



# Thornton, Colorado

# ENERGY ACTION PLAN

September 2020



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

## 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 energy. Energy is a dynamic topic, and it is changing rapidly - with new ways to save, the growth of renewables, electric vehicles, and changing regulations. With these competing priorities and stretched resources, creating and maintaining an energy-conscious culture within a community can be a missed opportunity in meeting energy and sustainability goals.

In the summer of 2014, Xcel Energy launched Partners in Energy as a collaborative solution for communities to reach their goals. The content of this plan is derived from a series of planning workshops held in the community, with a planning team committed to representing local energy priorities and implementing plan strategies.



Partners in Energy Process for Success



Resources from Xcel Energy for Implementation

## Acknowledgements

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

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- **Adam Krueger, Economic Development**
- **Adam Lyons, Community Connections**
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- **Joe Stover, Building Maintenance**
- **Scott Tekavec, Information Technology**
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- **Matt McNearney, GRID Alternatives**
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## Executive Summary

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This plan is the first Energy Action Plan developed for Thornton. As such, it lays out an energy vision along with energy efficiency and renewable energy goals focused on city operations, as well as the broader community, for the first time.

The content of the plan was developed collaboratively with a stakeholder team through four planning workshops conducted from November 2019-March 2020. The planning team included representatives from the city, community partner organizations, and the two utilities (Xcel Energy and United Power) which provide electricity and natural gas service to the Thornton community.

Thornton joins more than 20 other Colorado communities that have developed energy action plans through Xcel Energy's Partners in Energy, an offering which provides resources for community energy planning. Partners in Energy also supports 18 months of plan implementation in the form of marketing and communications, data tracking and analysis, program expertise, and project management.

## Energy Baseline

Thornton is predominantly a residential community, with 93% of locations that are served electricity, natural gas, or both fuel types classified as residential. In the baseline year of 2018, the Thornton community used almost 718 million kWh of electricity and 38 million therms of natural gas - for a total energy cost of \$89 million. This amount of energy usage puts Thornton in line with other Denver metropolitan communities such as Arvada, Broomfield, and Westminster (Xcel Energy, 2019).

Thornton municipal operations used more than 26 million kWh and 485,000 therms of natural gas, for a total energy cost of \$2.6 million. Although municipal locations account for only 0.4% of locations served, city facilities and operations account for 4% of electricity usage and 1% of natural gas usage.

## Our Energy Vision

Thornton will lead the way in creating a more resilient community through energy efficiency improvements and the adoption of energy sources that reduce carbon emissions from municipal operations while also facilitating equitable access to energy programs and opportunities for residents and businesses.

## Our Goals

The planning team expressed a collective desire to "move the needle" on a community scale through energy efficiency improvements and promotion of renewable energy sources in the short term (2020-2022), and through alignment with the State of Colorado's climate commitments in the long-term (2030 and beyond).

Based on these shared intentions, Thornton commits to:

- By 2022, increasing participation in energy efficiency and renewable energy programs by 30% over the 2018 baseline year.
- By 2030, aligning with state climate and energy goals, which means reducing greenhouse gas emissions by at least 50% across all sectors.

## Focus Areas and Strategies

Thornton has identified four focus areas and ten strategies to achieve these goals (**Table 1**). The city aims to lead the way in energy action for the broader community by contributing more than half of the anticipated energy savings from its own facilities and operations. These savings will be achieved by focusing on lighting upgrades, water system process efficiency, and a new solar PV project. As a top employer and community leader in sustainability, Adams 12 Five Star School District was a key stakeholder in plan development and will be improving energy efficiency and renewable energy in several Thornton schools through an energy performance contract. The city will work with Xcel Energy to plan and deliver home energy efficiency and business lighting campaigns that help residents and businesses save energy and money, while also meeting the goals of this plan.

