



# An Energy Action Plan for Roseville

June 2021



**PARTNERS IN ENERGY**  
An Xcel Energy Community Collaboration

# 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. Xcel Energy is the electric and natural gas utility serving Roseville. Partners in Energy is a two-year collaboration to develop and implement a community’s energy goals. For more information about the planning workshops, see *Appendix D*

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*Note: All images provided by the City of Roseville unless stated otherwise*



This Energy Action Plan was funded by and developed in collaboration with Xcel Energy’s Partners in Energy.



# INTRODUCTION



In the 2040 Comprehensive Plan, Roseville identified the goal of expanding local renewable energy systems to provide cleaner sources of energy, cost-savings to businesses and residents, and increased energy security. Roseville has been making significant strides forward in creating and implementing sustainable initiatives, plans, and policies. This Energy Action Plan, developed with assistance from Xcel Energy’s Partners in Energy program, will enable the City to make significant progress toward the goals articulated in the 2040 Comprehensive Plan.

## **Our Engagement & Outreach Process**

The creation of this Energy Action Plan was a nine-month process to help our community characterize Roseville’s energy use, identify energy-related goals, and develop engaging strategies to guide change towards our energy future. Starting in September 2020, the Energy Action Plan was driven by a series of planning workshops with a planning team committed to representing local energy priorities in collaboration with the City of Roseville and Xcel Energy’s Partners in Energy. By the numbers, we engaged 14 community members through five online surveys and five workshops. See *Appendix D* for more information about the planning process and Partners in Energy.

## **Why We Want An Energy Action Plan**

Members of Roseville’s Energy Action Team were surveyed early in the planning process with the following prompt:

*“In one sentence or less, please describe why you think it’s important for Roseville to create an Energy Action Plan.”*

The team’s answers provide a valuable perspective on the urgency of this project for the City and for the team members as well.

These answers anchored the team and guided the development of the Energy Action Plan's vision, focus areas, and goals. See *Table 1*, below.

Table 1: Roseville Energy Action Team's Opinions Supporting an Energy Action Plan

***Why is it important for Roseville to create an Energy Action Plan?***

I believe it is important to set goals and work with the entire community to achieve them, regardless of the venture.

To encourage conservation, the production of clean energy along with outreach and education.

It's important as a tool to prioritize strategies that may result in the biggest impact.

A well-crafted energy action plan will be a great foundation for a resilient, efficient, scalable, and adaptable energy framework that will be easy to understand and of value to all stakeholders in Roseville.

Roseville is doing a lot of different things to reduce greenhouse gas emissions, but a targeted approach based on priorities may yield better results and provide efficiencies for staff.

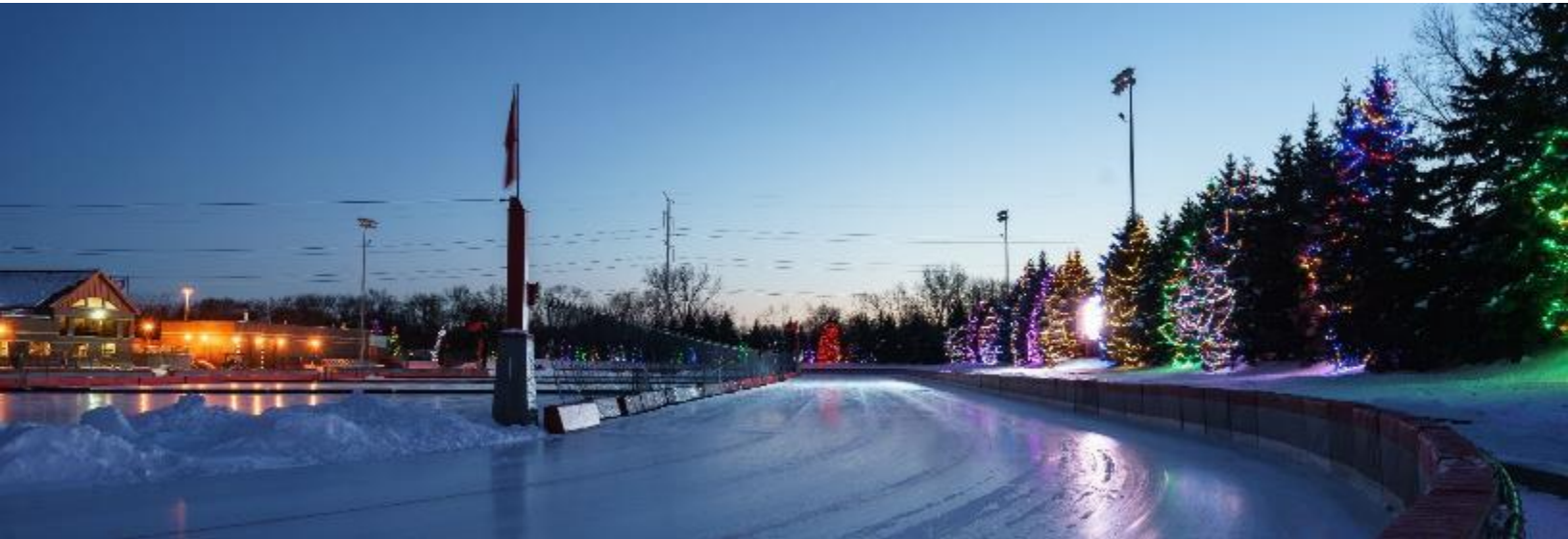
Roseville should create an Energy Action Plan to help mitigate its contribution to climate change.

Roseville must continue its leadership in setting a course for a clean energy near-future (including carbon reduction) for the region.

We need to save our environment and have clean air. We need to be responsible stewards of mother earth.

Planning for the future.

# WHERE WE ARE NOW

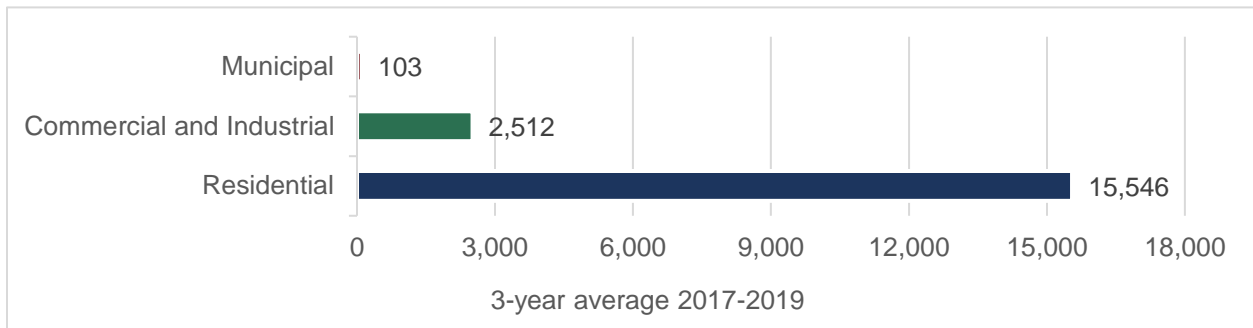


An integral part of the Partners in Energy planning process is reviewing historic energy data that informs our community’s energy baseline. Xcel Energy provided data on energy use, participation counts, and utility energy conservation program savings for Roseville, as detailed in the following sections. See *Appendix B* for a comprehensive picture of Roseville’s baseline energy data.

## Grid Energy Use

Roseville consists of 18,161 distinct premises, 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.<sup>1</sup> The majority of Roseville’s premises are residential. See *Figure 1*, below.

Figure 1: Roseville Premises by Sector



<sup>1</sup> Please refer to *Appendix E: Glossary of Terms* for more detail on any unfamiliar energy terms used in this plan.



There are six times as many residential premises as there are commercial and industrial premises in Roseville. See *Figure 2*, below. Commercial and industrial premises, however, use nearly twice as much energy as residential premises. See *Figure 3*, below.

Figure 2: Roseville Premise Count by Sector

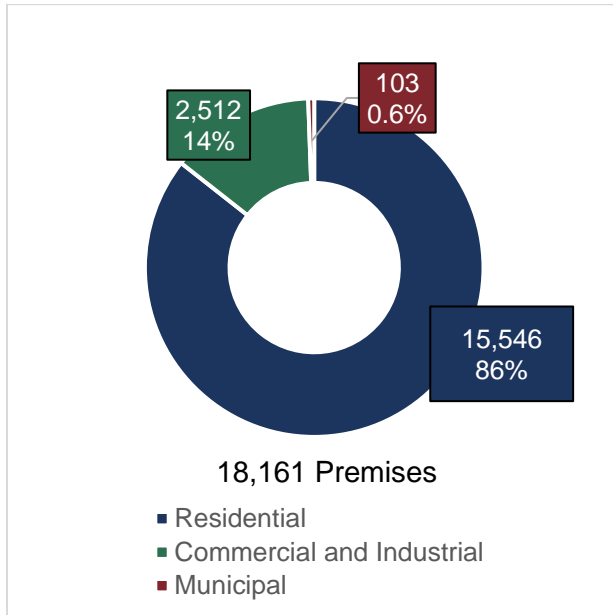
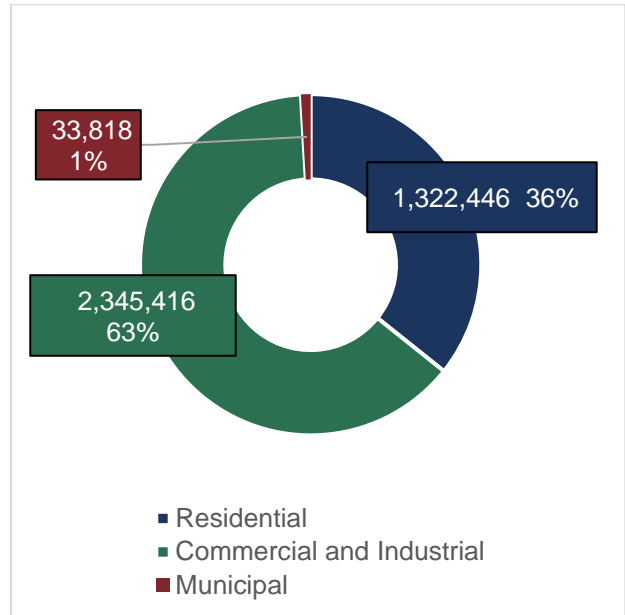


Figure 3: Roseville Energy Use by Sector



*Figure 3* was calculated using both electricity and natural gas consumption converted into British thermal units, a unit of measure that allows electricity and natural gas to be compared based on a common measure of energy potential.

During the three-year baseline period, Roseville’s electricity use declined nearly 5% — see *Figure 4* on next page. The commercial and industrial sector appears to be primarily responsible for this decline, since residential use remained steady in the first and third years, increasing slightly in the second year. This second-year increase appears to be driven by a warmer summer, as seen by the increase in cooling degree days.

Natural gas consumption increased slightly after the first baseline year but has remained steady since. See *Figure 5* on next page.

