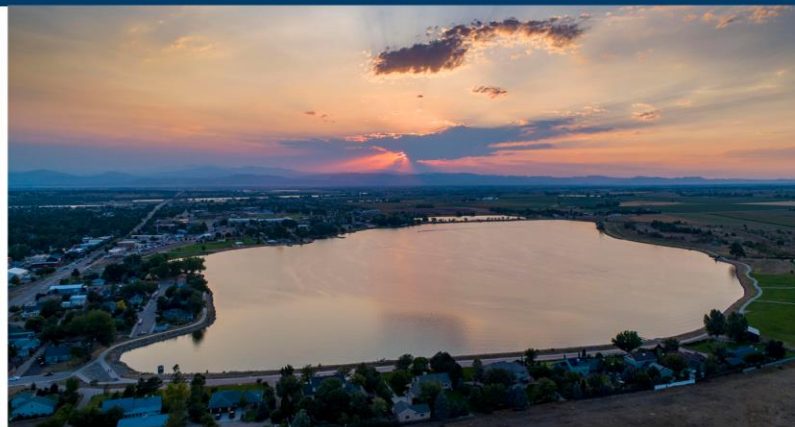




An Energy Action Plan for the Town of Windsor

June 2023



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 provides electric and gas utility services for Windsor. Partners in Energy is a two-year collaboration to develop and implement a community's energy goals.

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This Energy Action Plan was funded by and developed in collaboration with Xcel Energy's Partners in Energy. Partners in Energy shall not be responsible for any content, analysis, or results if the Town of Windsor has made modifications to the plan.

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Town of Windsor Energy Action Plan

About This Plan

The Town of Windsor is a rapidly developing community that prides itself on maintaining its small-town charm and the high quality of life it offers residents. Building on this foundation, and to explore options for increasing resiliency, the Town partnered with Xcel Energy through Partners in Energy to develop an Energy Action Plan. Over the course of nine months, a stakeholder planning team participated in a series of workshops and more than 700 residents were engaged at community events and through an online survey. This engagement resulted in a community energy vision, goal, and set of strategies intended to give residents and businesses the resources they need to choose their own resilient energy future.

Our Energy Action Goal & Vision

Vision: Through education and partnership, Windsor practices environmental stewardship by promoting energy efficiency and maintaining access to resilient, reliable, and affordable energy that drives economic growth.

Goal: Achieve 0.75% energy savings annually by increasing annual program participation to 5% by the end of 2024.

Focus Areas

The following focus areas were identified as the pathway to achieving our vision and goal:



Municipal Energy Leadership

Leading by example by making energy improvements to Town facilities and sharing best practices with the community.



Residential Outreach

Providing information and resources to enable Windsor residents to make smart energy decisions for their home.



Businesses & Institutions Outreach

Providing opportunities for businesses and institutions to discover available energy resources with Windsor and learn from their peers about ways to save energy and become more resilient.



Energy Efficient New Development

Encouraging developers to practice energy efficiency in the design and construction of new buildings in Windsor.



Strategies

Municipal Energy Leadership

- Strategy M-1: Promote the Town’s energy leadership to the broader community
- Strategy M-2: Conduct energy assessments for Town facilities and recommend implementation of cost-effective energy efficiency improvements

Residential Outreach

- Strategy R-1: Promote residential energy savings opportunities through communitywide communication channels
- Strategy R-2: Educate home contractors and trade partners on energy savings opportunities that they can share with residential customers

Businesses & Institutions Outreach

- Strategy B-1: Share energy saving resources with Windsor businesses

Energy Efficient New Development

- Strategy E-1: Empower the development community with knowledge of successful energy-saving stories and available resources to inspire action towards sustainable energy practices
- Strategy E-2: Partner with developers to create energy efficient and renewable energy options for residents to choose from prior to the construction or remodeling process

Plan Impact



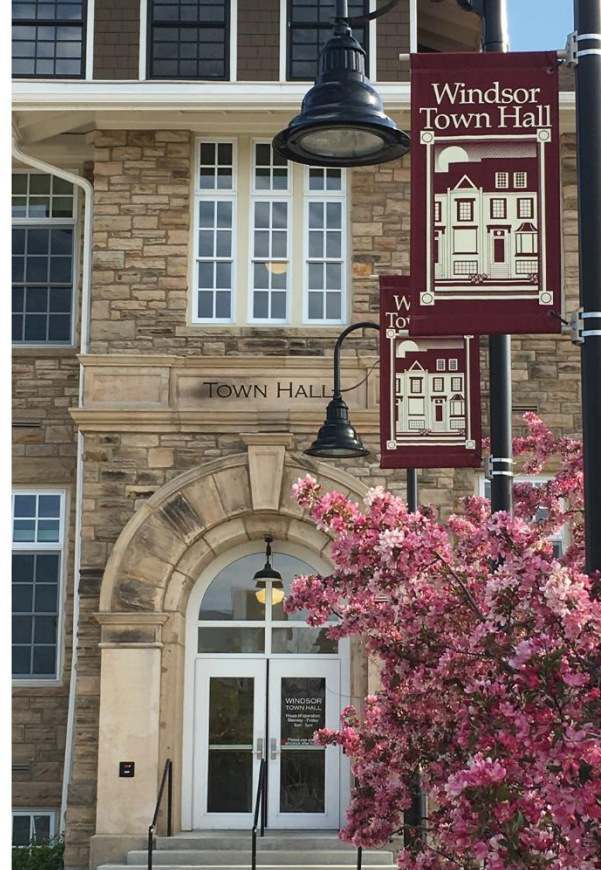
Increase the number of residents and businesses who participate in utility programs to a total of **944**



Save an estimated **2.6 million kWh** of electricity and **113,400 therms** of natural gas



Save an estimated **\$263,900** in Windsor’s community energy costs



2021 Energy Profile

In 2021, the Windsor community:



Consumed **176.6 million kWh** of electricity



Consumed **12.8 million therms** of natural gas



Spent **\$20.4 million** on energy costs¹

¹ Inclusive of Xcel Energy energy costs only. Energy cost data associated with PVREA and Atmos Gas are unavailable.



INTRODUCTION



Why Develop an Energy Action Plan

The Town of Windsor takes pride in maintaining its small-town charm and high quality of life it offers for residents, even as it undergoes rapid development. Taking energy action can support these unique characteristics by helping individuals save on energy costs and improve the comfort and safety of their home or business.

Many residents, businesses, and organizations in Windsor have already taken energy savings action, following the example of energy efficiency improvements and solar installations on Town facilities and educational efforts led by Sustainable Windsor Colorado. The purpose of this plan is to expand the financial and resiliency benefits of energy action across the entire community by giving residents and businesses the resources they need to choose their own sustainable energy future.

The Engagement & Planning Process

The creation of this Energy Action Plan was a nine-month process to help the community characterize its energy use, identify an energy-related vision and goals, and develop engaging strategies to guide change for the future.

Starting in September 2022, the development of the Energy Action Plan was driven by a series of four planning workshops with the Planning Team, representing diverse perspectives in the community (see Acknowledgements for complete list). The process was supported by a Project



Management Team that included representatives from the Town of Windsor, Sustainable Windsor Colorado, and Xcel Energy's Partners in Energy.

In addition to the workshop series, the Project Management Team engaged more than 300 residents by attending the Windsor Halloween Carnival and Windsor Wonderland, as well as hosting an online survey that received more than 400 responses. These responses were shared with the Planning Team to inform the development of this plan.

Throughout the process, the Town Board received updates on the planning process to confirm the direction of the plan.

About Xcel Energy's Partners in Energy

This process was facilitated by Xcel Energy's Partners in Energy program. 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 its outlined goals.

WHERE WE ARE NOW



The Planning Team developed a community profile – including demographics, major employers, and key energy trends – to identify barriers and opportunities for energy action. This section summarizes those findings.

Community Characteristics

Windsor has a population of approximately 44,000, and an area of 27 square miles (Town of Windsor, 2022). The smaller size of the community presents an opportunity to reach a significant number of residents through community organizations and neighborhood networks. The community has experienced significant growth in recent years, with an average annual population growth of 7% since 2011 and expectations of continued growth between 1-2% annually in future years (Town of Windsor, 2022). This means that many newer residents may not know about opportunities for improving the energy performance of their home or business.

Windsor's median income is \$111,477, which is significantly higher than the statewide median income of \$82,254. Additionally, 80% of housing units in Windsor are owner-occupied (U.S. Census, 2020). These findings indicate that Windsor residents may have the means to make improvements to their homes to lower their energy utility bills and improve their property values.

Windsor's major employers include the Weld RE-4 School District, Water Valley Company, Tolmar, Vestas Blades, and Owens-Illinois (Town of Windsor, 2022). Representatives of four of these companies participated in the planning process and are already leaders in energy action. This presents a significant opportunity to share that experience with other Windsor companies to spur energy action.

Energy Baseline

Xcel Energy provided data on energy use, participation counts, and utility energy conservation program savings for Windsor, as summarized in the following sections. See Appendix A: Baseline Energy Analysis for a comprehensive picture of Town of Windsor baseline energy data.

Multiple Utility Providers

Windsor is home to not just one, but three energy providers. In addition to Xcel Energy, community members in Windsor may receive energy services from Poudre Valley Rural Electric Association (PVREA) or Atmos Energy. While Xcel Energy provides the majority of electricity and natural gas to the Town of Windsor, within the Town's boundary PVREA provides a portion of the community with electricity and Atmos Energy provides a portion of the community with natural gas. Figure 1 illustrates the service areas of Xcel Energy and PVREA; the boundary for Atmos Energy was not available.

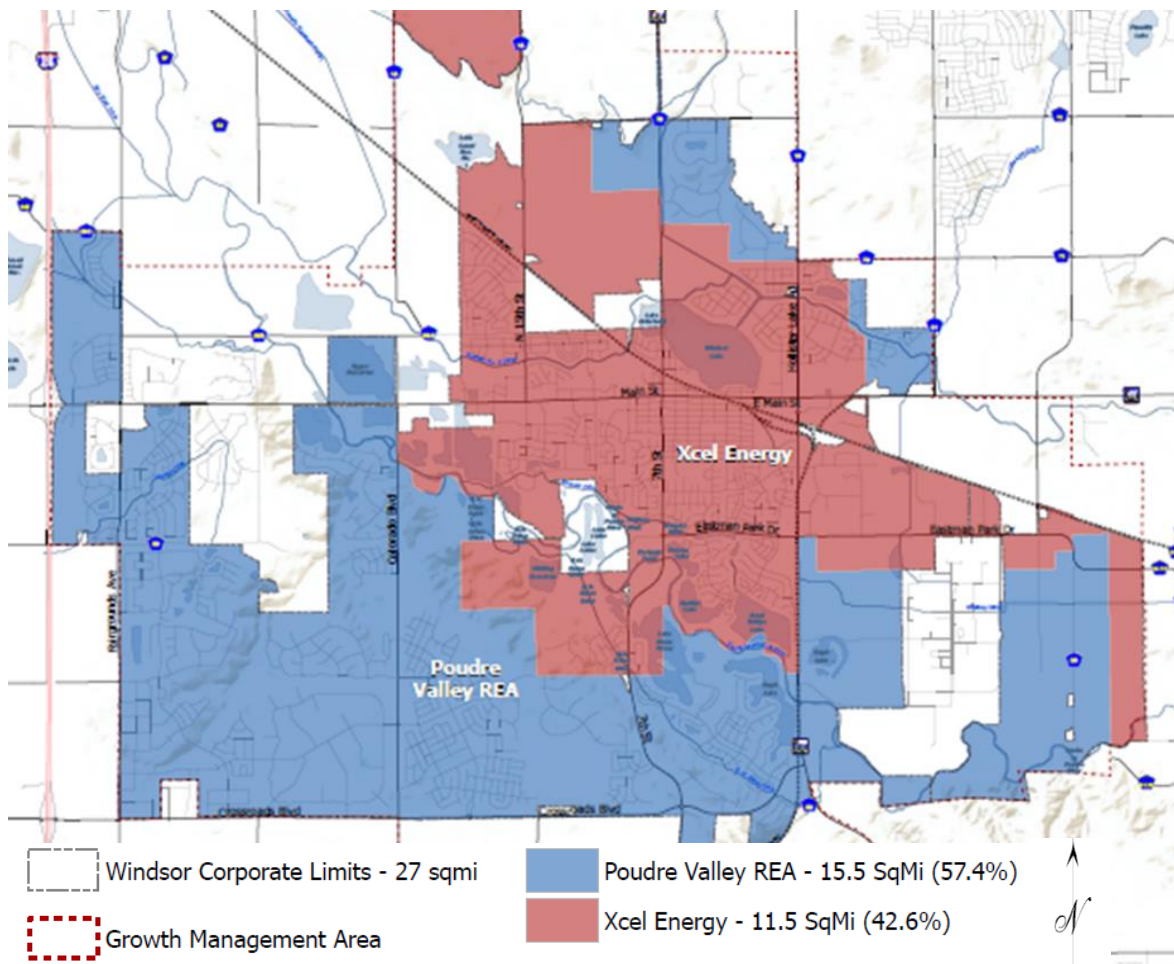


Figure 1. Windsor Electric Utility Service Areas (Town of Windsor, 2022)