Table 1. Energy Action Plan Highlights

Focus Area	Strategies	Notable Projects	Energy Savings Contribution
Municipal Facilities and Operations	<ul style="list-style-type: none"> <li>• Manage Energy Action Plan Implementation</li> <li>• Manage Energy Program</li> <li>• Promote Existing Facility Efficiency</li> <li>• Promote Efficient New Development</li> <li>• Promote Carbon-Free Energy Sources</li> <li>• Promote Energy Awareness and Training</li> </ul>	<ul style="list-style-type: none"> <li>• Lighting upgrades</li> <li>• Water system process efficiency</li> <li>• New solar PV project</li> </ul>	55%
Institutional	<ul style="list-style-type: none"> <li>• Collaborate with Adams 12 Five Star School District</li> <li>• Engage with Other Institutional Stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Energy performance contract at selected Thornton schools</li> </ul>	15%
Residential	<ul style="list-style-type: none"> <li>• Promote Residential Energy Improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Home energy efficiency campaign</li> </ul>	25%
Business	<ul style="list-style-type: none"> <li>• Promote Business Energy Improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Business lighting campaign</li> </ul>	5%

## Impact of Plan Implementation

If this Energy Action Plan is fully implemented, Thornton is on track to reduce greenhouse gas emissions from stationary building energy use by at least 20% by the year 2022 and by at least 56% by the year 2030. These emissions reductions are attributable to improvements in utility source fuel mixes, energy efficiency measures, and renewable energy supplies. In only two years, and in partnership with its energy utility service providers, community partners, residents, and businesses, the Thornton community can avoid emitting 126,300 MT CO<sub>2</sub>e of greenhouse gas emissions per year, which represents 21% of the community’s baseline emissions from stationary energy use, and is approximately equivalent to the annual carbon dioxide emitted from 27,000 passenger vehicles (US Environmental Protection Agency, 2017).

## Introduction

This Energy Action Plan lays out an energy vision along with energy efficiency and renewable energy goals focused on city operations, as well as the broader community. The content of the plan was developed collaboratively with a stakeholder team through four planning workshops conducted from November 2019-March 2020. The planning team included representatives from Thornton, community partner organizations, and the two utilities (Xcel Energy and United Power) which provide electricity and natural gas service to the Thornton community.

Thornton joins more than 20 other Colorado communities that have developed energy action plans through Xcel Energy's Partners in Energy, an offering which provides resources for community energy planning (**Appendix G: Memorandum of Understanding for Phase 1 – Plan Development**). Partners in Energy also supports 18-months of plan implementation in the form of marketing and communications, data tracking and analysis, program expertise, and project management (**Appendix H: Memorandum of Understanding for Phase 2 – Plan Implementation**).

Thornton's Energy Action Plan includes:

- A look at the characteristics of Thornton that are significant to interpreting energy use and understanding the community's energy needs and priorities (**About Thornton**)
- An overview of Thornton's energy baseline (**Where Are We Now?**)
- An energy vision, goals for the near-term 18-month plan implementation period, and goals for a longer planning horizon of 2030 (**Where Do We Want To Go?**)
- Focus areas and strategies to achieve the defined goals, along with metrics that will be tracked to demonstrate success (**How Are We Going to Get There?**)
- Recommendations to transition from planning into implementation action (**How Are We Going to Stay on Course?**)

Plan appendices include supplemental information as follows:

- Appendix A: Glossary of Terms
- Appendix B: Municipal Facility Inventory
- Appendix C: Energy Programs for Businesses
- Appendix D: Preliminary Analysis of Renewable\*Connect Eligibility
- Appendix E: Residential Energy Efficiency Programs
- Appendix F: Residential Energy Heat Maps
- Appendix G: Memorandum of Understanding for Phase 1 – Plan Development
- Appendix H: Memorandum of Understanding for Phase 2 – Plan Implementation

## Why Develop a Community Energy Action Plan?

In 2019, the city began to draft a Sustainability Action Agenda for city operations and the Thornton community. Among other objectives, the Sustainability Action Agenda will address four key issues that are impacted by Thornton's energy use:



- Reduce the carbon footprint of both the city organization and the community.
- Contribute to the improvement of air quality in the Denver Metropolitan Area through local transportation strategies.
- As the seventh-largest water utility provider in the State of Colorado, reduce energy consumption associated with water production and distribution, as well as wastewater collection.
- Make affordable energy programs available to Thornton residents, especially under-resourced populations, to improve the overall resilience of the Thornton community.