Figure 4: Roseville Electricity Consumption

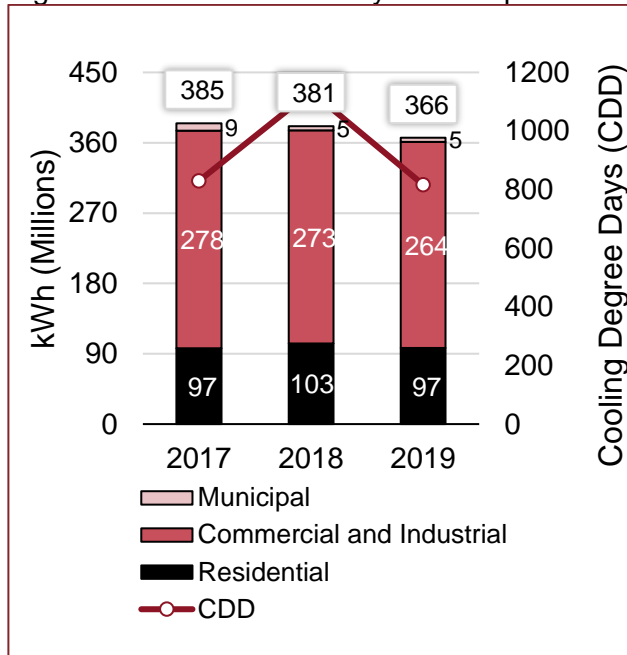
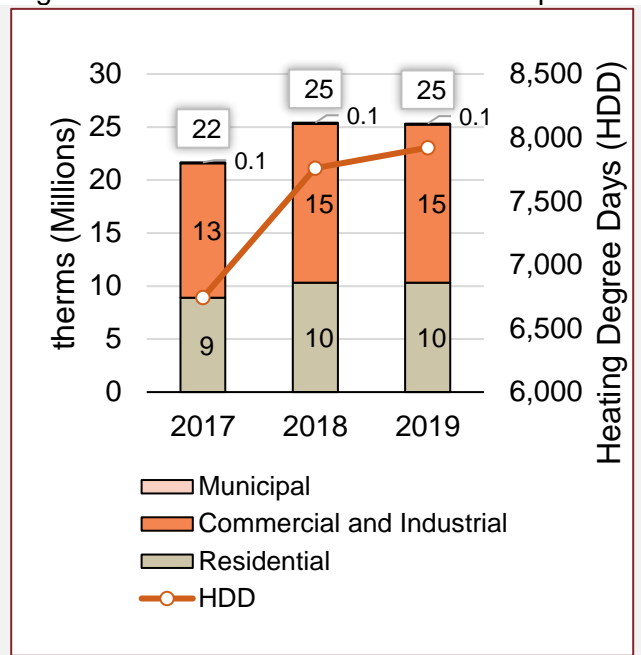


Figure 5: Roseville Natural Gas Consumption



### Greenhouse Gas Emissions

Baseline annual greenhouse gas emissions caused by energy consumption in Roseville amount to 264,388 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>). Most emissions come from the commercial and industrial sector, consistent with their greater energy consumption. See *Figure 6*, to the right.

Emissions varied slightly over the three-year period, reflecting increases in energy consumption during extremely hot or cold weather.

### Renewable Energy

Roseville residents and businesses are using off-site subscription and on-site options to support renewable energy. The impact of Roseville's mix of renewable and non-renewable energy sources is small. In Roseville, only 7% of residential premises pursue any form of renewable support, and that drops to less than 1% for Roseville commercial and industrial premises. See *Table 2* on the next page.

Figure 6: Baseline Annual Greenhouse Gas Emissions by Sector

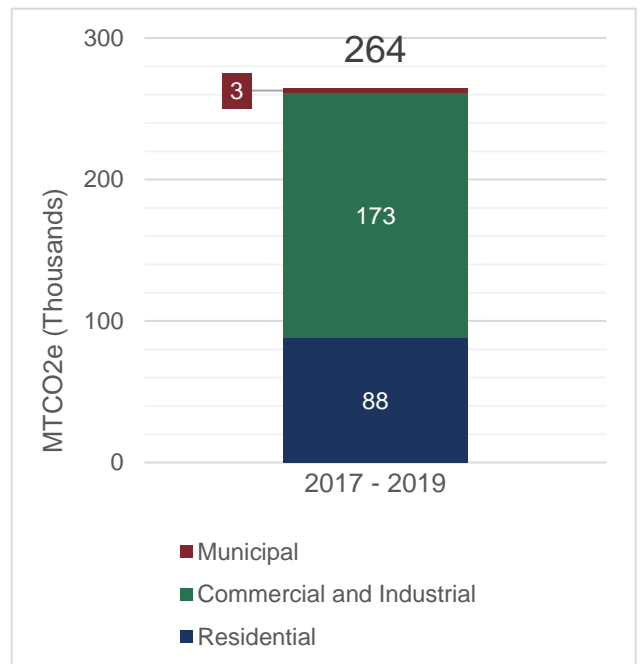


Table 2: Renewable Energy Support in Roseville - 2019

Renewable Energy Program	Residential	Commercial & Industrial
<b>WindsorSource®</b>		
Subscriber Count	874	6
Total Annual Electricity Subscribed (kWh)	2,841,115	887,204
Percentage of Sector Electricity Use	3%	0%
<b>Renewable*Connect®</b>		
Subscriber Count	47	0
Total Annual Electricity Subscribed (kWh)	353,245	0
Percentage of Sector Electricity Use	0%	0%
<b>Solar*Rewards®</b>		
Installation Count	85	10
Total Annual Electricity Produced (kWh)	343,639	198,888
Percentage of Sector Electricity Use	0%	0%
<b>Solar*Rewards Community®</b>		
Participant Count	91	2
Total Annual Electricity Produced (kWh)	478,389	2,121,858
Percentage of Sector Electricity Use	0%	1%
<b>Total Renewable Energy Support</b>		
Subscribers / Participants Count	1,097	18
Total Annual Electricity Subscribed (kWh)	4,016,388	3,207,950
Percentage of Sector Electricity Use	4%	1%

## Program Participation & Savings

### Residential

Roseville residents rely on a few key programs from Xcel Energy to help them improve efficiency. See *Figure 7*, below. While there are 45 programs in total with participation over the baseline period, just four of them deliver 51% of annual participation and, shown in *Figure 8*, below, 87% of annual electricity savings.

Figure 7: Average Annual Residential Efficiency Program Participation

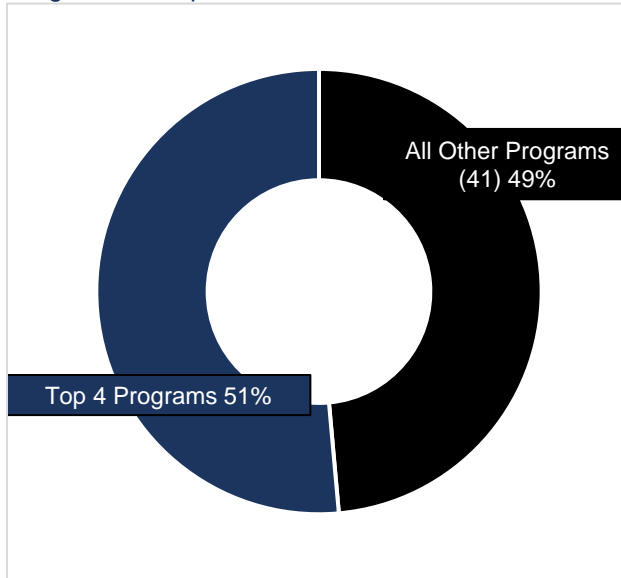
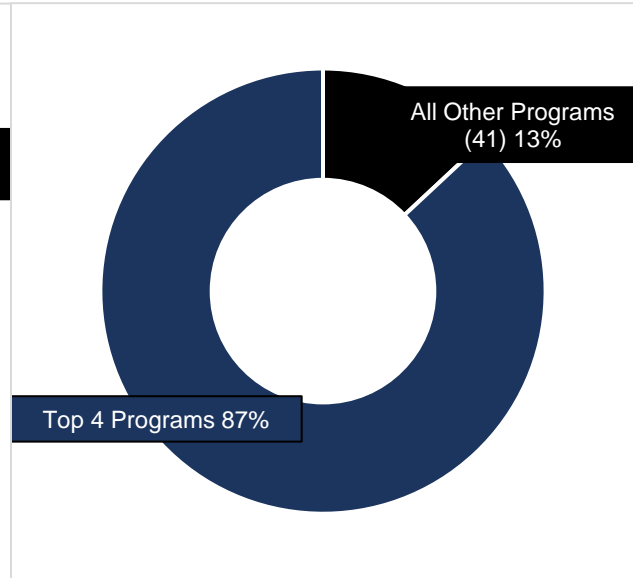


Figure 8: Average Annual Residential kWh Savings



Roseville's four most popular residential energy efficiency programs are listed in *Table 3* below.

Table 3: Top Four Roseville Residential Efficiency Programs

Program	Average Annual Participants	Average Actual kWh Saved
Residential Heating	303	185,189
Home Energy Squad	88	112,679
Refrigerator Recycling	99	86,359
Residential Cooling	262	82,746
<b>Percentage of Total</b>	<b>51%</b>	<b>87%</b>

### Commercial and Industrial

Roseville’s commercial and industrial premises use efficiency programs in a similar concentrated fashion: Only two programs account for 84% of energy savings. See *Figure 9* and *Figure 10* below.

Roseville’s two most popular commercial and industrial programs are listed in *Table 4* below.

Table 4: Top Two Roseville Commercial / Industrial Efficiency Programs

Program	Average Annual Participants	Average Actual kWh Saved
One Stop Efficiency Shop®	59	1,967,780
Lighting Efficiency	126	2,688,827
<b>Percentage of Total</b>	<b>72%</b>	<b>84%</b>

Figure 9: Average Annual Commercial and Industrial Efficiency Program Participation

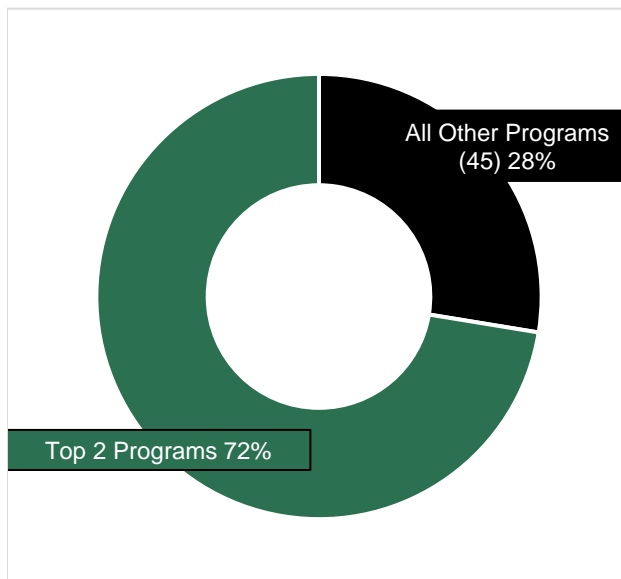
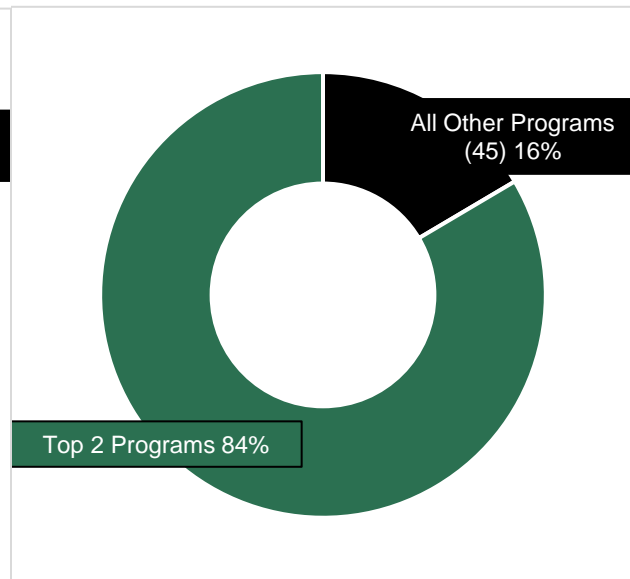


Figure 10: Average Annual Commercial and Industrial kWh Savings



While program participation is highly concentrated behind a few programs in both the residential and commercial and industrial segments, data on average annual participation indicates that there is still strong potential to reach most premises with efficiency initiatives. See *Table 5*, below

Table 5 - Roseville Efficiency Program Participants as Percentage of Energy Sectors

Energy Sector	Baseline Average Annual Efficiency Program Participation	Participants as a Percentage of Sector Premises
Residential	1,464	9%
Commercial and Industrial	255	10%



# WHERE WE ARE GOING



## Energy Vision Statement

During the planning process, the Energy Action Team created a vision statement for this Energy Action Plan. With input and advice from many team members, the team developed a vision intended to be direct, active, and succinct.

This statement helped guide the planning process and reflects the intention of the community.

**Residents and businesses in Roseville will use less energy than we have in the past, and what we do use will be cleaner.**

**Households burdened by their energy expenses will have resources to help them.**

## Focus Areas

To achieve a future in which Roseville uses less energy and cleaner energy and reaches out to households that need help paying for energy with an equitable share of their income, the Energy Action Team identified the following focus areas to prioritize strategies and resources.

1. **Energy Burden:** Improve awareness of and access to existing programs that improve the efficiency of income-eligible homes, thereby reducing the need for energy, and improve awareness of and access to existing financial aid programs designed to help families facing a moment of financial crisis.