The data represented in this plan only represents energy data for Xcel Energy customers, unless otherwise indicated. PVREA and Atmos Energy provided energy use data that was combined with Xcel Energy data. Additionally, Xcel Energy provided data on participation counts, utility energy conservation, and program savings for Windsor. Xcel Energy provides 93 percent of the Town’s natural gas needs and 71 percent of the Town’s electricity needs (Figure 2). However, future growth in PVREA’s territory may change this distribution in the future.

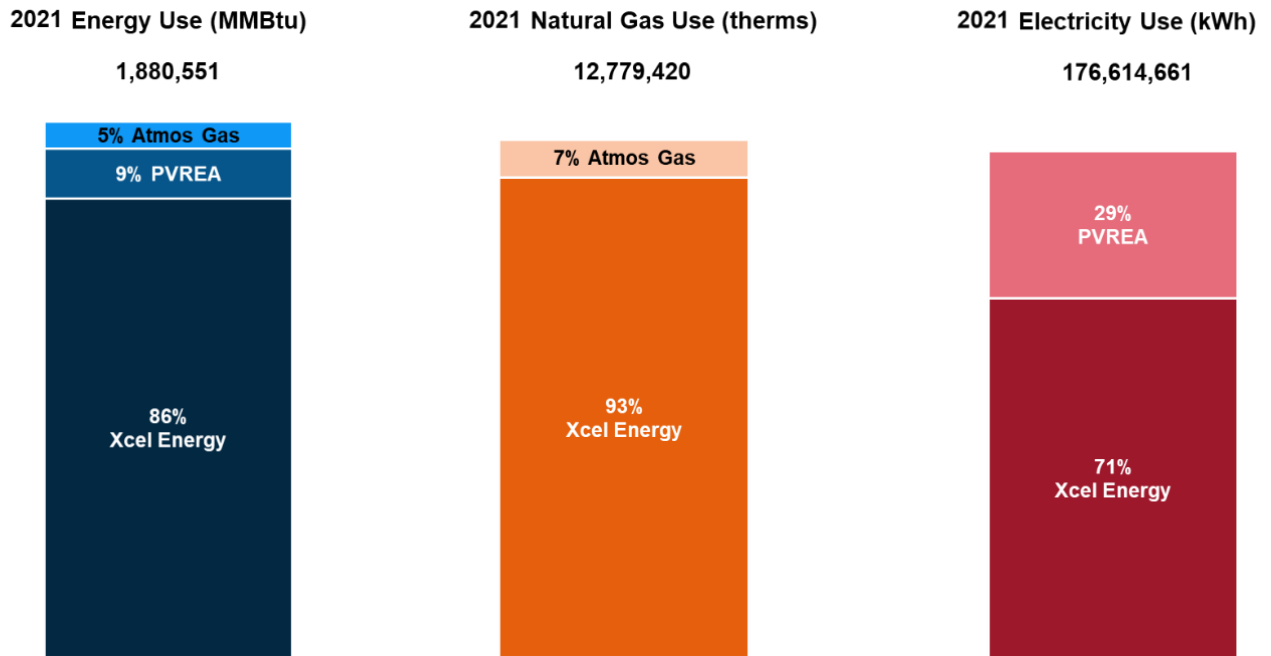


Figure 2. Town of Windsor total energy, electricity, and natural gas use in 2021, broken out by utility service providers

Community Energy Use

Xcel Energy provided electricity and natural gas to 14,297 unique locations (known as premises, which are a unique combination of service address and meter) in Windsor in 2021. Between 2019 and 2021, Windsor experienced an 18 percent increase in total premises, reflective of the community’s rapid growth. Including energy use from all three utilities, Windsor used 176.6 million kWh of electricity and 12.8 million therms of natural gas which, combined, is equivalent to 1.9 million MMBtu of energy (Figure 3).

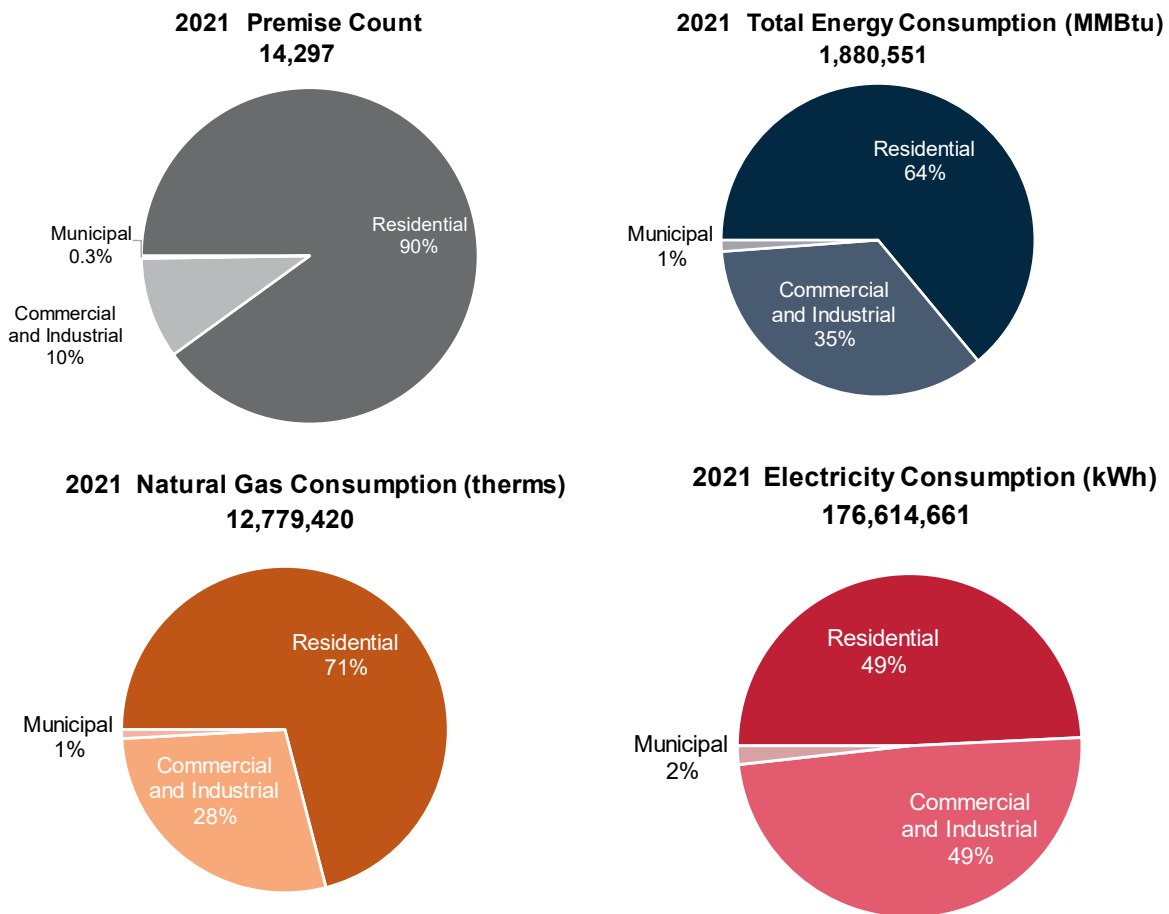


Figure 3. 2021 Community Energy Use by Sector

Most Xcel Energy customers in Windsor are residential, making up 90 percent, or 12,869 premises within the town (Figure 3). While the residential sector uses the majority of total energy (64 percent), the commercial and industrial (C&I) sector typically has a much higher average energy use per premise. On average, C&I premises have more than nine times higher electricity use and nearly four times higher natural gas use annually than an average residential premise (Figure 4). The gap may be even greater for industrial manufacturing uses.

This higher scale of energy use presents opportunities for C&I customers to lower their energy bills through measures that both reduce their energy use and shift their peak demand. While C&I opportunities may produce larger energy savings, residential energy saving opportunities should also be considered given the number of customers in the sector and the scale of the energy use overall in the Town.

Residential Energy Facts		Commercial Energy Facts	
\$950	Annual spend on energy for a typical Windsor home	\$5,700	Annual spend on energy for a typical Windsor business
4,800 kWh	Annual electricity use for a typical Windsor home	44,500 kWh	Annual electricity use for a typical Windsor business
650 therms	Annual natural gas use for a typical Windsor home	2,500 therms	Annual natural gas use for a typical Windsor business

Figure 4. Average energy use and costs for homes and businesses in Windsor in 2021

The Town of Windsor municipal facilities make up less than one percent of the community premises, and approximately one percent of community energy use. The Town has 36 premises, all located within Xcel Energy service territory, that in total used approximately 3.1 million kWh and 113,500 therms in 2021 for a total energy cost of nearly \$356,000 for the year. On average, a Town facility has the highest cost per premise than any other sector, spending about \$9,900 annually on natural gas and electricity. When comparing against other Colorado Partners in Energy communities, it is typical for the average spend on energy at a municipal facility to be higher than the average commercial premise. Across Partners in Energy communities in Colorado in 2021, municipal premises on average spent 86 percent more on energy annually than the average commercial premise. In the Town’s case, the average municipal facility spends about 77 percent more on energy annually than does the average commercial premise. This higher spend on energy presents similar opportunities to identify energy savings that result in reduced cost of energy.

Utility Program Participation

In Xcel Energy and PVREA territories, emissions related to electricity consumption and generation are projected to continue to decrease in the future due to an increase in renewable electricity generation resources while still maintaining a resilient and reliable grid. This is driven by the utilities' energy goals. Xcel Energy has a goal to reduce carbon emissions by 80 percent (85 percent lower in Colorado) by 2030 and a vision of 100 percent carbon-free electricity emissions by 2050 from a baseline of 2005 (Figure 5).

