networks and will help promote our energy vision, encourage participation in programs and outreach campaigns, and share success stories. When available, the Energy Action Team will serve as partners and leaders in strategies, including those targeting small and medium-sized businesses, large industry, and education institutions.

Xcel Energy

In addition to data reporting, project management, and implementation tracking, Xcel Energy commits to 18 months of implementation support, including marketing and communications support and program expertise. It will also provide a dedicated community facilitator to serve as a primary point of contact. Partners in Energy digital resources, including office hours, community portal, and community events will also be available to the Menomonie team.

Xcel Energy will also leverage its communication channels promote programs and resources as well as leverage staff expertise to connect the City of Menomonie and Menomonie Xcel Energy customers with the right resources.

APPENDIX 1: IMPLEMENTATION WORK PLAN

This appendix provides additional detail on the timing and leadership for each tactic.

Strategy Summary

- **Strategy A**: Update government processes and policies to increase building energy efficiency and renewable energy support.
- **Strategy B**: Prioritize energy efficiency and renewable energy in government buildings.
- **Strategy C**: Help public and private buildings track their energy use.
- **Strategy D**: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to residents.
- **Strategy E**: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to businesses.
- **Strategy F**: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to education institutions.
- **Strategy G**: Engage property owners and renters to increase rental property energy efficiency.
- **Strategy H**: Increase support for renewable energy among residents, businesses, and institutions.
- **Strategy I**: Recognize Menomonie residents, businesses, and institutions that support our Energy Action Plan.

Implementation Team

- **City**: City of Menomonie.
- **County**: Dunn County.
- **Energy Action Team**: Community members and organizations supporting planning and implementation.
- **Focus on Energy**: Program implementers to help customers save energy and money through programs and rebates.
- **PiE**: Partners in Energy community facilitators.
- **Xcel Energy**: Utility representatives supporting Menomonie community.

Near-Term Tactic Work Plan

Strategy & Tactics	Implementation Leads	Implementation Support	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22	Q3 22	Q4 22
Strategy A: Update government processes and policies to increase building energy efficiency and renewable energy support.									
A1. Create new sustainability web page including Energy Action Plan strategies from Xcel Energy, Focus on Energy, and other organizations and other information.	PiE	City, Xcel Energy, Focus on Energy							
A2. Pursue SolSmart designation to reduce barriers to on-site solar installation.	City, County	PiE							
A3. Integrate energy efficiency and renewable energy program information into development project review and permitting processes.	City, County	PiE							
A4. Track annual progress toward goals identified in this plan for public buildings and report to City and County leadership.	City, County, PiE	Xcel Energy							
Strategy B: Prioritize energy efficiency and renewable energy in government buildings.									
B1. Inform public building officials quarterly about importance of energy efficiency to prioritize funding in budgets.	City, County	PiE							
B2. Conduct energy audits in buildings with the highest return on investment, leveraging benchmarking data.	City, County	Xcel Energy, Focus on Energy							
B3. Initiate low-hanging fruit projects with a payback of five years or less, and pursue rebates.	City, County	Xcel Energy, Focus on Energy							
B4. Revisit Fleet Study to prioritize fleet replacements with electric vehicles based on study recommendations.	City	Xcel Energy							
Strategy C: Help public and private buildings track their energy use.									
C1. Track public building energy use and greenhouse gas emissions through a benchmarking platform, like ENERGY STAR® Portfolio Manager and share on public dashboard on City and County websites.	City, County	PiE							
C2. Promote free tools to help businesses benchmark their own energy use and track their progress towards goals.	PiE, Xcel Energy	Energy Action Team (Large Industry)							
Strategy D: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to residents.									
D1. Create informational materials and leverage existing community communication channels to promote resources.	PiE	City, County							
D2. Conduct an outreach campaign targeting residents with free energy-saving packets from Focus on Energy.	Energy Action Team (UW Stout, residents)	PiE, City, Focus on Energy							

Strategy & Tactics	Implementation Leads	Implementation Support	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22	Q3 22	Q4 22
D3. Create a series of workshops, webinars, and pop-up events to promote energy efficiency programs, incentives, and energy-saving behaviors.	Focus on Energy Pop Ups, Energy Action Team (residents)	Xcel Energy, PiE, City							
Strategy E: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to businesses.									
E1. Create informational materials and leverage existing community communication channels to promote resources.	PiE	City, County, Energy Action Team (Small Business)							
E2. Host a series of workshops, webinars, and events educating businesses about different programs and incentives.	Energy Action Team (Small Business, Chamber)	PiE, City							
E3. Form facility manager group to share energy management best practices and education resources, and to connect to the right informational materials and utility contacts.	Xcel Energy	Energy Action Team (Large Industry)							
Strategy F: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to education institutions.									
F1. Create informational materials and leverage existing community communication channels to promote resources.	PiE	City, County							
F2. Encourage institutions to join facility manager group (tactic E3) to share energy management best practices and education resources.	Xcel Energy	Energy Action Team (Large Industry, Education Institutions)							
F3. Update materials from Tactic E5 to engage education institutions through one-on-one outreach.									
F4. Explore creating a beneficial electrification or renewable energy demonstration project to highlight for community.									
Strategy G: Engage property owners and renters to increase rental property energy efficiency.									
G1. Create informational materials and leverage existing community communication channels to promote resources.	PiE	Energy Action Team (UW Stout)							
G2. Conduct outreach to rental property owners with energy audit information and rebate programs.	Energy Action Team (UW Stout)	PiE							
Strategy H: Increase support for renewable energy among residents, businesses, and institutions.									
H1. Create informational materials for each target audience identifying renewable energy opportunities available, benefits of different options, and financing resources.	PiE	City, County							