2. **Residential Energy Efficiency:** Focus on increasing participation in the most effective energy efficiency programs available, which deliver physical efficiency improvements to participants' homes or provide incentives to replace inefficient heating and cooling equipment.
3. **Commercial / Industrial Energy Efficiency:** Improve awareness of and participation in highly effective efficiency programs. Focus activities on small and medium-sized businesses who are less likely to benefit from existing programs.
4. **Renewable Energy:** Provide education and motivation to participate in subscription or on-site renewable energy programs best suited to individual homeowners' preferences.

The first three focus areas contribute to the Energy Action Team's vision by reducing the need for energy. The last focus area, Renewable Energy, is designed to make it easy for Roseville homeowners to support clean renewable energy, even if their homes are heavily shaded or they are reluctant to make the investment in rooftop solar. It's important to remember that energy efficiency is often described as the cleanest energy source: the cleanest kilowatt or therm is the one that is never created or used.

## Goals

Working together, the Team set goals for each focus area to measure success and a primary goal to be accomplished via successful results in each focus area. See *Figure 11*, below.

When each of these focus area goals are met, we anticipate that Roseville can reach an ambitious greenhouse gas avoidance goal by the end of 2031. See *Figure 12*, on the next page.

Figure 11: Roseville Focus Area Goals

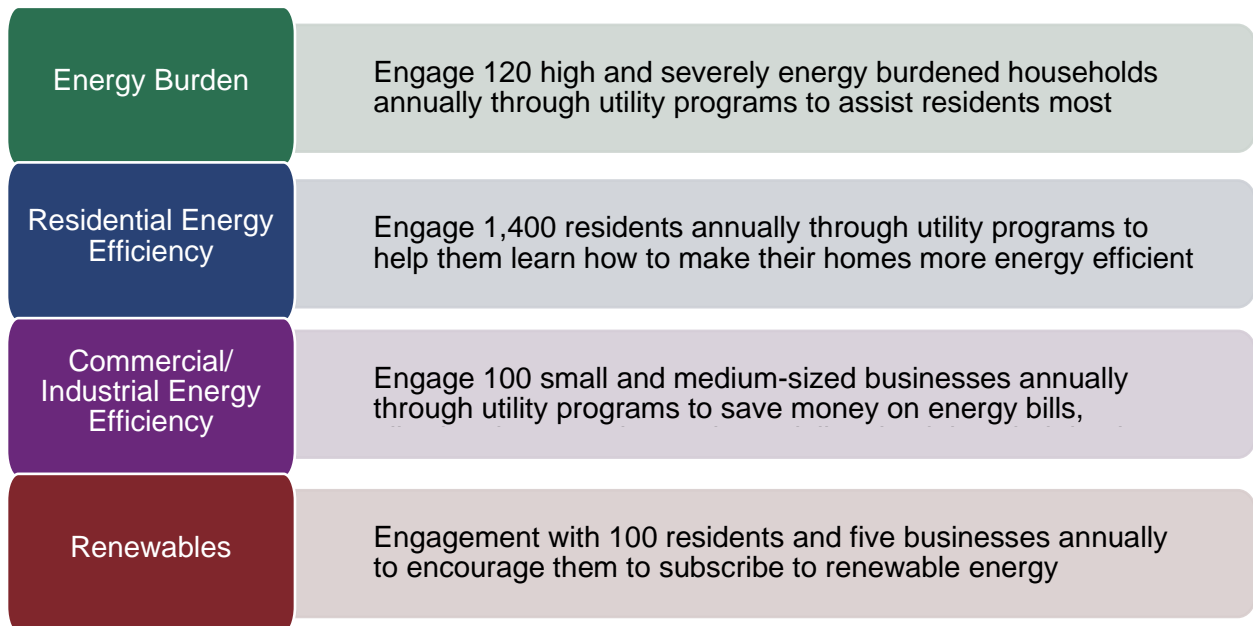


Figure 12: Roseville Energy Action Plan Goal

By the end of 2031, accomplishing each of Roseville’s focus area goals will save 475,000 MMBtu and avoid 48,000 MTCO<sub>2</sub>e from consumption of electricity and natural gas.

After the planning portion of the Partners in Energy engagement with the City of Roseville the second part of the engagement — implementation, lasts for eighteen months. Roseville’s implementation period is expected to begin in July, 2021 and continue through December, 2022.

Goals for the implementation period and the entirety of the plan are provided below. In addition to energy savings and greenhouse gas avoidance, we have calculated dollar savings and the expected number of renewable energy subscribers. See Figures 12, 13, 14 and 15, below

Figure 13: Roseville Anticipated Energy Savings: 2022 & 2031

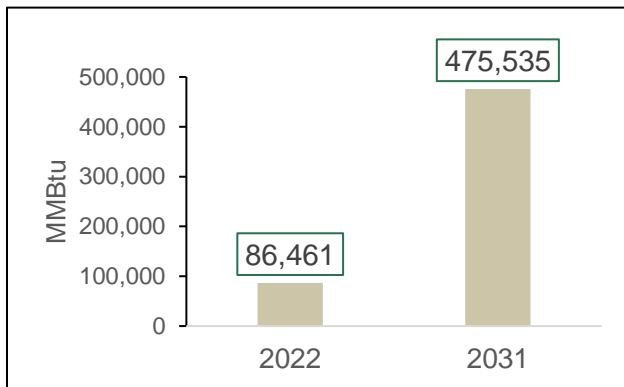


Figure 14: Roseville Anticipated Greenhouse Gas Avoidance: 2022 & 2031

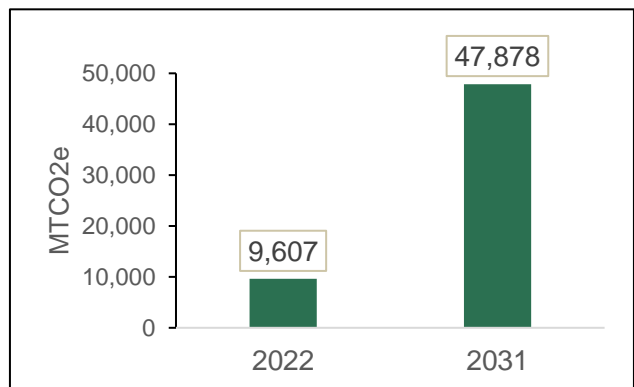


Figure 15: Roseville Anticipated Dollar Savings: 2022 & 2031

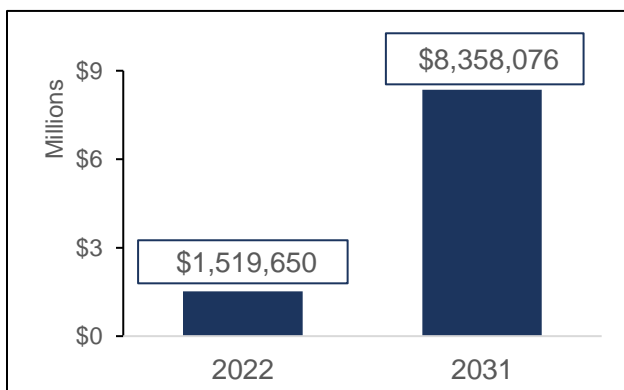
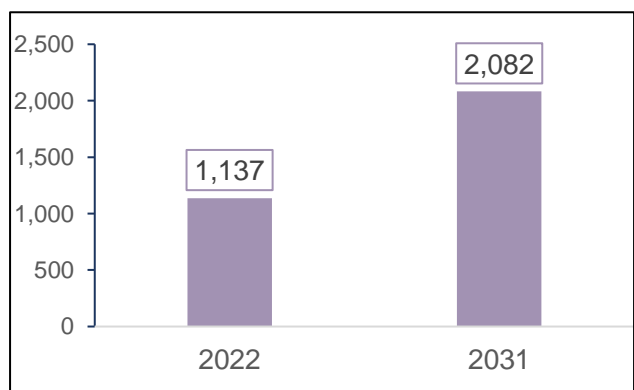


Figure 16: Roseville Renewable Subscribers: 2022 & 2031



# HOW WE ARE GOING TO GET THERE



## Focus Area: Energy Burden

Targeting energy burden households is important to Roseville because it became important to the Energy Action Team when they learned about the concept and subsequently discovered the extent of households in Roseville who struggle with this problem.

Energy burden is a measure of the percentage of a household's income used to pay for energy. The U.S. Department of Energy calculates energy burden for communities across America using a rolling 5-year average of household income and energy spending statistics.<sup>2</sup> The American Council for an Energy-Efficient Economy (ACEEE), a nonprofit research organization, identifies households facing high energy burden as those that spend more than 6% of their income on energy costs. Households that spend more than 10% are designated as facing severe energy burden.

Note: Apart from objective demographic measures, there are also likely to be conditions in these households that will complicate the task of overcoming energy burden. Low-paying employment may mean that adults are working more than one job at odd hours. Simply finding decision makers at home can be a challenge.

Finally, we expect that cultural barriers, previous negative experiences interacting with service providers, and fear of interactions with outside agencies could inhibit some residents from asking for assistance

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<sup>2</sup> <https://www.energy.gov/eere/slsc/maps/lead-tool>

## Strategy 1: Locate High Energy Burden Households

### Description

Our first challenge is to locate households in Roseville that experience high and severe energy burden. We will use a variety of tactics to develop a profile that identifies households likely to be energy burdened:



- Outreach to school social workers in Roseville will allow us to send messaging home with students receiving free or reduced meal benefits.
- Use local organizations and resources that serve these audiences, such as:
  - Rice Street Coalition
  - Neighborhood coalitions
  - Owners and renters' associations/groups
  - Rice & Larpenteur Alliance
  - Suburban Ramsey Family Collaborative
  - Youth & Family Services
  - Food pantries
- Analyze existing Roseville data to identify homes that both (a) are below Roseville's average home value (\$254,200<sup>3</sup>); and (b) do not show a record of any building permits for renovations or improvements in the past 30 years.

### Target Audience

As we learn more about the demographics of those facing high and severe energy burden in Roseville, our target audience will become clearer. These key facts are the foundation of our demographic understanding.

- High and Severe Energy Burden - Household Income  
As described above, a household with high energy cost burden is defined by ACEEE as one with home energy costs amounting to more than 6% but less than 10% of monthly household gross income. Severe energy burden occurs when energy costs are more than 10% of monthly household gross income. As Figure 17 on the next page indicates, average energy burden for the households in the 0%–30% of state median income group is 10%,<sup>4</sup> placing them in the severe energy burden category. None of the other income categories indicate an energy burden concern.

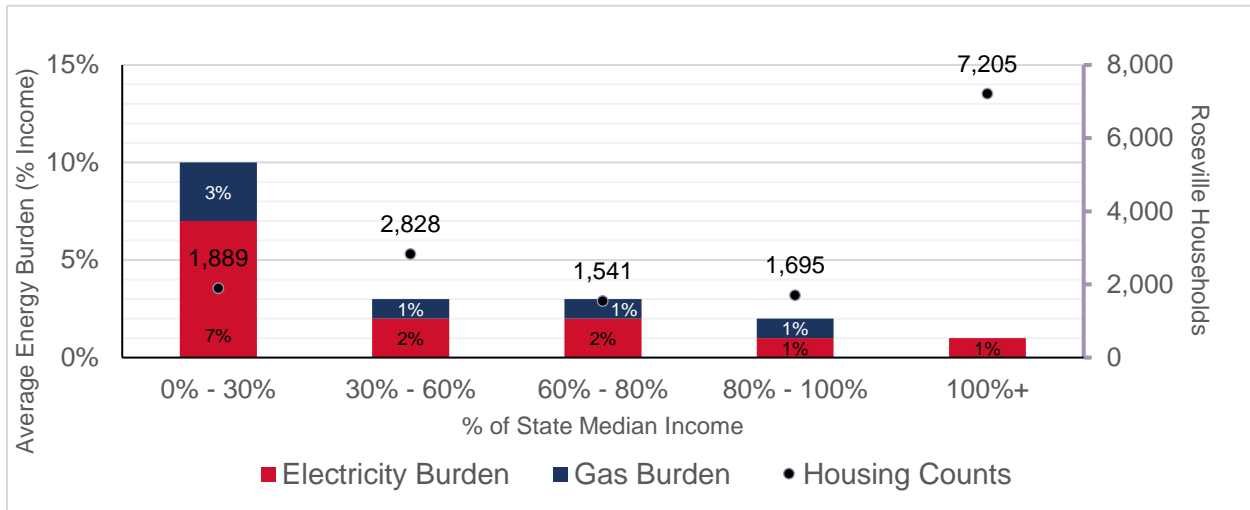
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<sup>3</sup> Metropolitan Council: <https://stats.metc.state.mn.us/profile/detail.aspx?c=02396435#medhsgval>