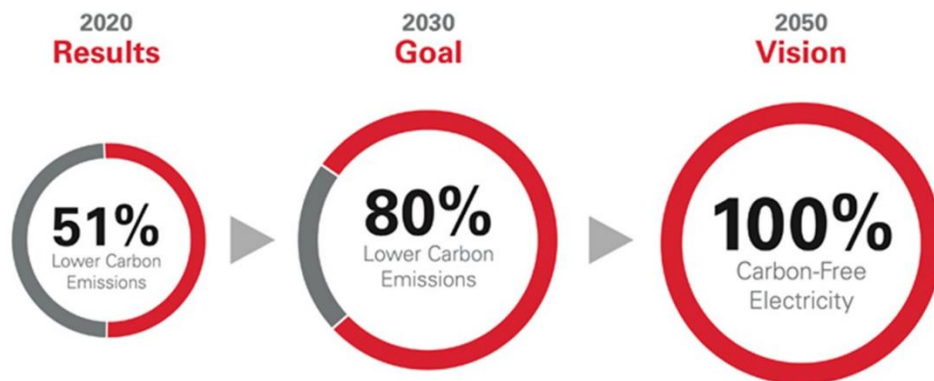


Figure 5. Xcel Energy's carbon free vision and progress against a 2005 baseline

Similarly, PVREA has a goal of providing 80 percent carbon-free energy to its members by 2030. For customers who want to contribute to renewable energy and reduce their energy use and costs, Xcel Energy, PVREA, and Atmos Gas offer a variety of rebates and programs for both existing buildings and new construction. For this planning process, program participation and savings data were collected for Xcel Energy offerings only, as data was not available from PVREA or Atmos Gas for Windsor.

In Windsor, energy efficiency program participation fluctuated over the past three years (2019-2021) in both the residential and C&I sectors. On average, 2.4 percent of C&I premises and 3.3 percent of residential premises participated in energy efficiency programs (Table 1), which is lower than other Partners in Energy communities across Colorado, indicating an opportunity to increase total energy savings by increasing participation.

Table 1. 2019-2021 Average Energy Efficiency Program Participation in Windsor

Sector	Energy Efficiency Program Participation (#)	Participation (%)
Residential	427	3.3%
Commercial and Industrial	34	2.4%
Total	461	3.2%

In 2021, 0.2 percent of C&I premises and 5.4 percent of residential premises participated in Xcel Energy renewable energy programs (Table 2), which was less than many other Partners in Energy communities across the state.

Table 2. 2021 Total Renewable Energy Program Participation in Windsor (including on-site installations since 2017)

Sector	Renewable Energy Program Participation (#)	Participation (%)
Residential	699	5.4%
Commercial and Industrial	3	0.2%
Total	702	4.9%

The top three residential energy efficiency programs in Windsor in 2021 included new construction-related upgrades through Energy Star® New Homes, equipment-based upgrades through the Residential HVAC program, and thermostat upgrades through the Smart Thermostat program (Figure 6). Across the renewable energy portfolio, residents in Windsor participated most in Windsource®, Net Metering, and Solar*Rewards, representing a mix of on-site and subscription-based renewable energy (Figure 7). The total number of participants, as shown in Table 2, represent the full history of subscriptions and the total number of on-site solar installations between 2017-2021, based on Xcel Energy data.

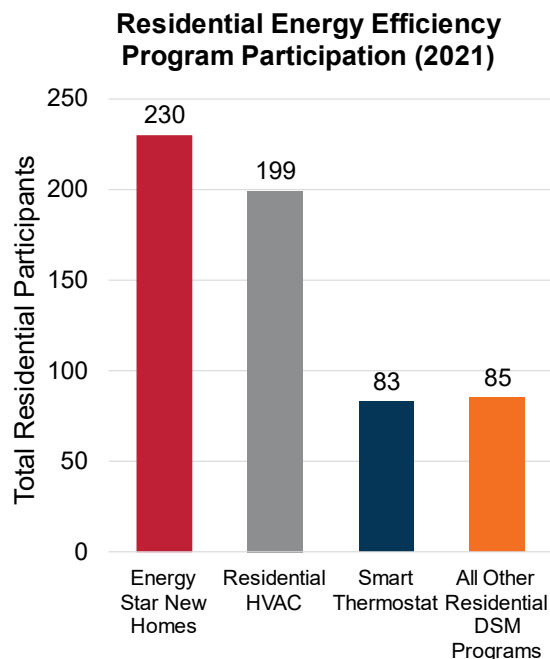


Figure 6. Energy Efficiency Program Participation in 2021 by Windsor Residents

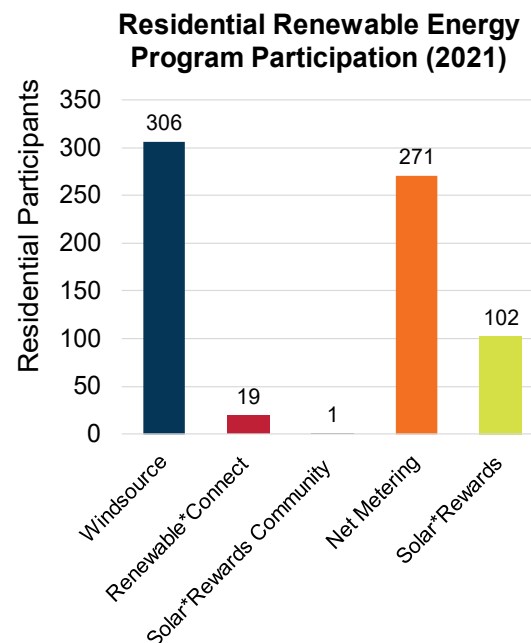


Figure 7. Renewable Energy Program Participation as of 2021 by Windsor Residents (including on-site installations since 2017)

In the C&I sector, the top energy efficiency programs in 2021 were lighting, equipment and controls upgrades, as well as building renovations through the Small Business Solutions, Lighting Efficiency, Small Commercial Building Controls, and Energy Efficient Buildings programs (Figure 8).

Across the renewable energy portfolio, businesses in Windsor participated most in Solar*Rewards, electing to physically install on-site systems on business property instead of subscribing to renewable energy resources elsewhere (Figure 9). The total number of participants as shown in Figure 9 represent the total number of installations between 2017-2021 based on Xcel Energy data.

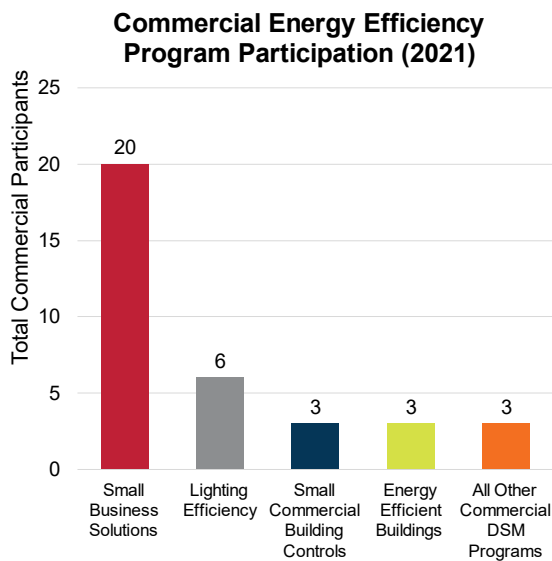


Figure 8: DSM Participation in 2021 by Windsor Businesses

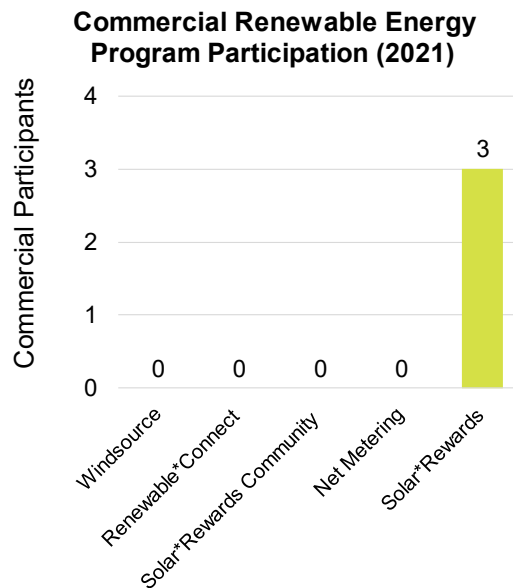


Figure 9: Renewable Energy Program Participation as of 2021 by Windsor Businesses (including on-site installations since 2017)

As a result of program participation across Xcel Energy programs, Windsor has saved approximately 961,000 kWh in electricity 55,300 therms in natural gas savings annually on average between 2019-2021 (Figure 10). The majority of natural gas savings has come from the residential sector while the majority of electricity savings has come from the C&I sector.

Sector	Average Natural Gas Savings	Average Electricity Savings	Average Program Participation
Residential	53,600 therms	168,000 kWh	427 participants
Commercial	1,700 therms	793,000 kWh	34 participants
Total	55,300 therms annually	961,000 kWh annually	461 participants annually

Figure 10. Estimated Average Electricity & Natural Gas Savings from Program Participation between 2019-2021

Of the total savings achieved by the community, Town of Windsor facilities have saved on average an estimated 1,383 kWh in electricity between 2019-2021 and typically participate in energy efficiency programs between 1 and 2 times per year. The Town's energy efficiency program participation and savings is shown in Table 3.

Table 3. Windsor Municipal Energy Efficiency Program Metrics

Year	Participation	Estimated Electricity Savings (kWh)	Estimated Natural Gas Savings (therms)	Programs
2019	1	982	0	Small Business Solutions - 1
2020	0	0	0	n/a
2021	2	3,167	0	Small Business Solutions - 2
Total	3	4,149	0	

In terms of overall renewable energy, 5.8 million kWh of electricity use in Windsor was subscribed to or generated through renewable energy programs. This represents about 1 percent of overall electricity use in the community in 2021. The Town of Windsor municipal facilities have not participated in renewable energy programs in the last three years but were earlier adopters of on-site solar at five Town facilities.

Given the limited participation in renewable energy programs, there is an opportunity to strategize ways to increase renewable energy use in Windsor, both at the community scale for residents and businesses and at the municipal scale at Town facilities. See Table 4 for renewable energy adoption by the community in 2021 by renewable energy program.

Table 4. Town of Windsor 2021 Renewable Energy Program Participation Including On-Site Installations Since 2017 and Electricity Subscribed/Generated

Renewable Energy Program	Commercial & Industrial		Residential	
	Participation	Total Electricity (kWh)	Participation	Total Electricity (kWh)
Xcel Energy Windsource®	0	0	306	845,026
Xcel Energy Renewable*Connect®	0	0	19	81,149
Xcel Energy Solar*Rewards (on-site)	3	869,358	102	2,630,106

Xcel Energy Solar*Rewards Community	0	0	1	793
Net Metering (on-site solar)	0	0	271	1,398,190
Total	3	869,358	699	4,955,264

WHERE WE ARE GOING



The Planning Team created the following vision statement and quantitative goal to guide the planning process and reflect the intention of the community.

Vision Statement

Through education and partnership, Windsor practices environmental stewardship by promoting energy efficiency and maintaining access to resilient, reliable, and affordable energy that drives economic growth.

Goal

Achieve 0.75% energy savings annually by increasing annual program participation rate to 5% by the end of 2024.

Meeting this goal would equate to a 36 percent increase in energy efficiency program participation and estimated energy savings compared to the baseline (2019-2021 annual average), which the Planning Team and the Town Board agreed was “ambitiously practical” (Figure 11).