Strategy & Tactics	Implementation Leads	Implementation Support	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22	Q3 22	Q4 22
H2. Challenge residents to subscribe to a renewable energy program and offer prizes to those who participate.	Energy Action Team (Small Business, Chamber, Focus on Energy Pop Ups)	PiE, Xcel Energy, Focus on Energy							
H3. Co-host webinars and meetings that educate residents and businesses about renewable energy and their options.	Energy Action Team (Small Business, Chamber, Focus on Energy Pop Ups)	PiE							
Strategy I: Recognize Menomonie residents, businesses, and institutions that support our Energy Action Plan.									
I1. Recognize residents who participate in different programs with yard signs, social media banners, and shared testimonials.	Energy Action Team	PiE, City, County, Xcel Energy							
I2. Share testimonials and case studies from different businesses and education institutions on community communication channels.	Energy Action Team (Large Industry, Businesses, Education Institutions)	PiE							

Long-Term Tactic Work Plan

Strategy & Tactics	Implementation Leads	Implementation Support	2023-2025	2026-2030
Strategy A: Update government processes and policies to increase building energy efficiency and renewable energy support.				
A4. Track annual progress toward goals identified in this plan for public buildings and report to City and County leadership.	City, County, PiE	Xcel Energy		
A5. Explore incentives to increase energy efficiency in new and existing buildings, such as a revolving loan fund.				
A6. Support State of Wisconsin effort to update building energy codes as noted in Task Force on Climate Change Report.				
A7. Explore policies that promote energy efficiency during time of sale and rent.				
Strategy B: Prioritize energy efficiency and renewable energy in government buildings.				
B5. Update purchasing policy to prioritize energy efficient equipment and EV.	City, County			
B6. Identify renewable energy opportunities for public buildings.	City, County	Xcel Energy, Focus on Energy		
B7. Explore alternative energy sources for the community, including biogas with wastewater treatment.	City, County	Xcel Energy, Focus on Energy		
Strategy D: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to residents.				
D4. Explore incentives to reduce the cost of home energy audits and host outreach campaign promoting reduced cost if available.				
Strategy E: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to businesses.				
E4. Target businesses with refrigeration systems to reduce HFC use and emissions.				
E5. Create information materials that promote beneficial electrification, geothermal systems, and other air- and ground-source systems and share with one-on-one outreach.				
E6. Identify energy exhibitor opportunities to showcase resources available to businesses.				
E7. Advocate to industry leadership the importance of reducing their energy use and greenhouse gas emissions.				

Strategy & Tactics	Implementation Leads	Implementation Support	2023-2025	2026-2030
Strategy F: Promote energy efficiency incentives and benefits as well as electric vehicle charging service programs to education institutions.				
F3. Update materials from Tactic E5 to engage education institutions through one-on-one outreach.				
F4. Explore creating a beneficial electrification or renewable energy demonstration project to highlight for community.				
Strategy G: Engage property owners and renters to increase rental property energy efficiency.				
G3. Host landlord discussion forum to talk about trends in rental properties and opportunities for energy efficiency.				
G4. Collaborate with a rental property owner to serve as a model property for energy efficiency for other landlords.				
Strategy H: Increase support for renewable energy among residents, businesses, and institutions.				
H4. Facilitate partnerships to support solar garden development in the Menomonie area, including group-buy opportunities.				
H5. Highlight demonstrative projects to increase visibility of existing renewable energy systems in the community.				
H6. Identify funding and incentives to make it easier for businesses and institutions to adopt renewable energy, including on-site solar installations.				
Strategy I: Recognize Menomonie residents, businesses, and institutions that support our Energy Action Plan.				
I3. Create a green recognition program to recognize small and medium-sized businesses and large industry.				

APPENDIX 2: METHODOLOGY FOR MEASURING SUCCESS

As part of implementation support, Partners in Energy will provide biannual progress reports from Xcel Energy for energy consumption, program participation, and savings data during the first phase of implementation. All goals will be measured against Menomonie's three-year baseline of 2017–2019 unless otherwise noted.

The following section defines the three-year baseline against which progress is measured, savings from or participation in including Xcel Energy and Focus on Energy program(s) included in the baseline.

Energy Savings Goal

- Increase energy savings 30% by 2030 above business as usual.

This goal assumes a business as usual (BAU) savings scenario based on the three-year baseline. The energy savings goal will be measured by comparing cumulative electricity and natural gas savings over the ten years between 2021 and for all sectors against BAU savings over the same time period. This goal includes all Focus on Energy programs available to every sector and measures the first-year savings data provided by Focus on Energy.

Table 5: 2021-2030 Cumulative Energy Savings by Scenario

	2030 BAU Scenario	2030 Goal Scenario
kWh savings	34,226,620	44,494,606
Therm savings	226,550	294,515
MMBtu savings	138,436	181,267

In order to achieve Menomonie's 2030 goal, the community will need to save 30% more electricity annually than the BAU scenario. The chart below outlines those annual savings needed, both to meet the 2030 goal scenario and for the business as usual scenario.

Table 6: 2021-2030 Average Annual Energy Savings Targets

	2030 BAU Scenario	2030 Goal Scenario
kWh savings	3,422,662	4,449,461
Therm savings	22,655	29,452
MMBtu savings	2,266	2,945

To estimate dollar savings impacts, the following rates were used for electricity and gas. These are based on average rates for residential and commercial and industrial customers in the area.

