city of golden valley

An Energy Action Plan for

Golden Valley

May 2021

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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 utility serving Golden Valley. 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 C: Xcel Energy's Partners in Energy Planning Process.*

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

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INTRODUCTION

Figure 1: Skating rink, hockey rink, and sledding hill at Scheid Park, Golden Valley

Golden Valley is a first-ring suburb of Minneapolis just minutes west of downtown. With its desirable location, ample parks and nature areas, flourishing businesses, and award-winning schools, Golden Valley is proud to support its claim of being one of the best places to live in the Twin Cities metropolitan area. In fact, Golden Valley's destination marketing association promotes the area as "Minnesota's Sweet Spot."

Golden Valley has made great progress planning a healthy, sustainable, and resilient future. The City's 2040 Comprehensive Plan details significant initiatives in the areas of land use, housing, transportation, water resources, parks and natural resources, resilience and sustainability, and economic competitiveness.

More specifically, related to energy and sustainability planning, Golden Valley has actively been engaged in several initiatives, including:

- GreenStep Cities program
- B3 Benchmarking program
- SolSmart program
- City 10-year Capital Improvement Program for Buildings, Equipment, Utilities
- Planned Unit Development Zoning District
- Solar Energy Systems
- Wind Energy Conversion Systems
- Outdoor Lighting

Separate from the initiatives planned by Golden Valley's Energy Action Team, the City has been engaged in several energy efficiency projects that may also contribute to a sustainable, resilient energy future. As these initiatives and ideas become more concrete, we will add their contributions to our greenhouse gas elimination results.

These programs are summarized below in Table 1.

Table 1: Additional Energy Efficiency Initiatives Supported by Golden Valley

Updates to the Statewide Commercial Building Energy Code One of the City's 2021 Legislative priorities is to support the advancement of energy code standards at the state or local level for new commercial buildings. In December 2020, the Department of Labor and Industry and the Department of Commerce released a report titled *Improving building energy efficiency in commercial and multifamily construction*. With input from experts and stakeholders, the report recommends instituting a framework for the statewide commercial building energy code that ensures that all new commercial and large multifamily construction is net-zero by 2036. Legislation will be proposed. The City will monitor this legislation and may consider signing a letter of support.
Hennepin County Efficient Buildings Collaborative This potential initiative brings together the County, Cities, and owners of large buildings to do energy benchmarking. This will help owners understand the efficiency of their buildings in depth and identify opportunities to improve efficiency and save money.
Green Building Guide Considering ways to Incentivize the use of Green Building Guide techniques/materials on residential building permits.
Sustainable Building Policy May explore a policy for new developments and renovations receiving City financial support or resources.

There are also several new ideas that have been generated by the Golden Valley Energy Action Team that are being researched to assess feasibility and projected contribution to our plan's goals. These ideas are listed below in Table 2.

Table 2: Additional Ideas Under Consideration

Incentivizing Golden Valley car dealers to sell more EVs
Incentivizing businesses to add EV Chargers
Incentivizing businesses to add solar
Increasing the number of solar/wind permits issued in GV per year over 10 years
Facilitating a community solar garden for residents and others to buy into.
Analysis of off-site solar subscription options for the City.

Our Engagement & Outreach Process

Creating this Energy Action Plan was a five-month process involving support to help characterize our energy use, identify our energy-related goals, and develop engaging strategies to help us achieve our vision. A series of five online workshops began on August 25, 2020 and ended on January 27, 2021. Our planning team committed to representing local energy priorities in collaboration with City of Golden Valley and Xcel Energy's Partners in Energy. By the numbers, we engaged 13 participants, representing large and small businesses in Golden Valley, a service organization, longtime residents, and community members active in several complementary boards and commissions. We were also fortunate to have a representative from CenterPoint Energy attend our workshops and offer valuable insights at each step of the process. See *Appendix C: Xcel Energy's Partners in Energy Planning Process* for more information about the planning process and Xcel Energy's Partners in Energy.

Why We Want an Energy Action Plan

While Golden Valley's 2040 Comprehensive Plan established a clear vision for the city's future, no specific numerical targets or goals for energy were set in the plan.

In addition, the City has limited resources and expertise to implement its energy initiatives and engage with residents, businesses, and other stakeholders in the community without the knowledge, tools, and assistance from partners like Xcel Energy.

The team was asked early on about why they believed an energy action plan was important. Here are some of their perspectives.

- *The sustainability of our communities and the larger economy depend on reimagining clean energy production and conservation.*
- *A plan will allow the whole to be greater than the sum, meaning the individual work being done toward sustainability and resiliency will have greater resources to create greater change.*
- *People want to save energy and save money and don't always know where to start. Finding examples and roadmaps are helpful.*
- *In the span of current generations, all of us will have to work together to solve climate change for good — we are out of time.*
- *Because educating the community as a whole regarding wise energy use will create more good than sporadic individual efforts.*
- *To help set an example and provide a template for business and residents to use the tools available to become more efficient and sustainable energy users.*
- *It would be irresponsible for us to ignore energy in our efforts to reduce carbon emissions and create a more resilient and sustainable future for our community.*
- *To create a future where all stakeholders benefit, we need to bring in all stakeholders at the planning stage.*

A Note to Readers

We understand that it can be a bit confusing to read through a document like this one, filled with unfamiliar subject material and vocabulary. *Appendix E: Glossary of Terms* is a handy resource to help define any terminology you may find unfamiliar. You will see references to appendixes written to help you understand some of the background as key issues are discussed. Here's a brief recap of each section in this plan.

The first section of the plan, ***Where We Are Now***, provides an overview of Golden Valley's current energy usage, explaining the differences in consumption between residential and commercial/industrial users.

The next section, ***Where We Are Going***, shares our vision for Golden Valley's energy future along with the focus areas where we will concentrate our efforts.

Having shared our vison and focus areas, the next section, ***Goals***, sets measurable targets for our plan including the timeline for its completion.

Next is the largest of the sections, ***How We Are Going To Get There***. This is where you'll find a review of the strategies to be used within each of the focus areas, along with a discussion of tactics, an overview of how the plan will evolve over time, and a recap of the anticipated impact of the plan.

And finally, ***How We Stay On* Course**, rounds out the plan with an explanation of the ways that the City and Partners in Energy will work together to implement the plan during the implementation phase of our Partners in Energy relationship.

This plan is structured so that it answers five questions that are critical for making certain that we've considered all the issues needed for a plan that creates the results that we want. Those questions align with terms that may be familiar to you. Occasionally, these terms may be used differently by different organizations.

Table 3, below, should help you navigate through the document more easily.

Table 3: Plan Structure

	Where does it fit in the plan?	Where is it discussed in this document?
1. What should Golden Valley's energy future look like?	VISION	***Where We Are Going*** Page 13
2. How will we know if we are successful?	GOALS	***Goals*** Page 17
3. How will we focus our efforts to achieve our goal?	FOCUS AREAS	***How We Are Going To Get There*** Page 18
4. What can we do to maximize the impact of this focus area?	STRATEGIES	
5. What will we do to deliver on the strategy?	TACTICS	

WHERE WE ARE NOW

Figure 2: Golden Valley City Hall

An integral part of the Partners in Energy planning process is reviewing historic energy data that informs our community's energy baseline. Xcel Energy and CenterPoint Energy provided data on energy use, participation counts, and utility energy conservation program savings for Golden Valley as detailed in the following sections. See *Appendix A: Baseline Energy Analysis* for a comprehensive picture of Golden Valley baseline energy data. Also, see *Appendix E: Glossary of Terms* for any needed clarifications on energy vocabulary.

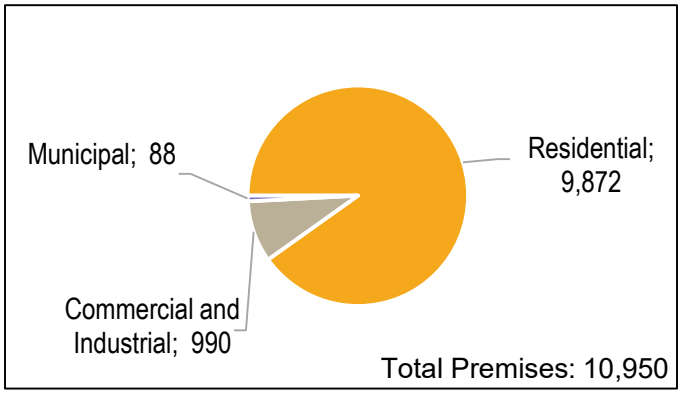
Energy Use

Golden Valley's electricity and natural gas are consumed by 9,872 residential premises and 990 commercial or industrial premises.[1] There are also a small number of municipal premises, the impact of which is minimal by comparison. Municipal premises are not included for analysis in the plan moving forward.

While there are far fewer commercial and industrial premises in Golden Valley compared to residential, their share of energy consumption is quite high.

Commercial and Industrial premises account for less than 10% of all premises in Golden Valley, but they use 76% of all electricity and 58% of all natural gas

Figure 3: Golden Valley Premises by Type



[1] A "premise" is defined as a unique combination of service address and meter. More detail is available in *Appendix E: Glossary of Terms*.

consumed, demonstrating their crucial role in improving energy efficiency and avoidance of greenhouse gas emissions.

Figure 4: Golden Valley Natural Gas Consumption by Sector

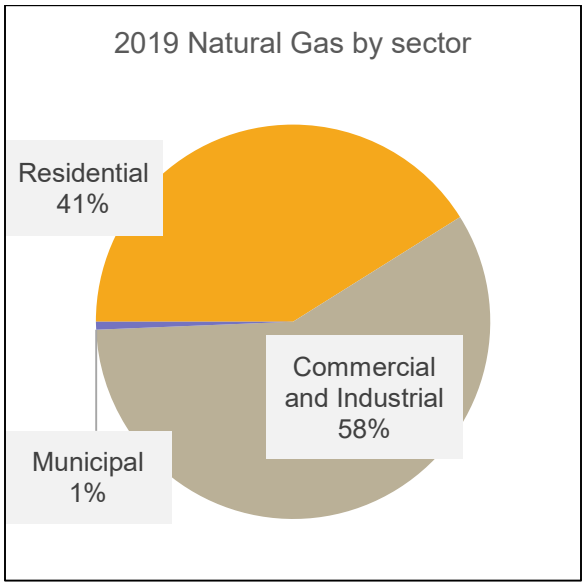
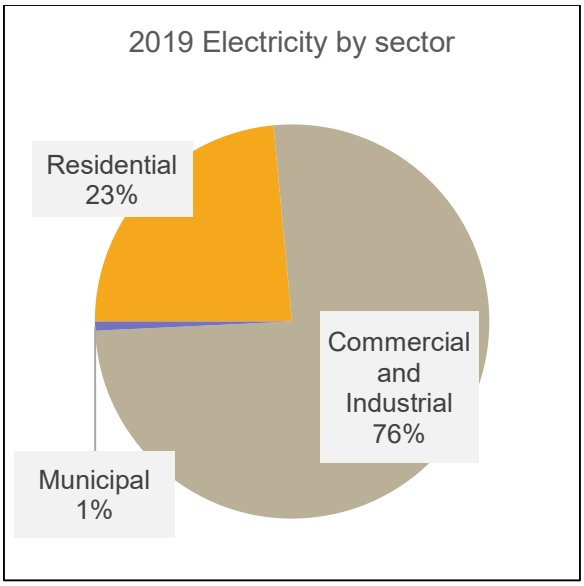
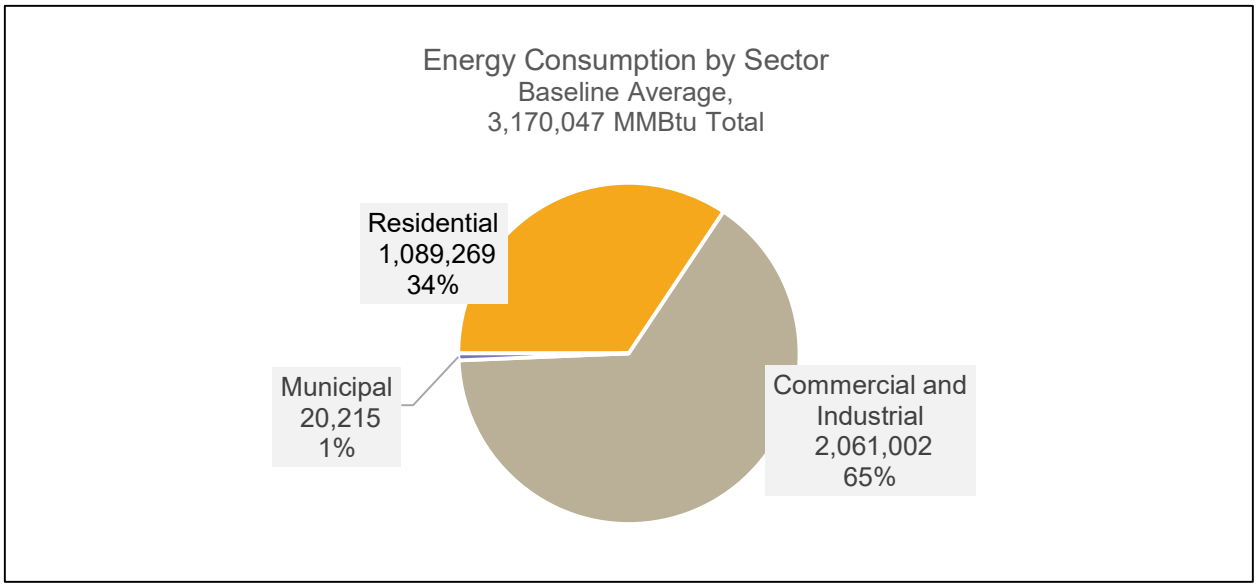


Figure 5: Golden Valley Electricity Consumption by Sector



Using British thermal units to consider energy use by sector with an equivalent measure, the commercial and industrial sector clearly consumes most of the energy in Golden Valley. Accomplishing the goals of this plan will require a team effort, with consistent effort to reduce energy consumption among residents and businesses alike. Relying solely on one sector for progress is simply not feasible. Also, while municipal consumption is small by comparison, it will remain critical for the City to demonstrate leadership, continuing to capitalize on efficiency opportunities, reduce consumption, and promote and develop renewable energy where possible.

Figure 6: Golden Valley Baseline Energy Consumption (MMBtu)



Greenhouse Gas Emissions

During the three-year baseline period (2017, 2018, and 2019), greenhouse gas emissions resulting from Golden Valley's consumption of electricity and natural gas averaged 226,090 metric tons of carbon dioxide equivalent ($MTCO_2e$) annually.[2] The balance of residential compared to commercial and industrial sources of greenhouse gas emissions reflect the commercial and industrial sector's substantial energy consumption and vital importance to efforts to successfully reduce emissions and improve efficiency.

Figure 7: Baseline Greenhouse Gas Emissions by Energy Type

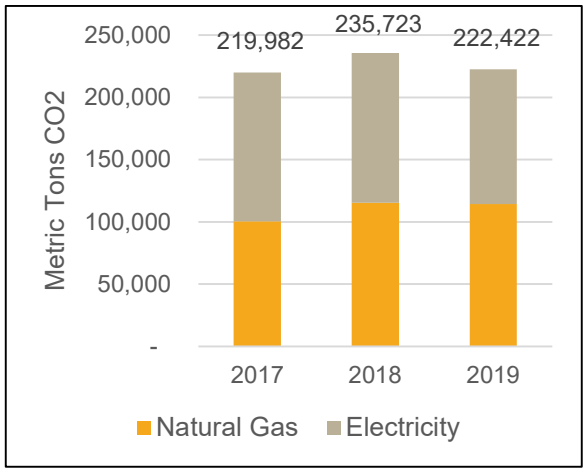
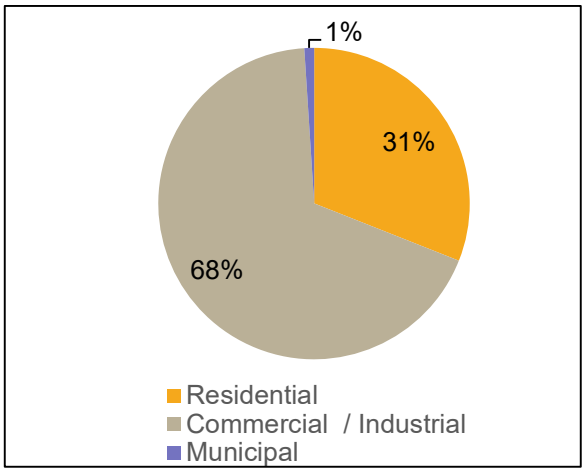


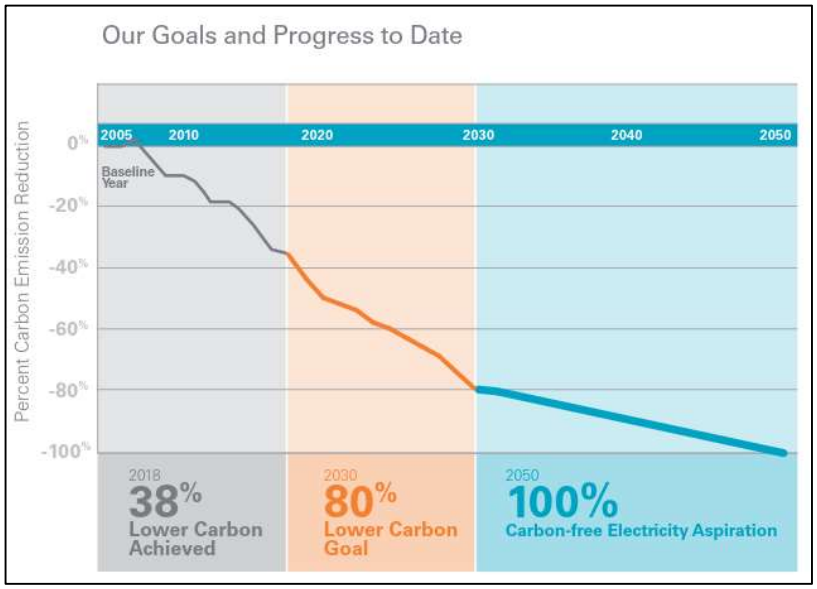
Figure 8: 2019 Greenhouse Gas Emissions by Premise Type



[2] See *Appendix E: Glossary of Terms* for more detail on the $MTCO_2e$ abbreviation.