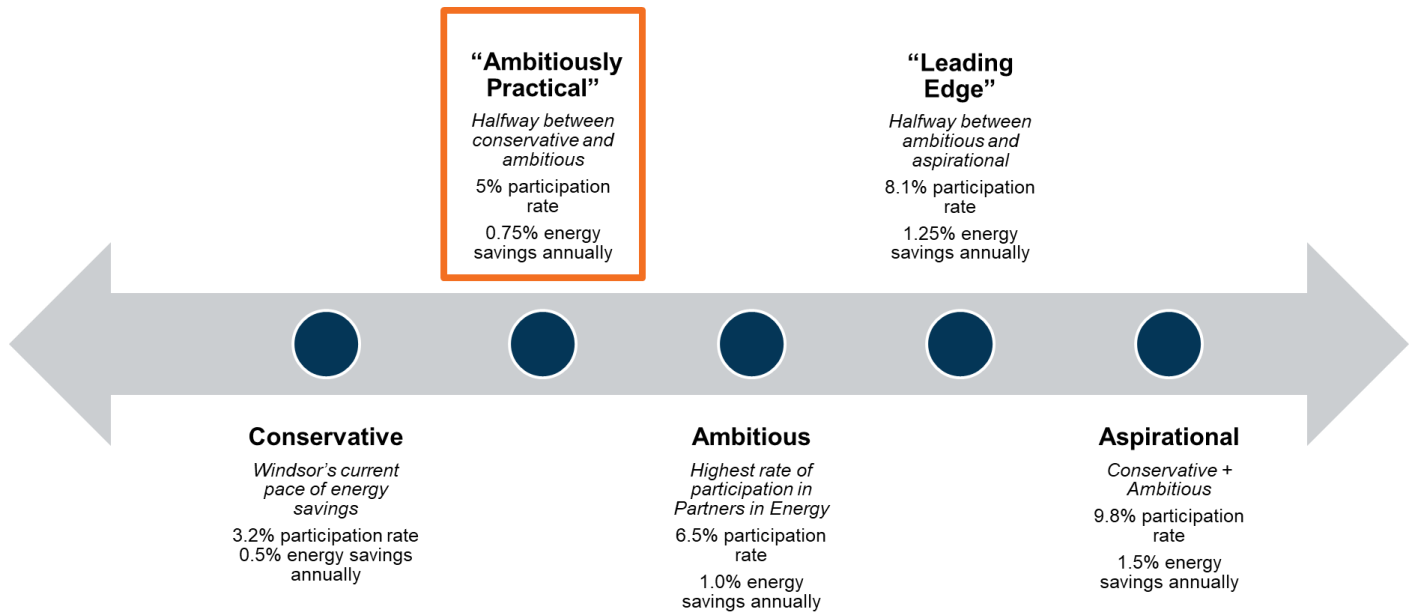


Figure 11: Goal Spectrum with Windsor's Goal Level (Ambitiously Practical) Selected

Focus Areas

Focus areas are intended to help organize resources and prioritize action. Reflecting the vision's focus of environmental stewardship through education and partnership, the Planning Team identified the following four focus areas.



Municipal Energy Leadership: Leading by example by making energy improvements to Town facilities and sharing best practices with the community.



Residential Outreach: Providing information and resources to enable Windsor residents to make smart energy decisions for their home.



Businesses & Institutions Outreach: Providing opportunities for businesses and institutions to discover available energy resources and learn from their peers about ways to save energy and become more resilient.



Energy Efficient New Development: Encouraging developers to practice energy efficiency in the design and construction of new buildings in Windsor.

HOW WE ARE GOING TO GET THERE



This section outlines how Windsor will reach its energy vision and goal through seven priority strategies, organized by the plan’s four focus areas. The strategies include detailed action plans that will serve as a playbook for implementation. Additional strategy ideas are provided in Appendix B: Strategy Library to be considered for longer term implementation or when additional resources are available.



Municipal Energy Leadership

- Strategy M-1: Promote the Town’s energy leadership to the broader community
- Strategy M-2: Conduct energy assessments for Town facilities and recommend implementation of cost-effective energy efficiency improvements



Residential Outreach

- Strategy R-1: Promote residential energy savings opportunities through communitywide communication channels
- Strategy R-2: Educate home contractors and trade partners on energy savings opportunities they can share with residential customers



Businesses & Institutions Outreach

- Strategy B-1: Share energy saving resources with Windsor businesses



Energy Efficient New Development

- Strategy E-1: Empower the development community with knowledge of successful energy-saving stories and available resources to inspire action toward sustainable energy practices
- Strategy E-2: Partner with developers to create energy efficient and renewable energy options for residents to choose from prior to the construction or remodeling process



Focus Area: Municipal Energy Leadership

Windsor has a history of leading by example through implementing energy efficiency and renewable energy measures at Town facilities. This focus area identifies how Windsor will continue demonstrating energy action leadership, realizing energy cost savings in the process.

Windsor Energy Spotlight

The Town retrofitted its facilities with LED lighting and installed rooftop solar panels on five facilities. Plans are in place to update the heating and cooling systems in the Community Recreation Center, making them more energy efficient.



Modeled Solar Panels on Town Public Services Facility

Strategy M-1: Promote the Town's energy leadership to the broader community

The Town has already taken steps to become more energy efficient and increase its renewable energy use. This strategy involves sharing these stories as examples for other institutions and businesses, and with residents, to inspire community pride. The Town has also identified several upcoming projects (Rec Center HVAC upgrades, new construction for the police department, and EV charging infrastructure and stations), some of which may be completed during implementation and could serve as additional projects to highlight as examples for other institutions and businesses.

Target

- Share four Town energy leadership highlights with the community by the end of 2023

Available Resources

- Partners in Energy funds for printing outreach materials

Implementation Timeline

- Q2 2023
 - Identify initiatives and projects to highlight and compile related details (e.g., solar generation at existing facilities, LED streetlight conversions, testimonials)
 - Identify key channels for promoting projects and initiatives, including:
 - Town of Windsor Project Connect website
 - Town social media channels
 - Sustainable Windsor Colorado outreach
 - Community organizations (e.g., Optimists Club)
 - Chamber of Commerce
 - Downtown Development Authority

- Q2-Q4 2023
 - Create success stories, testimonials, or other content
 - Coordinate outreach with Strategy R-1

Roles and Responsibilities

- **Town Staff (Facilities):** Collect stories and data to share, including estimated cost savings when possible, from Town energy initiatives
- **Town Staff (Marketing & Communications):** Distribute outreach materials to the community
- **Sustainable Windsor Colorado:** Support outreach efforts
- **Partners in Energy:** Develop outreach materials

Strategy M-2: Conduct energy assessments for Town facilities and recommend implementation of cost-effective energy efficiency improvements

Although some Town facilities have been built more recently, no Town facilities have received energy assessments in the last three years. Energy assessments can help identify energy efficiency projects that will result in energy and cost savings. There are a wide range of options, with varying levels and costs, of energy assessments that the Town can choose. This strategy involves completing assessments for municipal facilities and reviewing assessment results to develop recommendations to address opportunities identified.

Target

- Complete assessments at between two and five Town facilities by the end of 2023

Available Resources

- [Xcel Energy energy assessment programs](#)
- [Colorado Energy Office Energy Performance Contracting program](#)
- State and federal financial tax credits, grants, and rebates

Implementation Timeline

- Q2 2023
 - Prioritize and select properties for the energy assessments
 - Based on past energy efficiency efforts at properties and costs for different types of assessments, determine the appropriate level of energy assessment to pursue for the property
- Q3-Q4 2023
 - Schedule and complete assessments through Xcel Energy business energy assessment programs
- Q1 2024
 - Review results and select cost-effective improvements to recommend to Town Board for inclusion in future budget
 - Maintain a project list for future improvements and related funding opportunities

Roles and Responsibilities

- **Town Staff (Facilities):** Lead assessment process and development of recommendations for project funding
- **Xcel Energy Account Manager (Dan Clark):** Support assessment process and development of recommendations
- **Partners in Energy:** Support coordination between Xcel Energy and the Town and maintain a project list with funding opportunities



Focus Area: Residential Outreach

The residential sector represents a significant opportunity to reduce energy consumption and save residents money in Windsor. This focus area identifies ways to connect residents with resources for practicing energy efficient behaviors and making home energy improvements.

Windsor Spotlight

Sustainable Windsor Colorado is a community organization comprised of resident volunteers who help educate the Windsor community on opportunities to become more sustainable, including ways to save energy and use more renewable energy.



Sustainable Windsor Colorado volunteers, Town staff, and Partners in Energy staff at the Town Halloween Carnival

Strategy R-1: Promote residential energy savings opportunities through communitywide communication channels

Many no- and low-cost opportunities for residents to save energy and money are available by changes to behaviors and through home energy assessment programs, equipment rebates, and other financial incentives. This strategy involves increasing awareness about these opportunities and encouraging participation in energy programs through a townwide education effort.

Targets

- Increase annual participation in residential energy programs incrementally by 126 participants over and above the three-year average of 427 participants
- Increase community awareness about residential energy programs from a baseline of 38 percent of residents who self-identify as unfamiliar with energy rebates and programs for the home in 2022 to less than 30 percent by the end of 2024

Available Resources

- [Xcel Energy residential programs and rebates](#)
- [PVREA residential programs and rebates](#)
- [Atmos Energy residential programs and rebates](#)
- State and federal financial tax credits and rebates
- Partners in Energy funds for printing outreach materials

Implementation Timeline

- Q2 2023
 - Develop outreach plan that includes:
 - Messages that promote existing utility programs, state and federal incentives, and energy saving behaviors
 - Messages that start with simple steps (e.g., setting back thermostats) that help residents identify the energy and cost savings potential in their home
 - Outreach channels, such as:
 - Community events (e.g., Windsor Wonderland, Halloween Carnival, Earth Day, Harvest Festival, Farmers Market, Recycle Days, Summer Concert Series, Business Expo)
 - Social media (e.g., Facebook, NextDoor)
 - Library displays
 - Local newspapers (e.g., Greeley Tribune), magazines, e-newsletters (e.g., Windsor Matters), and radio
 - Direct mailings and utility bill inserts
 - Partnerships with homeowners' associations, faith-based organizations, and service organizations (e.g., Kiwanis, Girl and Boy Scouts, VFW)
 - Work with the school to identify outreach opportunities such as student take home materials, STEM fairs, the ad-hoc water committee, or energy-related projects and contests in student clubs or classes
- Q3 2023-Q3 2024
 - Develop outreach materials according to outreach plan
 - Implement outreach plan
- Q4 2024
 - Evaluate results to inform future outreach efforts

Roles and Responsibilities

- **Town Staff (Marketing & Communications):** Support development of outreach plan; distribute outreach materials; and update Project Connect website
- **Town Staff (Planning):** Support development of outreach plan; review outreach materials; lead outreach at community events; and support other outreach activities
- **Sustainable Windsor Colorado:** Support outreach at community events and lead outreach to potential partners
- **Weld RE-4 School District:** Review relevant outreach materials and support outreach activities through school channels
- **Utilities:** Provide information about available programs to inform outreach materials

- **Partners in Energy:** Develop outreach plan and supporting outreach materials; provide information about state and federal tax credits and rebates; and support outreach activities

Strategy R-2: Educate home contractors and trade partners on energy savings opportunities that they can share with residential customers

Many home contractors already connect their customers with utility rebates, state and federal incentives, and other energy saving resources, while others may be unaware of the available incentives and energy saving practices. This strategy involves conducting direct outreach with contractors and trade partners who do work in Windsor to help them better understand current practices and encourage them to share energy saving resources with Windsor residents.

Target

- Increase participation in Xcel Energy Trade Partner Network, by contractors in Windsor zip codes, from a baseline of 13 in 2023 to 20 by the end of 2024

Available Resources

- [Xcel Energy Residential Trade Partner Resource Center](#)

Implementation Timeline

- Q3 2023
 - Identify outreach channels to reach contractors, including:
 - Chamber of Commerce Buildings Pro’s Networking Group
 - Northern Colorado Construction Sector Partnership
 - State website
 - Permitting process
 - Next Door, Angie’s List, etc.
 - Develop outreach materials with relevant contractor resources from all energy utilities and state and federal sources
- Q4 2023 – Q4 2024
 - Share outreach materials
 - Coordinate with Strategy R-1 to include messaging to increase resident awareness about Xcel Energy’s contractor list and encourage residents to share their home energy assessment reports with their contractors

Roles and Responsibilities

- **Town Staff (Buildings and Permits):** Distribute outreach materials during permit process
- **Utilities:** Provide information about available programs to inform outreach materials
- **Partners in Energy:** Develop outreach materials



Focus Area: Businesses & Institutions Outreach

As businesses and institutions have much higher energy use than do residences, building owners in this sector can save a significant amount on energy costs by implementing improvements. This area focuses on encouraging businesses to participate in energy saving programs.