Table 7: Cost Savings Assumptions by Sector and Fuel Source

	Residential	Commercial & Industrial
Electricity, Dollars per kWh	$0.113	$0.087
Natural Gas, Dollars per therm	$0.72	$0.589

To estimate the greenhouse gas emissions impact, projected emission factors were applied to the electricity and natural gas savings. For purposes of this Energy Action Plan, all assumptions are based on Xcel Energy's 2019 Carbon Emissions Reporting.[4] Greenhouse gas emissions avoided from additional renewable energy resources are not included in the estimated impact of this plan.

Renewable Energy Participation Goal

- Double renewable energy program participation over 2019 participation by 2030.

This goal will be measured by comparing actual renewable energy program participation against 2019 participation numbers. All renewable energy programs available from Xcel Energy and Focus on Energy are included, with a focus on Renewable*Connect, as Windsource is no longer available to Wisconsin customers. As new subscription and on-site renewable energy programs become available, they will be included in measuring progress toward achieving the 2030 goal.

Table 8: Renewable Energy Goal versus 2019 Baseline

	2019 Baseline	2030 Goal Scenario
Participation Totals	515	1,030

[4] Energy and Carbon Emissions Reporting 2019 Summary by Xcel Energy. https://www.xcelenergy.com/staticfiles/xe-responsive/Environment/Carbon/Xcel-Energy-Carbon-Dioxide-Emission-Intensities.pdf

Table 9: 2019 Baseline Participation Data

	Residential	Commercial & Industrial
Xcel Energy Windsource	244	4
Xcel Energy Renewable*Connect	259	4
Xcel Energy Solar*Connect Community	3	1
Total	**506**	**9**

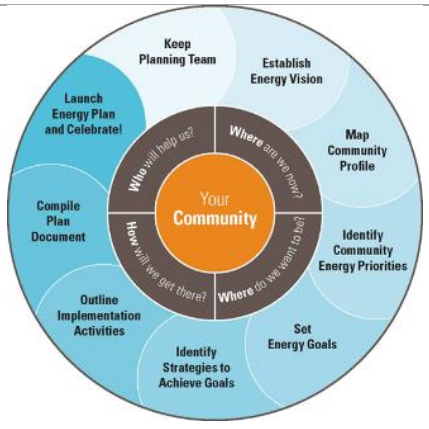
APPENDIX 3: PLANNING PROCESS

About Xcel Energy's Partners in Energy

Xcel Energy is an electric and natural gas utility that provides the energy that powers millions of homes and businesses across eight Western and Midwestern states. Each community Xcel Energy serves has its own unique priorities and vision for its energy future. The energy landscape is dynamically changing, with communities leading the way in setting energy and sustainability goals. To continue to innovatively support its communities, Xcel Energy launched Partners in Energy in the summer of 2014 as a collaborative resource with tailored services to complement each community's vision. The program offerings include support to develop an energy action plan or electric vehicle plan, tools to help implement the plan and deliver results, and resources designed to help each community stay informed and achieve their outlined goals.

Plan Development Process

The content of this plan is derived from a series of planning workshops hosted online with a planning team committed to representing Menomonie's energy priorities and implementing plan strategies. City of Menomonie actively recruited a diverse group of stakeholders. A summary of the planning process can be found in below.



Partners in Energy Process for Success

Resources from Xcel Energy for Implementation

Table 10: Partners in Energy Planning Process

Community Recruitment and Baselining September 2020	• Recruited residents, city staff, and business and institution representatives to join the energy action team. • Analyzed demographic and energy use data to create a baseline.
Pre-Workshop 1 Survey October 2020	• Gathered input from individual team members about why an energy action plan was important to the community. • Prioritized energy issues. • Gained initial insight into what metrics are important to the community.
Workshop 1 October 27, 2020	• Team introductions and Partners in Energy process overview. • Learned about the Menomonie's energy use and demographics. • Discussed focus areas and prioritized initial short-term focuses.
Pre-Workshop 2 Survey November 2020	• Brainstormed strategies across different focus areas.
Strategy Modeling November 2020	• Modeling different energy savings scenarios, including analyzing greenhouse gas and cost savings impacts.
Workshop 2 December 2020	• Prioritized near-term strategies in all focus areas. • Identified resources, including community connectors and communication channels, to make implementation successful. • Finalized Energy Action Plan goals for energy savings and renewable energy participation.
Energy Action Plan Finalization January–March 2021	• Drafted Energy Action Plan sections, including incorporating team review. • Hosted check-in meeting with Energy Action Team to gather additional feedback on the plan and commitment to supporting implementation. • Presented this Energy Action Plan to the Menomonie City Council.

APPENDIX 4: BASELINE ANALYSIS

This appendix includes data from a variety of sources to establish a community baseline against which progress toward goals will be compared in the future.

Demographic Baseline

Demographic data was sourced from the U.S. Census Bureau 2018 American Community Survey five-year estimates. Two databases — DP04 Housing Characteristics and DP05 Population Characteristics — were the primary sources for Menomonie's demographic baseline.

Housing Characteristics

The following tables were used to better understand Menomonie's housing stock. Over half of Menomonie's units are in single-family homes (single-unit, detached and attached), with the remainder in duplex, triplex and fourplex homes (2–4 units) and multi-family buildings (5+ units). There is a small percentage of units that are in mobile homes (4%).