<sup>4</sup> <https://stats.metc.state.mn.us/profile/detail.aspx?c=02396435>



Figure 17: Roseville Energy Burden by % State Median Income

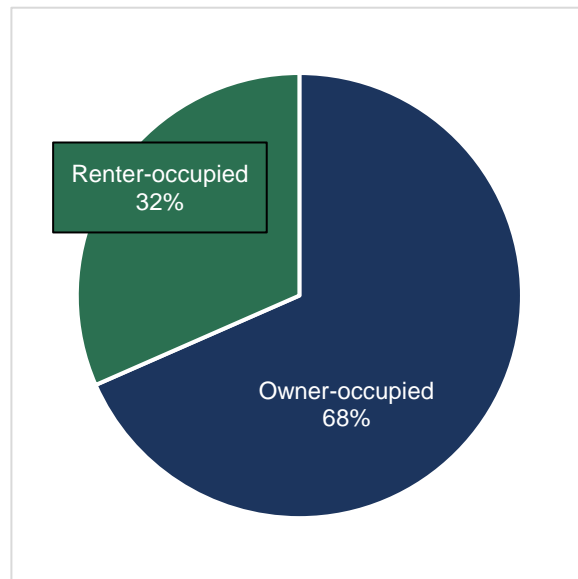


- Scope**  
 As illustrated in *Figure 17* above, the U.S. Department of Energy estimated 1,889 energy-burdened households in Roseville in 2019. This data illustrates that slightly over 10% of Roseville households are confronting the challenges of energy burden.<sup>5</sup>

### Barriers to Outreach

According to the Department of Energy’s research, more than two-thirds of the households experiencing energy burden in Roseville are owner-occupied.<sup>6</sup> We anticipate that some in this category may be long-time residents who have lived in their home a very long time but may now be struggling to keep things together on a fixed income, or current owners may have inherited the home from a deceased family member, unintentionally raising their living expenses. See *Figure 18*, to the right.

Figure 18: Roseville Energy-Burdened Homes; Owner-Occupied vs. Rented



### Desired Outcomes

Our short-term goal is to build a reliable process for locating households likely to benefit from the resources available. Success will be measured by requests for information from potential energy-burdened households during the first six months of the plan.

<sup>5</sup> <https://stats.metc.state.mn.us/profile/detail.aspx?c=02396435>

<sup>6</sup> <https://www.energy.gov/eere/slsc/maps/lead-tool>

### Timeline

Beginning in June 2021, the City of Roseville, Xcel Energy, and Partners in Energy will begin implementing a publicity plan to facilitate this strategy. We will also supplement ongoing publicity with concentrated outreach at the beginning of heating season, when energy burden becomes most apparent and applications begin to be accepted for winter energy assistance. Moving into 2022, we will develop process steps to help identify households on an ongoing basis.

## Strategy 2: Educate Energy-Burdened Households

### Description

This strategy will raise awareness of the resources that are available to help households struggling with energy burden in Roseville. Once identified via Strategy 1, these households will need outreach to make them aware of available resources and to address any misgivings or reluctance they may have about asking for help.



### Barriers to Outreach

We need to prepare for language barriers that likely exist for some of these households, which will become particularly relevant as we begin the process of reviewing somewhat complicated assistance options.

### Desired Outcomes

The desired outcome of this strategy is to effectively communicate with energy burdened households. Our standards for effective communication will be based on percentage of the energy burdened population reached in any manner, percentage of the population educated individually, and percentage of those educated who take advantage of some or all the help available. One-on-one education offerings will likely be replaced by small group meetings as the restrictions of the COVID-19 pandemic subside and awareness of this offering spreads.

### Timeline

This process is expected to commence as a natural progression from Strategy 1, above. As opportunities present themselves, volunteers and social service organizations will begin educational outreach, with progress seen before heating season begins in fall of 2021.

## Strategy 3: Coordinate Service Delivery

### Description

The purpose of this strategy is to help energy burdened households follow through and receive the help that is available. In addition to the Energy Assistance Program administered by the Community Action Partnership of Ramsey and Washington Counties, residents who live in one-to-four-unit homes will be encouraged to take advantage of the Income-Qualified Home Energy Squad program and Income-Qualified Home Energy Savings Program, and renters in buildings with five or more units will be encouraged to urge landlords to participate in the Multi-family Building Efficiency and Income-Qualified Multi-Family Energy Savings Programs.



### Barriers to Success

We anticipate that many potential beneficiaries may not be able to successfully navigate the processes necessary to receive help. Whether due to work schedules, language barriers, or

other limited capabilities, one of the largest impediments to getting help can be the process of asking for it.

The programs to be used assisting energy burdened homes are listed below, in *Table 6* below.

Table 6: Efficiency Programs to be used in Energy Burden Outreach

Program	Average Annual Participants	Average kWh Saved	Average Therm Savings
Income-Qualified Home Energy Squad	26	25,119	1,416
Income-Qualified Home Energy Savings	17	5,721	1,398
Income-Qualified Multi-Family Energy Savings	99	86,359	N/A

### Desired Outcomes

Our desired outcome is to facilitate the process of asking for and receiving help, so that no one who asks for help fails to receive it because of barriers that could have been overcome by someone helping people navigate the process.

### Resources & Communication Channels

This is “high-touch” focus area that will require follow-up and advocacy on the part of a designated individual or group within City government supported by a small group of volunteers. Recruiting a dedicated group of volunteers will be critical for success. We believe that our best opportunity may be to partner with a congregation in Roseville that has a strong ministry in this area.

Outreach will use several different techniques, including targeted mailings in high likelihood neighborhoods, publicity channels available through the City of Roseville, and partnering with local social service organizations. Printed materials will be needed to support outreach available in English and perhaps additional languages. Given the characteristics of many of these households, we expect that this will be a lengthy process, requiring volunteers and City staff to dedicate time to conduct effective outreach.

In addition to the community organizations identified in Strategy 1, the team also identified the following list of community connectors — individuals or groups who could facilitate outreach to energy-burdened households across all three strategies in this focus area. See *Table 7*, below.

Table 7: Brainstorm Results for Energy Burden Community Connectors

Community Connector Ideas for Energy Burden Focus Area
City Engineering Department
Congregations
Keystone Community Services
American Legion
VFW
B-Dale Club
Karen group
Rice Street Alliance for apartment building outreach on Rice & Larpenteur
Possible to use library as host of workshop or meeting

### Roles and Responsibilities

Partners in Energy will provide communication materials to help familiarize stakeholder groups with this initiative and motivate their support, including flyers, social media and in-person events, as needed.

As the State of Minnesota reduces social distancing restrictions, the City of Roseville and the Energy Action Team anticipate opportunities to conduct tabling events in high-likelihood neighborhoods and will identify volunteer support to implement this tactic.

City of Roseville will coordinate volunteers and staff to adequately conduct outreach to this population.

Partners in Energy will also help to develop training materials that will list all the resources available to energy burdened households. The City of Roseville will determine how best to staff and manage this strategy and assure that assistance is delivered consistently.

### Implementation Timeline

We anticipate that strategies in this focus area will begin in the summer of 2021 and continue for the duration of the Energy Action Plan. See *Figure 19*, below.

Figure 19: Energy Burden Focus Area Strategy Timing, June 2021-December 2022

Energy Burden	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022	February 2022	March 2022	April 2022	May 2022	June 2022	July 2022	August 2022	September 2022	October 2022	November 2022	December 2022
1. Locate Energy-Burdened Households	Active	Active	Active	Active	Active												Active	Active	Active
2. Educate Clients						Active	Active	Active	Active	Active							Active	Active	Active
3. Coordinate Service Delivery											Active	Active	Active	Active	Active	Active	Active	Active	Active

## Focus Area: Residential Energy Efficiency

With older housing stock so prevalent in Roseville, residents have the opportunity to upgrade the efficiency of their homes to reduce energy use and live more comfortably all year long. Reaching across a broad cross-section of residents will also deliver the benefits of the energy action plan to every corner of the City.

### Strategy 1: Focus on Core Programs

#### Description

This strategy reflects the nature of Roseville residents' tendencies around participation in existing energy efficiency programs. Despite the availability of a few dozen energy efficiency programs available to residential premises, the great majority of participants — and energy savings — are concentrated in just a few very popular programs. (See *Appendix B* for more detail on program usage.) The Energy Action Team recommends focusing on those programs that are known and widely accepted instead of attempting to develop enthusiasm and awareness for programs that are unknown or little-used.

Roseville's four most popular residential energy efficiency programs are listed in *Table 8* below.

Table 8: Top Four Roseville Residential Efficiency Programs

Program	Average Annual Participants	Average kWh Saved from Residential Programs	Average Therm Savings from Residential Programs
Residential Heating	303	185,189	43,714
Home Energy Squad	88	112,679	5,376
Refrigerator Recycling	99	86,359	N/A
Residential Cooling	262	82,746	N/A
<b>Percentage of Total</b>	<b>51%</b>	<b>87%</b>	<b>70%</b>

Together with Insulation Rebates, Residential Heating and Home Energy Squad account for 87% of all natural gas savings.

#### Target Audience

These popular programs will be targeted to Roseville residents living in single-family homes, townhouses, or condominiums whenever possible. Focusing here will avoid promoting programs to residents renting in larger buildings where different program opportunities exist.

#### Desired Outcomes

We plan to support the most popular programs, including some that deliver higher energy savings, but which may not have broad awareness. Our goal is to reach enough residents so that 1,400 choose to participate in a program that improves their homes' efficiency every year.

### Strategy 2: Target Older Homes

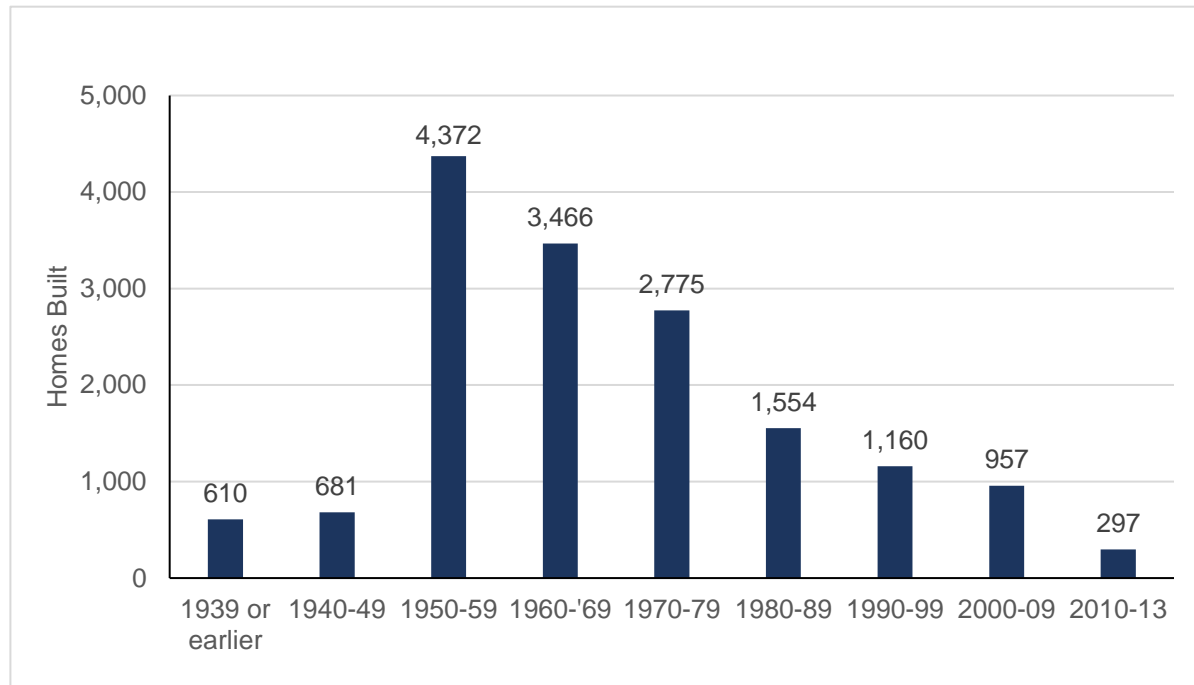
#### Description

Roseville's significant growth after World War II saw many homes built. See *Figure 20*, below. This presents a wonderful opportunity to improve energy efficiency. The high concentration of



homes built during that era signals that most are likely to be poorly insulated and air-sealed by today's standards.