Many factors influence changes in greenhouse gas emissions from consumption of electricity and natural gas from year to year, such as changes in weather impacting the demand for cooling and heating each year. Most notably, Xcel Energy has set a goal to serve customers with 100% carbon-free electricity by 2050. As Xcel Energy adds more carbon-free energy sources to the fuel mix, including wind and solar energy, greenhouse gas emissions generated from the production of the electricity consumed will decline. See Figure 9 showing how Xcel Energy's emissions reduction plan through 2050 and visit xcelenergy.com/carbon to learn more.

Figure 9: Xcel Energy's Carbon Reduction Plan



CenterPoint Energy is also pursuing several major new clean energy initiatives in Minnesota to reduce greenhouse gas emissions attributed to the natural gas sector. See *Appendix F: CenterPoint Energy overview of greenhouse gas mitigation projects* for more information.

Renewable Energy

Support for renewable energy in Golden Valley is represented in several different ways. Subscription programs offer the opportunity to support renewable energy and avoid the expenses of equipment, installation, maintenance, and depreciation. On-site and community solar offer a different menu of benefits, and Golden Valley residents also see value in these options. Table 4 illustrates how Golden Valley residential and commercial and industrial premises support renewable energy.

Table 4: 2019 Golden Valley Renewable Energy Use[3]

Renewable Energy Program	Residential	Commercial & Industrial
Windsource®		
Subscriber Count	570	8
Total Annual Electricity Subscribed (kWh)	1,996,338	9,203,491
Percentage of Sector Electricity Use	3%	4%
Renewable*Connect®		
Subscriber Count	48	1
Total Annual Electricity Subscribed (kWh)	373,934	104,532
Percentage of Sector Electricity Use	1%	<1%
Solar*Rewards®**		
Participant Count	52	71
Total Annual Electricity (kWh)	268,253	338,484
Percentage of Sector Electricity Use	<1%	<1%
Solar*Rewards Community®**		
Participant Count	259	11
Total Annual Electricity (kWh)	1,501,667	9,226,027
Percentage of Sector Electricity Use	2%	4%
Total Renewable Energy Support		
Subscriber / Participant Count	929	91
Total Annual Electricity (kWh)	4,140,192	18,872,534
Percentage of Sector Electricity Use	6%	8%

Importantly, these data do not reflect any purchases of renewable energy from outside of Xcel Energy's service territory, which accrue to the benefit of large enterprises headquartered in Golden Valley. We are aware anecdotally of this behavior, but, since data privacy regulations only allow analysis of aggregated data, it's not feasible to identify the extent to which this arrangement exists.

Program Participation & Savings

Residential and commercial and industrial premises in Golden Valley participate in several efficiency programs offered by their utilities. Most usage of efficiency programs, and most of the savings, are concentrated in a small number of the many available options.

Of the nearly 40 residential energy efficiency programs offered by Xcel Energy, there are five which account for 94% of annual electricity efficiency improvements.

[3] Data note: 2019 participation, Xcel Energy programs only, classification done by community facilitators

Similarly, six programs targeted at commercial and industrial premises account for 88% of energy efficiency improvements in the sector.

Table 5: Baseline Average Annual kWh Savings by Residential Program

Residential Program	kWh Saved
Residential Heating	116,146
Residential Cooling	67,534
Home Energy Squad®	52,038
Refrigerator Recycling	47,528
Multi-Family Energy Savings	12,389
"Big 5" Average Annual Savings	295,635
% of Total Annual kWh Savings	**94%**

Table 6: Baseline Average Annual kWh Savings by Commercial and Industrial Program

Commercial and Industrial Program	kWh Saved
Lighting Efficiency	2,870,039
Energy Design Assistance	893,642
Small Business Lighting	827,721
Efficiency Controls	686,558
Recommissioning	487,853
Data Center Efficiency	452,552
"Big 6" Average Annual Savings	6,218,365
% of Total Annual kWh Savings	**88%**

WHERE WE ARE GOING

Figure 10: Basset Creek, Golden Valley

Energy Vision Statement

During the planning process, the Energy Action Team created a vision statement for this Energy Action Plan.

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

Golden Valley will be a more sustainable and resilient community where the benefits of using and sourcing energy wisely accrue equitably to every resident, business, and visitor.

Focus Areas

To achieve a community-wide commitment to energy stewardship, the Energy Action Team identified the following focus areas to prioritize strategies and resources:

- Reducing high energy cost burden
- Improving energy efficiency
- Supporting clean energy

These focus areas are the most logical choices to reflect the team's priorities as stated in the energy action plan vision. They are broad in scope largely due to challenges and opportunities that Golden Valley is facing, and the strategies we use to support them will deliver focused results designed to accomplish our goal.

Reducing High Energy Burden

The U.S. Department of Energy defines energy burden as the percentage of gross household income spent on energy costs. The American Council for an Energy Efficient Economy (ACEEE) defines percentages of gross household income that constitute high or severe energy burden at 6% and 10%, respectively.[4]

According to the Department of Energy's five-year running average data, Golden Valley has more than 750 households experiencing an energy burden of 15%.[5] Another 1,271 households are reported experiencing 5% energy burden, nearly at ACEEE's high-burden benchmark. Perhaps the easiest approach to putting this in perspective is that roughly one in five Golden Valley homes are either very close to high energy burden or well past it. It should be noted that these data were collected prior to the COVID-19 pandemic[6]. As the Department of Energy updates this information, we can expect the pandemic's influence on household income to come into sharper focus.

Figure 11: Golden Valley Energy Burden by HH % of State Median Income

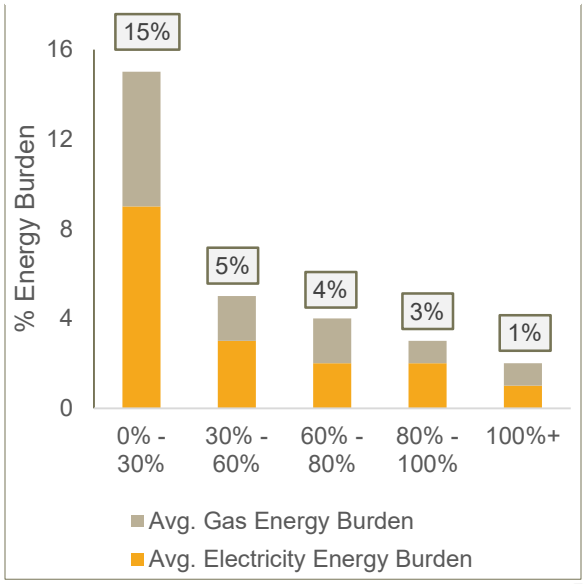


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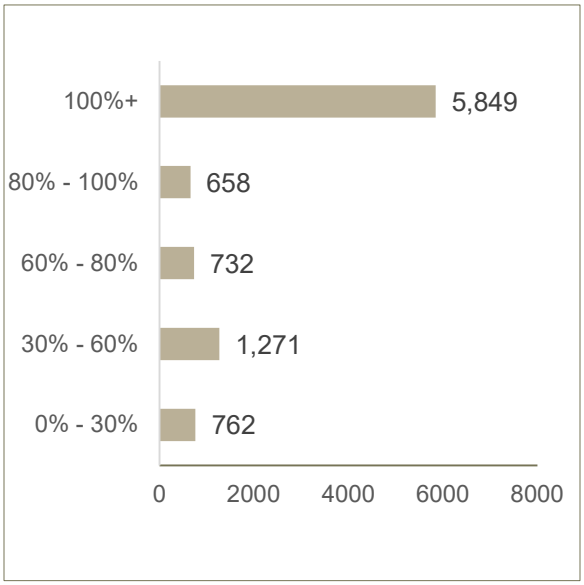
Figure 12: Golden Valley Number of Households by % of State Median Income



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While Figure 11 above illustrates the average energy burden *per household,* the issue comes into clearer focus looking at the number of households in each of these income segments. As

[4] https://www.aceee.org/sites/default/files/pdfs/ACEEE-01%20Energy%20Burden%20-%20National.pdf

[5] https://www.energy.gov/eere/slsc/maps/lead-tool?mapSearchInput=Golden+Valley#

[6] According to the Census ACS 1-year survey, the median household income for Minnesota was $74,593 in 2019.

[7] https://www.energy.gov/eere/slsc/maps/lead-tool?mapSearchInput=Golden+Valley#

[8] Ibid

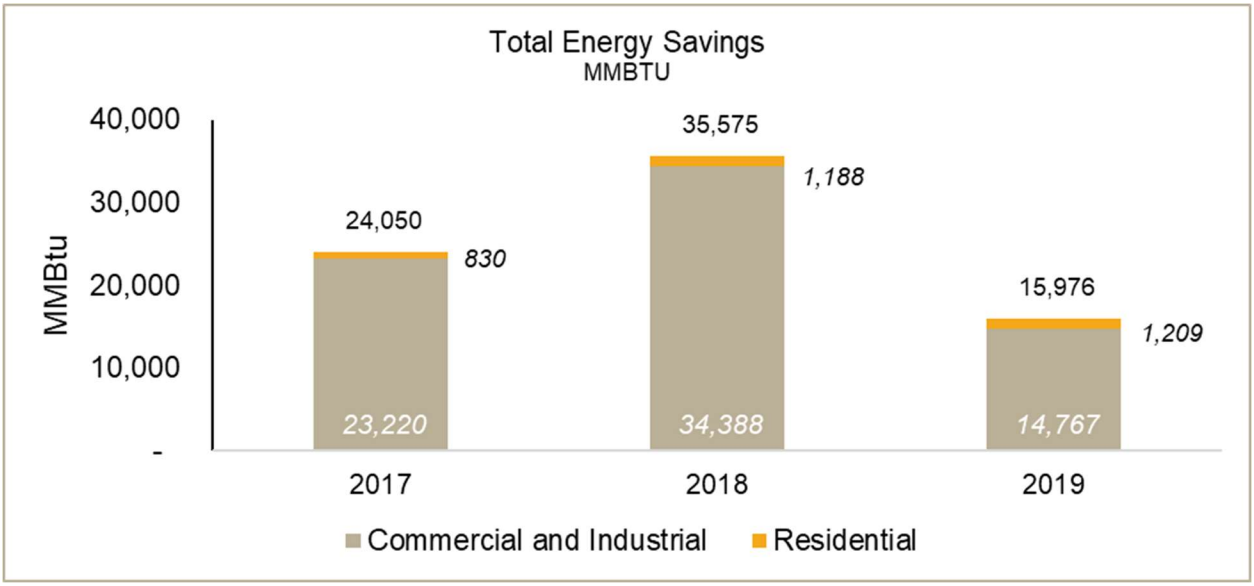
Figure 12 illustrates, Golden Valley is fortunate in that severe energy burden is faced by a relatively small percentage of all households in the City, but the fact remains that likely more than 1,000 Golden Valley households are experiencing high or severe energy burden today.

Improving Energy Efficiency

The notion of wise, thoughtful energy use in the vision statement has been a key element motivating Golden Valley's Energy Action Team. Using energy efficiently is crucial to making meaningful progress toward reducing greenhouse gas emissions over the next 10 years. In fact, it is the most cost-effective greenhouse gas mitigation method available.

Figure 13 below illustrates that residential energy efficiency savings have been at a steady state for two of Golden Valley's baseline years, while commercial and industrial energy savings have varied year to year. This is a common condition due to the greater variety of commercial and industrial energy users and their unpredictable usage of available energy efficiency programs.

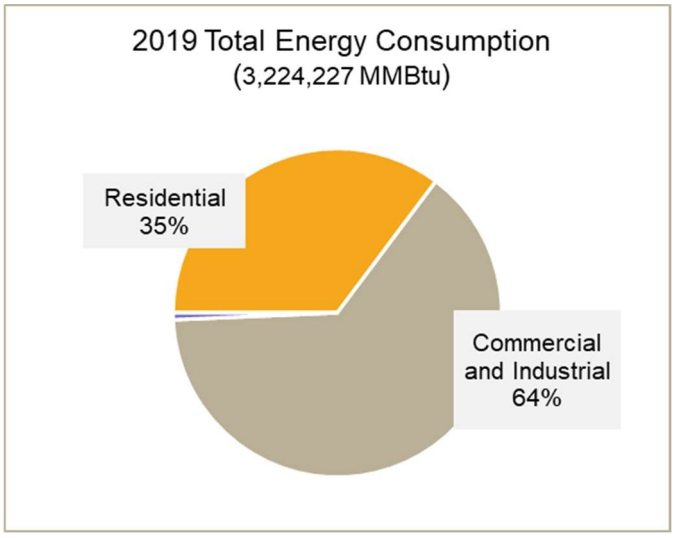
Figure 13: Golden Valley Total Energy Savings by Sector



Commercial and industrial energy users in Golden Valley will be crucial to accomplishing our energy efficiency goals. Figure 14 illustrates the large share of total energy consumed in the sector. While commercial and industrial users are difficult to predict, even modest improvements in efficiency program participation can deliver impressive results.

Most savings in this sector are driven by participation in a relatively small number of programs. See Table 6 above on page 13. These few programs also tend to

Figure 14: Golden Valley Energy Consumption by Sector



deliver the greater savings per premise than their less popular counterparts. By focusing on these programs, we'll be able to increase participation while maximizing energy savings. Attempting to improve participation in less popular programs runs the risk of improving activity levels at the expense of maximizing savings.

Supporting Clean Energy

While the subjects of sustainability and resilience are far broader than the scope of this energy action plan, our team understood a clear connection between those ideas and support for clean energy in Golden Valley. Clean energy supports sustainability and resilience whether it's considered in a broad context or one more limited to the boundaries of Golden Valley.

Xcel Energy has made commitments to reduce carbon-based fuels and increase its use of clean energy sources for electricity generation, ultimately pledging to be 80% carbon neutral by 2030 and 100% carbon neutral by 2050.[9] This historic change in the way electricity is generated contributes significantly to mitigation of the impacts of greenhouse gasses in our atmosphere, helping to create a more sustainable climate well into the future. CenterPoint Energy's goals include a 70% reduction by 2035 in operational carbon emissions and a 20%–30% reduction by 2035 in emissions attributable to natural gas used by customers.[10]

Closer to home, as Golden Valley homes and businesses embrace clean energy by supporting renewable sources of generation, each one adds not just to a sustainable climate, but also to a more resilient community. Whether via subscription, on-site, or in proximity as with solar gardens, using renewable energy builds resilience, reduces our commitment to finite fuel sources, and creates a resilient power source more capable of delivering energy in the event of disruption of our infrastructure.

[9] Learn more at https://www.xcelenergy.com/carbon_free_2050

[10] https://www.centerpointenergy.com/en-us/Documents/Sustainability/Carbon-Policy-Fact-Sheet_MN.pdf

GOALS

Figure 15: Brookview Pond, Golden Valley

Working together, the Team set goals for each focus area to measure success. They are challenging, and meeting their potential is not guaranteed. Despite the challenge, we believe these are the right goals, because our opportunity is so great.

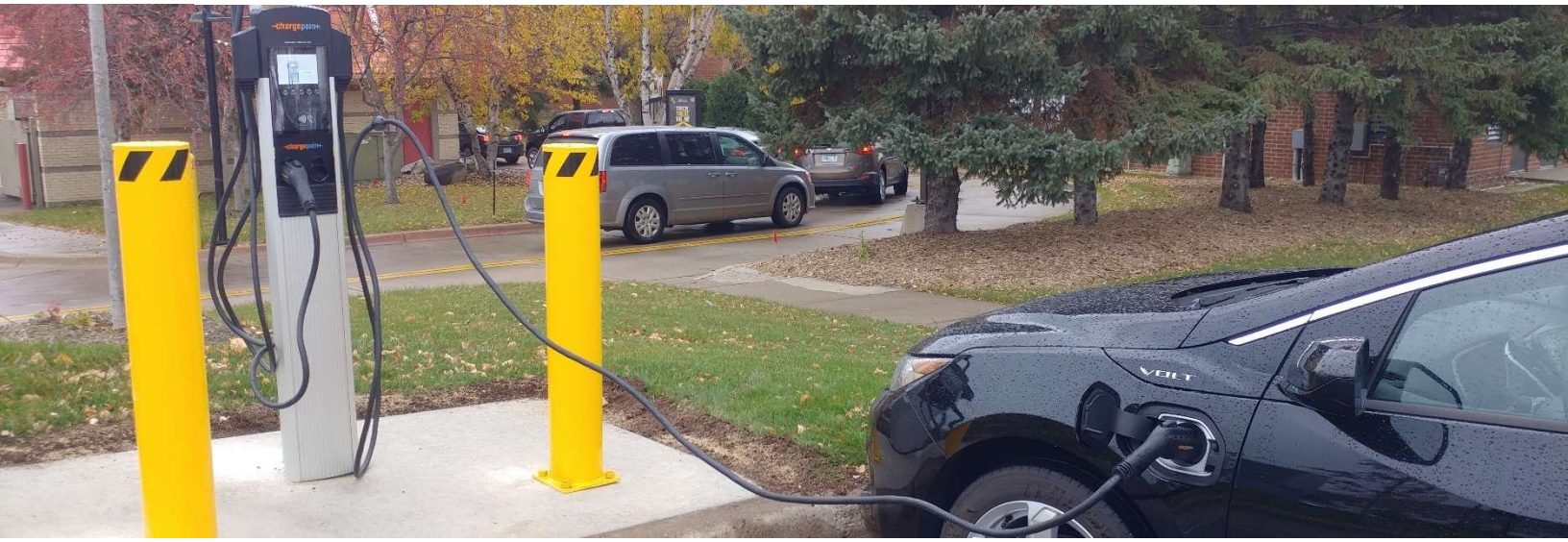
Eliminate 65,000 tons of greenhouse gas emissions through electricity and natural gas savings in Golden Valley in the next 10 years — exclusive of Xcel Energy's grid decarbonization efforts. A reduction of approximately 30% vs. baseline.