Windsor Energy Spotlights

Many Windsor businesses and institutions are already leading the way in energy action.

- **UC Health** retrocommissions its buildings to run more efficiently.
- **Vestas** facilities use LED lighting and has plans for achieving carbon neutrality.
- **Weld RE-4 School District** has retrofitted most facilities to use LED lighting.

Through the State's *Main Street: Open for Business* program, three Windsor businesses received funds for façade improvements, including energy efficient windows and LED lighting. One business owner estimated 20 percent utility bill savings due to the improvements.



Strategy B-1: Share energy saving resources with Windsor businesses

Many businesses and institutions in Windsor have already taken energy action to save on energy costs. The purpose of this strategy is to share these examples with other businesses and institutions in Windsor and connect them with the best energy programs and rebates to fit their needs.

Target

- Increase annual participation in commercial energy programs incrementally by 9 participants over and above a three-year average of 34 participants

Available Resources

- [Xcel Energy business programs and rebates](#)
- [PVREA business programs and rebates](#)
- [Atmos Energy business programs and rebates](#)
- [Colorado Main Street Program](#)
- [Colorado Energy Office Energy Performance Contracting program](#)
- [Energy Star® resources](#)
- State and federal financial tax credits, grants, and rebates
- Partners in Energy reimbursable funds for printing outreach materials

Implementation Timeline

- Q2 2023
 - Form a business outreach committee to develop an outreach strategy with consistent messaging and coordinated activities.
- Q3 2023
 - Develop an outreach plan that includes:
 - Education on topics like energy savings, financing, energy reliability and resilience, demand-management, energy project management, and emerging trends like electrification – emphasizing the spectrum of energy improvements, from quick wins to deep retrofits
 - Success stories from other businesses (local or meaningful stories from outside of Windsor) and the resulting benefits like energy and cost savings, return on investment, and attraction of additional investment (e.g., Memory Lane Antiques Store)
 - Promotion of businesses and institutions that are already reporting through benchmarking programs (e.g., Energy Star®)
 - Ongoing outreach through newsletters and social media from Chamber of Commerce, Downtown Development Authority, and Town's Economic Development department
 - Lunch-and-learns with options to participate virtually (and recorded for future sharing), in partnership with established event series like Chamber Morning Brew Networking Group and Business After Hours

- Tours of businesses with energy saving practices and improvements (e.g., Aims Community College, Front Range Energy, UC Health)
 - Peer groups to encourage similar businesses to learn from each other (e.g., downtown businesses)
 - Develop outreach materials according to outreach plan
- Q4 2023-Q3 2024
 - Implement outreach plan in coordination with Strategy R-1
- Q4 2024
 - Evaluate results to inform future outreach efforts

Roles and Responsibilities

- **Town Staff (Marketing & Communications):** Review and distribute outreach materials; and update Project Connect website
- **Town Staff (Economic Development):** Participate in business outreach committee; support development of outreach plan; distribute outreach materials; and support other outreach activities
- **Chamber of Commerce:** Participate in business outreach committee; support development of outreach plan; distribute outreach materials; and support other outreach activities
- **Downtown Development Authority:** Participate in business outreach committee; support development of outreach plan; distribute outreach materials; and support other outreach activities
- **Aims Community College:** Share experience through outreach activities
- **Front Range Energy:** Share experience through outreach activities
- **UC Health:** Share experience through outreach activities
- **Sustainable Windsor Colorado:** Support outreach activities
- **Utilities:** Provide information about available programs to inform outreach materials
- **Partners in Energy:** Facilitate business outreach committee coordination and development of outreach plan; develop outreach materials and business success stories; support outreach activities



Focus Area: Energy Efficient New Development

Windsor's population is expected to continue increasing by at least 1.75% annually, which presents an opportunity to save on energy costs by incorporating energy efficiency into new construction. This strategy focuses on identifying ways Windsor can further promote energy efficient construction as an option for homebuyers by engaging the development community around energy choices during design and construction.

Windsor Energy Spotlight

All new streetlights in Windsor are required to use LED lighting per the Division 1 - Street Specifications, section 1.21(F). Unless otherwise approved by the Town of Windsor, LED lights shall be used and installed according to the "Standard Specifications for Road and Bridge Construction" from the Colorado Department of Transportation.

Strategy E-1: Empower the development community with knowledge of successful energy-saving stories and available resources to inspire action towards sustainable energy practices

Many developers and builders already use energy efficient practices during construction, though others may be unaware of the associated benefits and available utility resources. Over the last three years, an average of 977 certificates of occupancy have been issued for homes in Windsor, however only about 12% of those homes in Xcel Energy territory have incorporated enhanced energy efficiency into the construction of the home through the Energy Star New Homes program. This strategy involves engaging with key members of the local development community to better understand current practices and sharing outreach materials to all developers to raise awareness of energy saving practices and associated resources to support energy savings in new construction.

Target

- Increase annual participation in new construction programs by 32 participants over and above the three year average of 115 participants through Energy Star New Homes, Energy Efficient Buildings, and Energy Design Assistance

Available Resources

- [Xcel Energy new construction programs and rebates](#)
- [PVREA programs and rebates](#)
- [Atmos Energy programs and rebates](#)
- [Colorado Energy Office Building Efficient and Resilient Homes Quick Reference Guide](#)
- State and federal financial tax credits, grants, and rebates
- Partners in Energy funds for printing outreach materials

Implementation Timeline

- Q3 2023

- Research best practices in new development through Xcel Energy, Department of Energy, other Partners in Energy community success stories, and other channels
 - Share success stories with the Town Board, as relevant
- Compile existing resources that support energy efficient new development and help the development community leverage available resources
- Q4 2023
 - Develop an outreach plan that includes:
 - Key messages, including available resources
 - Outreach channels, including:
 - Partnerships and presentations with Home Builders Association, Northern Colorado Housing, and other builders that serve Windsor
 - Marketing staff at home building companies serving Windsor (for prospective home buyers)
 - Coordinate outreach with Strategies R-1 and R-2
- Q1 2024-Q3 2024
 - Develop outreach materials according to outreach plan
 - Explore opportunities to formally recognize members of the development community who are practicing energy smart development
- Q4 2024
 - Evaluate results to inform future outreach efforts

Roles and Responsibilities

- **Town Staff (Building/Planning):** Distribute outreach materials through development review process and/or other interactions with the development community
- **Sustainable Windsor Colorado:** Support outreach activities
- **Utilities:** Provide information about available programs to inform outreach materials
- **Partners in Energy:** Lead research and compilation of existing resources; lead development of outreach plan and materials; help coordinate presentations to development community

Strategy E-2: Partner with developers to create energy efficient and renewable energy options for residents to choose from prior to construction or remodeling process

Constructing energy efficient and solar-ready homes can save homeowners money on energy bills and future retrofit costs. This strategy focuses on providing energy efficient and renewable energy options during the home construction process so residents can choose these features to be built into their home as desired.

Targets

- Develop a residential energy upgrade package for consideration by developers by end of 2024

Available Resources

- [Xcel Energy new construction programs and rebates](#)
- [Xcel Energy Colorado Energy Codes and Standards program](#)
- [PVREA programs and rebates](#)
- [Atmos Energy programs and rebates](#)
- [US Green Building Council Colorado](#)
- [Colorado Energy Office Building Efficient and Resilient Homes Quick Reference Guide](#)
- State and federal financial tax credits, grants, and rebates

Implementation Timeline

- Q4 2023
 - Identify residential developers who may be interested in exploring an energy efficiency and renewable energy package option (e.g., Broe Development)
 - Research various new home standards and certifications (e.g., Passive House, Zero Energy Ready Home, WaterSense, Energy Star, Indoor airPLUS) to inform an energy upgrade package option based on Town and developers needs
- Q1 2024
 - Engage interested developers to determine what would be needed to develop an energy upgrade package for new homes (e.g., certified contractors to install measures)
- Q2-Q3 2024
 - Conduct research and collect resident feedback as needed to gauge interest in an energy upgrade option for new homes
 - Present research and resident feedback to developers and utilities; and, discuss potential barriers to and opportunities for offering an energy update package option, including in which development phase to incorporate features
 - Draft energy upgrade package in coordination with participating developers and utilities
- Q4 2024
 - Present energy upgrade package to Town Board as an update
 - Share final energy update package with developers
 - Based on experience, explore industrial and commercial development opportunities

Roles and Responsibilities

- **Town Staff (Planning):** Co-lead developer engagement and residential survey development
- **Town Staff (Marketing & Communications):** Distribute residential survey
- **Residential Developers:** Participate in development of a package option
- **Sustainable Windsor Colorado:** Support engagement activities
- **Utilities:** Support development of a package option
- **Partners in Energy:** Lead research and co-lead developer engagement and residential survey development

Energy Action Plan Impact

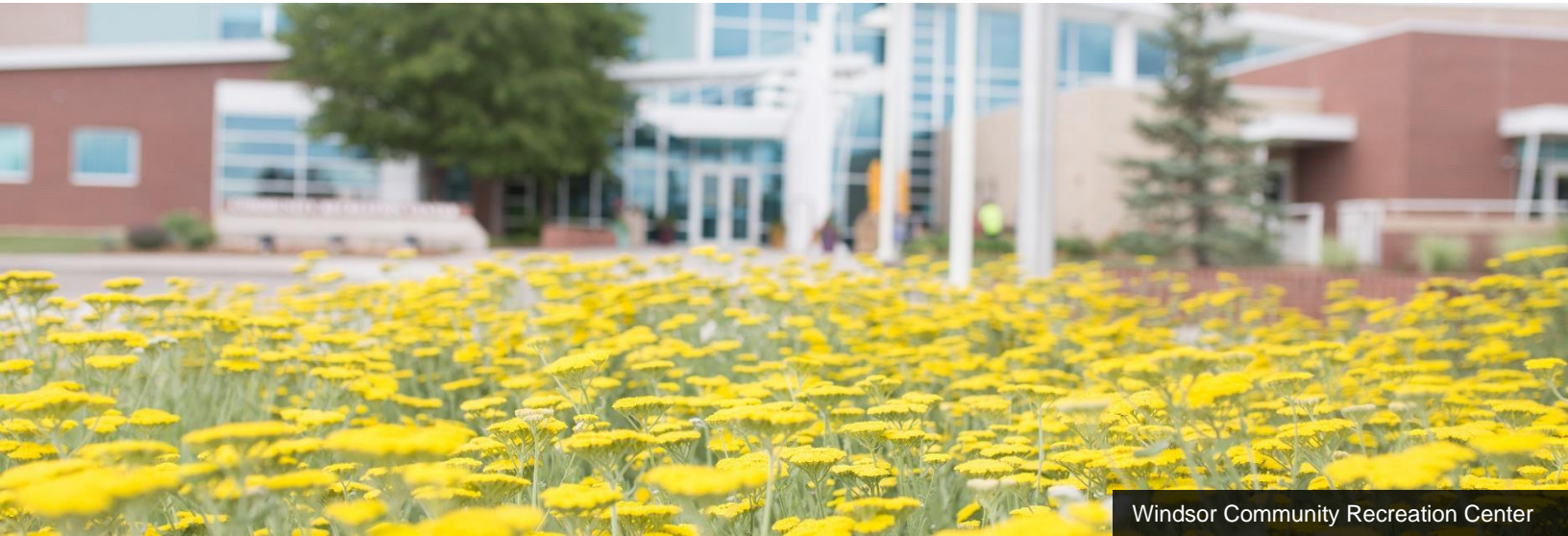
Over the next 18 months, the combined targets and strategies outlined in this plan will result in the following impacts:

Table 5: 18-Month Energy Action Plan Impact

Metric	Baseline¹ (18-month)	Incremental Impact	Total
Participation	692	252	944
Estimated Electricity Savings (kWh)	1,443,800	1,185,200	2,629,000
Estimated Natural Gas Savings (therms)	82,900	30,500	113,400
Estimated Greenhouse Gas Emissions Savings from Building Energy (MTCO₂e)	1,146	632	1,778
Estimated Energy Cost Savings (\$)	\$155,700	\$108,200	\$263,900

¹ Based on the three-year average of energy efficiency program participation between the years 2019-2021. It is expanded to 18 months and values are rounded to match the timeframe of an 18-month Partners in Energy implementation period.