Figure 20: Roseville Home Construction by Decade<sup>7</sup>



Energy efficiency improvements in these homes can often be accomplished with a home energy audit, which is offered to Roseville residents through the Home Energy Squad<sup>®</sup>. If more extensive improvements are indicated, the Home Energy Squad is equipped to explain deficiencies and opportunities for improvement, provide guaranteed pricing for those projects during the visit, and even connect the homeowner to an energy advisor who can schedule service from a qualified contractor.

#### Target Audience

We will focus our efforts on the oldest homes in Roseville, recruiting neighborhood leaders to assist in spreading the word about the opportunities to save energy, save money, and live more comfortably at home.

#### Desired Outcomes

Our hope is that the participation base of residential premises taking part in efficiency improvements every year will be mostly comprised of homes at least 50 years old.

### Strategy 3: Raise Awareness of Program Benefits

#### Description

In reviewing the details of the most popular residential efficiency programs in Roseville, the team realized that even many members misunderstood or were unaware of the attractive details

<sup>7</sup> <https://data.census.gov/cedsci/table?q=Roseville,%20MN%20housing&tid=ACSDP5Y2019.DP04>

of the offerings. For example, there is a program offered that will recycle a second refrigerator or freezer at no cost to the homeowner. The team believes that much greater participation would be possible with better understanding and awareness of these programs.

### Target Audience

Our target audience for this strategy will be the broadest of the three residential strategies. Education and outreach will be conducted assuming that any homeowner in Roseville may be receptive to this offering.

### Desired Outcomes

We hope to effectively reach enough Roseville households annually to result in 200 of our annual goal of 1,400 participants deciding to participate in an energy efficiency program because of this educational outreach.

### Resources & Communication Channels

The Energy Action Team brainstormed to develop a list of community connectors to help activate all the strategies in this focus area. See *Table 9* below.

Table 9: Brainstorm Results for Residential Efficiency Community Connectors

Community Connector Ideas for Residential Efficiency Focus Area	
City Engineering Department	League of Women Voters
Lions Club	Kiwanis Club
Rice Street Alliance	North Suburban Gavel Association
Townhouse associations and Homeowners Associations	Resilient Roseville
Do Good Roseville	Rotary

In addition to these community connectors, the City will use the communication channels managed by its communications department (e.g., social media, website), and Partners in Energy will create materials as needed.

### Roles and Responsibilities

Partners in Energy will provide communication materials to help familiarize homeowners with this focus area and motivate their support.

As the State of Minnesota reduces social distancing restrictions, the City of Roseville and the Energy Action Team anticipate opportunities to conduct tabling events in Roseville’s oldest neighborhoods and will identify volunteer support for implementation.

Partners in Energy will provide communication materials for flyers, social media and in-person events, as needed. City of Roseville will coordinate volunteers and staff to adequately conduct outreach.

## Timeline

We anticipate that strategies in this focus area will begin in the summer of 2021 and continue for the duration of the Energy Action Plan. See *Figure 21*, below.

Figure 21: Residential Energy Efficiency Focus Area Timing, June 2021-December 2022

Residential Energy Efficiency	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022	February 2022	March 2022	April 2022	May 2022	June 2022	July 2022	August 2022	September 2022	October 2022	November 2022	December 2022
4. Focus on Core Programs		AC Rebates		Home Energy Squad		Heating Rebates							AC Rebates						Fridge Recycling
5. Target Older Homes				Neighborhood Focus			Building Permit Campaign						Home Improvement Campaign			Winter's Coming			
6. Raise Awareness of Program Benefits		AC rebates		Home Energy Squad		Insulation/Air Sealing							Home Energy Squad						Fridge Recycling

## Focus Area: Commercial & Industrial Energy Efficiency

Many of Roseville's commercial and industrial users consume a substantial amount of energy, and, as a result, their energy efficiency initiatives are very productive. Usage of efficiency programs among these users is facilitated by Xcel Energy Account Managers, which makes it much easier to access programs. This focus area will concentrate on the rest of commercial and industrial premises in Roseville, who consume far more energy than residential users, but who lack the dedicated resources of an Account Manager. Several opportunities are available to deliver savings for these premises.

### Strategy 1: Target Smaller and Medium-Sized Businesses

#### Description

This strategy is designed to reach out to the businesses small enough that they don't qualify for an Xcel Energy account representative, but that would still like to reduce energy expenses.

Among the 2,512 commercial and industrial premises, there are 2,050 premises that are not managed by a dedicated Xcel Energy account manager.

#### Target Audience

We are targeting small and medium-sized commercial and industrial premises in Roseville that do not work with an Xcel Energy account manager. These 2,050 premises were responsible for consuming 139,744,489 kilowatt-hours of electricity and 9,248,900 therms of natural gas in 2019.

### Strategy 2: Concentrate on Popular Low-Cost or Free Offerings

#### Description

Like residential premises, commercial and industrial users tend to favor just a few of the many efficiency programs available. Discussed above in *Table 4 on page 8*, the Lighting Efficiency and One Stop Efficiency Shop programs accounted for 84% of the energy savings during the baseline period.

As popular as these two programs are, most commercial and industrial premises have yet to participate in these programs. During the baseline period, 22% of commercial and industrial premises used one of those two programs, leaving an opportunity for 1,959 commercial and industrial premises.

#### Target Audience

We will target the nearly 2,000 non-managed commercial and industrial premises in Roseville who can still benefit from one of these two very popular programs that deliver real savings to commercial and industrial users.

#### Desired Outcomes

We want to conduct sufficient outreach to engage 100 small and medium-sized businesses annually through utility programs to save money on energy bills, allowing them to reinvest those dollars back into their businesses.

We suspect that most activity will concentrate on promoting Lighting Efficiency and One Stop Efficiency Shop and that the power of relatable, local testimonials will be central to the outreach program.

## Resources & Communication Channels

The Energy Action Team brainstormed to develop a list of community connectors to help activate all the strategies in this focus area. See *Table 10* below.

Table 10: Brainstorm Results for Business Community Connectors

Community Connector Ideas for Business Efficiency Focus Area	
Rotary Club	Roseville Business Alliance
Roseville Properties	North Suburban Gavel Association
Engineering Dept	Local chapter of US Green Building Council
B-Dale Club	

## Roles and Responsibilities

Partners in Energy will provide communication materials to help familiarize small and medium-sized commercial / industrial premises with these efficiency opportunities and motivate their support. Should the City of Roseville’s communications group lack bandwidth to support local social media and other publicity tasks, Partners in Energy will help in this area as well.

Our Energy Action Team roster was fortunate to have several people representing the business community, and their input was particularly helpful for this focus area. They recommended repeated contact in as personal a context as possible to raise awareness and eliminate reluctance to participate. Groups such as the Roseville Business Council will be valuable allies in this initiative. Speaking opportunities there and with other business groups will be an important tool for consistently publicizing the opportunities that these programs offer.

Partners in Energy will provide communication materials for flyers, social media, and in-person events, as needed. City of Roseville will coordinate volunteers and staff to adequately conduct outreach.

## Implementation Timeline

We anticipate a long consideration period before small and medium-sized businesses decide to participate. As such we recommend beginning this initiative as soon as possible after implementation begins. See *Figure 22*, below.

Figure 22: Commercial / Industrial Energy Efficiency Focus Area Strategy Timing, June 2021 - December 2022

Commercial / Industrial Energy Efficiency	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022	February 2022	March 2022	April 2022	May 2022	June 2022	July 2022	August 2022	September 2022	October 2022	November 2022	December 2022
7. Target Small and Medium-Sized Businesses	Develop testimonials	Campaign by business category					Blitz events by area				Publicity								
	Plan speaking opportunities	1 every 2 months		1 every 2 months		1 every 2 months		1 every 2 months		1 every 2 months		1 every 2 months		1 every 2 months		1 every 2 months			
8. Concentrate on Popular Low-Cost or Free Programs	Lighting Efficiency / One Stop Efficiency Shop																		



## Focus Area: Renewable Energy

As early as the first survey asking about the team's reasons for wanting to build an energy action plan, we established that greenhouse gas avoidance was crucial to both the plan's success, and to Roseville's future.

Aside from reducing demand through efficiency improvements, renewable energy is the most effective tool available to reduce the creation of greenhouse gases related to energy consumption.

There are several barriers inhibiting broader use of locally generated renewable energy. These include inopportune site conditions (e.g., heavily shaded property), substantial capital investment, and on-going maintenance needs. Xcel Energy offers an alternative to customers who wish to support renewable energy. This focus area will use strategies to address those issues successfully.

### Strategy 1: Increase Adoption of Subscription Offerings

#### Description

With the Windsource® or Renewable\*Connect® programs, both residential and commercial and industrial customers can subscribe to get some or all of their electricity from renewable sources. A modest premium for these programs is added to customers' monthly billing.

During 2019, 921 residential premises participated in one of Xcel's two renewable energy subscription programs, representing 3% of residential electricity consumption.<sup>8</sup> There were six commercial and industrial participants, whose energy usage represents 4% of the sector's total electricity consumption.

#### Target Audience

With this initiative, we will target the Roseville homes and businesses that are not participating in either renewable energy subscription program.

#### Desired Outcomes

We hope to successfully engage the community to result in an additional 100 residents and five businesses subscribing annually to renewable energy.

### Strategy 2: Provide Education Opportunities for Residents Considering On-Site or Solar Garden Renewable Options

#### Description

For those residents or businesses determined to use on-site renewable energy or to subscribe to a solar garden, there are programs offered to reduce the cost of doing so. Xcel Energy's Solar\*Rewards® and Solar\*Rewards Community® programs offer an incentive program that compensates participants for the green energy value of the electricity they use.

Net metering is another alternative for those with on-site renewable energy generation capability. With net metering, homeowners can sell electricity they produce in excess of their needs back to Xcel Energy, while retaining the renewable energy credit for themselves.

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<sup>8</sup> Roseville has 15,546 residential premises, indicating that subscriptions amount to 6% of total households.

Each program offers a distinct array of benefits and choosing can be difficult. Net metering, for example, is the only one that keeps the green energy value of the energy created in Roseville.

### Target Audience

We will target Roseville residents and businesses who are considering on-site options for renewable energy and community solar gardens.

### Desired Outcomes

We want to make it easy for residents and businesses to consider their options and choose a program that will suit their needs and priorities.

### Resources & Communication Channels

Recognizing that this focus area presents a slightly different challenge than the others, the Energy Action Team’s brainstormed differently too. Outreach will require frequent engagement with residents and businesses early in their consideration process. The team developed a list of ideas where we might engage with residents and businesses to share information. See *Table 11*, below.

Table 11: Brainstorm Results for Renewable Energy Outreach Opportunities

Renewable Energy Education / Outreach Opportunities	
Library	Roseville Business Council
Oval and other parks	RoseFest

### Roles and Responsibilities

Partners in Energy will provide communication materials to help familiarize Roseville residents and businesses with renewable energy opportunities, including materials presentation opportunities

Partners in Energy will provide communication materials for flyers, social media and in-person events, as needed. City of Roseville will coordinate volunteers and staff to adequately conduct outreach.

### Implementation Timeline

Planning for a regularly scheduled series of events will begin shortly after the start of implementation, with specific timing dictated by the opportunities that we create or community events that are suitable venues. See *Figure 23*, below.

Figure 23: Renewable Energy Focus Area Strategy Timing, June 2021 - December 2022

Renewables	June 2021	July 2021	August 2021	September	October 2021	November 2021	December 2021	January 2022	February 2022	March 2022	April 2022	May 2022	June 2022	July 2022	August 2022	September	October 2022	November 2022	December 2022
9. Increase Adoption of Subscription Offerings	Plan Webinars				W1		W3		W5	Plan Events			E1		E2		E3		E4
10. Provide Education Opportunities						W2		W4											

## Energy Action Plan Impact

From the beginning of implementation until the end of 2031, accomplishing the goals for all of these focus areas will collectively ...