Table 11: Units in Structure

Total housing units	**6,285**
Single-unit, detached	2,807
Single-unit, attached	377
2 units	358
3–4 units	886
5–9 units	772
10–19 units	167
20 or more units	651
Mobile home	267
Boat, RV, van, etc.	—

Menomonie's housing stock is aging, with 87% of units build before 2000. Homes built before 2000 are often in need of new equipment, such as furnaces and air conditioners, and often need energy efficiency improvements, like new insulation and air sealing.

Table 12: Housing Unit Ages

Total housing units	6,285
Built 2014 or later	83
Built 2010 to 2013	67
Built 2000 to 2009	675
Built 1990 to 1999	1,146
Built 1980 to 1989	1,014
Built 1970 to 1979	1,064
Built 1960 to 1969	586
Built 1950 to 1959	638
Built 1940 to 1949	178
Built 1939 or earlier	834

Most occupied housing units in Menomonie are rental, creating a unique situation where occupants are unable to make certain energy-efficient improvements even though they typically pay the energy bills.

Table 13: Housing Tenure

Occupied housing units	5,757
Owner-occupied	2,298
Renter-occupied	3,459

Population Characteristics

To better understand Menomonie's population, we looked at race, language spoken at home, age, and poverty rate.

The majority of Menomonie's population is white (93%), followed by Asian (6%) and Black (2%).

Table 14: Race

Total population	16,312
White	15,203
Black or African American	382
American Indian and Alaska Native	152
Asian	1,011
Native Hawaiian and Other Pacific Islander	48
Some other race	98

Most of Menomonie's speak English at home (92%), but 8% speak a language other than English. Community outreach should be mindful that resources may need to be available in languages other than English.

Table 15: Languages Spoken at Home

Population 5 years and over	**15,646**
Speak only English	14,465
Speak a language other than English	1,181
Languages spoken at home	
Spanish	190
Other Indo-European languages	240
Asian and Pacific Island languages	8
Other languages	228

The median age in Menomonie is 23.5 years, which is 15.8 years lower than statewide average (39.3 years). The table below shows age bracket totals relative to overall population.

Table 16: Age

	Total	**Percentage**
Total population	**16,312**	**—**
Under 5 years	666	4.1%
5 to 9 years	608	3.7%
10 to 14 years	553	3.4%
15 to 19 years	2,645	16.2%
20 to 24 years	4,563	28%
25 to 29 years	1,019	6.2%
30 to 34 years	962	5.9%
35 to 39 years	651	4%
40 to 44 years	591	3.6%
45 to 49 years	415	2.5%
50 to 54 years	539	3.3%
55 to 59 years	743	4.6%
60 to 64 years	594	3.6%
65 to 69 years	382	2.3%
70 to 74 years	316	1.9%
75 to 79 years	283	1.7%
80 to 84 years	269	1.6%
85 years and over	513	3.1%

Income Comparisons

To better understand Menomonie's median income and poverty rate, we looked at similar cities with colleges. The difference in Menomonie's poverty rate when excluding college students is the lowest compared to other similar cities, meaning that college students do not heavily influence the overall poverty rate.

	Menomonie	Platteville	Stevens Point	Whitewater
Population	16,551	12,087	25,880	14,895
Households	5,757	4,070	10.337	4,616
Owner-Occupied Housing Units	39.9%	45.7%	50.2%	32.1%
Median Household Income	$41,449	$43,495	$45,040	$34,563
Poverty rate, all people	26.1%	33%	24.7%	38.2%
Poverty rate, excluding off-campus college students	16.8%	17.3%	13.8%	18.1%
Difference	9.3%	15.7%	10.9%	20.1%

Energy Baseline

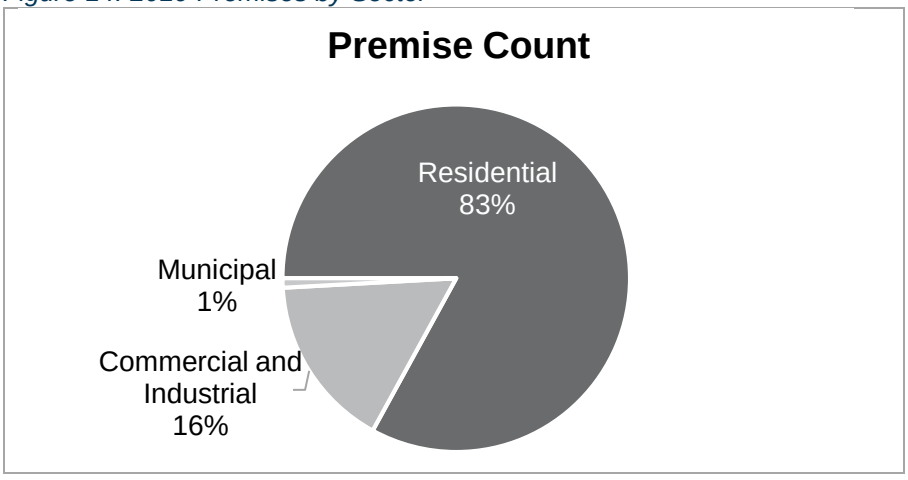
All energy data was provided by Xcel Energy and Focus on Energy as part of Menomonie's participation in Xcel Energy's Partners in Energy.

Xcel Energy, Menomonie's electric and natural gas service provider, provided 2017–2019 consumption and program participation data for all customers in Menomonie. Focus on Energy, the statewide provider of energy efficiency programs in Wisconsin, provided 2017–2019 program participation, energy savings, and incentives data.