Add an estimated $8.8 million in first year energy savings to Golden Valley's economy in 10 years with savings that residents and businesses will see from more efficient use of energy.

Help Golden Valley households most severely impacted by the costs of energy. We will both make certain that these households are aware that help is available and help them to navigate the steps necessary to get the help they need.

HOW WE ARE GOING TO GET THERE

Figure 16: Electric Vehicle Charging in Golden Valley



Focus Area: Reducing High and Severe Energy Burden

Strategy 1: Locate High Energy Burden Households

Description

Our first challenge is to locate households in Golden Valley who are confronting high and severe energy burden. We will use a variety of tactics to develop a profile identifying households with a high propensity to be energy burdened:

- Outreach to school social workers in Golden Valley will allow us to send messaging home with students receiving free or reduced meal benefits.
- Analysis conducted by Golden Valley's mapping specialist has identified homes in Golden Valley valued at $200,000 or less that are at least 60 years old and have not been issued a building permit in 30+ years.

Early outreach to social service organizations in Golden Valley has also indicated that language barriers may be substantial. In addition to English and Spanish, we have learned that a number of these organizations' clients speak Russian as their primary language.

Target Audience

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

- High energy burden household income
  High energy cost burden is defined as home energy costs amounting to more than 6%

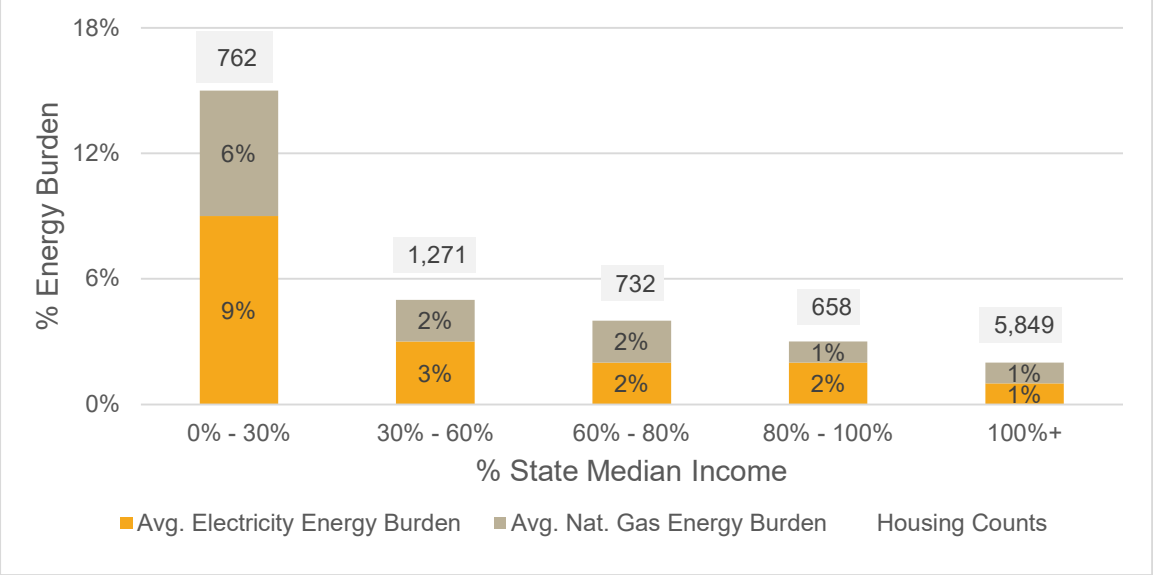
but less than 10% of monthly household gross income. As Figure 17, below, indicates, average energy burden for the 1,271 households in the 30%–60% of state median income cohort is 5%. Presuming a standard distribution, we can hypothesize that close half of that group is at or above 6% energy cost burden (636 homes).

Since the 60%–80% cohort in Figure 17 shows an average energy burden of 4%, we presume that few, if any, in this group are experiencing high energy cost burden.

In 2019, Minnesota's median household income was $74,593.[11] Thus, we expect household income among high energy cost burdened households to be no more than $44,756 (60% of $74,593).

- Severe energy burden household income
  Similarly, Figure 17 indicates that severely energy cost burdened households will have annual income less than 30% of the state median income, or $22,378 — which is $1,865 monthly ($11.65 per hour for four 40-hour weeks).
- Scope
  As illustrated in Figure 17, the U.S. Department of Energy estimated 762 severely energy-burdened households in Golden Valley in 2018. Another 1,271 were at or approaching high energy burden.[12] While the overall average energy burden in Golden Valley is typical of similar communities, this data illustrates that over 10% of Golden Valley households are confronting the challenges of high or severe energy burden.

Figure 17 - Golden Valley Energy Burden and Housing Counts



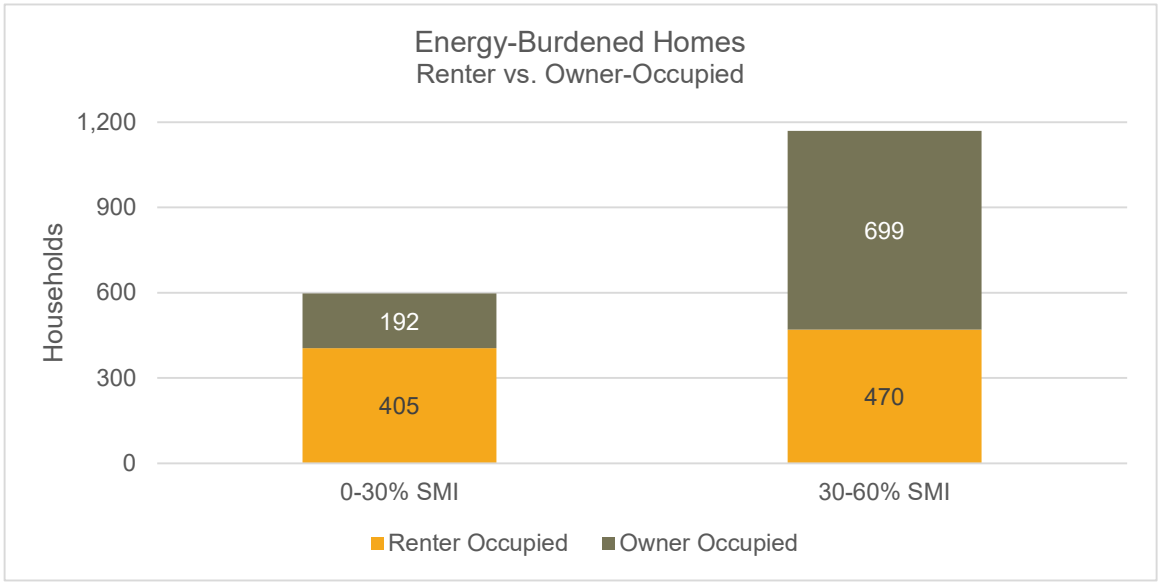
[11] https://data.census.gov/cedsci/table?q=Minnesota%20State%20Median%20Income&tid=ACSST1Y2019.S1901&hidePreview=false
[12] https://www.energy.gov/eere/slsc/maps/lead-tool

Apart from objective demographic measures, there are also likely to be conditions in these households that will complicate this task. 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. Additionally, working multiple shifts of the day makes it more difficult to connect with financial decision makers during business hours.

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

According to the Department of Energy's research, half of the households experiencing energy burden are owner-occupied.[13] Given our understanding of the age distribution in Golden Valley (21.7% over 65[14]), we hypothesize 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 below.

Figure 18: Golden Valley Energy Burden: Housing Counts, Renter vs. Owner-Occupied



Desired Outcomes

Our short-term goal is to build a reliable process for locating households likely to benefit from the resources available. During the first 18 months of implementation, with assistance from Xcel Energy's Partners in Energy, we will build a process to identify likely energy-burdened households using:

- Outreach to social service organizations serving this community in Golden Valley;

[13] https://www.energy.gov/eere/slsc/maps/lead-tool US Dept. of Energy Low-Income Energy Affordability Data (LEAD) Tool Data (housing only) comes from the U.S. Census Bureau's American Community Survey 2018 Public Use Microdata Samples.
[14] 2019 ACS Five-Year Estimates Subject Tables

- Partnering with organizations delivering energy-related resources to these households (e.g., Hennepin County Community Action Partnership); and
- Local publicity.

Resources

City of Golden Valley's current Minnesota GreenCorps member, Story Schwantes, has been a valuable resource already, beginning the hard work of contacting organizations, building relationships, and partnering with City resources for assistance. Her engagement with the City ends this summer. Further development and maintenance of this initiative requires full-time focus that cannot be accomplished by volunteers.

Roles and Responsibilities

Partners in Energy will provide communication materials to help familiarize stakeholder groups with this initiative and motivate their support. Should Golden Valley's Communications group lack bandwidth to support local social media and other publicity tasks, Partners in Energy will provide support in this area as well.

As the restrictions of the pandemic ebb, the City of Golden Valley and the Energy Action Team anticipate opportunities to conduct tabling events in high-likelihood neighborhoods and will identify volunteer support to implement this tactic.

Timeline

Beginning in June 2021, the City and Partners in Energy will begin implementing a publicity plan to facilitate this strategy. Success will be measured by requests for information from potential clients during the first six months of the plan. 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 candidate households on an ongoing basis to build a pipeline of likely clients.

Strategy 2: Educate Clients

Description

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

Target Audience

We also 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. Early research conducted by Golden Valley's Minnesota GreenCorps member indicated that there are many Russian speakers among clients of social service organizations.

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 counseled individually, and percentage of those counseled who take advantage of some or all of the help available.

Resources

Outreach will use several different techniques, including targeted mailings in high likelihood neighborhoods, publicity channels available through the City, and partnering with local social service organizations. Printed materials will be needed to support outreach available in English, Spanish, Russian, 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.

Roles and Responsibilities

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

Timeline

We expect to begin this process as a natural progression from Strategy 1, above. As opportunities present themselves, we will begin educational outreach, with progress seen before heating season begins in fall of 2021. One-on-one education offerings will likely be replaced by small group meetings as the pandemic subsides and awareness of this offering spreads.

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 Hennepin County Community Action Partnership, clients will be encouraged to take advantage of the Home Energy Savings Program or Multi-Family Energy Savings Program via their landlords.

Target Audience

More of a psychographic than demographic insight, we hypothesize that many potential beneficiaries may not be able to successfully navigate the processes necessary to receive help. Whether it's work schedules, language barriers, or other limited capabilities, one of the largest impediments to getting help can be the process of asking for it.

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 be overcome with the assistance of someone to navigate the process with them.

Resources/Communication Channels

This is "high-touch" strategy that will require tenacious follow-up and advocacy on the part of a designated individual or group within city government, supported by a small group of volunteers.

Roles and Responsibilities

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

Timeline

This will be an ongoing initiative that begins as education efforts begin to become productive and motivate these households to get help.

Focus Area: Improving Energy Efficiency

Strategy 4: Conduct Residential Outreach

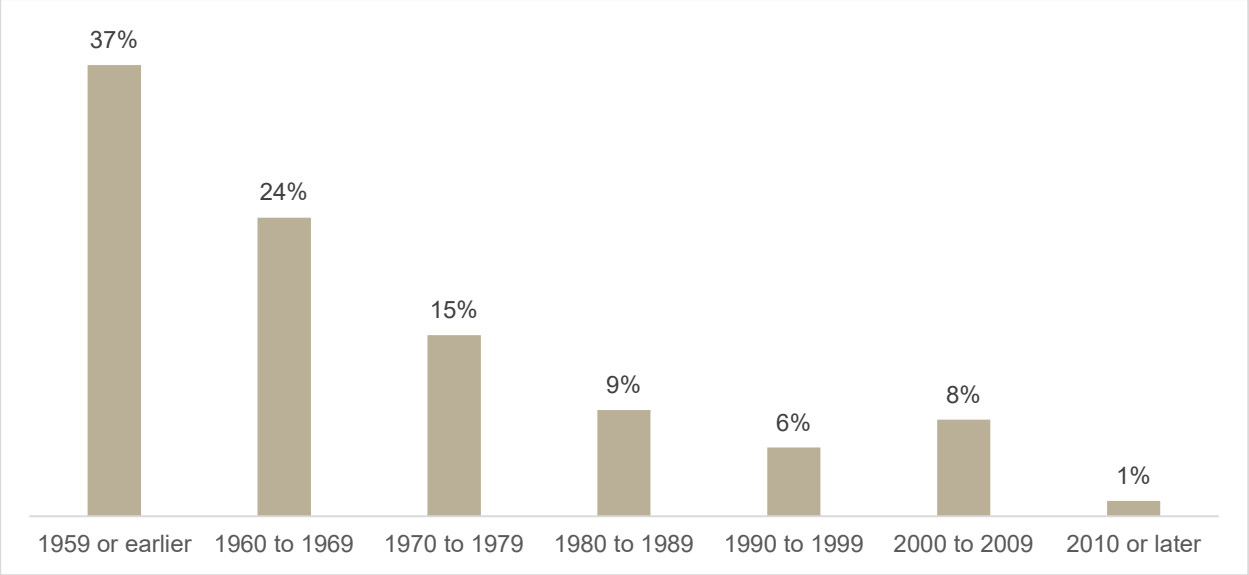
Description

This strategy will prioritize outreach with energy efficiency opportunities to the homes in Golden Valley most likely to benefit. Over time, outreach will extend to additional homes in the order of the benefits to be gained.

Target Audience

Homes in Golden Valley will be prioritized based upon age. With so many homes built long before energy efficiency initiatives were included in building codes (61% built before 1970), there is ample opportunity to help homeowners make changes and improvements that will have a significant impact on their energy usage, energy costs, and comfort at home.

Figure 19: Golden Valley Homes: Percentage Built by Decade



Desired Outcomes

This strategy, and most in the energy efficiency focus area, uses historical participation rates in various utility-sponsored efficiency programs as a baseline from which to set goals and desired outcomes. We also have analyzed those programs that have the greatest efficiency potential and prioritized them for greater activation.

Figure 20: Highest potential residential energy efficiency programs

Residential Programs

- Xcel Energy and CenterPoint Energy Home Energy Squad
- Xcel Energy Refrigerator Recycling
- Xcel Energy Residential Cooling
- Xcel Energy Residential Heating
- CenterPoint Low-Income Weatherization
- CenterPoint Home Insulation Rebates
- CenterPoint Home Efficiency Rebates
- CenterPoint DIY Home Efficiency

We are targeting each the programs listed above for 2.5% growth in annual participation between 2021 and 2031. Our plans presume participation in other residential energy efficiency programs at baseline average rates.

Table 7: Key Residential Efficiency Programs — Annual Participation Targets

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Home Energy Squad	41	42	43	44	45	46	48	49	50	51	52
Refrigerator Recycling	62	64	65	67	68	70	72	74	76	77	79
Residential Cooling	191	196	201	206	211	216	222	227	233	239	244
Residential Heating	173	177	182	186	191	196	201	206	211	216	221
CenterPoint Low-Income Weatherization	2	2	2	2	2	2	2	2	2	2	3
CenterPoint Home Insulation Rebates	16	16	17	17	18	18	19	19	19	20	20
CenterPoint Home Efficiency Rebates	367	376	386	395	405	415	426	436	447	458	470
CenterPoint DIY Home Efficiency	105	108	110	113	116	119	122	125	128	131	134

Resources

Targeted communication, focusing on the residents most likely to benefit from each program will be important to delivering our desired participation rates. Additionally, the City may want to consider incentivizing participation in Home Energy Squad as a number of other communities have done recently. This is a very effective technique for creating more interest and participation.

Inexpensive communication channels with broad coverage, such as Golden Valley's social media capabilities, can be used as a foundation for the communication plan, but there will need to be focused outreach to build awareness among several subgroups. Groups less likely to use social media, or groups that use social media in a limited context, may miss Golden Valley's digital outreach altogether.

Analog media (newsletters, postcards, handouts, flyers, tabling, etc.) will be a necessary element of the communications plan to adequately publicize these efficiency opportunities to less digitally engaged residents.

Roles and Responsibilities

Partners in Energy will create materials to be used in these outreach initiatives, both for digital and analog media opportunities. City of Golden Valley will be responsible for adequately engaging with residents who are difficult to reach.