### **Avoid 48,000 MTCO<sub>2</sub>e**

48,000 MTCO<sub>2</sub>e is equivalent the greenhouse gasses emitted by 10,439 passenger vehicles driven for a year.



### **Save 475,000 MMBtus of energy**

During the baseline period, Roseville used 3.7 million MMBtus annually. Roseville's energy savings from achieving these goals would be equivalent to 12.8% of the city's annual baseline energy use.



### **Deliver first year dollar savings of \$8.4 million to Roseville residents and businesses**

Of the \$8.4 million in first year dollar savings, we anticipate that \$6.6 million will be saved among commercial / industrial premises, and the remaining \$1.8 million will go to residential premises.

# 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.

## Data and Reporting

Partners in Energy will provide biannual progress reports with metrics of success and overall progress towards goals for Xcel Energy rebates and programs. These reports will be available publicly and shared with both the community and Energy Action Team.

If available, ad-hoc participation reports for specific Xcel Energy programs (e.g., Home Energy Squad) can be provided to measure success of campaigns and to determine if we need to change course.

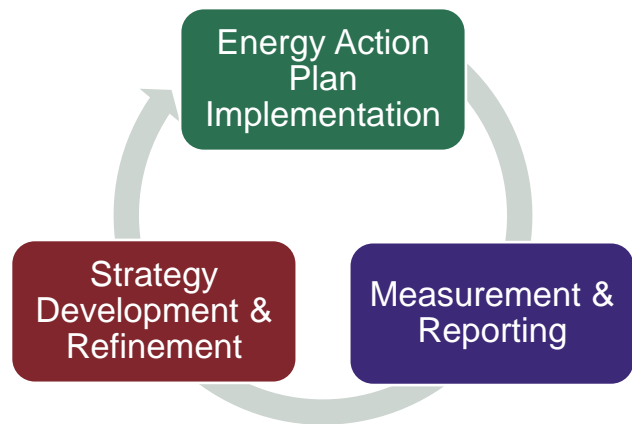
## Project Management and Tracking

Partners in Energy will host regular project management check-in calls with staff to ensure we stay on course to achieve our strategies.

If necessary, an implementation check-in meeting with the Energy Action Team can be convened to assess progress towards goals and discuss strategy refinement. See *Figure 24*, above.

## Energy Action Team Commitment

The Energy Action Team formed to create this plan will support implementation by sharing in the education and outreach of the strategies that are most relevant to them as time allows along with sharing with relevant personal or professional connections to help facilitate outreach. Team members also agreed to meet on an ad hoc basis when new opportunities or challenges arise that would benefit from the input of the group.



# APPENDIX A: IMPLEMENTATION WORK PLAN



This appendix will serve as a work plan for the Energy Action Team and Partners in Energy. On the following page the schedule captures each strategy in the plan along with timing for deliverables. See *Table 12* on the next page.

**Table 12: Focus Area Strategy Timing**

	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	January 2022	February 2022	March 2022	April 2022	May 2022	June 2022	July 2022	August 2022	September 2022	October 2022	November 2022	December 2022
<b>Energy Burden</b>																			
1. Locate Energy-Burdened Households																			
2. Educate Clients																			
3. Manage Service Delivery																			
<b>Residential Energy Efficiency</b>																			
4. Focus on Core Programs		AC Rebates	Home Energy Squad	Heating Rebates							AC Rebates							Fridge Recycling	
5. Target Older Homes			Neighborhood Focus		Building Permit Campaign					Home Improvement Campaign							Winter's Coming		
6. Raise Awareness of Program Benefits		AC rebates	Home Energy Squad	Insulation/Air Sealing						Home Energy Squad								Fridge Recycling	
<b>Commercial / Industrial Energy Efficiency</b>																			
7. Target Small and Medium-Sized Businesses	Develop testimonials			Campaign by business category					Blitz events by area				Publicity						
	Plan speaking opportunities			1 every 2 months		1 every 2 months		1 every 2 months		1 every 2 months		1 every 2 months		1 every 2 months					
8. Focus on Popular Low-Cost or Free Programs	Lighting Efficiency / One Stop Efficiency Shop																		
<b>Renewables</b>																			
9. Increase Adoption of Subscription Offerings	Plan Webinars			W1		W3		W5		Plan Events		E1		E2		E3		E4	
10. Provide Education Opportunities				W2		W4													



# APPENDIX B: BASELINE ENERGY ANALYSIS

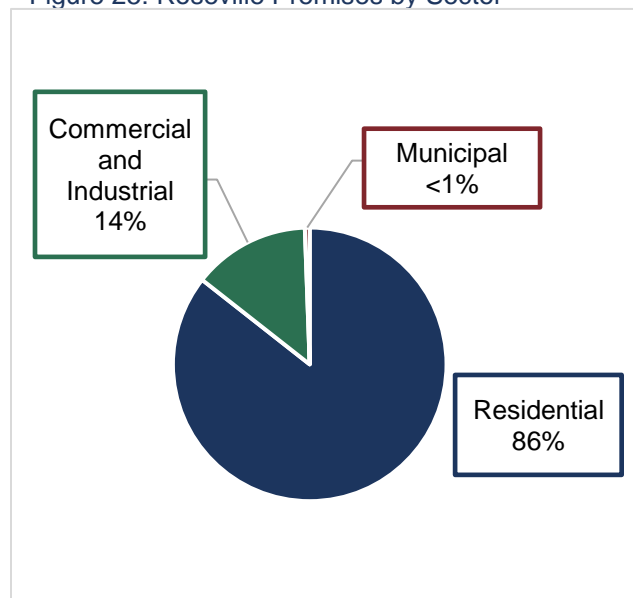


Data was provided by Xcel Energy for all Roseville premises for 2017-2019. Xcel Energy provides electric and natural gas service to the community. The data helped the Energy Action Team understand Roseville’s energy use and opportunities for energy conservation and renewable energy. Data included in this section establishes a baseline against which progress toward goals will be compared to in the future.

## Electricity and Natural Gas Premises

The majority of premises in Roseville are residential. The city also has concentrated areas of commercial and retail activity. Of the 18,161 distinct premises in Roseville, 86% (15,546) are residential. Commercial and industrial buildings represent 14% (2,512), and the remaining <1% (103) are municipal buildings. See *Figure 25*, to the right.

Figure 25: Roseville Premises by Sector



## Electricity and Natural Gas Consumption and Trends by Sector

While most of Roseville’s premises are residential, they do not use as much energy as do commercial and industrial premises. Commercial and industrial premises make up only 14% of premise but account for 63% of energy consumption. See *Figure 26*, to the right.

Total energy consumption during the baseline period shows variation in each sector consistent with changes in weather. Hot summers tend to correlate with more electricity usage, and cold winters tend to correlate with more natural gas consumption. See *Figure 27*, below.

Figure 26: Percent of Roseville Energy Usage by Sector

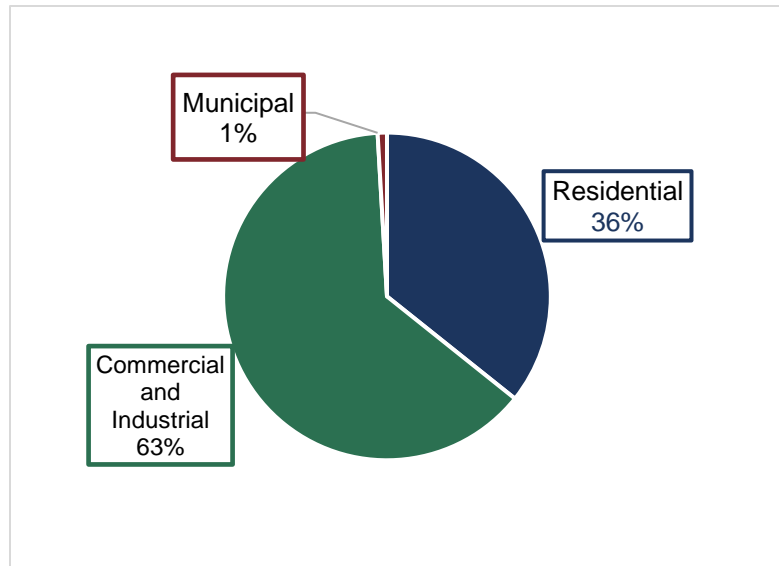
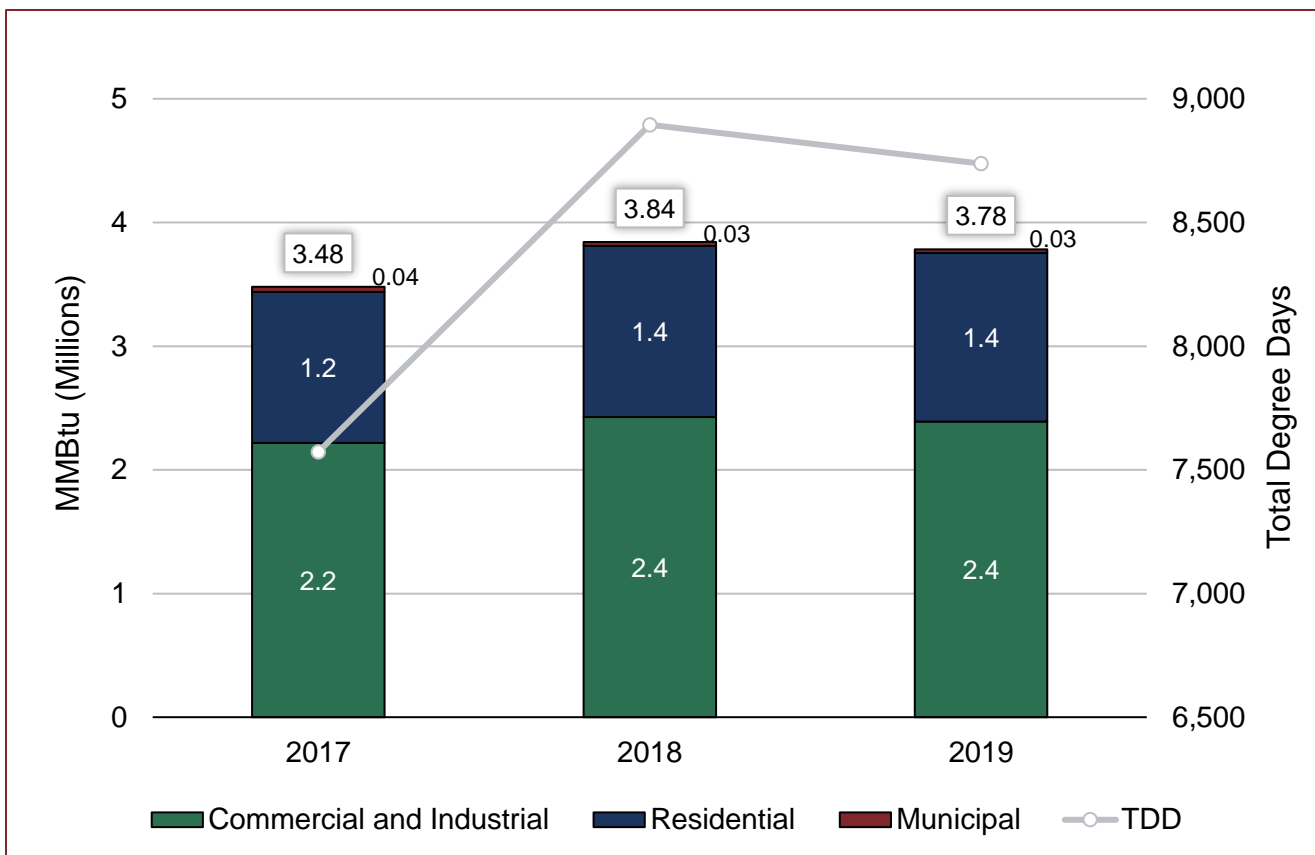