Electricity and Natural Gas Premises

A premise is a unique identifier for the location of electricity or natural gas service. In the city of Menomonie, 83% percent of premises serve residents, while 16% serve commercial and industrial customers, which also includes education institutions and nonprofits. The City of Menomonie owns 1% of all premises within the community.

Figure 14: 2019 Premises by Sector



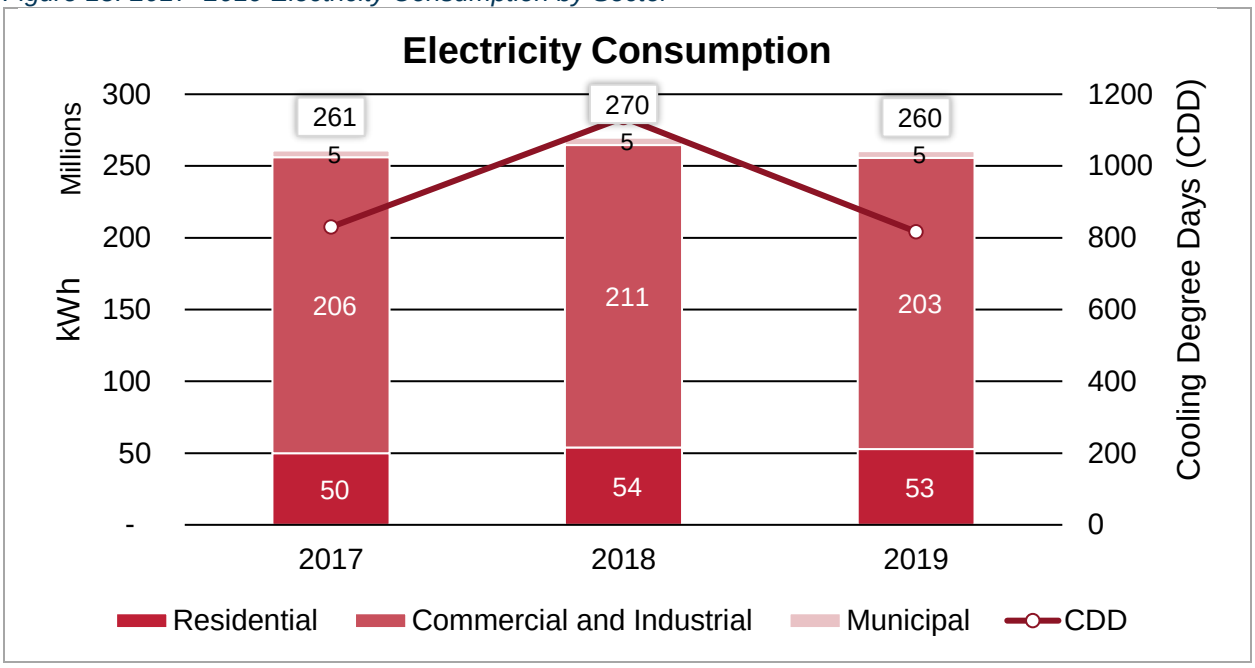
Electricity and Natural Gas Consumption and Trends by Sector

Despite representing only 16% of premises in the community, commercial and industrial customers consume nearly 80% of the electricity and 64% of the natural gas consumed by the entire community. Residents consume 20% and 43% of electricity and natural gas, respectively.

Over the three-year baseline period, electricity use has remained relative stable, shifting about 3% each year. These shifts are consistent with changes in cooling degree days in the community.[5] More cooling degree days correspond with hotter summers and a greater air conditioning load for electric customers.

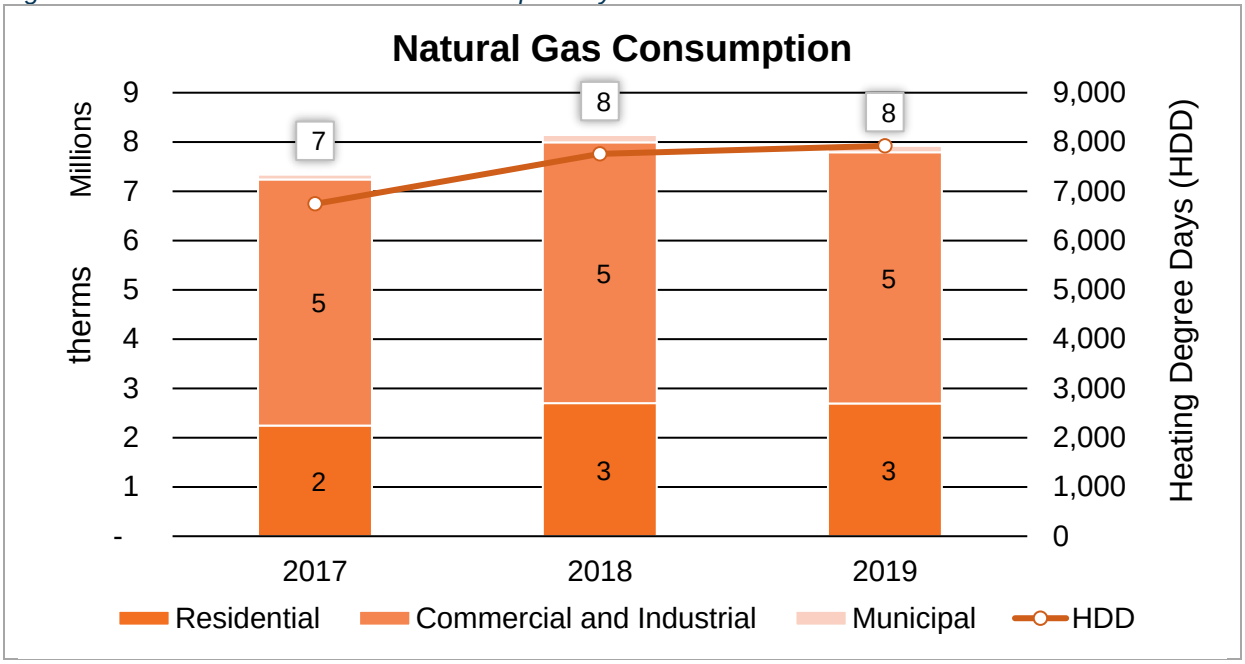
Natural gas use is also often impacted by weather trends, and Menomonie's natural gas use trends correspond with changes in heating degree days. Natural gas consumption for the community rose 11% between 2017 and 2018, corresponding with an increase of over 30% in heating degree days in the area. This trend was largely driven by the residential sector and municipal premises, with consumption for each of those sectors increasing 20% and 54%, respectively. Overall, natural gas use in the community decreased slightly — or about 3% between 2018 and 2019, despite overall heating degree days increasing by about 2%. The decrease in natural gas use was largely driven by a decrease in use by City-owned premises.