HOW WE STAY ON COURSE



Windsor Community Recreation Center

This Energy Action Plan is a living document, which means that Windsor may adjust course as opportunities arise and new information is discovered. All measures included in this plan are subject to the approval of the Town Board. This section of the plan outlines how Windsor will approach implementation and track progress toward its goal and targets. A timeline of the plan strategies is provided in Table 6.

Implementation Structure

Partners in Energy will support Windsor in the implementation of this plan by organizing and facilitating the following implementation meeting, as well as completing the tasks outlined in each strategy.

Energy Action Team

An Energy Action Team will be formed to advance implementation for three of the four focus areas (Municipal Energy Leadership, Residential Outreach, and Energy Efficient New Development). The Energy Action Team will be responsible for attending monthly virtual implementation check-in calls and serving as liaisons to the rest of the community. Additional Energy Action Team commitments are more clearly outlined in each strategy.

Business Subgroup

Because of the strong participation of Windsor’s business community in this planning process and their interest in supporting implementation, a separate group will form to coordinate strategy implementation for the Business and Institutions Outreach focus area. This group will meet virtually on a monthly basis, or more/less frequently as needed to prepare and implement outreach activities. Subgroup commitments are more clearly outlined in each strategy.

Table 6: Strategy Implementation Timeline

Strategy	Tentative Timeline						
	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	23	23	23	24	24	24	24
Strategy M-1: Promote the Town’s energy leadership to the broader community							
Strategy M-2: Conduct energy assessments for Town facilities and recommend implementation of cost-effective energy efficiency improvements							
Strategy R-1: Promote residential energy savings opportunities through communitywide communication channels							
Strategy R-2: Educate home contractors and trade partners on energy savings opportunities that they can share with residential customers							
Strategy B-1: Share energy saving resources with Windsor businesses							
Strategy E-1: Empower the development community with knowledge of successful energy-saving stories and available resources to inspire action towards sustainable energy practices							
Strategy E-2: Partner with developers to create energy efficient and renewable energy options for residents to choose from prior to construction or remodeling process							

Tracking and Reporting

Partners in Energy will provide biannual (twice-a-year) progress reports using Xcel Energy data. Combined with other metrics provided by the Energy Action Team, regular tracking toward goals and targets will be provided (Table 7). Progress reports will be shared with the Energy Action Team and Town Board to demonstrate Windsor's progress.

Table 7: Implementation Goal and Targets Tracking Summary

Strategy	Metric	Base line	Target	Target Year	Data Source
M-1: Promote the Town's energy leadership to the broader community	Number of Town energy leadership highlights shared with the community	0	4	2023	Town Marketing & Comms
M-2: Conduct energy assessments for Town facilities and recommend implementation of cost-effective energy efficiency improvements.	Number of Town facilities energy assessments	0	2	2023	Town Facilities
R-1: Promote residential energy savings opportunities through communitywide communication channels	Annual participation in Xcel Energy residential energy programs	427	553	2024	Partners in Energy
R-1: Promote residential energy savings opportunities through communitywide communication channels	Percent of community survey respondents who self-identify as unfamiliar with home energy rebates and programs	38%	<30%	2024	Partners in Energy
R-2: Educate home contractors and trade partners on energy savings opportunities that they can share with residential customers	Number of contractors in Windsor zip codes participating in Xcel Energy Trade Partner Network	13	20	2024	Partners in Energy
B-1: Share energy saving resources with Windsor businesses	Annual participation in Xcel Energy commercial energy programs	34	43	2024	Partners in Energy
E-1: Empower the development community with knowledge of successful energy-saving stories and available resources to inspire action towards sustainable energy practices	Annual participation in Xcel Energy new construction programs	115	147	2024	Partners in Energy
E-2: Partner with developers to create energy efficient and renewable energy options for residents to choose from prior to the construction or remodeling process	Development of a residential energy upgrade package	n/a	Yes	2024	Energy Action Team

APPENDIX A: BASELINE ENERGY ANALYSIS



Rooftop solar on Manweiler Appliance

Data was provided by Xcel Energy for all Town of Windsor premises for 2019–2021. Xcel Energy and PVREA provide electric service to the community, and Xcel Energy and Atmos Gas provide natural gas service to the community. The data helped the Planning Team understand Town of Windsor’s energy use and opportunities for energy conservation, efficiency, and renewable energy. Data included in this section establishes a baseline against which progress toward goals will be compared in the future.

Utility Premises

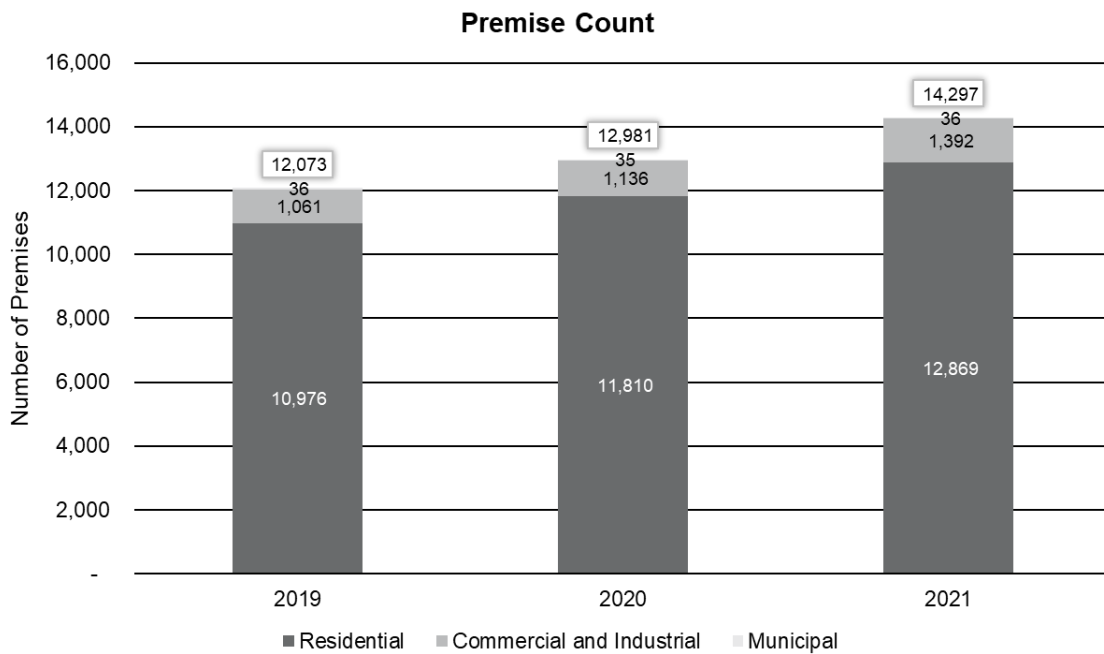


Figure 12. Xcel Energy premise growth since 2019

Over the last three years, Windsor premises have grown by a total of more than 18 percent, with consistent growth in the residential sector and an even higher percent growth (31 percent) in the commercial and industrial (C&I) sector (Figure 12). Changes in the total number of utility premises are a proxy for overall population growth; in the Town of Windsor population growth has been approximately seven percent annually and is projected to continue, with a number of new and continuing developments anticipated throughout the community.

Electricity and Natural Gas Consumption and Trends by Sector

Electricity use data was available for Xcel Energy between 2019-2021; PVREA electricity use data was included only for 2021. Natural gas use data was available from Xcel Energy and Atmos Gas for each of the three years displayed. Despite significant growth in premises over the last three years, energy use has slightly declined in Xcel Energy territory in Windsor between 2019-2021. Both electricity use and natural gas use declined slightly between 2019-2020 and continued to decline in Xcel Energy territory in 2021; however, Figure 13 shows electricity use increasing in 2021 with the inclusion of PVREA data.

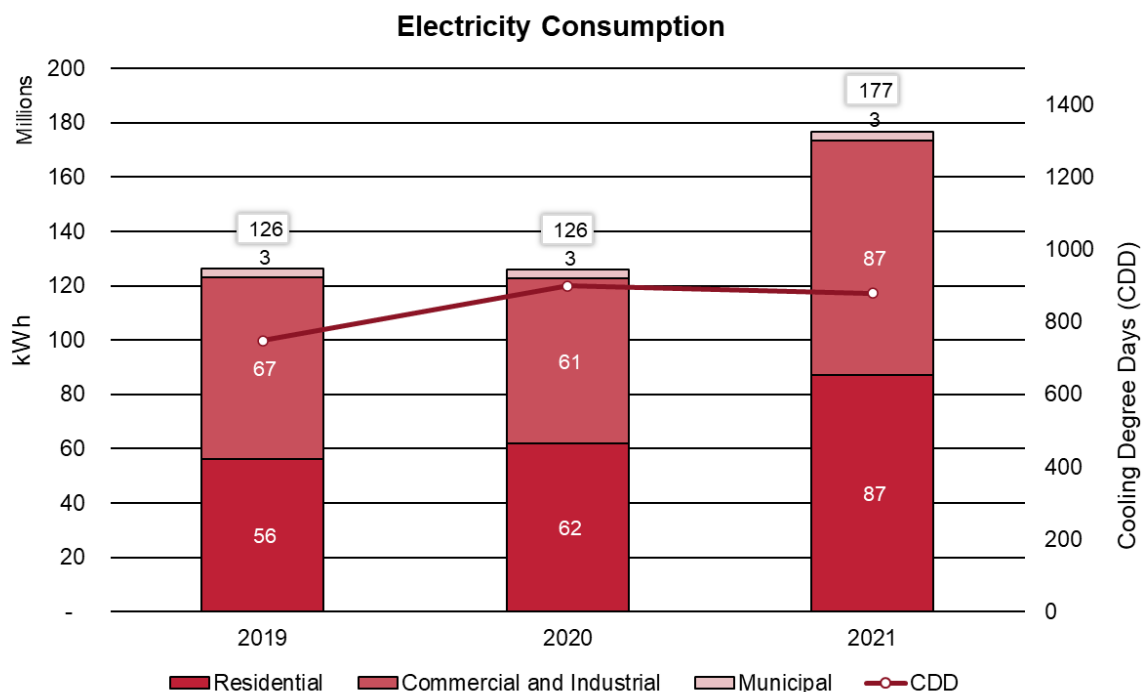


Figure 13. Electricity use in Windsor between 2019-2021. PVREA data is included for 2021 only.

Natural gas use continued a decreasing trend across both Xcel Energy and Atmos Gas territories in Windsor in 2021 (Figure 14). Other factors contributed to lower energy use in 2020, including the COVID-19 pandemic (which forced the temporary closure of some

businesses in Windsor) and overall warmer winter weather conditions (reducing some heating energy needs in residences and businesses compared to 2019).