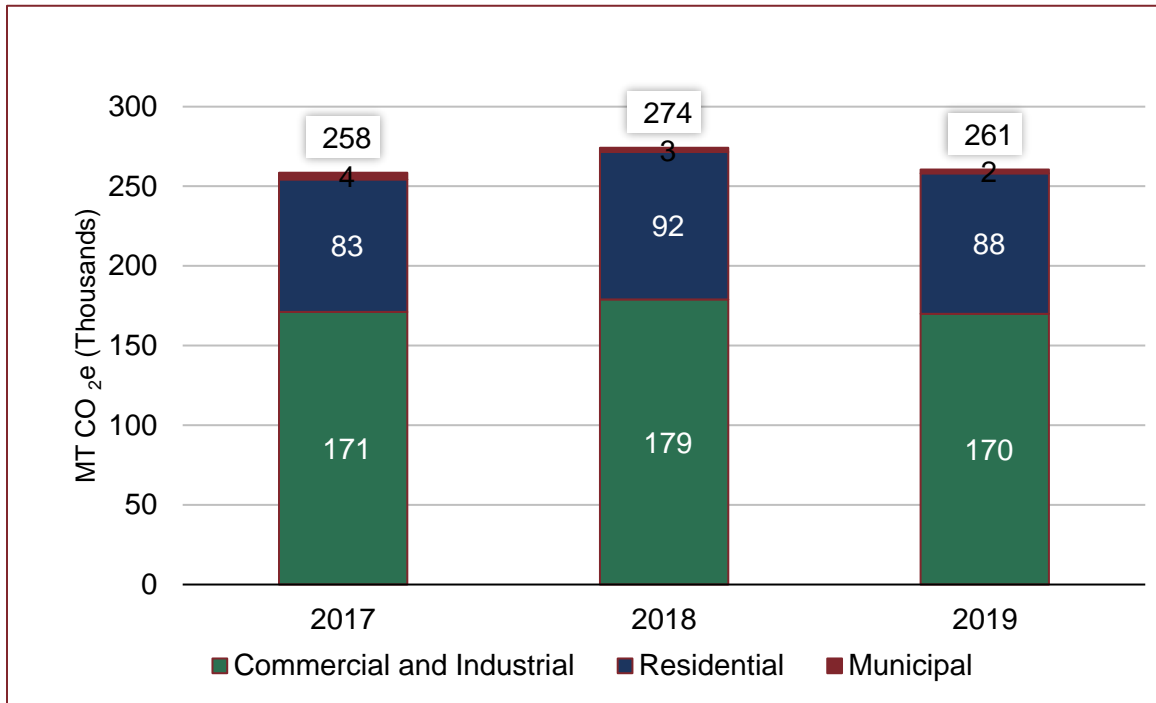
Figure 27: Roseville Baseline Total Energy Consumption (MMBtu)



## Greenhouse Gas Emissions and Trends

Greenhouse gasses created from the production of the energy consumed in Roseville for the three-year baseline average totaled 264,388 (MTCO<sub>2e</sub>). The U.S. Environmental Protection Agency greenhouse gas equivalency calculator shows that Roseville's greenhouse gasses from energy production is equivalent to the greenhouse gas emissions from 57,499 passenger vehicles driven for a year.<sup>9</sup> The greenhouse gas emissions are consistent with the total energy consumption for the three-year baseline in Roseville. See *Figure 28*, below.

Figure 28: Roseville Greenhouse Gas Emissions by Sector (MTCO<sub>2e</sub>)



## Energy Costs

Roseville spends an average \$54.3 million per year on energy. This includes \$40.7 million for electricity and \$13.6 million for natural gas. Roseville residents spent an average of \$18.7 million on energy during the baseline period. See *Figure 29*, on the next page. This equals \$1,205 spent per residential premise annually. The commercial and industrial sector spent an average of \$34.8 million on energy during the baseline period. The average annual energy expense for commercial and industrial premises was almost \$14,000 per premise. See *Figure 30* on the next page.

<sup>9</sup> <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

Figure 29: Roseville Total Energy Costs

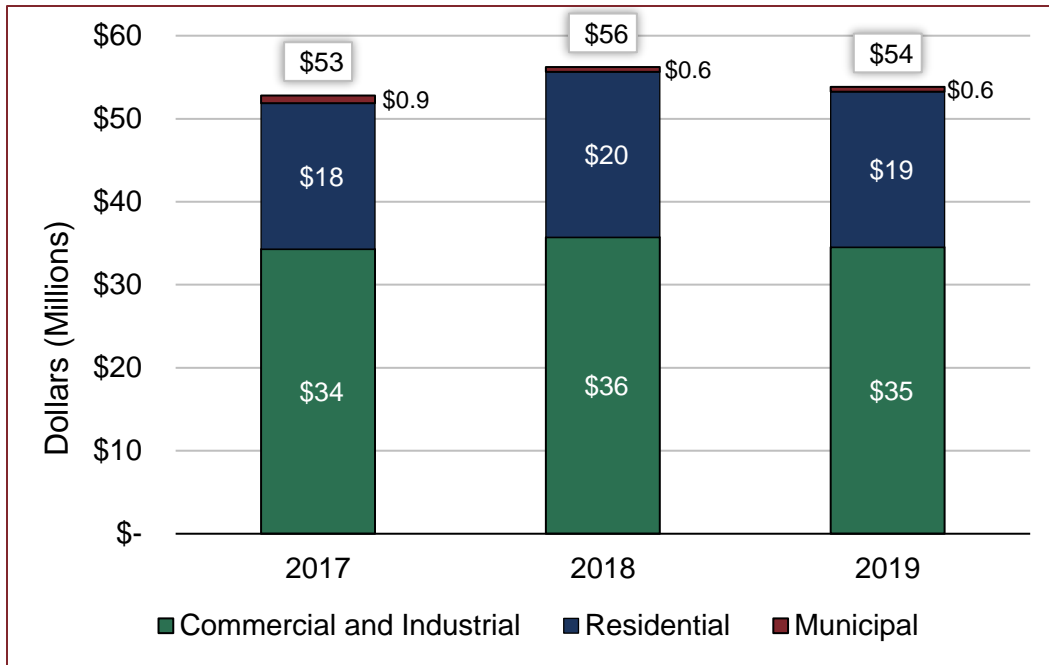
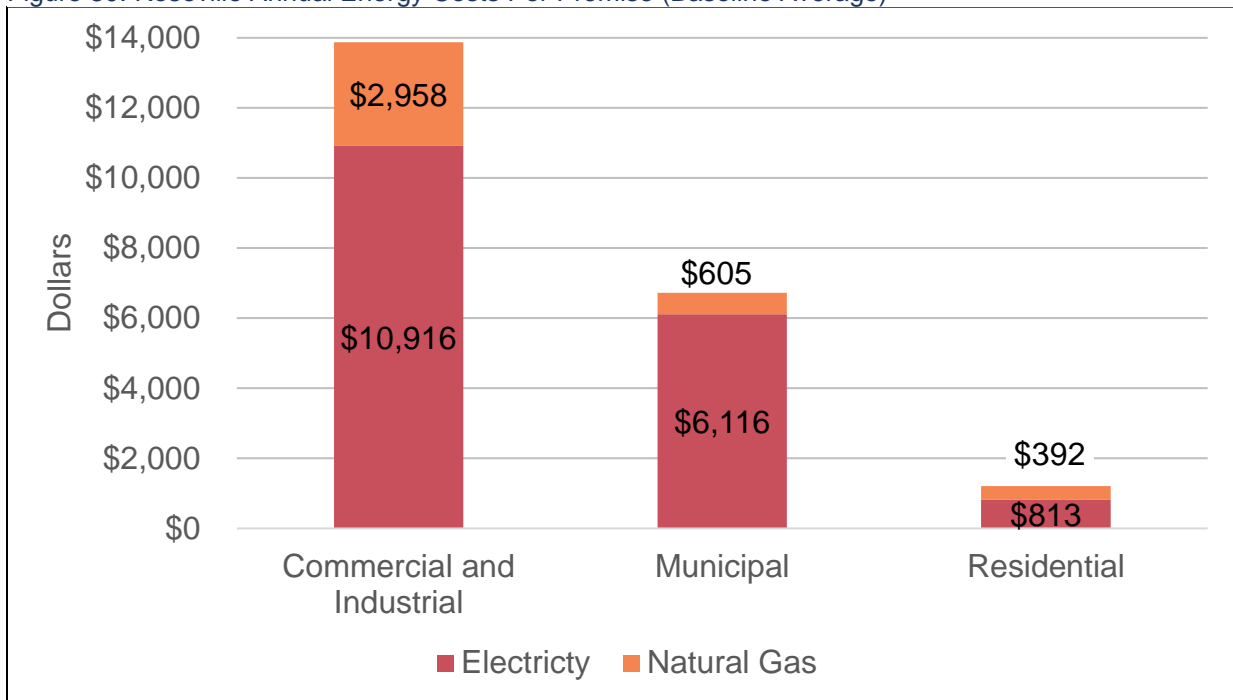


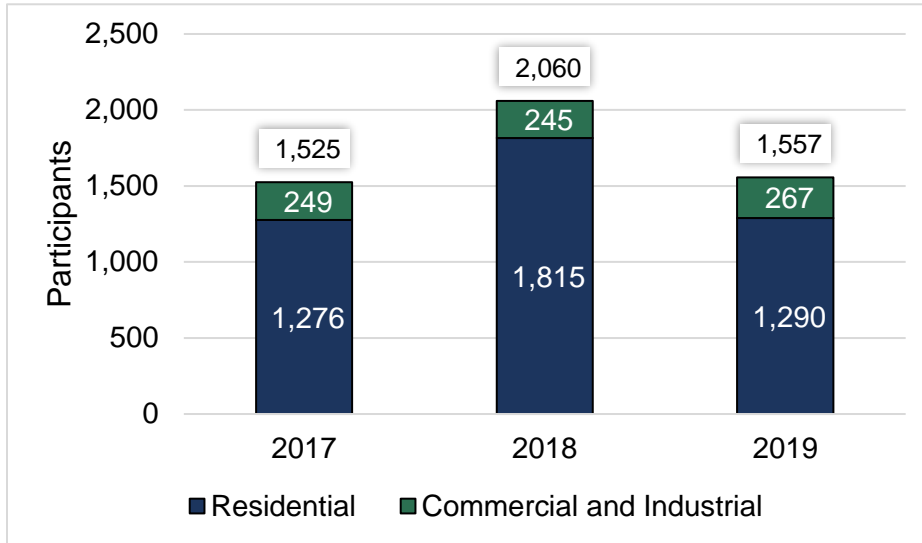
Figure 30: Roseville Annual Energy Costs Per Premise (Baseline Average)



## Program Participation and Savings

Roseville residents currently rely on a few key programs from Xcel Energy to help them improve efficiency. While there are 45 programs with participation, four of them deliver 51% of all the annual participation and 87% of electricity savings. See *Figure 31*, below. The top programs for residential participation are Residential Heating, Residential Cooling, Home Energy Squad, and Refrigerator Recycling.

Figure 31: Roseville Program Participation by Sector over Three-year Baseline



Roseville's commercial and industrial sector saved 5.5 million kilowatt-hours per year on average, and just two programs account for 83% of those savings: One Stop Efficiency Shop and Lighting Efficiency. The most popular program with the most therm savings was the Heating Efficiency program. See Table 13, on the next page.

Table 13: Roseville Commercial and Industrial Efficiency Program Participation

Commercial and Industrial Program	Three-Year Average Participation	Three-Year Average Actual kWh Savings	Three-Year Average Actual Therm Savings
Commercial Refrigeration Efficiency	1	1,679	—
Cooling	13	116,158	—
Custom Efficiency	2	242,625	1,669
Efficiency Controls	4	231,609	15,108
Electric Rate Savings	3	3,876	—
Energy Design Assistance	1	68,068	6,567
Fluid System Optimization	1	2,661	—
Foodservice Equipment	3	11,651	9,164
Heating Efficiency	15	—	21,627
Lighting Efficiency	126	2,688,827	—
Motor Efficiency	3	121,073	—
Multi-Family Building Efficiency	13	32,323	3,062
Recommissioning	2	87,986	9,257
Saver's Switch for Business	11	126	—
One Stop Efficiency Shop	59	1,967,780	—
Turnkey Services	1	—	—
<b>Total</b>	<b>257</b>	<b>5,576,441</b>	<b>66,453</b>

## Renewable Energy Support

Windsorce and Renewable\*Connect, which are both subscription programs allowing participants to source some or all their energy from renewable sources are popular for Roseville residents. Solar\*Rewards and Solar\*Rewards Community® have low participation and could offer an opportunity to engage the community with on-site solar and subscription programs. See *Table 14*, on the next page.