Figure 15: 2017–2019 Electricity Consumption by Sector



[5] This plan uses heating and cooling days for the Eau Claire metropolitan area, sourced from Weather Data Depot. https://www.weatherdatadepot.com/degree-day-comparison

Figure 16: 2017–2019 Natural Gas Consumption by Sector



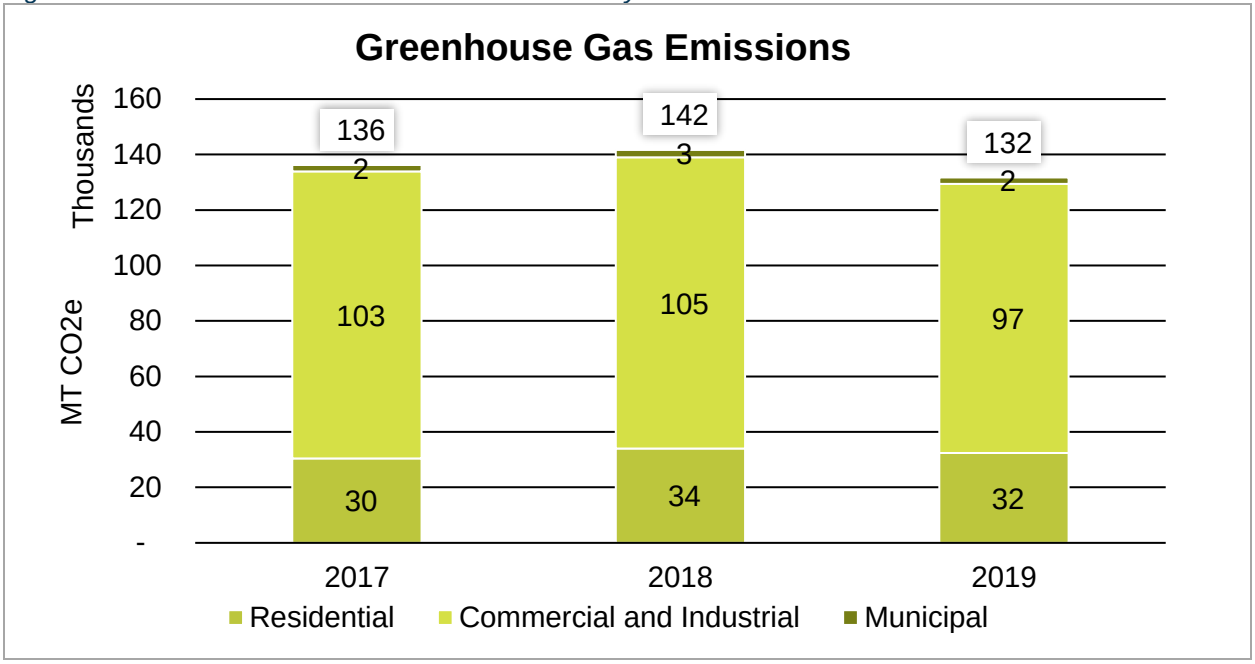
Greenhouse Gas Emissions and Trends

Greenhouse gas emissions for the community have trended slightly downward over the baseline period, despite a jump in 2018. The community-wide increase in electricity and natural gas use from all sectors in 2018 also corresponded with a bump in community emissions from the electricity and gas sectors in that year. Emissions from all sectors decreased by about 3% between 2017 and 2019, despite overall degree days increasing. This decrease in emissions was largely driven by a decrease in the carbon emission intensity of the electricity grid as Xcel Energy's Upper Midwest electricity generation decarbonizes.[6]

Overall, the commercial sector is responsible for a larger portion of the community's greenhouse gas emissions — about 74% — which stems from the sector consuming the most electricity and natural gas. In 2019, overall emissions from electricity and natural gas for the community was 132,000 metric tons of carbon dioxide, which is equivalent to about 730 railcars of coal burned, or 28,500 passenger vehicles driven for one year.[7]