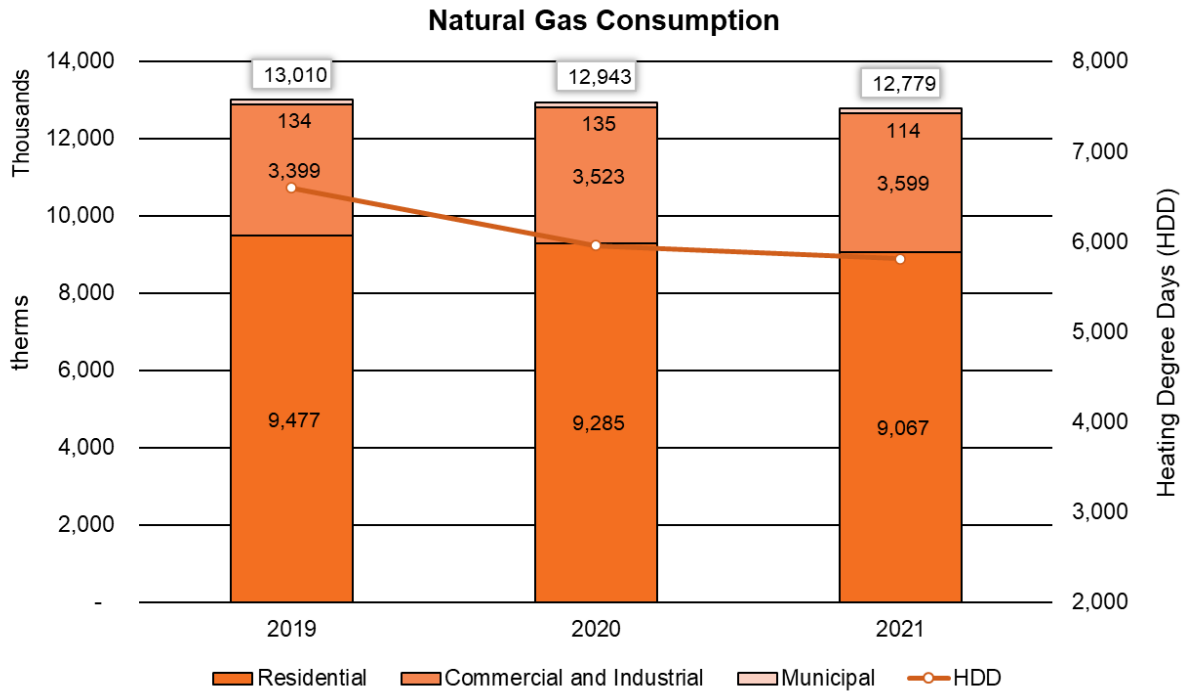


Figure 14. Natural gas use in Windsor across Xcel Energy and Atmos Gas territory between 2019-2021.

Greenhouse Gas Emissions and Trends

Building electricity and natural gas usage in Windsor contributed over 150,000 metric tons of carbon dioxide equivalent (MTCO_{2e}) to total community emissions in 2021². The scale of Windsor’s emissions is the same as the emissions that more than 32,000 standard passenger vehicles (EPA, 2021) would produce if they were driven for a full year. Well-aligned with overall energy consumption by sector, residential

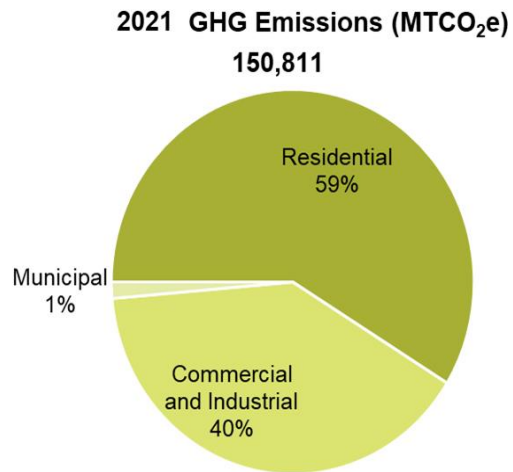


Figure 15. 2021 Greenhouse gas emissions from building energy use in Windsor

² This calculation is based on the total energy used in Windsor and the grid emission factors from local utilities, which estimate the carbon intensity of each electricity and natural gas unit.

customers contribute nearly 60 percent of greenhouse gases associated with stationary building energy use (Figure 15).

Energy consumption-related emissions declined in Xcel Energy territory in Windsor over the last 3 years largely due to “greening of the grid” or the process of adding more renewable energy supply into the Xcel Energy source fuel mix to support electricity generation. Similar to electricity use as shown in Figure 13, greenhouse gas emissions shown in Figure 16 are higher in 2021 with the inclusion of PVREA data.

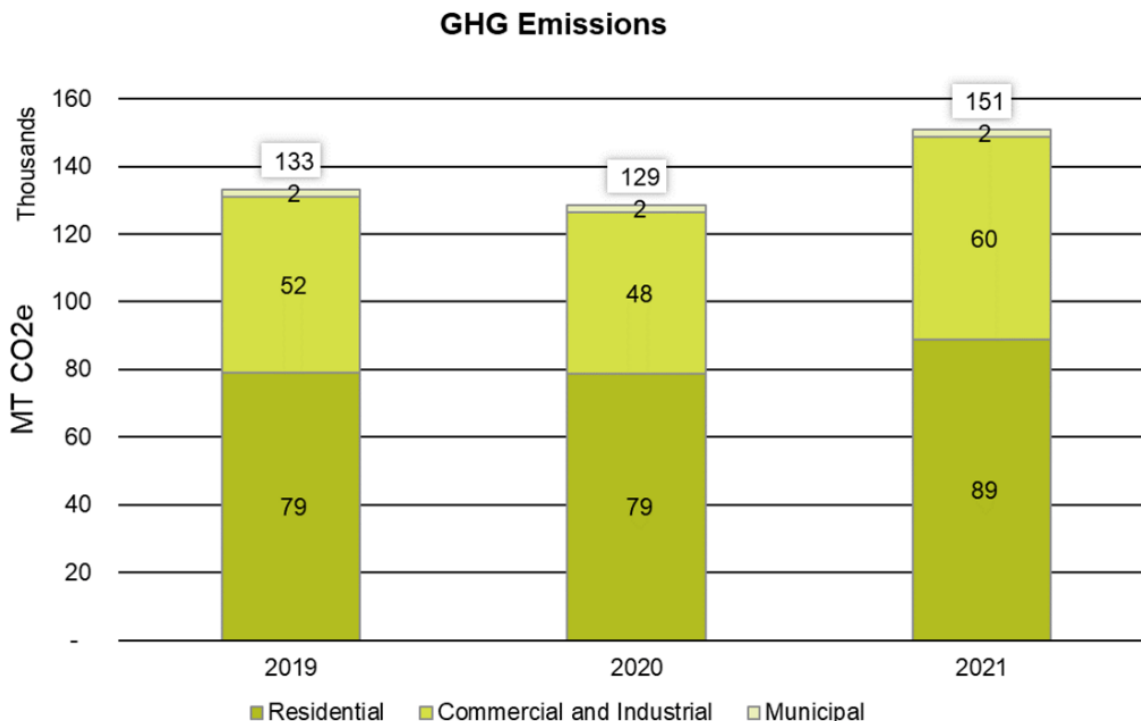


Figure 16. Greenhouse gas emissions associated with energy use in Windsor between 2019-2021. PVREA data is included for 2021 only.

Energy Costs

Like energy use and greenhouse gas emissions, energy costs in Xcel Energy territory within Windsor are distributed similarly across all sectors, with the residential sector making up slightly less than two thirds of the overall \$20.4 million spent on energy in 2021 (Figure 17). Energy cost data were available from Xcel Energy only. Over the last three years, Windsor’s energy costs have fluctuated, with the highest energy costs occurring in 2021 (Figure 18). In the residential sector, the trend has been increased energy costs over the last three years, with 2021 residential energy costs 24 percent higher than 2019. 2020 energy costs declined for the C&I sector, likely driven by the effects of the COVID-19 pandemic but rebounded and increased above pre-pandemic levels in 2021. As Windsor continues to grow in the future, energy costs are anticipated to grow alongside. The anticipated growth in energy costs justifies the approach of developing strategies to

address efficiency for new construction, as well as in Windsor’s existing building stock, to limit the impact of overall energy cost increases.

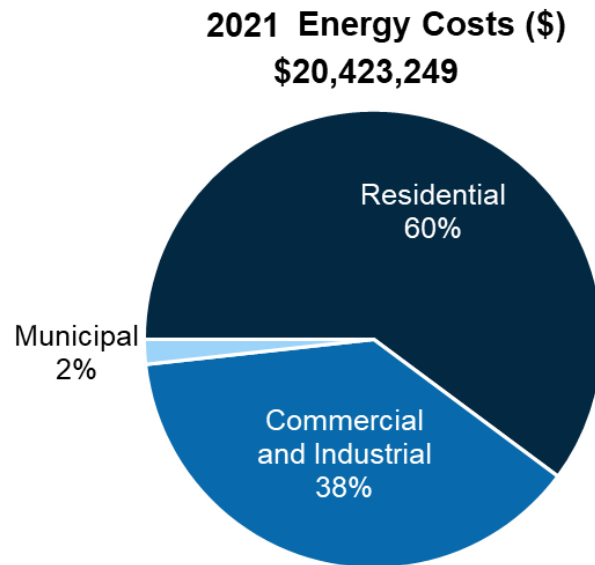


Figure 17. 2021 energy costs in the Town of Windsor by sector (Xcel Energy-data only)

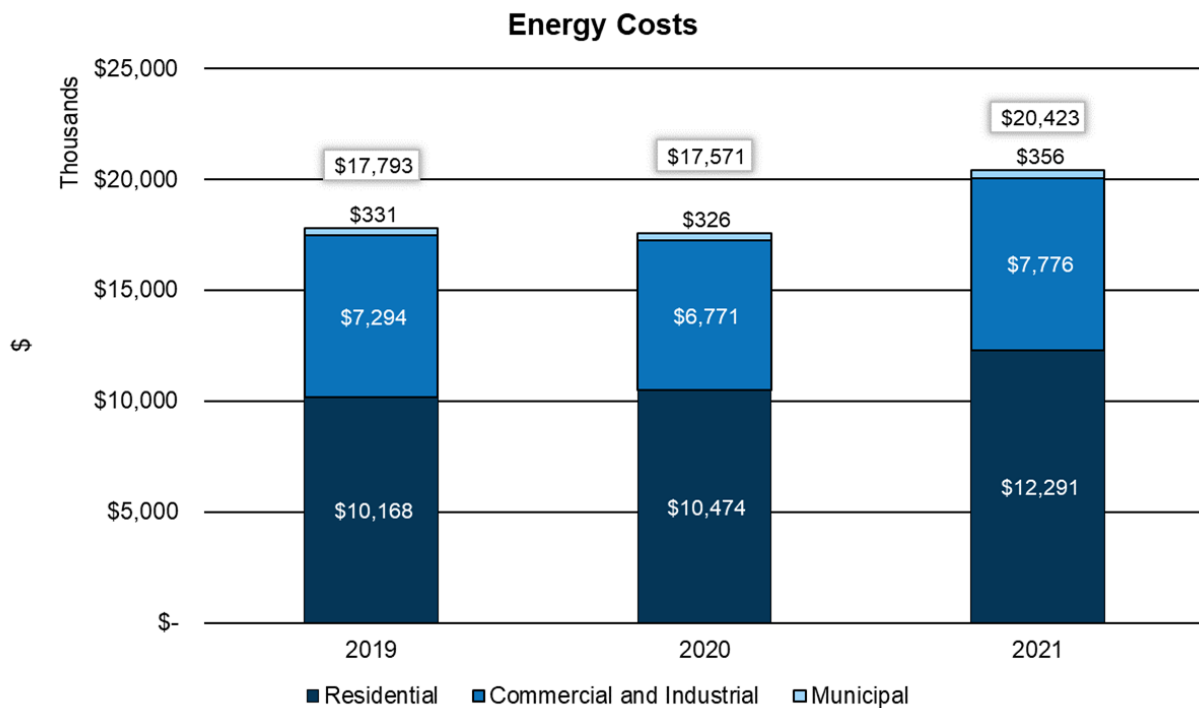


Figure 18. Xcel Energy costs associated with building energy use in Windsor, 2019-2021

Program Participation and Savings

Over the last three years, participation in energy efficiency programs has fluctuated, with 2020 having the lowest participation rates (Figure 19). The increase in 2021 energy efficiency program participation was driven by an increase in Energy Star New Homes participation. Due to the fluctuations in annual program participation, a three-year average was utilized for the purpose of establishing an energy savings baseline by which future progress in the implementation phase can be measured.