Timeline

Outreach can begin shortly after commencement of the plan's implementation phase. Since interest in residential energy efficiency peaks during heating season, outreach will focus on concentrated messaging during three periods (heating season kickoff, holidays at home, and "worst of winter") These initiatives will continue annually, expanding to more recently built neighborhoods throughout the duration of the plan.

Efficiency messaging and opportunities to participate in a variety of efficiency and rebate programs will be scheduled during spring, summer, and early fall.

Strategy 5: Conduct Business Outreach

Description

This strategy will prioritize outreach with energy efficiency opportunities to the businesses in Golden Valley that may not have been able to maximize energy efficiency in the same ways that many larger businesses in Golden Valley have. When commercial and industrial premises reach a threshold level of energy consumption, they gain access to additional services from their utilities to help them use energy efficiently. Additionally, many large enterprises have full-time staff fully dedicated to maximizing operating efficiency.

Relatively smaller firms still use a substantial amount of energy and can benefit from efficiency programs offered by utilities. In many circumstances, greater use of these programs is simply limited by lack of awareness. We see strong opportunity to improve efficiency for this cohort, which offers benefits not simply in terms of energy efficiency but also in enhanced profitability for participants as well.

Target Audience

Like many communities, there is a wide disparity between the largest and smallest commercial and industrial energy users. Looking at these premises by quintile, clustering commercial and industrial premises into five groups from the largest to the smallest, shows that the largest users are currently using, and saving a disproportionate share of energy in this sector.

Figure 21: Top 20% of Golden Valley C/I premises use 90% of sector electricity

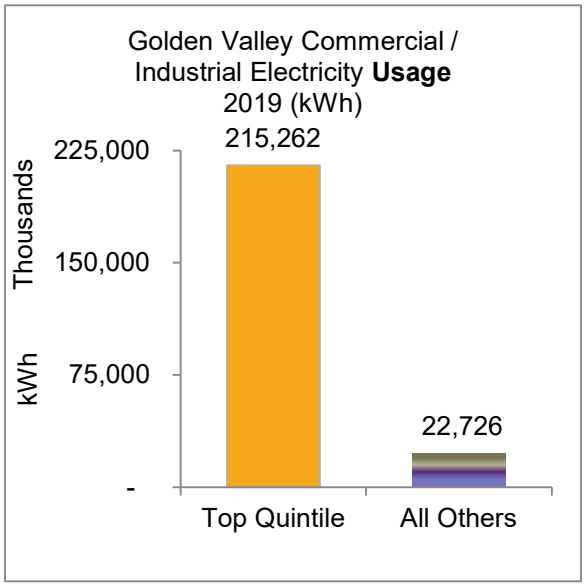
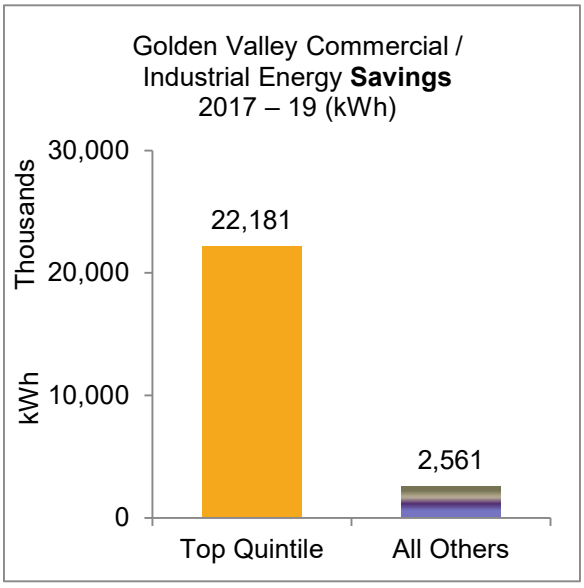


Figure 22: Top 20% of Golden Valley C/I premises benefit from 90% of sector electricity savings



The remainder of users represent 830 of the 1,038 commercial and industrial premises in Golden Valley. While we expect that the largest quintile will continue to deliver savings over time at rates similar to their past behaviors, we see great potential to improve efficiency among those in the "all others" category.

Desired Outcomes

This strategy also uses historical participation rates in various utility-sponsored efficiency programs as a baseline from which to set goals and desired outcomes. We also have analyzed those programs that have the greatest efficiency potential and prioritized them for greater activation.

We are targeting each the programs listed below for 2.5% growth in annual participation between 2021 and 2031. Our plans presume participation in other commercial and industrial energy efficiency programs at baseline average rates.

Figure 23: Targeted Business Programs

Business Programs
Xcel Energy Cooling Efficiency
Xcel Energy Lighting Efficiency
Xcel Energy & CenterPoint Energy Multi-Family Building Efficiency
Xcel Energy Small Business Lighting
CenterPoint C&I Rebates

Table 8: Key Business Efficiency Programs — Annual Participation Targets

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Cooling Efficiency	12	13	13	13	14	14	14	15	15	15	16
Lighting Efficiency	71	72	74	76	78	80	82	84	86	88	91
Multi-Family Building Efficiency	1	1	1	1	1	1	1	1	1	1	1
Small Business Lighting	42	43	44	45	46	48	49	50	51	52	54
CenterPoint Rebates	98	101	106	111	117	123	129	135	142	149	156

Resources

We will leverage relationships with community connectors such as the Golden Valley Business Council, TwinWest Chamber of Commerce, and Rotary Club of Golden Valley to facilitate communications with our target audience. Outreach in the form of newsletters via the Chamber and any other available lists of businesses in Golden Valley will create reliable channels for publicizing opportunities and celebrating beneficiaries of these programs.

Roles and Responsibilities

Partners in Energy will prepare communications materials for use during outreach in support of this strategy. Xcel Energy may be able to email appropriate customers for this initiative as well. The City of Golden Valley and Energy Action Team volunteers will be responsible for conducting outreach, hosting meetings, and building relationships with local businesses through the organizations listed above in the Resources section.

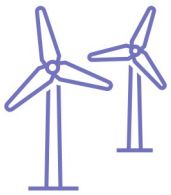
Timeline

Outreach will begin as soon as the implementation plan is approved. The Energy Action Team was quite clear about the long lead times that often are associated with a business's capital improvements. We expect to build some "quick wins" with concentrated efforts to publicize business efficiency programs to many who may simply be unaware of their opportunities, paired with longer-term activities as well.

Focus Area: Supporting Clean Energy

Strategy 6: Subscription Options

Description



Encouraging residential and business support of renewable energy is foundational to the success of this plan, and promoting renewables is likely to be the most easily adopted way to do so. We will leverage the advantages of renewable subscriptions including the simplicity of joining programs like Windsource® and more significantly, the participants' ability to avoid the upfront expense of purchase and installation of on-site alternatives, along with ongoing maintenance and eventual replacement of equipment.

Target Audience

Residents will be encouraged to make a small monthly commitment to Golden Valley's Energy Action Plan goals by purchasing some or all their home electricity via Windsource. For as little

as an additional $5 per month, families can join their neighbors in making real progress toward a clean energy future.

Small and medium-sized businesses in Golden Valley will be encouraged to participate in Windsource as a part of either their brand reputation strategies or simply as a tangible goodwill investment in their reputation as valuable members of Golden Valley's business community. There is ample evidence that support for renewable energy is fast becoming an attractive brand attribute. During our workshops, we learned that many new apartment complexes use rooftop solar arrays, not only because they may save money, but because they appeal to potential renters.

Tactics under consideration

During brainstorming activities conducted as part of Partners in Energy Workshops, Energy Action Team members contributed the following ideas. These will be included in our implementation plans.

- **Conduct an outreach campaign promoting the benefits of renewable energy subscriptions**. Use City communication channels and social media and consider a neighborhood-based challenge to hit target sign-ups. To help promote the campaign, the City could consider paying the first month of the subscription up to a cap or offer a gift card for every 10 other Golden Valley residents you refer.
- **Launch a student video contest to promote the benefits of clean energy**. Work with schools and other clubs within the city to engage youth in promoting renewable energy and energy efficiency.
- **Conduct a green business award and recognition program**. Work with the Golden Valley Business Council, TwinWest Chamber of Commerce, and Rotary Club of Golden Valley to promote the local businesses and investigate financial opportunities.
- Consider hosting or locating a **one-stop technical assistance resource** for businesses looking to get started in renewable energy.
- Start a **business mentoring program**, inviting large businesses using renewables to mentor a smaller local firm who's unfamiliar with how to get started using renewable energy.

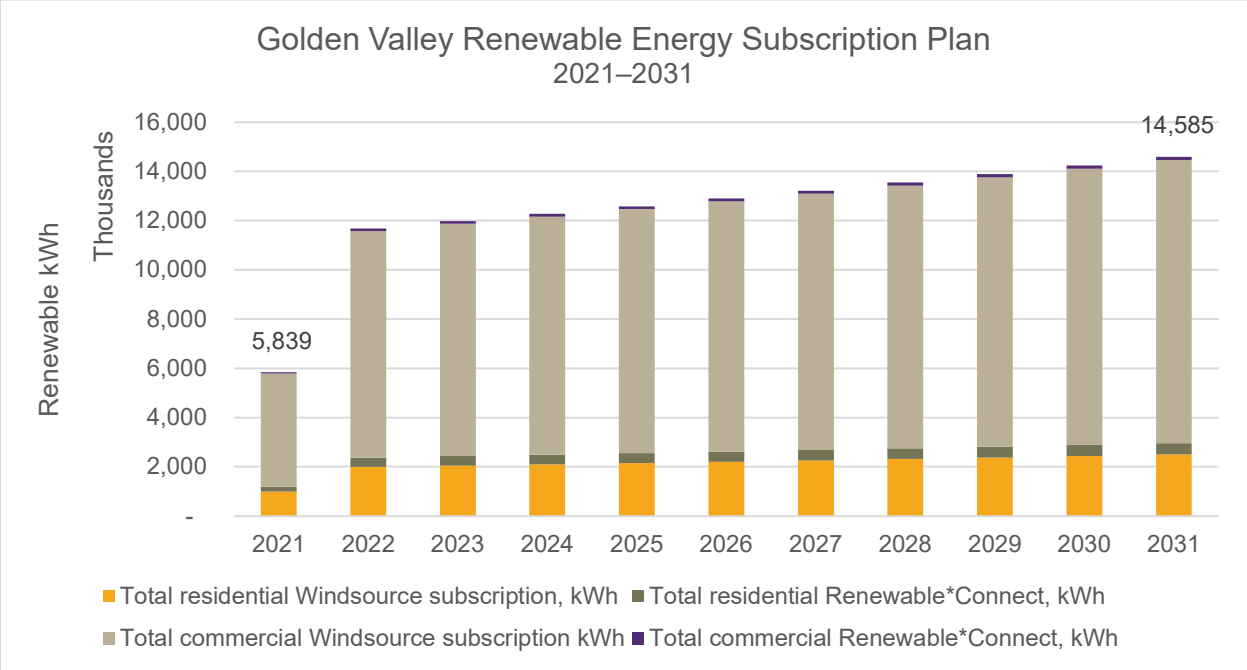
Desired Outcomes

The plan presumes an annualized 2.5% growth rate for renewable energy used in Golden Valley. Goals are predicated on baseline usage rates. Since this plan will commence midyear 2021, we've budgeted half the baseline rate for 2021, a return to baseline in 2022, and 2.5% growth thereafter.

Also, while Renewable*Connect® is currently closed to new subscribers, we anticipate that it will re-open at some point. [15] Its popularity may compensate for any delays in additional subscriptions, so we're assuming a normal growth rate over the 10-year period.

[15] Note: Renewable*Connect® is currently fully subscribed and unavailable for new subscriptions. This condition may change in the future, and if it does, Renewable*Connect® will be included in this initiative.

Figure 24: Golden Valley Renewable Energy Subscription Plan



Resources

In addition to any existing Windsource® or Renewable*Connect® promotional materials being used by Xcel Energy or within Partners in Energy's archive, consistent additional outreach to Golden Valley residents and businesses will be critical. This should be a broad-reach messaging plan (perhaps using direct mail) supported by in-person education and advocacy publicity opportunities, such as tabling at Golden Valley events, neighborhood "captains" communicating one to one.

This will also require close liaison with the business community either through regular association meetings, stand-alone events, or "business blitz" events — in which Energy Action Team volunteers target a business corridor and conduct drop-in visits to publicize renewable opportunities and their value.

Roles and Responsibilities

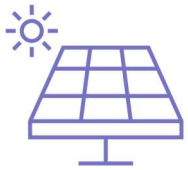
Partners in Energy will assist in creation of any needed promotional materials as requested and will provide leadership and best practice advice on business outreach based on previous experience in similar communities. Golden Valley will coordinate volunteers for local outreach initiatives, use existing community newsletters and other proprietary communication vehicles (e.g., Twitter and Facebook presence) to consistently support the initiative. Volunteers may be sourced from the Golden Valley Energy Action Team or from the business and fraternal organizations with whom we will partner to execute these initiatives.

Timeline

Planning and execution will begin as one of the early priorities of plan implementation. Activities will be concentrated around quarterly efforts to build subscriptions, using a combination of digital and analog communications, events, and tabling (as feasible with regard to COVID-19 protocols).

Strategy 7: "Near-Site" and On-Site Renewable Energy Support

Description



Some residents and businesses in Golden Valley may prefer on-site or "near-site" renewable energy opportunities to the subscription model described in Strategy 6, above. On-site solar, in particular, is attractive to many because it offers a resilience advantage in the event of a major disruption to the power grid. As mentioned previously, many businesses also appreciate the fact that on-site solar can enhance their brand reputation.

There are cost premiums associated with on-site solar in the form of purchase, installation, maintenance, and eventual replacement expense. For residents and businesses willing to invest, there is good news in that costs have been decreasing and payback periods are shorter than they were just a few years ago. In addition, at the time of plan approval, federal tax credits are available for on-site solar systems.

Experts in the field on Golden Valley's Energy Action Team have cautioned that payback periods are still far longer than what is deemed acceptable under general practice by most large enterprises. If an enterprise can value the reputation enhancement that accrues to its brand because of its investment in on-site solar, that value can be added to the payback calculation and may tip the balance in favor of the investment.

"Near-site" renewable options are facilitated by third-party organizations who offer a variety of contractual arrangements to customers in return for a share of the generated electricity's value. These solar gardens offer convenience and low initial cost advantages to on-site alternatives but may not allow the customer to retain the renewable energy credits that represent the green attributes of the generated electricity.

Xcel Energy offers support to residents and businesses who wish to participate in solar gardens or to install on-site solar with the programs listed below.

Table 9: Xcel Energy Renewable Energy Programs

Program	Description
Solar*Rewards®	Solar*Rewards® is your opportunity to have solar for your home or business. It's an incentivized program, so monthly payments are made to the owner of the solar system in exchange for Renewable Energy Credits (RECs) for the energy produced by the solar system. If you produce more than you need, the extra energy is added to the grid, and any excess energy will be credited to your bill.
Solar*Rewards Community®	Xcel Energy electric customers can engage directly to a third-party owned community solar garden located in their current or adjacent county. Once enrolled with an active garden, customers will begin receiving bill credits on their monthly Xcel Energy bill equivalent to the solar energy that their share of the solar garden contributes to the Xcel Energy grid. Customers who chose this arrangement may or may not save money by participating in a solar garden — agreements

	are between customers and the garden operator. Credit for production of renewable energy may stay in the community if the solar garden operator chooses not to sell their RECs. See *Appendix D: Renewable Energy Overview* for more detail on Renewable Energy Credits.
Net Metering	This program is non-incentivized, so you retain the renewable attributes of renewable energy that your solar energy generating system produces. You have the choice to then register and claim the RECs, with each REC certifying the generation of one megawatt-hour of renewable energy. Owning your own system provides the benefit from net metering. This allows you to receive credit for excess generation on your bill to ensure you reap the full value of all your generation. If excess energy generation exceeds energy consumption, you will receive payment for the excess.[16]

Renewable Energy Credits are an important part of each of the options described above and have implications for deciding which program will best support Golden Valley's clean energy goals.

An REC represents the green attributes of renewable energy, with each REC certifying the generation of one megawatt-hour of renewable energy.

RECs are used to measure renewable energy produced and used to meet renewable energy goals. If the renewable program allows the participant to own the RECs, they can claim that they are offsetting your energy use, or that they are using renewable incentive energy. If Xcel Energy keeps the RECs under the renewable program in which you participate, you are unable to claim that you offset energy use with renewable energy.[17]

Additional detail on renewable energy credits is available in *Appendix D: Renewable Energy Overview*.

The claims that one can make vary substantially from program to program because of each one's handling of RECs.

Table 10: Acceptable claims for use with Xcel Energy renewable energy programs[18]

Program	Acceptable Claim
Solar*Rewards®	• By participating in Solar*Rewards, I help supply electricity to our utility to meet its renewable energy goals. • I help increase the amount of solar energy on Xcel Energy's grid by installing on-site solar.
Solar*Rewards Community®	• My subscription supports community solar. • By subscribing to community solar, I help grow solar gardens.

[16] xcelenergy.com
[17] https://www.xcelenergy.com/staticfiles/xe/PDF/REC%20Claims%20-%20Net%20Metering%20P03.pdf
[18] xcelenergy.com

	• I support solar development.
Net Metering	• I use solar energy. • I have reduced my carbon emissions. • I offset my carbon footprint with the solar panels on my property.

Net metering is the option that will allow residents and businesses in Golden Valley to claim that their use of on-site solar contributes specifically to reducing greenhouse gas emissions attributable to Golden Valley's use of electricity.