[6] Emissions factors used for the baseline are from Xcel Energy's 2016 carbon reporting and projections of emissions based on the utility's integrated resource plans. Emission factors for 2017–2019 have not yet been third-party verified at the time this plan was written and are subject to change slightly based on the actual emissions factors for Xcel Energy's Upper Midwest electricity mix over these years.
[7] U.S. Environmental Protection Agency Greenhouse Gas Equivalencies Calculator. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

Figure 17: 2017–2019 Greenhouse Gas Emissions by Sector



Energy Costs

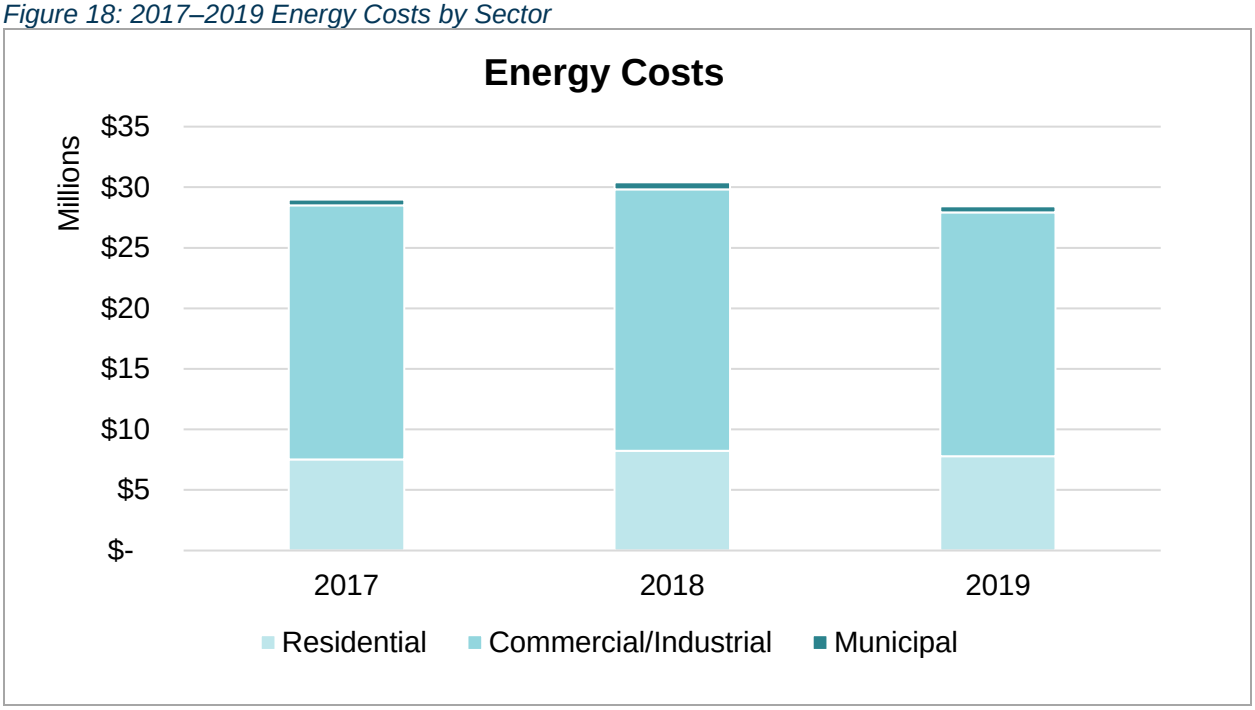
Over the three-year baseline, the Menomonie community spent on average $29 million on electricity and natural gas costs. Across the community, 82% of spend was on electricity costs.

The average residential premise spent $1,257 annually on energy, about 75% of which was spent on electricity. Commercial and industrial customers spent nearly $21 million on energy annually over the baseline period. Energy use, and therefore costs, vary greatly from customer to customer.

Table 17: Average Annual Energy Costs by Sector and Fuel Source

Sector	Total Costs	Electricity Costs	Natural Gas Costs
Residential	$7,850,218	$5,947,339	$1,902,879
Commercial and Industrial	$20,899,205	$18,038,822	$2,860,383
Municipal	$515,175	$438,163	$77,012
Total	**$29,264,598**	**$24,424,324**	**$4,840,274**

Figure 18: 2017–2019 Energy Costs by Sector



Program Participation and Savings

Xcel Energy and Focus on Energy offer programs to Menomonie residents and businesses to increase their home or buildings energy efficiency. Rebates for new equipment, audit programs, and discounted and no-cost energy measures are available in addition to load management programs.

Menomonie residents and businesses have saved more than 10.2 million kWh and almost 68,000 therms through program participation. Participation varies greatly by year because of Focus on Energy outreach campaigns, program availability, and other utility outreach. For example, in 2018 more than 4,300 residents participated in programs, compared to only 806 in 2019.

Between 2017 and 2019, Menomonie customers received almost $750,000 in incentives from Focus on Energy, averaging $29 paid per residential program participation and $895 paid per business program participant.

In addition to the incentives paid by Focus on Energy, Xcel Energy offers additional bonus incentives for certain Focus on Energy rebates and programs. Between 2017 and 2019, Menomonie customers received just over $130,000 in bonus incentives from Xcel Energy.