Table 14: Roseville Renewable Energy Participation Recap

Renewable Energy Program	Residential	Commercial & Industrial
<b>Windsource</b>		
Subscriber Count	874	6
Total Annual Electricity Subscribed (kWh)	2,841,115	887,204
Percentage of Sector Electricity Use	3%	0%
<b>Renewable*Connect</b>		
Subscriber Count	47	0
Total Annual Electricity Subscribed (kWh)	353,245	0
Percentage of Sector Electricity Use	0%	0%
<b>Solar*Rewards</b>		
Installation Count	85	10
Total Annual Electricity Produced (kWh)	343,639	198,888
Percentage of Sector Electricity Use	0%	0%
<b>Solar*Rewards Community</b>		
Participant Count	91	2
Total Annual Electricity Produced (kWh)	478,389	2,121,858
Percentage of Sector Electricity Use	0%	1%
<b>Total Renewable Energy Support</b>		
Subscribers / Participants Count	1,097	18
Total Annual Electricity Subscribed (kWh)	4,016,388	3,207,950
Percentage of Sector Electricity Use	4%	1%

# APPENDIX C: METHODOLOGY FOR MEASURING SUCCESS



As part of implementation support, Partners in Energy will provide biannual progress reports for Xcel Energy participation and savings data for Roseville. All goals will be measured against Roseville’s three-year baseline of 2017-2019 data unless otherwise noted.

The following section outlines how to measure various aspects of the goals outlined in this Energy Action Plan, including details of what programs and activities may be included and any assumptions used to measure the goals.

## Community-wide Goal

- By the end of 2031, accomplishing each of Roseville’s Focus Area goals will save 475,000 MMBtu and avoid 48,000 MTCO<sub>2e</sub> from consumption of electricity and natural gas.

## Assumptions

This goal assumes that Xcel Energy’s demand side management program participation will continue business as usual (BAU) 2021 to 2031.

BAU annual program participation assumes 1,284 total participants in the programs available from Xcel Energy in 2019. Cumulative participation for a business as usual scenario between 2021 and 2031 will be 14,124 with a cumulative annual energy savings of 364,773 MMBtu.

The impact of the Energy Action Plan and additional resources from Xcel Energy, the City of Roseville, and the community will result in an increase in participation. The community-wide goal assumes an annual participation increase to 1,827 total participants in Xcel Energy programs, with cumulative participation between 2021 and 2031 totaling 20,097 resulting in a cumulative annual energy savings of 475,534 MMBtu.

To estimate avoided greenhouse gas emissions, projected emissions factors were applied to the electricity and natural gas savings estimates for both the business as usual and goal

scenarios. For the purposes of this Energy Action Plan, all assumptions are based on Xcel Energy's 2019 Carbon Emissions Reporting.<sup>10</sup>

## How to Measure

### Energy Savings

The community-wide goal will be measured by comparing cumulative electricity and natural gas savings over the ten-year period of 2021 to 2031 for all sectors, against projected BAU savings over the same time period. This goal includes all Xcel Energy demand side management programs available to every sector and measures the first-year savings data provided by Xcel Energy. The following table outlines the assumptions for energy savings in Roseville.

	2031 BAU Scenario	2031 Goal Scenario
<b>kWh savings</b>	65,478,547	83,196,270
<b>Therm savings</b>	1,413,602	1,916,693
<b>MMBtu savings</b>	364,772	475,534

A common way to measure and compare electricity savings and natural gas savings is through an equivalent measurement of MMBtu. For this reason, cumulative MMBtu savings will also be used to track community-wide energy savings in Roseville.

### Greenhouse Gas Emissions Avoided

Projected greenhouse gas emissions avoided include cumulative emissions avoided from participation in Xcel Energy programs, as well as cumulative emissions avoided with renewable energy programs where the customers retain the Renewable Energy Credits. This includes Xcel Energy's Windsource and Renewable\*Connect. The table below outlines the assumptions for greenhouse gas emission avoidance.

Estimated Emissions Avoided by Program (MTCO <sub>2e</sub> )	2031 BAU Scenario	2031 Goal Scenario
<b>DSM programs</b>	20,645	26,872
<b>Renewable Energy</b>	9,012	21,007
<b>Total MTCO<sub>2e</sub> avoided</b>	29,657	47,879

## Energy Burden Focus Area Goals

- Engage 120 high and severely energy burdened households annually through utility programs.

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<sup>10</sup> 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>

### Assumptions

Business as usual scenario assumes 43 total participants a year in the following Xcel Energy income-qualified programs:

- Income-Qualified Home Energy Squad
- Income-Qualified Home Energy Savings Program
- Income-Qualified Multi-Family Energy Savings Program

Roseville’s goal is to achieve 120 annual participants across these programs.

### How to Measure

Annual participation in the following programs will be included in measuring progress toward this goal:

- Income-Qualified Home Energy Squad
- Income-Qualified Home Energy Savings Program
- Income-Qualified Multi-Family Energy Savings Program

In addition, any new programs created by Xcel Energy with income qualifications will be included.

Annual participation will be calculated from Partners in Energy implementation reports, summing participation from these programs from 2021 through 2031.

	2031 BAU Scenario	2031 Goal Scenario
<b>Cumulative Participation</b>	473	1,320

## Residential Energy Efficiency Focus Area Goals

- Engage 1,400 residents annually through utility programs.

### Assumptions

Business as usual scenario assumes 1,000 participants a year in Xcel Energy’s residential sector demand side management programs available during the baseline period, excluding the programs modeled in Roseville’s Energy Burden Focus Area. Roseville’s goal is to achieve 1,400 annual participants in these programs.

### How to Measure

Annual participation in all residential demand side management programs available from Xcel Energy will be included in measuring progress toward this goal, except those included in the Energy Burden Focus Area Goal.

Annual participation will be calculated from Partners in Energy implementation reports, summing participation from all residential programs from 2021 through 2031.

	2031 BAU Scenario	2031 Goal Scenario
<b>Cumulative Participation</b>	11,000	15,400

## Commercial and Industrial Energy Efficiency Focus Area Goals

- Engage 100 small and medium-sized businesses annually through utility programs.

### Assumptions

Business as usual scenario assumes 60 total participants a year in the following Xcel Energy small and medium-sized business programs:

- One Stop Efficiency Shop
- Commercial Refrigeration Efficiency

In addition, business as usual scenario assumes 181 participants in other Xcel Energy commercial and industrial sector demand side management programs. Altogether, business as usual scenario assumes total annual participation is 241 Xcel Energy's commercial and industrial sector programs.

Roseville's goal is to achieve 100 participants in Xcel Energy programs targeting small and medium-sized businesses. The goal assumption also targets an increase in participation in other Xcel Energy commercial and industrial programs, achieving 307 total annual participants in all commercial and industrial sector programs.

### How to Measure

Annual participation in all commercial and industrial demand side management programs available from Xcel Energy will be included in measuring progress toward this goal.

Annual participation will be calculated from Partners in Energy implementation reports, summing participation from all commercial and industrial programs from 2021 through 2031.

	2031 BAU Scenario	2031 Goal Scenario
<b>Cumulative Participation</b>	2,651	3,377

Participation in the following programs will be highlighted as targeting small and medium-sized businesses:

- One Stop Efficiency Shop
- Commercial Refrigeration Efficiency

## Renewable Energy Focus Area Goals

- Engage 100 residents and five businesses annually to subscribe to renewable energy.

### Assumptions

Business as usual scenario assumes 2019 baseline participation in Xcel Energy's renewable energy programs will increase annually to result in 2,021 residential subscribers and 61 commercial and industrial subscribers by 2031.

Programs included in this assumption are Xcel Energy's Renewable\*Connect® and Windsource® programs.

## How to Measure

Participation in the following programs by residential and commercial and industrial subscribers will be included in measuring progress toward this goal:

- Renewable\*Connect
- Windsource

In addition, any new renewable energy subscription programs created by Xcel Energy where the customer retains the Renewable Energy Credit will be included.

Participation Totals	2019 Baseline	2031 Goal Scenario
<b>Residential</b>	921	2,021
<b>Commercial and Industrial</b>	6	61
<b>Total Subscribers</b>	927	2,082

## 2019 Xcel Energy Programs Included in Baseline

The following Xcel Energy programs were included in business as usual and baseline assumptions.

Program Name	Energy Burden Goal	Residential Energy Efficiency Goal	Commercial and Industrial Energy Efficiency Goal	Renewable Energy Goal
Income-Qualified Home Energy Squad	X			
Income-Qualified Home Energy Savings Program	X			
Income-Qualified Multi-Family Energy Savings Program	X			
Residential Heating		X		
Residential Cooling		X		
Refrigerator Recycling		X		
Home Energy Squad		X		
Smart Thermostat		X		
Efficient New Home Construction		X		
Insulation Rebate		X		
Water Heater Rebate		X		
Whole Home Efficiency		X		
Residential Saver's Switch				
Commercial Refrigeration Efficiency			X	



Program Name	Energy Burden Goal	Residential Energy Efficiency Goal	Commercial and Industrial Energy Efficiency Goal	Renewable Energy Goal
Cooling			X	
Efficiency Controls			X	
Electric Rate Savings			X	
Foodservice Equipment			X	
Heating Efficiency			X	
Lighting Efficiency			X	
One Stop Efficiency Shop			X	
Saver's Switch for Business			X	
Recommissioning			X	
Fluid System Optimization			X	
Custom Efficiency			X	
Turn Key Services			X	
Multi-family Building Efficiency Program			X	
Motor Efficiency			X	
Windsorce				X
Renewable*Connect				X

## APPENDIX D: XCEL ENERGY'S PARTNERS IN ENERGY 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 their 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 held in the community with a planning team committed to representing local energy priorities and implementing plan strategies.



Partners in Energy Process for Success



Resources from Xcel Energy for Implementation

## APPENDIX E: GLOSSARY OF TERMS



**15 x 15:** Xcel Energy’s privacy rule, which require all data summary statistics to 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.

**Carbon-neutral:** Carbon-neutral, also described as “net zero” could include carbon free sources but is broader and refers to energy that removes or avoids as much carbon dioxide as is released over a set period of time. Carbon-neutral is sometimes used to describe a site that produces an excess amount of electricity from a renewable energy source, such as solar, compared to what it consumes. That excess energy is put back into the grid in an amount that offsets the carbon dioxide produced from the electricity it draws from the grid when it is not producing renewable energy.

**Community Data Mapping:** A baseline analysis of energy data in a geospatial (map) format across the community.

**Conservation Improvement Programs (CIP):** Portfolio of approved utility energy efficiency and demand management programs. Minnesota electric utilities have a goal of saving 1.5% of their total energy sales each year via customer conservation efforts. Minnesota natural gas utilities have a goal of saving 0.5% of their total energy sales each year via customer conservation efforts.

**Demand Side Management (DSM):** Modification of consumer demand for energy through various methods, including education and financial incentives. DSM aims to encourage consumers to decrease energy consumption, especially during peak hours or to shift time of energy use to off-peak periods, such as nighttime and weekend.

**Direct Installation:** Free energy-saving equipment installed by Xcel Energy or other organization for program participants that produces immediate energy savings.

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

**Energy Reduction:** The result of behavior changes that cause less energy to be used. For example, setting the thermostat lower *reduces* the energy used in your home during the winter. Since energy reductions can be easily reversed, they are not accounted for when calculating changes in energy usage.

**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.

**Grid Decarbonization:** The current planned reduction in the carbon intensity of electricity provided by electric utilities through the addition of low- or no-carbon energy sources to the electricity grid.

**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 (MTCO<sub>2e</sub>):** A unit of measure for greenhouse gas emissions. The unit "CO<sub>2e</sub>" represents an amount of a greenhouse gas whose atmospheric impact has been standardized to that of one unit mass of carbon dioxide (CO<sub>2</sub>), based on the global warming potential (GWP) of the gas.

**Megawatt (MW):** A unit of electric power equal to 1 million watts.

**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.

**Resilience:** The ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents.

**Recommissioning:** An energy efficiency service focused on identifying ways that existing building systems can be tuned-up to run as efficiently as possible.

**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.

**Trade Partner:** Trade Partners, also known as Trade Allies or Business Trade Partners, are vendors and contractors who work with business and residential customers servicing, installing, and providing consulting services regarding the equipment associated with utility rebate programs. Their support for utility programs can range from providing equipment and assisting with rebate paperwork, to receiving rebates for equipment sold.