Incidentally, Windsource and Renewable*Connect both retire renewable energy credits on behalf of the subscribers, so they also qualify as reducing greenhouse gas emissions attributable to Golden Valley's use of electricity.

Target Audience

Businesses will be approached with a range of renewable options from which they may choose. Should they choose on-site installation, net metering will be recommended as a way for them to enjoy the benefits of renewable energy and enhance their reputation as a contributor to the Golden Valley Energy Action Plan.

Desired Outcomes

To best support Golden Valley's goal of using clean energy to reduce greenhouse gas emissions directly attributable to the community's use of electricity, our hope is to influence current on-site solar homes not participating in Solar*Rewards or contract-restricted independent programs and businesses to adopt net metering.

Additionally, we will work to influence owners of new on-site installations to consider net metering as an alternative to other options.

Resources

By partnering with the building permit office in Golden Valley, materials can be provided to applicants for on-site solar installation permits. Analysis of past permit applications will be the best resource for building a contact list of current Golden Valley on-site solar users. This list can then be used to target communications recommending adoption of net metering.

Roles and Responsibilities

Partners in Energy will assist in development of promotional materials for outreach efforts targeted to current and prospective owners of on-site solar energy systems. These will be used in combination with promotional materials supporting Windsource and Renewable*Connect.

Golden Valley will work to partner with relevant departments within municipal administration to develop a process for outreach to residents and businesses requesting on-site solar installation permits.

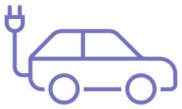
Timeline

Process development followed by creation of appropriate communication materials can begin early in the implementation process. Ideally, the first major publicity for this program would be a special event in Golden Valley during the longest day of the year — the summer solstice on June 21.

Strategy 8: Preparing for Electric Vehicles

Description

Numerous sources have indicated that rapid growth is anticipated in the acceptance of electric vehicles (EVs) as replacements for internal combustion vehicles over the next 5–10 years. Studies indicate that most electric vehicle charging will occur at home overnight, but the availability of convenient charging locations can reduce range anxiety among prospective electric vehicle buyers, thereby accelerating adoption of this clean energy transportation option.



While it's unrealistic to assume that any individual community can address every objection hindering more rapid acceptance of EVs, it is possible to play a role at the local level.

Target Audience

We will target the retail business community with an effort to make it easier to drive an electric vehicle in (or to) Golden Valley. Golden Valley can become known as a preferred shopping and entertainment destination for the EV community.

Turning to Golden Valley's substantial concentration of car dealers, we are also interested in strategies that can help make it easier to sell EVs in Golden Valley.

Tactics Under Consideration

During brainstorming activities conducted as part of Partners in Energy Workshops, Energy Action Team members contributed the following ideas. These will be included in our implementation plans.

- **Highlight Golden Valley residents who drive electric vehicles**. Through local news and/or social media, highlight the early EV adopters in Golden Valley and how they use their vehicles. Use the stories to address common barriers to EV adoption (e.g., where they charge, where they bought the vehicle, costs of ownership and maintenance, etc.)

- **Host an EV parade or ride and drive event.** Work with local EV owners or other resources to conduct a ride and drive EV event in Golden Valley

Desired Outcomes

We would like to see every workplace, shopping, and entertainment destination in Golden Valley install and promote EV chargers. Additionally, we would like to see Golden Valley electric vehicle sales increase faster than neighboring communities.

Resources/Communication Channels

Partnering with the business community is at the core of this initiative. The Golden Valley Business Council, TwinWest Chamber of Commerce, and Rotary Club of Golden Valley will be valuable community connectors in this outreach.

Golden Valley may want to consider a pilot test with local car dealers offering a modest incentive to the dealership and individual salespeople on a per EV sold basis. Such incentives are often very successful, even at modest cash values.

Roles and Responsibilities

Partners in Energy will assist with creation of promotional materials to be used for outreach to retail locations as well as local car dealers.

Golden Valley will need to consider incentivizing retail location EV charger installations as well as the mechanics of an auto dealership pilot. Along with developing incentives for new installations, the City will want to consider recognition of existing EV charger installations to avoid unintended resistance to the initiative among those who have installed chargers without incentives.

Timeline

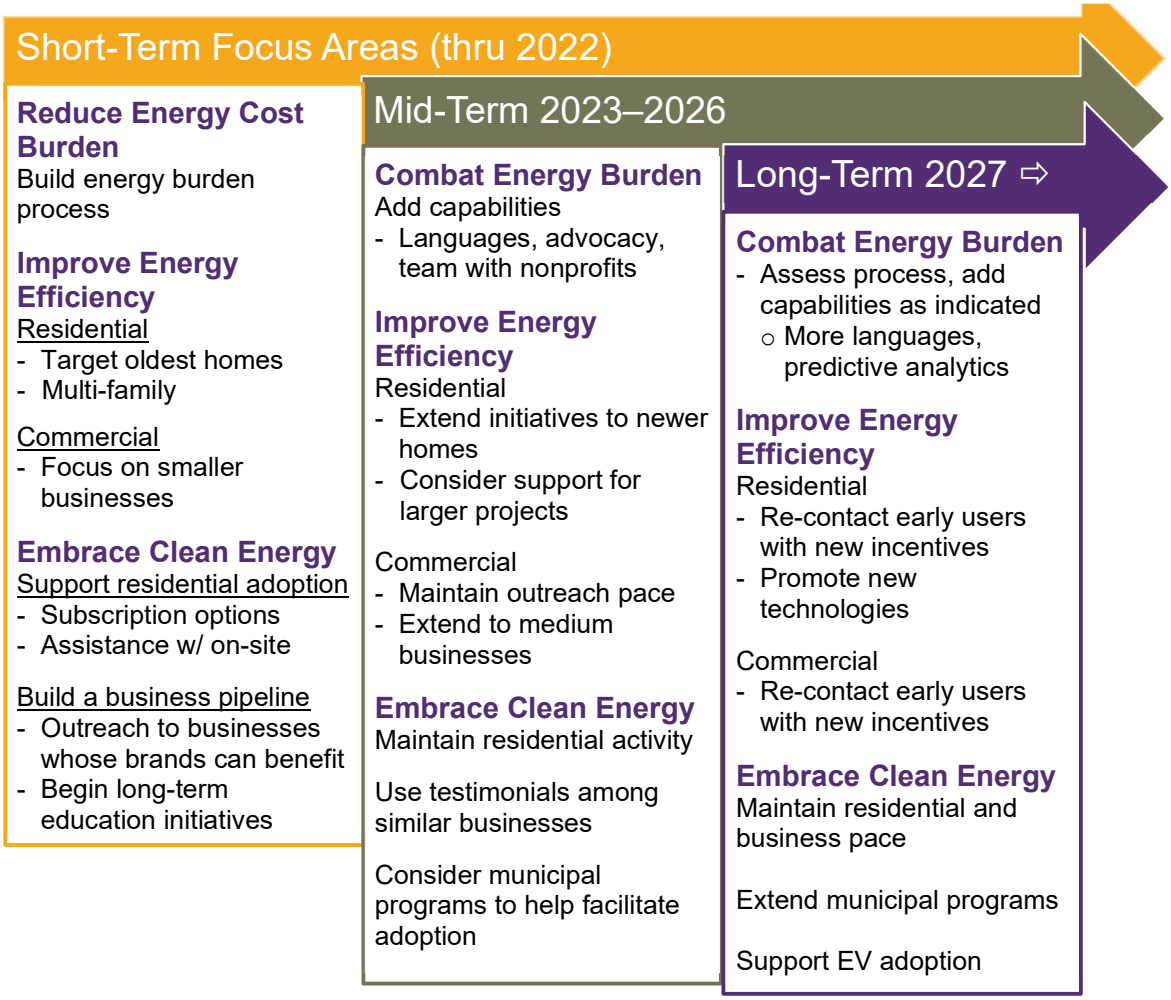
This initiative will be far more welcome after retail business conditions improve post-pandemic. We plan to start this initiative early in 2022, developing an outreach plan with a specific incentive supported by partnering with an electric vehicle charger installation firm while continuing to look for grant opportunities and other funding sources. Outreach to local car dealers would be most effective just before introduction of new electric vehicle models. In early 2022, the Energy Action Team will network with local car dealers to gauge interest and solicit feedback on timing and details of the pilot.

Energy Action Plan Elements

The chart below was reviewed and endorsed by the Golden Valley Energy Action Team as a summary of the major initiatives in the plan. This represents a balanced approach to the activities recommended in the plan, recognizing that urgent priorities, such as reducing high energy cost burden, should not be delayed. Similarly, activities that have longer development periods may begin in the near term, with results expected later in the plan.

Finally, support for electric vehicle adoption will gain traction as more manufacturers introduce and promote them. Golden Valley's local role can begin ahead of (and assist) rapid adoption.

Figure 25: Energy Action Plan Summary



Energy Action Plan Impact

The combined strategies outlined in this plan will deliver on each of the goals that we have set forth.

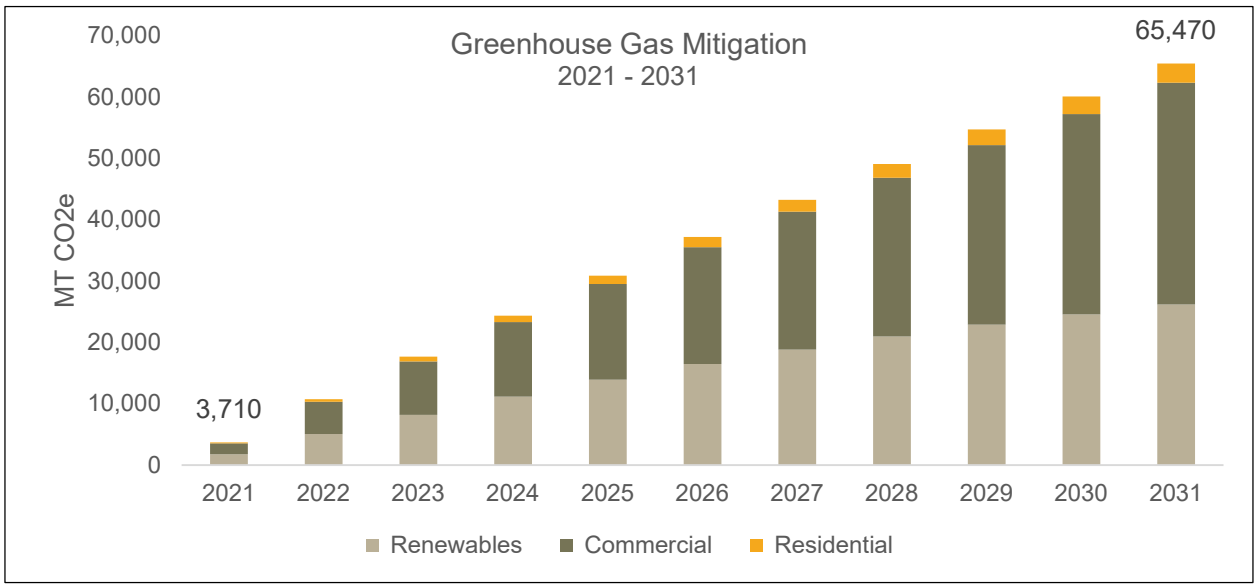
By the end of 2031, assuming that annual participation targets have been met, over 1,900 Golden Valley residents and more than 375 businesses will have participated in programs.

The results of our achieving our goals include:

- **Eliminating 65,000 tons of greenhouse gas emissions**
  Successful implementation of this plan will help avoid greenhouse gas emissions from electricity and natural gas. This will include avoiding over 65 thousand metric tons of carbon dioxide equivalent by the year 2031. 39 thousand of those will be the result of our energy efficiency efforts and 26 from meeting our renewable energy targets.

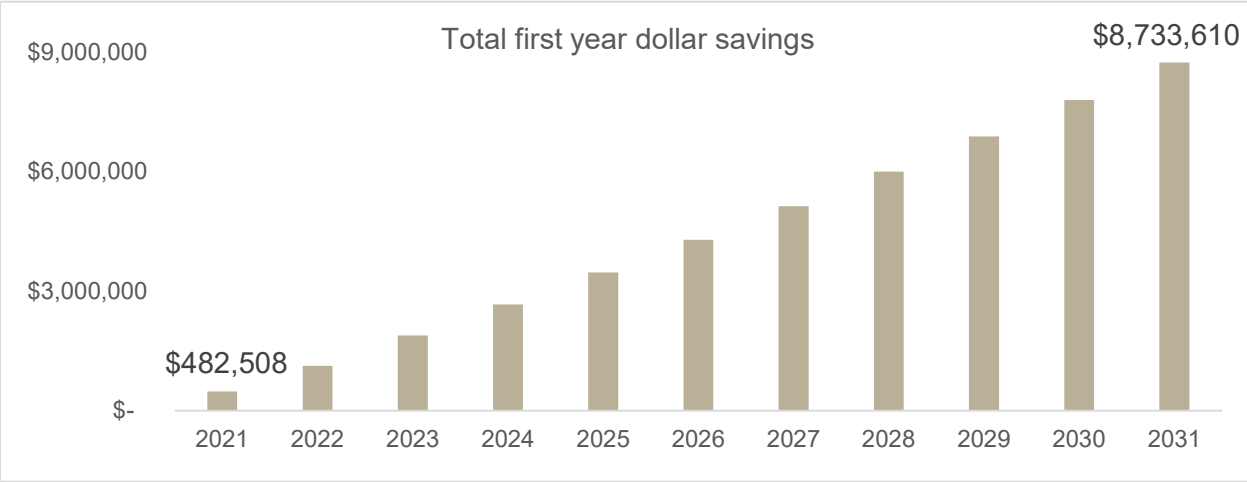
During the same period, Xcel Energy's electricity generation will also avoid over 77,000 tons of greenhouse gas emissions used to produce electricity for Golden Valley because of their plan to reduce emissions by 80% as compared to 2005 levels by 2030.

Figure 26: Golden Valley Greenhouse Gas Mitigation 2021–2031



- **<u>Adding $8.7 million in first-year energy savings to Golden Valley's economy</u>** in 10 years with savings from more efficient use of energy. Accounting standards mandate energy savings be measured as the amount saved in the first year of the efficiency improvement. Since individual efficiency actions may last different periods of time, there is no way to forecast the longevity of each one. Actual savings for individual customers may be greater than those reported as first-year savings, meaning the positive financial impacts for our community may exceed those noted in this plan. Money otherwise needed to pay for energy can stay with residents and businesses in Golden Valley, helping contribute to the local economy.

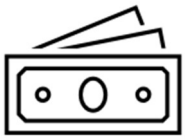
Figure 27: Golden Valley First-Year Dollar Savings from Efficiency Activities



- **<u>Helping Golden Valley households most severely impacted by the costs of energy.</u>** We will both make certain that these households are aware that help is available and help them to navigate the steps necessary to get the help they need. Over 1,000 Golden Valley households will benefit from this portion of the plan, delivering the resources they need to better provide for their families and assure the comforts that electricity and natural gas offer in every home.

Overall, achieving near-term targets laid out in this plan will deliver a strong head start to implementation of the plan through 2031. From July 2021 (our targeted implementation start date) to December 2022, here are some of the results we anticipate:

<u>June 2021–December 2022 Anticipated Results</u>



$1.1 million in first year dollar savings

8,626,454 kWh of electricity saved

604,729 therms of natural gas saved

10,679 metric tons of CO_2e avoided

The U.S. Environmental Protection Agency provides a tool[19] to help people understand the magnitude of greenhouse gas emissions.

During this plan's implementation, we will avoid 65,470 metric tons of carbon dioxide equivalent. That amount is the same as …

Figure 28: Carbon Dioxide equivalencies

Greenhouse Gas Emissions from	CO_2 Emissions from	Carbon Sequestered by
 20	 21	 22
14,238 passenger vehicles driven for one year	7,884 homes' energy use for one year	1.1 million tree seedlings grown for 10 years

Energy Action Team Commitment

The Energy Action Team formed to create this plan and the Environmental Commission may support implementation by volunteering time and advice as they are able to advance these initiatives

Additional resources will be needed from Golden Valley staff to maintain momentum and administer initiatives, both during and after the Partners in Energy relationship ends after the initial 18-month initiation period. Partners in Energy shared that successful implementation of energy action plans in other communities was the result of dedicated staff support. City of Golden Valley will assess existing resources and anticipated additional workload to determine whether additional staff support will be required in the future.

[19] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
[20] Photo by Michael Tuszynski from Pexels
[21] This Photo by Unknown Author is licensed under CC BY-SA
[22] This Photo by Unknown Author is licensed under CC BY-NC-ND

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 toward goals for Xcel Energy rebates and programs. These reports will be available publicly and shared with both the community and Energy Action Team.

CenterPoint Energy will also provide annual updates to the City of Golden Valley. These results will be shared with the team and included in year-end reports.

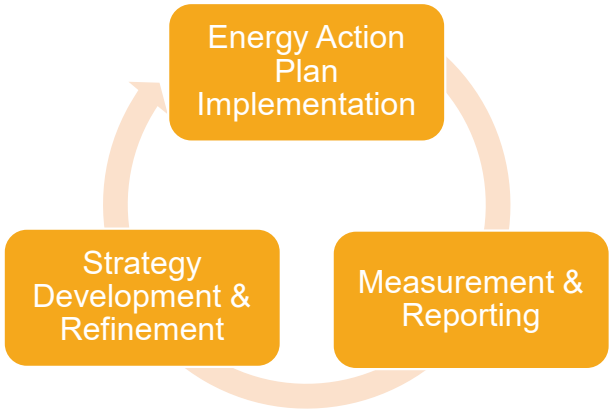


Figure 29: Actions and Tracking

If available, ad-hoc participation reports for specific 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 desired, an implementation check-in meeting with the Energy Action Team can be convened to assess progress toward goals and discuss strategy refinement.