Table 18: 2017–2019 Focus on Energy Program Participation by Sector

	2017	2018	2019	Total
Residential Program Participation	1,509	4,353	806	6,668
Residential Electricity Savings (kWh)	364,603	302,676	191,678	858,957
Residential Natural Gas Savings (therms)	13,621	17,499	8,478	39,598
Residential Incentives Paid	$ 40,932	$101,259	$50,101	$192,292
Business Program Participation	454	83	86	623
Business Electricity Savings (kWh)	4,211,958	3,916,558	1,280,512	9,409,029
Business Natural Gas Savings (therms)	20,470	5,215	2,682	28,367
Business Incentives Paid	$261,022	$208,675	$87,979	$557,676
Total Participation	1,963	4,436	892	7,291
Total Electricity Savings (kWh)	4,576,561	4,219,234	1,472,191	10,267,986
Total Natural Gas Savings (kWh)	34,091	22,713	11,160	67,965
Total Incentives Paid	$301,954	$309,933	$138,081	$749,968

Table 19: 2017-2019 Xcel Energy Bonus Incentives Paid by Sector

	2017	2018	2019	Total
Residential Customers	$13,479	$17,640	$17,815	$48,934
Business Customers	$29,825	$14,030	$37,597	$81,452

Renewable Energy Support

In total, about 8% of residential premises and just 0.1% of commercial and industrial premises subscribe to a renewable energy or community solar garden. Top renewable energy programs in the community were Xcel Energy's Windsource and Xcel Energy's Renewable*Connect for both residents and commercial and industrial customers. Between 2017 and 2019, Focus on Energy paid for seven Renewables Rewards incentives for customers who installed solar panels on their home or businesses.

Table 20: Renewable Energy Program Participation by Program and Sector

	Residential	Commercial & Industrial
Xcel Energy Windsource®		
Subscriber Count	244	4
Total Annual Electricity Subscribed (kWh)	114,213	10,396
Percentage of Sector Electricity Use	0.2%	0.0%
Xcel Energy Renewable*Connect®		
Subscriber Count	259	4
Total Annual Electricity Subscribed (kWh)	472,797	41,834
Percentage of Sector Electricity Use	0.9%	0.0%
Xcel Energy Solar*Connect Community®[8]		
Subscriber Count	3	1
Total Annual Electricity Subscribed (kWh)	3,751	11,032
Percentage of Sector Electricity Use	0.01%	0.01%
Focus on Energy Renewable Rewards		
Participant Count	5	2
Incentives Paid	$7,489	$8,000

Table 21: 2019 Renewable Energy Subscription Program Participation

	Residential	Commercial & Industrial
Subscriber Count	506	9
Total Annual Electricity Subscribed (kWh)	590,761	63,262
Percentage of Premises	8.0%	0.1%
Percentage of Sector Electricity Use	1.1%	0.0%

[8] Indicates a program where the customer does not retain the Renewable Energy Credit, meaning that the customer cannot claim the renewable energy from the electricity produced.

APPENDIX 5: ENERGY TERMS

15 x 15: Xcel Energy's privacy rule, which require all data summary statistics contain at least 15 premises, with no single premise responsible for more than 15% of the total. Following these rules, if a premise is responsible for more than 15% of the total for that data set, it is are removed from the summary.

British Thermal Unit (BTU): the amount of heat needed to raise one pound of water at maximum density through one degree Fahrenheit

Carbon-free: Carbon-free refers to sources of energy that will not emit additional carbon dioxide into the air. Wind, solar and nuclear energy are all carbon free sources but only wind and solar are renewable.

Degree Days: According to the U.S. Energy Information Administration, degree days are measures of how cold or warm a location is. A degree day compares the mean (the average of the high and low) outdoor temperatures recorded for a location to a standard temperature, usually 65° Fahrenheit in the United States. The more extreme the outside temperature, the higher the number of degree days. A high number of degree days generally results in higher levels of energy use for space heating or cooling. Heating degree days refers to this measure when the temperature is below the standard temperature, and cooling degree days refers to the measure when below it.

Energy Burden: Percentage of gross household income spent on energy costs.

Energy Savings: Comes from a permanent change that results in using less energy to achieve the same results. A new furnace uses X% less to keep your home at the same temperature (all things being equal), resulting in energy *savings* of X%. For accounting purposes, energy savings are only counted in the year the new equipment is installed.

Greenhouse Gases (GHG): Gases in the atmosphere that absorb and emit radiation and significantly contribute to climate change. The primary greenhouse gases in the earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

Kilowatt-hour (kWh): A unit of electricity consumption.

Million British Thermal Units (MMBtu): A unit of energy consumption that allows both electricity and natural gas consumption to be combined.

Metric Tons of Carbon Dioxide Equivalent (MTCO2e): A unit of measure for greenhouse gas emissions. The unit "CO2e" represents an amount of a greenhouse gas whose atmospheric impact has been standardized to that of one unit mass of carbon dioxide (CO2), based on the global warming potential (GWP) of the gas.

Premise: A unique combination of service address and meter. For residential customers, this is the equivalent of an individual house or dwelling unit in a multi-tenant building. For business customers, it is an individual business, or for a larger business, a separately metered portion of the business's load at that address.

Renewable Energy Credit (REC): For every megawatt-hour of clean, renewable electricity generation, a renewable energy credit (REC) is created. A REC embodies all of the environmental attributes of the generation and can be tracked and traded separately from the underlying electricity. Also known as a Renewable Energy Certificate.

Solar Garden: Shared solar array with grid-connected subscribers who receive bill credits for their subscriptions.

Solar Photovoltaic (PV): Solar cells/panels that convert sunlight into electricity (convert light, or photons, into electricity, or voltage).

Subscription: An agreement to purchase a certain amount of something in regular intervals.

Therm (thm): A unit of natural gas consumption.

APPENDIX 6: IMPLEMENTATION MEMORANDUM OF UNDERSTANDING

To be inserted once signed.