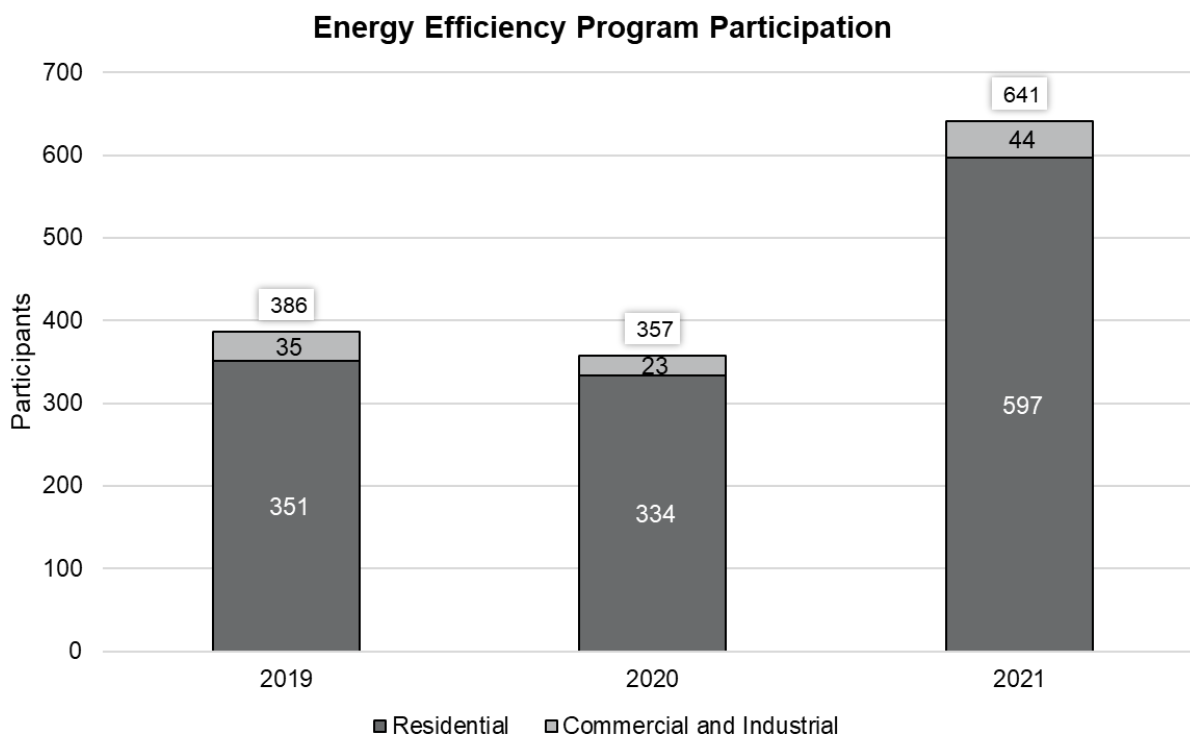


Figure 19. Xcel Energy demand-side management program participation 2019-2021

Electricity savings resulting from program participation has not followed the same trend as participation, with 2019 electricity savings being the highest of the last three years (Figure 20) and 2021 achieving electricity savings closer to the three-year average. Although participation is driven heavily by the residential sector, electricity savings come primarily from a relatively small number of commercial & industrial projects. In 2019, there were several significant lighting efficiency projects that provided over 80 percent of the electricity savings for the C&I sector.

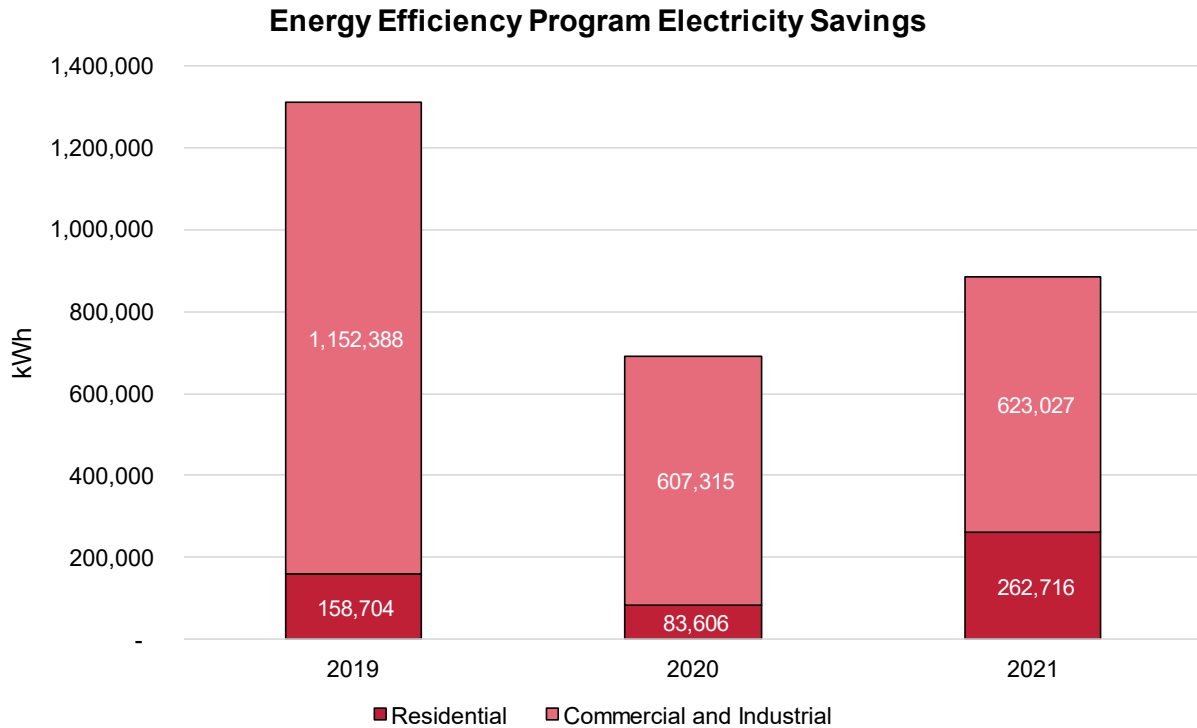


Figure 20. Estimated electricity savings from Xcel Energy demand-side management program participation 2019-2021

Conversely, natural gas savings in Windsor are driven primarily by the residential sector; and, over the last three years natural gas savings trends closely mimicked energy efficiency program participation trends (Figure 21). Similar to energy efficiency program participation, 2021 achieved the highest levels of natural gas savings for the community; and, the residential sector provided 99 percent of the total natural gas savings in that year. The top program for natural gas savings was Energy Star New Homes, which provided over 70 percent of the residential natural gas savings in 2021.

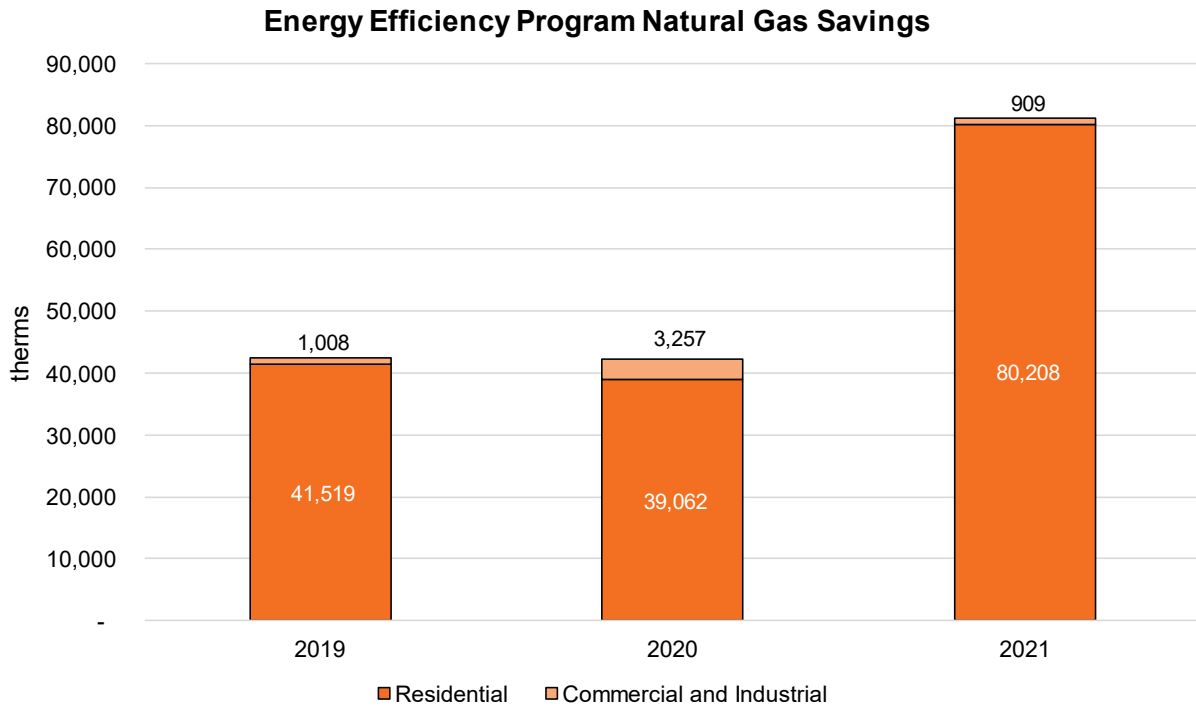


Figure 21. Estimated natural gas savings from Xcel Energy demand-side management program participation 2019-2021

APPENDIX B: STRATEGY LIBRARY

This appendix provides a library of additional strategy ideas that were identified throughout the planning process, but not prioritized for the first 18 months of implementation. These strategies are organized by focus area and are available for future consideration as capacity allows.

Municipal Energy Leadership

- Explore alternative energy source options for Town facilities that have not installed or utilized them yet.

Residential Outreach

- Train volunteers to act as energy ambassadors in their communities to share energy savings opportunities with their neighbors.

Businesses and Institutions Outreach

- Explore ways to share building energy performance when businesses are considering purchasing/renting building space.

Energy Efficiency New Development

- Encourage and support community solar and other renewable energy opportunities.

APPENDIX C: GLOSSARY OF TERMS



15 x 15: Xcel Energy’s privacy rule, which requires 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(s) is responsible for more than 15% of the total for that data set, it is/they are removed from the summary.

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

Carbon-free: 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.

Demand Side Management (DSM): Modification of consumer demand for energy through various methods, including education and financial incentives. 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 to a lower temperature *reduces* the energy used in a 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 energy to keep your home at the same temperature (all other 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: 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 electricity and natural gas consumption to be combined.

Metric Tons of Carbon Dioxide Equivalent (MTCO_{2e}): A unit of measure for greenhouse gas emissions. The unit "CO_{2e}" 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; for a larger business, a separately-metered portion of the business's load at that address.

Renewable Energy Certificate (REC): For every megawatt-hour of clean, renewable electricity generation, a renewable energy certificate (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 Credit.

Resilience: 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: Also known as Trade Allies or Business Trade Partners. Vendors and contractors who work with business and residential customers - servicing, installing, and providing consulting services regarding 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 D: WORKS CITED

(n.d.).

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