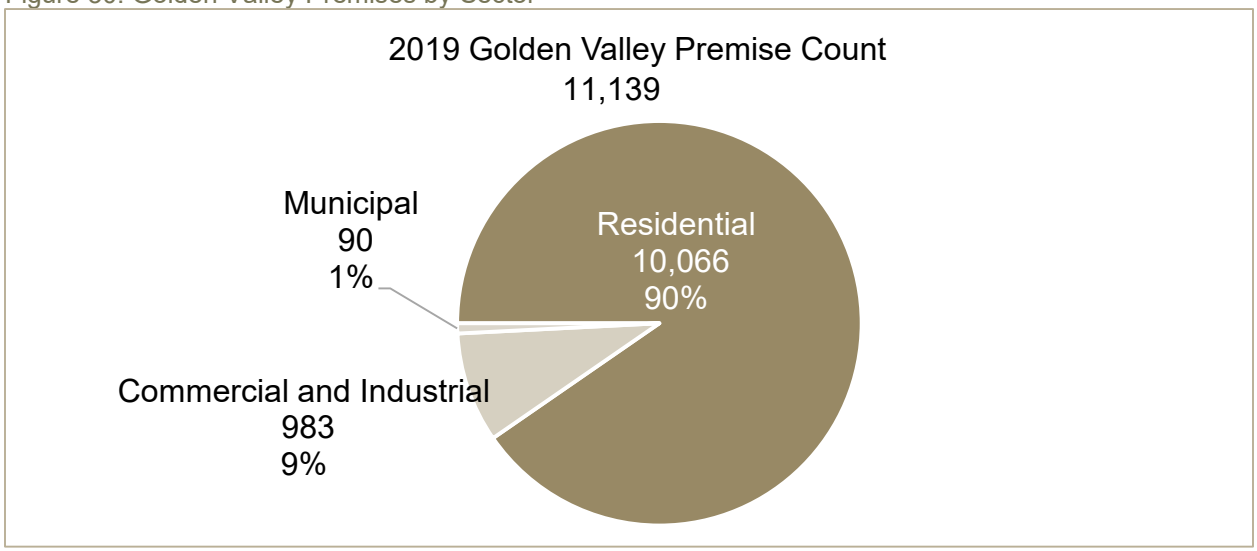
APPENDIX A: BASELINE ENERGY ANALYSIS

Data was provided by Xcel Energy and CenterPoint Energy for all Golden Valley premises for 2017–2019. Xcel Energy provides electric and CenterPoint Energy provides natural gas service to the community. The data helped the Energy Action Team understand Golden Valley'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

Like many first-ring suburbs in the Twin Cities, Golden Valley is a well-established residential community. New home construction peaked in the 1950s and '60s. The city counts several large commercial and industrial sites as well, but it remains primarily residential.

Figure 30: Golden Valley Premises by Sector



Electricity and Natural Gas Consumption by Sector

Commercial and industrial premises play a much larger role in terms of actual energy consumption in Golden Valley. While they constitute less than 10% of actual premises in Golden Valley, they consume 76% of all electricity used in Golden Valley and 58% of all the natural gas used in Golden Valley.

As we work to improve energy efficiency, this imbalance points to the strategic importance of effective outreach to our business community. Engaging with businesses in Golden Valley will be crucial to achieving savings of the scale that we want to achieve.

Figure 31: Golden Valley Electricity Consumption by Sector

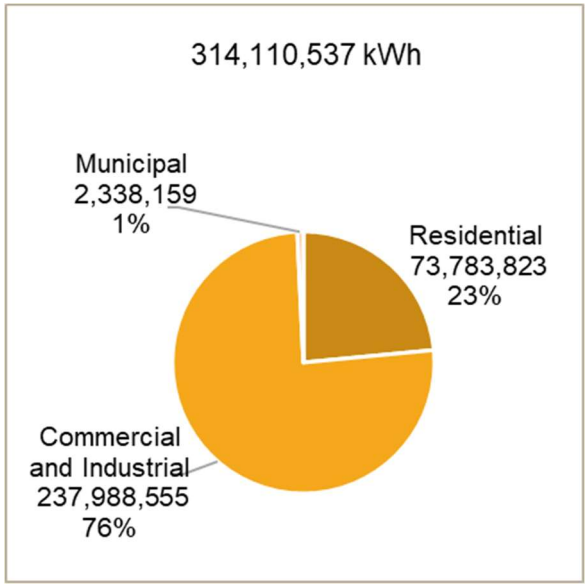
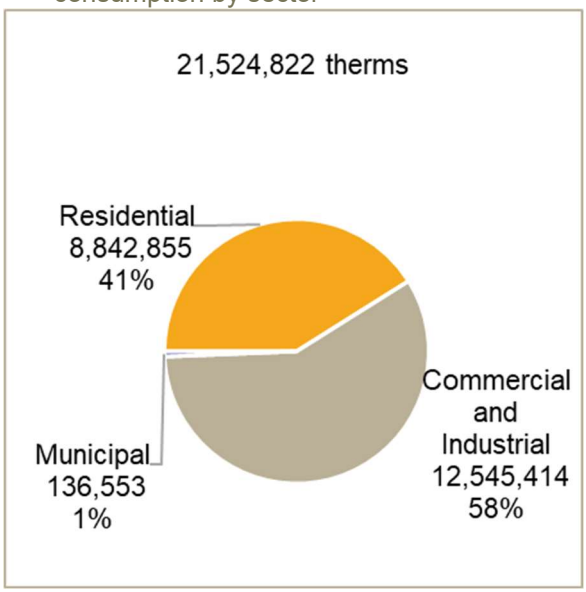


Figure 32: 2019 Golden Valley Natural Gas consumption by sector



Greenhouse Gas Emissions and Trends

Total greenhouse gas emissions in Golden Valley averaged 226,042 tons of carbon dioxide equivalent across the three years of our baseline average. The U.S. Environmental Protection Agency provides a tool to help people understand the magnitude of greenhouse gas emissions.

226,042 MTCO2 e is equivalent to:[23]

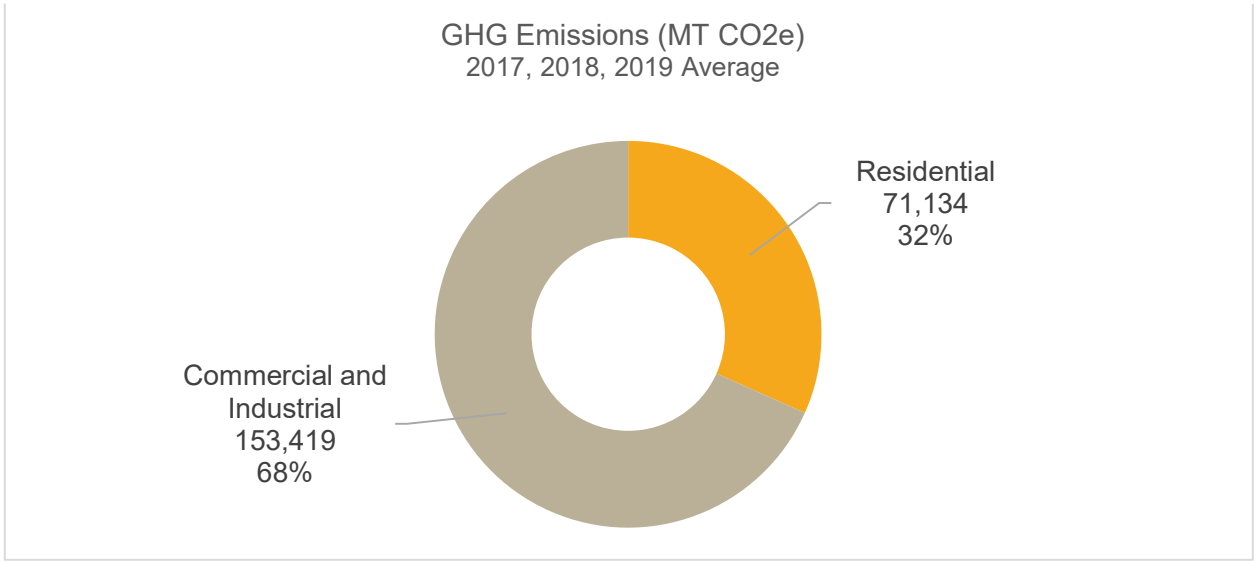
Figure 33: Baseline Carbon Dioxide Equivalencies

Greenhouse Gas Emissions from	CO_2 Emissions from	Carbon Sequestered by
		
49,160 passenger vehicles driven for one year	27,221 homes' energy use for one year	3.7 million tree seedlings grown for 10 years

[24] [25] [26]

Again, it is important to understand the role that commercial and industrial premises play in Golden Valley's greenhouse gas emissions. Golden Valley's business sector energy consumption is responsible for more than double the greenhouse gas emissions than residential premises. See Figure 34 below.

Figure 34: Baseline period greenhouse gas emissions by sector



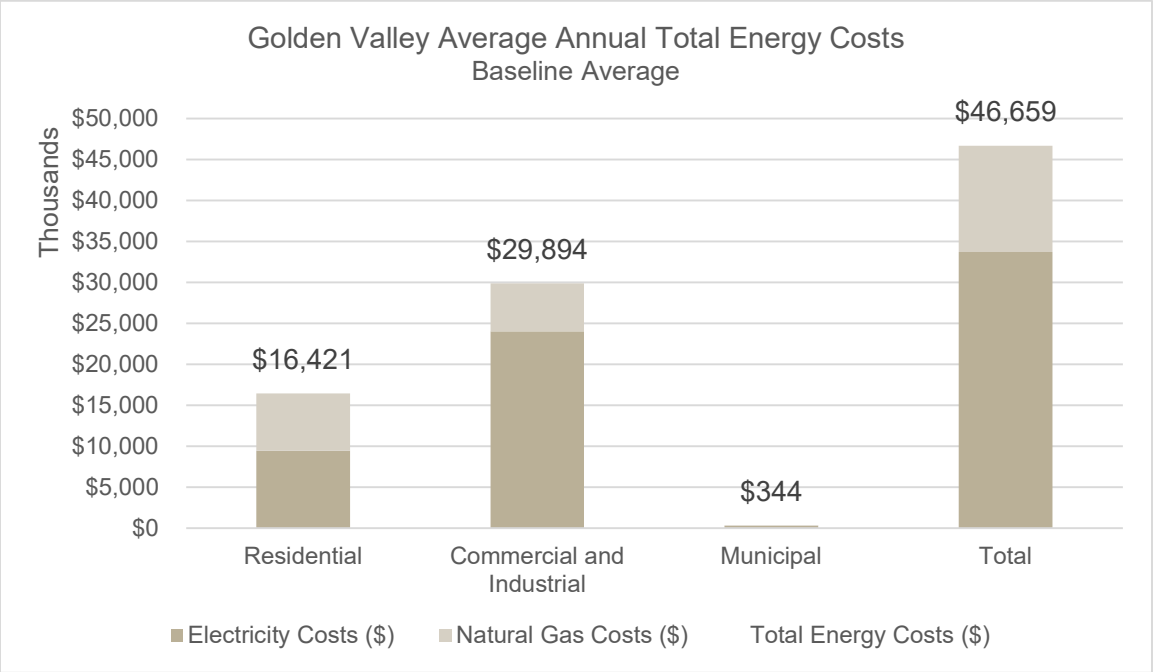
Energy Costs

Total energy costs in Golden Valley amounted to an average of just over $46 million dollars annually during the baseline period. Commercial and industrial and residential spending are at

[23] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
[24] Photo by Michael Tuszynski from Pexels
[25] This Photo by Unknown Author is licensed under CC BY-SA
[26] This Photo by Unknown Author is licensed under CC BY-NC-ND

two-to-one ratio when measuring total spending but looking at the costs per premise illustrates a different relationship.

Figure 35: Golden Valley Average Annual Total Energy Costs



Average spending per premise among commercial and industrial premises is 18 times higher than per-premise residential spending.

Figure 36: Golden Valley Average Annual Energy Costs per Premise

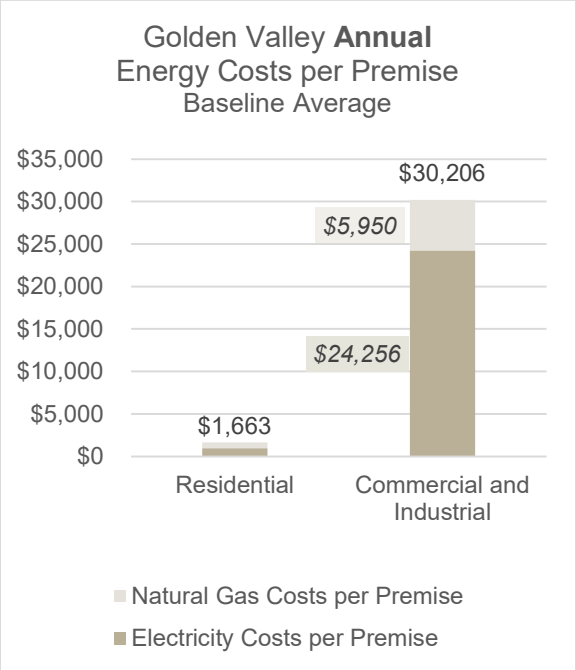
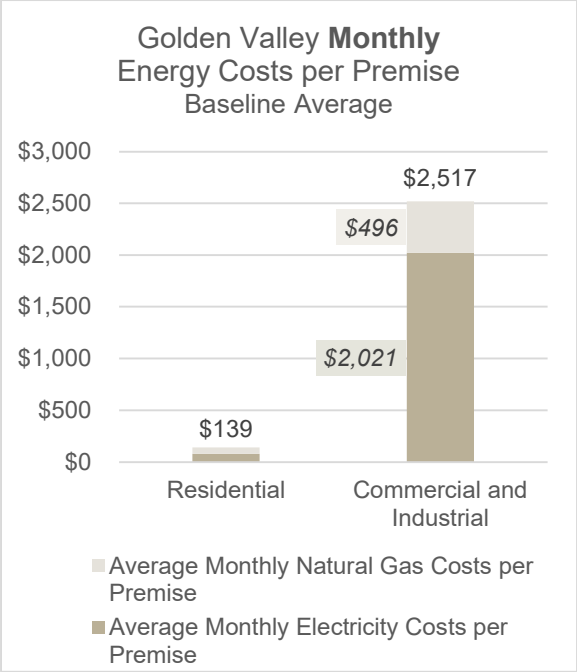


Figure 37: Golden Valley Average Monthly Energy Costs per Premise



Program Participation and Savings

Golden Valley's participation in the many programs offered by both Xcel Energy and CenterPoint Energy follows a largely traditional 80/20 distribution with a handful of programs accounting for most of the activity. Savings also accrue in this manner for residential premises, while commercial and industrial premises tend to see more variability due to the unique characteristics that distinguish various business settings.

During the baseline period, residential premises in Golden Valley participated in an average of 805 programs each year, saving just over 315,000 kWh of electricity annually. Two-thirds of all participation was driven by five of the more than 40 programs available.

For commercial and industrial premises in Golden Valley, participation averaged 222 per year during the baseline period, with just three programs, (Lighting Efficiency, Small Business Lighting, and CenterPoint Commercial & Industrial rebates) accounting for over 85% of all participation.

Our assumptions for the plan, target the most productive of all programs, budgeting a 2.5% annual growth rate, while we presume that others will maintain baseline average performance.

Renewable Energy Support

Residents and businesses in Golden Valley currently participate in a variety of renewable energy programs, ranging from on-site solar to subscription and incentivized programs.

The table below summarizes renewable energy program participation.

Table 11: Golden Valley 2019 Renewable Energy Summary

Golden Valley Renewable Energy Summary		
2019 Estimates		
Renewable Energy Program	Residential	Commercial & Industrial
Windsource®		
Subscriber Count	570	8
Total Annual Electricity Subscribed (kWh)	1,996,338	9,203,491
Percentage of Sector Electricity Use	3%	4%
Renewable*Connect®		
Subscriber Count	48	1
Total Annual Electricity Subscribed (kWh)	373,934	104,532
Percentage of Sector Electricity Use	1%	0%
Solar*Rewards®**		
Participant Count	52	71
Total Annual Electricity Subscribed (kWh)	268,253	338,484
Percentage of Sector Electricity Use	0%	0%
Solar*Rewards Community®**		
Participant Count	259	11
Total Annual Electricity Subscribed (kWh)	1,501,667	9,226,027
Percentage of Sector Electricity Use	2%	4%
Total Renewable Energy Support		
Subscribers/Participants	929	91
Total Annual Electricity Subscribed (kWh)	4,140,192	18,872,534
Percentage of Sector Electricity Use	6%	8%

Our plan targets a 2.5% annual growth rate for renewable kilowatt-hours for Golden Valley. Importantly though, we will be emphasizing Windsource®, Renewable*Connect®, and net metering over other options because those programs handling of Renewable Energy Credits will allow Golden Valley to be credited with the use of renewable energy more directly than others.

APPENDIX B: 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 Golden Valley. All goals will be measured against Golden Valley's three-year baseline of 2017–2019 data unless otherwise noted.

The following section defines the three-year baseline against which progress is measured, including Xcel Energy and CenterPoint Energy program(s) included in the baseline.

Reducing High and Severe Energy Cost Burden Focus Area Goals

Strategy 1: Locate High Energy Burden Households

Goal

Identify 20 candidate households per month (240 per year) who may be eligible for any of the programs servings energy-burdened households. Identification will constitute a request for information requiring a name, address, phone number, or email address.

Baseline

The U.S. Department of Energy estimates approximately 2,033 Golden Valley households at or below 60% of Minnesota's median household income, making them eligible for assistance. Over the 10-year span of this plan, we hope to reach at least that many households.

Strategy 2: Educate Clients

Goal

Engage 20% of identified candidate households (from Strategy 1) in an education activity providing them with information about the resources and programs available to help them.

Baseline

Our Strategy 2 baseline assumes that there will be a substantial challenge motivating candidates to reach out and ask for more information. By following up on every initial request for

information — multiple times — we hope to move one of every five candidates to the next step of actually learning about the help that is available.

Strategy 3: Coordinate Service Delivery

Goal

Motivate half of the qualified candidates who seek out additional information (from Strategy 2) to move forward with the help of a Golden Valley or volunteer coordinator in seeking assistance or scheduling a home service (e.g., Low-income Home Energy Squad).

Baseline

Once Strategy 2 establishes a rapport and level of trust with candidates, we hope that it will be easy to turn them into clients and help them navigate the process of receiving services.

Improving Energy Efficiency Focus Area Goals

Strategy 4: Conduct Residential Outreach

Goal

Consistent with the goals established in Table 7: Key Residential Efficiency Programs — Annual Participation Targets, accomplish annual 2.5% participation increases in key residential energy efficiency programs.

Deliver more than half of all participants from Golden Valley residents living in homes built before 1970.

Baseline

Based on Xcel Energy and CenterPoint data, an annual increase in key program participation is needed to accomplish the plan's greenhouse gas avoidance goal. See Figure 20: Highest potential residential energy efficiency programs for a recap of these high potential programs.

Strategy 5: Conduct Business Outreach

Goal

Accomplish annual 2.5% participation increases in key commercial and industrial energy efficiency programs.

Baseline

Based on Xcel Energy and CenterPoint data, an annual increase in key program participation is needed (along with additional initiatives, listed below) to accomplish the plan's greenhouse gas avoidance goal. See Figure 23 for a recap of these high potential plans.

Supporting Clean Energy Focus Area Goals

Strategy 6: Subscription Options

Goal

Accomplish a 2.5% annual increase in kilowatt-hours subscribed to either Windsource or Renewable*Connect each year between 2021 and 2031.

Baseline

Growth in annual kilowatt hour subscriptions at a 2.5% rate will be a critical element of our success reaching our greenhouse gas avoidance goal. Importantly, this goal applies equally to residential and commercial and industrial premises.

Strategy 7: "Near-Site" and On-Site Renewable Energy Support

Goal

Encourage growth in selection of net metering among Golden Valley homes and businesses using on-site solar. Motivate 50% or more of the new solar installations in Golden Valley to use net metering.

Baseline

Accomplishing our greenhouse gas avoidance goals requires that we capitalize on Golden Valley residents and businesses retaining the renewable energy credits that they are eligible for under net metering. While other on-site solar programs have merit, only net metering keeps RECs in Golden Valley.

Strategy 8: Preparing for Electric Vehicles

Goal

Support installation of EV chargers at every workplace, shopping, and entertainment destination in Golden Valley. Promote Golden Valley as an EV-friendly destination. Help Golden Valley electric vehicle sales increase faster than neighboring communities. Beginning in mid-2022, we will initiate a campaign to motivate businesses to install EV chargers, including clear direction and assistance as needed to facilitate installation.

Baseline

There are currently approximately 20 public electric vehicle chargers in Golden Valley, including one at City Hall. Many are concentrated at car dealerships along I-394.

APPENDIX C: XCEL ENERGY'S PARTNERS IN ENERGY PLANNING PROCESS

Figure 38: Golden Valley City Hall

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

Creating this Energy Action Plan was a 12-month process involving support to help characterize our energy use, identify our energy-related goals, and develop engaging strategies to help us achieve our vision. Commitment to a significant outcome grew as we dealt with the delays and complexities caused by the global pandemic.

Partners in Energy and the City of Golden Valley collaborated on a path forward, substituting online meetings for in-person workshops. A series of five online workshops began on September 29, 2020 and ended on January 27, 2021. Our planning team committed to representing local energy priorities in collaboration with City of Golden Valley and Xcel Energy Partners in Energy. By the numbers, we engaged in five workshops with 13 participants, representing large and small businesses in Golden Valley, a service organization, residents,

and community members active in several complementary boards and commissions. We were also fortunate to have a representative from CenterPoint Energy attend our workshops and offer valuable insights at each step of the process.

Figure 39: Partners in Energy Process for Success

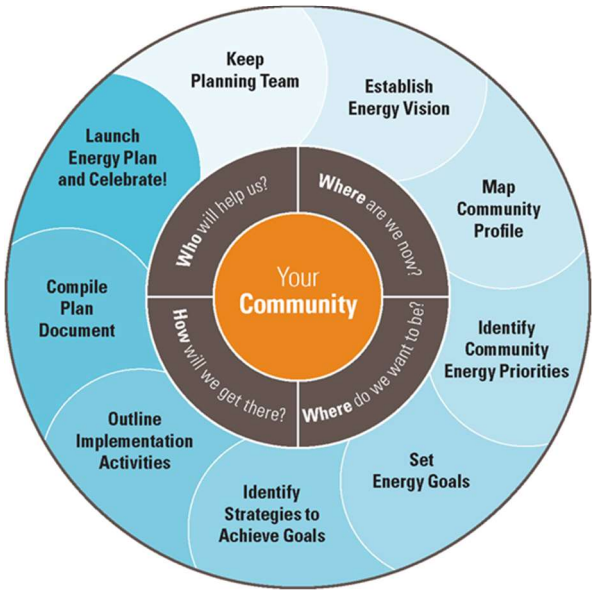


Figure 40: Resources from Xcel Energy for Implementation

APPENDIX D: RENEWABLE ENERGY OVERVIEW

Renewable Energy Credits (RECs) are an often-misunderstood element of renewable energy, and they are the primary means by which the credit for the green attributes of electricity produced from renewable sources can be recognized. For every megawatt-hour of renewable electricity produced an individually numbered REC is created. A REC can be transferred to another entity or person one time.

Some programs transfer the RECs to Xcel Energy for their use in pursuing their renewable energy goals. Others allow for the subscriber (or the owner of the solar generating system, in the case of net metering) to keep the REC,[27] allowing them to claim credit for the renewable energy's green attributes.

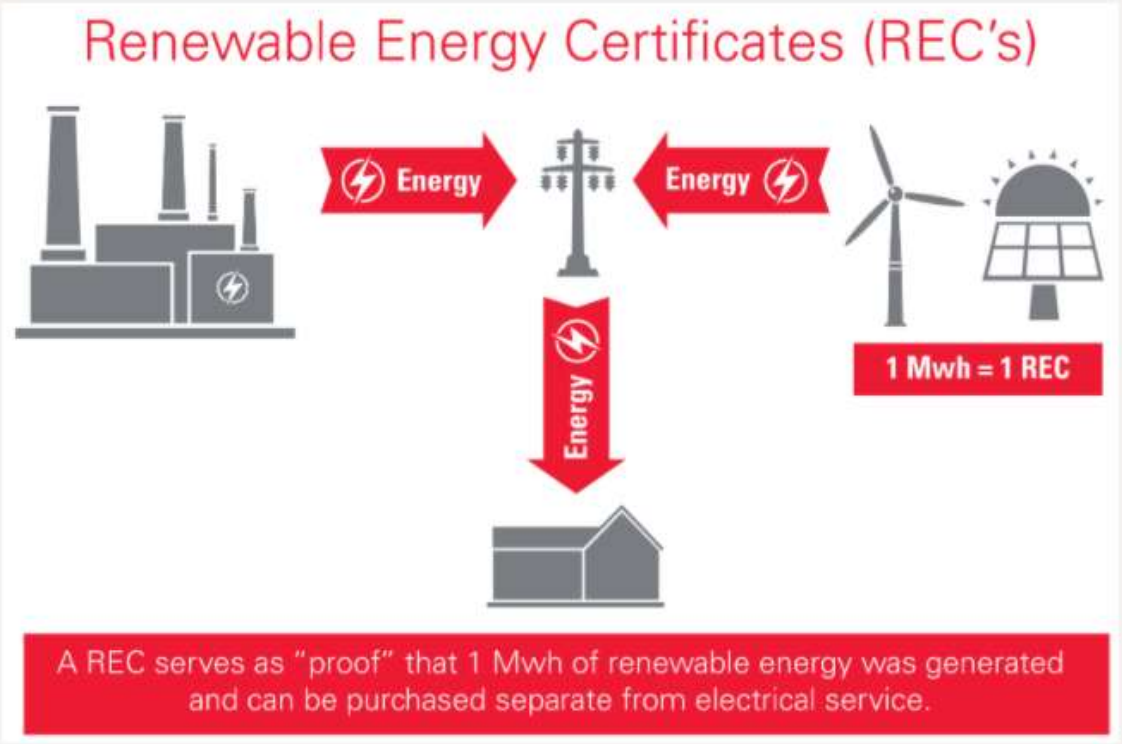
This becomes an important differentiator for communities attempting to build their renewable energy locally *and take credit* for the green attributes of that energy.

The following pages describe the renewable programs offered by Xcel Energy and explain claims that are allowable for each one.

[27] Xcel Energy's Windsource® and Renewable*Connect® programs retire the RECs generated on behalf of the program's subscribers, allowing subscribers to claim the green attributes of the energy produced.

A Renewable Energy Credit (REC) represents the green attributes of renewable energy, with each REC certifying the generation of one megawatt-hour (MWh) of renewable energy.

We buy RECs from Solar Rewards projects to achieve our Renewable Energy Standard. Learn more about the goals for Our Energy Future.



28

[28] https://www.xcelenergy.com/programs_and_rebates/residential_programs_and_rebates/renewable_energy_options_residential/solar/available_solar_options/on_your_home_or_in_your_yard/solar_rewards_for_residences

Figure 41: Xcel Energy Renewable Claims Guide: Windsource[29]

Information Sheet

Minnesota

Xcel Energy®
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Renewable Claims Guide: Windsource®

Renewable Energy Credits (RECs) represent the environmental benefits associated with energy produced from a renewable source. When you participate in a renewable energy program, it is important to know when the RECs are included with the program, or when they are kept by Xcel Energy and used toward our company's renewable energy goals. The REC is the piece that determines the statements or claims you can make regarding your renewable energy participation.

Windsource is an easy, low cost, low risk way to subscribe to clean wind energy and keep your RECs. In this program, the subscriber receives the RECs.

Examples of claims for Windsource subscriber[1]

Acceptable	Unacceptable
• I use wind energy	• Our system is powering our facility with all renewable energy
• I have reduced my carbon emissions	• We have reduced ____ tons of carbon emissions annually
• I offset my carbon footprint with my Windsource subscription	
• By using ____ MWh of renewable energy, we have reduced our scope 2 emissions	

What are RECs and why are they important?

Renewable energy certificates or credits (RECs) are considered currency used to measure renewable energy produced and used to meet renewable energy goals. If the renewable program allows you to own the RECs, you can claim that they are offsetting your energy use or you are using renewable energy. If Xcel Energy keeps the RECs under the renewable program, you are unable to claim that you offset energy use with renewable energy.

[1]The examples provided by Xcel Energy are not intended as legal advice. You should consult with your own attorney regarding claims that you may make regarding your subscription to Xcel Energy's Solar*Rewards Community. For more information on acceptable and unacceptable claims, additional resources include:
www.epa.gov/greenpower/solar-power-use-claims
www.cleanenergyresourceteams.org/sites/default/files/REC-BestPracticesClaims.pdf

[29] https://www.xcelenergy.com/staticfiles/xe/PDF/REC%20Claims%20-%20Windsource%20P04.pdf

Figure 42: Xcel Energy Claims Guide: Renewable*Connect®

Information Sheet

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Xcel Energy®
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Renewable Claims Guide: Renewable*Connect®

Renewable Energy Credits (RECs) represent the environmental benefits associated with energy produced from a renewable source. When you participate in a renewable energy program, it is important to know when the RECs are included with the program, or when they are kept by Xcel Energy and used toward our company's renewable energy goals. The REC determines the statements or claims you can make regarding your renewable energy participation.

Renewable*Connect is a low-cost, easy way to subscribe to up to 100-percent solar energy, and keep the RECs. The REC determines what a subscriber can claim about their renewable energy use.

Examples of claims for for Renewable*Connect subscribers[1]

Acceptable	Unacceptable
• I use renewable energy	• Our system is powering our facility with all renewable energy
• I have reduced my carbon emissions	• We have reduced ____ tons of carbon emissions annually
• I offset my carbon footprint with my Renewable*Connect subscription	
• By using ____ MWh of renewable energy, we have reduced our scope 2 emissions	

What are RECs and why are they important?

RECs measure renewable energy produced and used to meet renewable energy goals. If the renewable program allows you to own the RECs, you can claim that they are offsetting your energy use or you are using renewable energy. If Xcel Energy keeps the RECs under the renewable incentive program you participate in, you are unable to claim that you offset energy use with renewable energy.

[1]The examples provided by Xcel Energy are not intended as legal advice. You should consult with your own attorney regarding claims that you may make regarding your subscription to Xcel Energy's Solar*Rewards Community. For more information on acceptable and unacceptable claims, additional resources include:
www.epa.gov/greenpower/solar-power-use-claims
www.cleanenergyresourceteams.org/sites/default/files/REC-BestPracticesClaims.pdf

[30]

[30] https://www.xcelenergy.com/staticfiles/xe/PDF/REC%20Claims%20-%20Windsource%20P04.pdf

Figure 43: Xcel Energy Claims Guide: Solar*Rewards®

Information Sheet

Minnesota

Xcel Energy®
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Renewable Claims Guide: Solar*Rewards®

Renewable Energy Credits (RECs) represent the environmental benefits associated with energy produced from a renewable source. When you participate in a renewable energy program, it is important to know when the RECs are included with the program, or when they are kept by Xcel Energy and used toward our company's renewable energy goals. The REC determines the statements or claims you can make regarding your renewable energy participation.

In the Solar*Rewards program, the RECs are transferred to and owned by Xcel Energy in exchange for incentives.

Because the RECs are owned by Xcel Energy, there are limitations on what you, as a participant, can say about the RECs.

Examples of claims for Solar*Rewards participant[1]

Acceptable	Unacceptable
• We have installed onsite solar and traded our RECs to receive financial incentive from the solar energy produced.	• I use solar energy
• By participating in Solar*Rewards, I help supply electricity to our utility in order to meet its renewable energy goals	• We are using solar energy to reduce ____% of our annual electricity use/meet our goal of ____% renewable energy
• I help increase the amount of solar energy on Xcel Energy's grid by installing onsite solar	• By participating in Solar*Rewards we are powering our facility and reducing our carbon footprint
	• By participating in Solar*Rewards, we have reduced emissions

What are RECs and why are they important?

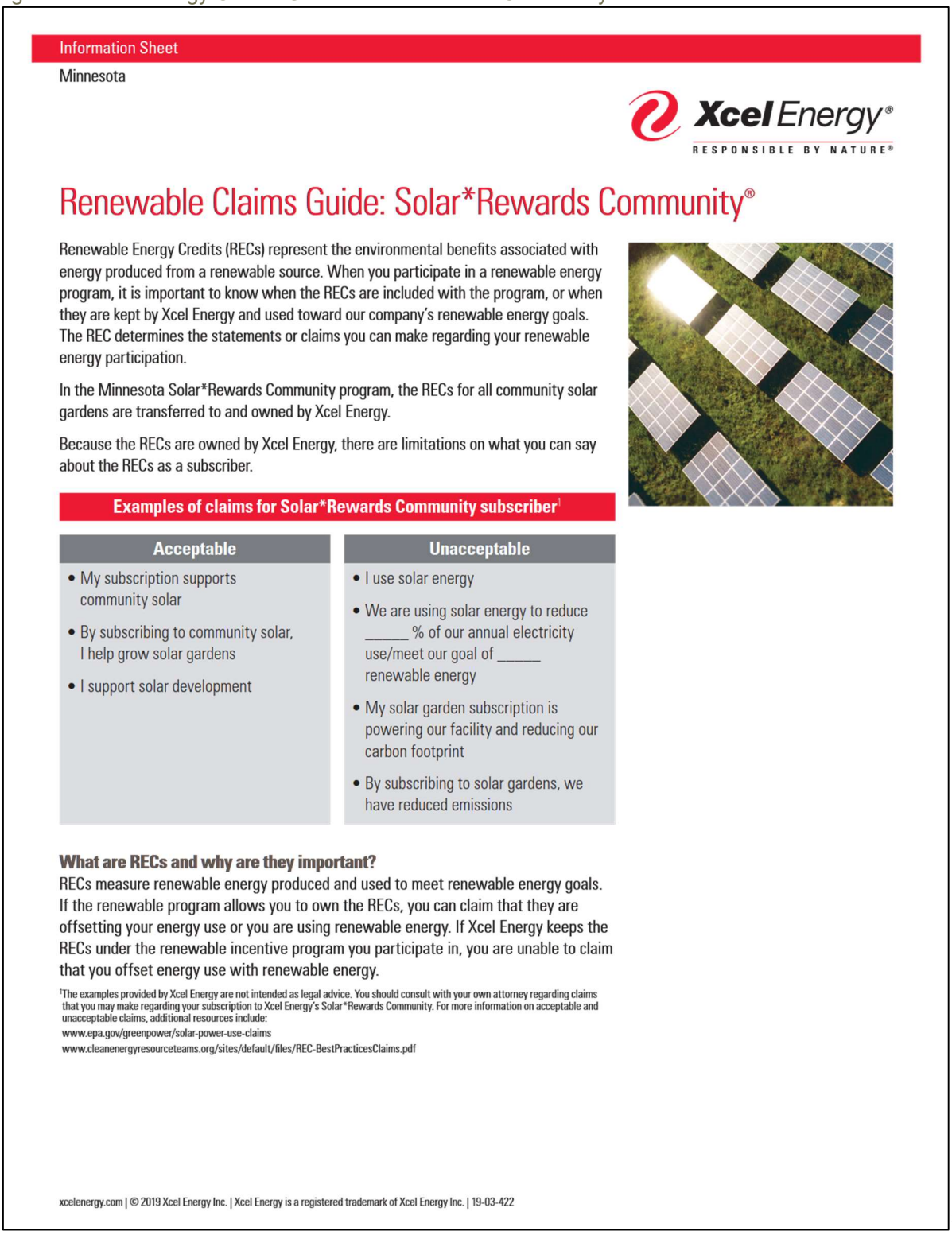
RECs measure renewable energy produced and used to meet renewable energy goals. If the renewable program allows you to own the RECs, you can claim that they are offsetting your energy use or you are using renewable energy. If Xcel Energy keeps the RECs under the renewable incentive program you participate in, you are unable to claim that you offset energy use with renewable energy.

[1]The examples provided by Xcel Energy are not intended as legal advice. You should consult with your own attorney regarding claims that you may make regarding your subscription to Xcel Energy's Solar*Rewards Community. For more information on acceptable and unacceptable claims, additional resources include:
www.epa.gov/greenpower/solar-power-use-claims
www.cleanenergyresourceteams.org/sites/default/files/REC-BestPracticesClaims.pdf

[31]

[31] https://www.xcelenergy.com/staticfiles/xe/PDF/REC%20claims%20-%20Solar%20Rewards_P05.pdf

Figure 44: Xcel Energy Claims Guide: Solar*Rewards Community®



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Xcel Energy®
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Renewable Claims Guide: Solar*Rewards Community®

Renewable Energy Credits (RECs) represent the environmental benefits associated with energy produced from a renewable source. When you participate in a renewable energy program, it is important to know when the RECs are included with the program, or when they are kept by Xcel Energy and used toward our company's renewable energy goals. The REC determines the statements or claims you can make regarding your renewable energy participation.

In the Minnesota Solar*Rewards Community program, the RECs for all community solar gardens are transferred to and owned by Xcel Energy.

Because the RECs are owned by Xcel Energy, there are limitations on what you can say about the RECs as a subscriber.

Examples of claims for Solar*Rewards Community subscriber[1]

Acceptable	Unacceptable
• My subscription supports community solar	• I use solar energy
• By subscribing to community solar, I help grow solar gardens	• We are using solar energy to reduce _____ % of our annual electricity use/meet our goal of _____ renewable energy
• I support solar development	• My solar garden subscription is powering our facility and reducing our carbon footprint
	• By subscribing to solar gardens, we have reduced emissions

What are RECs and why are they important?

RECs measure renewable energy produced and used to meet renewable energy goals. If the renewable program allows you to own the RECs, you can claim that they are offsetting your energy use or you are using renewable energy. If Xcel Energy keeps the RECs under the renewable incentive program you participate in, you are unable to claim that you offset energy use with renewable energy.

[1]The examples provided by Xcel Energy are not intended as legal advice. You should consult with your own attorney regarding claims that you may make regarding your subscription to Xcel Energy's Solar*Rewards Community. For more information on acceptable and unacceptable claims, additional resources include:

www.epa.gov/greenpower/solar-power-use-claims

www.cleanenergyresourceteams.org/sites/default/files/REC-BestPracticesClaims.pdf

[32]

[32] https://www.xcelenergy.com/staticfiles/xe/PDF/MN_SolarRewardsCommunity_ClaimsGuide_P01.pdf

Figure 45: Xcel Energy Renewable Claims Guide: Net Metering

Information Sheet

Minnesota

Xcel Energy®
RESPONSIBLE BY NATURE®

Renewable Claims Guide: Net Metering

Renewable Energy Credits (RECs) represent the environmental benefits associated with energy produced from a renewable source. When you participate in a renewable energy program, it is important to know when the RECs are included with the program, or when they are kept by Xcel Energy and used toward our company's renewable energy goals. The REC that determines what a participant can claim about their renewable energy use.

For net metering, you install your own solar, get credit for excess solar production and keep your RECs.

Examples of claims for Net Metering participant[1]

Acceptable	Unacceptable
• I use solar energy	• Our system is powering our facility with all renewable energy
• I have reduced my carbon emissions	• We have reduced ____ tons of carbon emissions annually
• I offset my carbon footprint with the solar panels on my property	
• By using ____ MWh of renewable energy, we have reduced our scope 2 emissions	

What are RECs and why are they important?

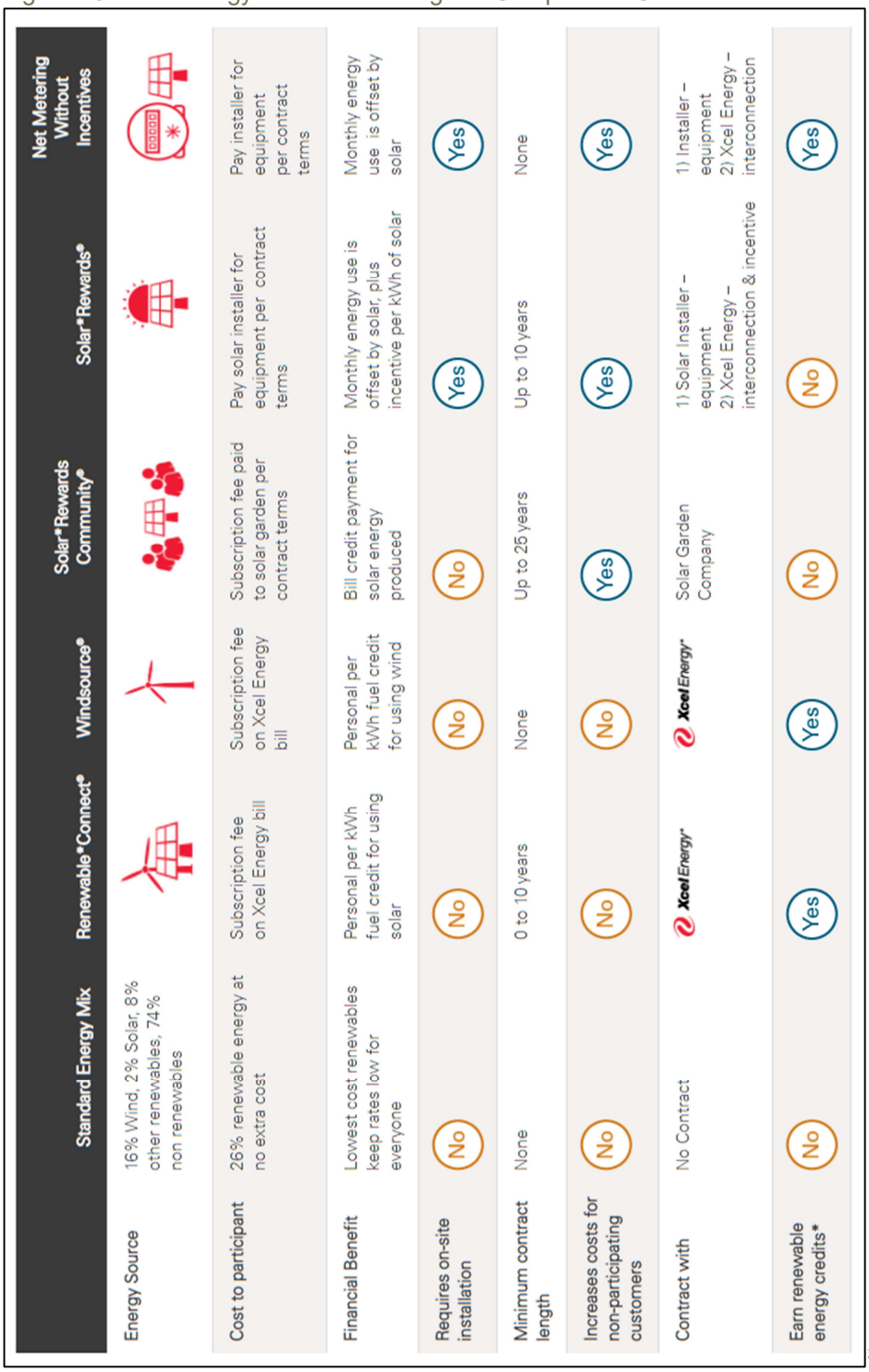
RECs are used to measure renewable energy produced and used to meet renewable energy goals. If the renewable program allows you to own the RECs, you can claim that they are offsetting your energy use or you are using renewable incentive energy. If Xcel Energy keeps the RECs under the renewable program you participate in, you are unable to claim that you offset energy use with renewable energy.

[1]The examples provided by Xcel Energy are not intended as legal advice. You should consult with your own attorney regarding claims that you may make regarding your subscription to Xcel Energy's Solar*Rewards Community. For more information on acceptable and unacceptable claims, additional resources include:
www.epa.gov/greenpower/solar-power-use-claims
www.cleanenergyresourceteams.org/sites/default/files/REC-BestPracticesClaims.pdf

[33]

[33] https://www.xcelenergy.com/staticfiles/xe/PDF/REC%20Claims%20-%20Net%20Metering%20P03.pdf

Figure 46: Xcel Energy Renewable Program Comparison Guide

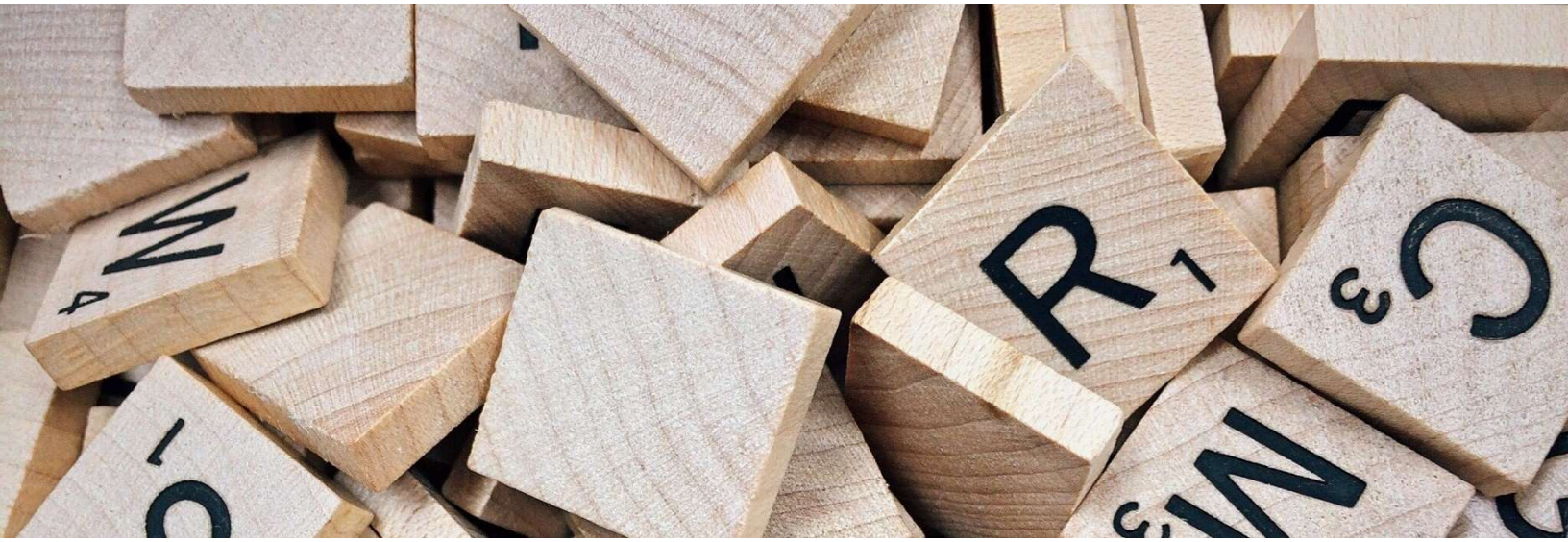


	Standard Energy Mix	Renewable*Connect®	Windsource®	Solar*Rewards Community®	Solar*Rewards®	Net Metering Without Incentives
Energy Source	16% Wind, 2% Solar, 8% other renewables, 74% non renewables					
Cost to participant	26% renewable energy at no extra cost	Subscription fee on Xcel Energy bill	Subscription fee on Xcel Energy bill	Subscription fee paid to solar garden per contract terms	Pay solar installer for equipment per contract terms	Pay installer for equipment per contract terms
Financial Benefit	Lowest cost renewables keep rates low for everyone	Personal per kWh fuel credit for using solar	Personal per kWh fuel credit for using wind	Bill credit payment for solar energy produced	Monthly energy use is offset by solar, plus incentive per kWh of solar	Monthly energy use is offset by solar
Requires on-site installation	No	No	No	No	Yes	Yes
Minimum contract length	None	0 to 10 years	None	Up to 25 years	Up to 10 years	None
Increases costs for non-participating customers	No	No	No	Yes	Yes	Yes
Contract with	No Contract	Xcel Energy®	Xcel Energy®	Solar Garden Company	1) Solar Installer – equipment 2) Xcel Energy – interconnection & incentive	1) Installer – equipment 2) Xcel Energy – interconnection
Earn renewable energy credits*	No	Yes	Yes	No	No	Yes

[34]

34 https://www.xcelenergy.com/programs_and_rebates/residential_programs_and_rebates/renewable_energy_options_residential

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 (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.

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.

APPENDIX F: CENTERPOINT ENERGY OVERVIEW OF GREENHOUSE GAS MITIGATION PROJECTS

News

CENTERPOINT ENERGY: PURSUING A CLEAN ENERGY FUTURE

November 11, 2020 | **Brad Tutunjian**

As Minnesota's largest natural gas utility, delivering energy to more than 870,000 customers, CenterPoint Energy is committed to environmental stewardship as an integral part of **our overall corporate responsibility**, including support for organizations like Environmental Initiative.

Earlier this year we announced a **company-wide carbon policy** to reduce emissions across our multi-state operations and supply chain. Our goals (based on 2005 levels) include a 70% reduction by 2035 in operational carbon emissions and a 20-30% reduction by 2040 in emissions attributable to natural gas used by our customers.

In Minnesota, we've already made significant progress reducing emissions from our **distribution system** through infrastructure modernization and innovative technologies to prevent and detect methane leaks. For 25 years, our nation-leading **Conservation Improvement Program (CIP)** has also helped our customers improve their energy efficiency and limit their own carbon footprint.

CenterPoint Energy is also pursuing several major new clean energy initiatives in Minnesota.

RENEWABLE NATURAL GAS

We're working to develop **Renewable Natural Gas (RNG)** as a new Made-in-Minnesota energy resource – produced by capturing and recycling biogas from farms, food waste, wastewater facilities and other sources.

RNG has significant potential to reduce emissions and, depending on the source, it can even have a net negative carbon impact (taking more carbon out of the environment than it produces). By adding RNG to our system, we can diversify our gas supply away from fossil fuels while also improving waste management and supporting local economies, especially in rural areas.

We currently have **a proposal** at the Minnesota Public Utilities Commission that would allow us to accept Minnesota-made RNG into our distribution system, and we're already in discussions with

prospective RNG producers and project developers interested in this opportunity.

GREEN HYDROGEN

We're exploring another Made-in-Minnesota clean energy resource – "**green hydrogen**" produced by separating hydrogen from water using electrolysis powered by renewable electricity. Because there are no carbon emissions from either its production or end-use, green hydrogen has the potential to be an important zero-carbon alternative or supplement to conventional natural gas.

In Europe, green hydrogen projects are already attracting major public and private investments. Here in Minnesota, we plan to build a pilot demonstration project in 2021 to produce green hydrogen and blend it with the natural gas supply in our distribution system.

NATURAL GAS INNOVATION ACT

Earlier this year we proposed bipartisan legislation in Minnesota that would allow us to invest further in innovative technologies to serve our customers with new clean energy options.

The Natural Gas Innovation Act would provide a natural gas utility like CenterPoint Energy with the opportunity to submit an "alternative resource plan" to the Public Utilities Commission. As part of this plan, we could provide our customers alternative fuels, such as RNG and green hydrogen, as well as new energy-efficiency and carbon-capture technologies to reduce or avoid emissions.

The Minnesota Senate passed our legislation by a wide, bipartisan margin, but the House didn't take action before adjournment. We're hopeful it will pass and become law in 2021.

Our gas distribution system is essential to meeting Minnesota's energy needs. (Just consider: During the 2019 polar vortex, we supplied energy to our customers that exceeded the state's total electric generation capacity.) Even as CenterPoint Energy pursues a clean energy future, our customers and the communities we serve can trust that we will continue delivering the reliable, affordable energy they depend on every day.

APPENDIX G: IMPLEMENTATION MEMORANDUM OF UNDERSTANDING