Through Xcel Energy's Partners in Energy offering, the city was able to access resources and subject matter expertise in energy efficiency and renewable energy that culminated in this Energy Action Plan that defines an energy vision, goals, and strategies that make sense for Thornton's community values.

## About Thornton

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### City Leads the Way

Thornton is the third-largest employer in the city, with 963 full-time employees (Thornton, 2020b). The city is also one of the largest energy users, as a result of building use and city operations:

- The city manages 63 buildings representing 846,000 square feet of building space (**Appendix B: Municipal Facility Inventory**).
- The city manages 33.6 square miles of land area associated with:
  - Facility parcels (0.5 square miles)
  - Parks, Thorncreek Golf Course, and facilities shared with Adams 12 Five Star School District (1.7 square miles)
  - Open spaces and lands, including trail corridors (2.2 square miles)
  - Properties in Weld and Larimer Counties, outside of the city's incorporated limits (29.3 square miles).
- The city produces and delivers 21,280 acre-feet/year (on average) of potable water.

When it comes to establishing a culture of energy awareness, improving energy efficiency, promoting renewable energy, and saving money, the city looks to set an example for the broader community through its own staff, facilities, and operations.

### A Growing Community

Thornton is located in the northern part of the Denver Metropolitan Area. Thornton has blossomed from a fledging residential development into a full-service community that is home to more than 140,000 residents and 21,000 jobs (Thornton, 2018). Thornton's population is expected to continue to grow to 190,000-205,000 residents by 2040 (Thornton, 2018). Similarly, Thornton's incorporated area has grown considerably from the time the city was first incorporated in 1956 – from 1 mile to 37 square miles (Thornton, 2018).

Whereas the growth in economic expansion activity that traditionally comes with population growth and new development has historically been correlated with increasing energy usage, that relationship is increasingly being decoupled (US Energy Information Administration, 2017). Thornton has the opportunity to encourage energy efficiency measures for new and existing developments and therefore mitigate growth in energy

usage despite a growing population and significant opportunities for new development, infill, and redevelopment within current city limits and the future growth area.

The 2020 Thornton Comprehensive Plan, Thornton Tomorrow Together, lays the foundation for this emphasis on efficient development through the following themes for future land use and development (Thornton, 2020a):

- Growing Smarter and Greener
- Fostering Economic Vitality
- Providing Resources and Building Relationships
- Creating Quality and Diverse Neighborhoods

## New and Affordable Housing

Thornton is a family-oriented community, with 42% of households including children under the age of 18, compared to average values of 27% across Colorado and the United States (US Census Bureau, 2018). Families are attracted to Thornton because of its relatively new and affordable housing in the Denver Metro region (Thornton, 2018):

- 58% of housing units were built after 1990. Most of the housing consists of single-family detached homes (63%), while 19% of housing units are in multifamily buildings with five or more units.
- The 2018 median home price of \$353,800 is 10% lower than the median home price of \$391,000 across the Denver Metro region.

In addition to improving energy efficiency in older existing homes, Thornton has the opportunity to build new energy-efficient homes. More than 7,500 new housing units are expected to be added in the community from 2020-2025.

## A Vibrant Economy

The largest industries in Thornton are retail trade (generating more than \$1.3 billion in sales each year), health care, and accommodation and food services (US Census Bureau, 2018; Thornton, 2018). The top five employers in the city are Adams 12 Five Star School District, Amazon, Thornton, North Suburban Medical Center, and Walmart - each employing more than 700 people (Thornton, 2020b).

Energy efficiency and renewable energy opportunities can vary greatly based on the type and individual circumstances of a business. However, businesses are some of the largest energy users in the community, and as such, have the potential to save large amounts of energy and money. **Appendix C: Energy Programs for Businesses** contains a summary of energy programs relevant to common business types in Thornton.

## Where Are We Now?

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### Energy Utility Service Providers

Xcel Energy is an investor-owned utility that provides electricity service to 90% of Thornton, and natural gas service to all of Thornton (**Figure 1**). United Power is a member-owned cooperative utility that provides electrical service to 10% of the city's incorporated area, concentrated in the northern and eastern portions of Thornton. While United Power currently services a relatively small portion of the community, its number

of customers in Thornton is growing rapidly (by 25% from 2016-2018) and continued growth is expected as new development occurs within its service territory.

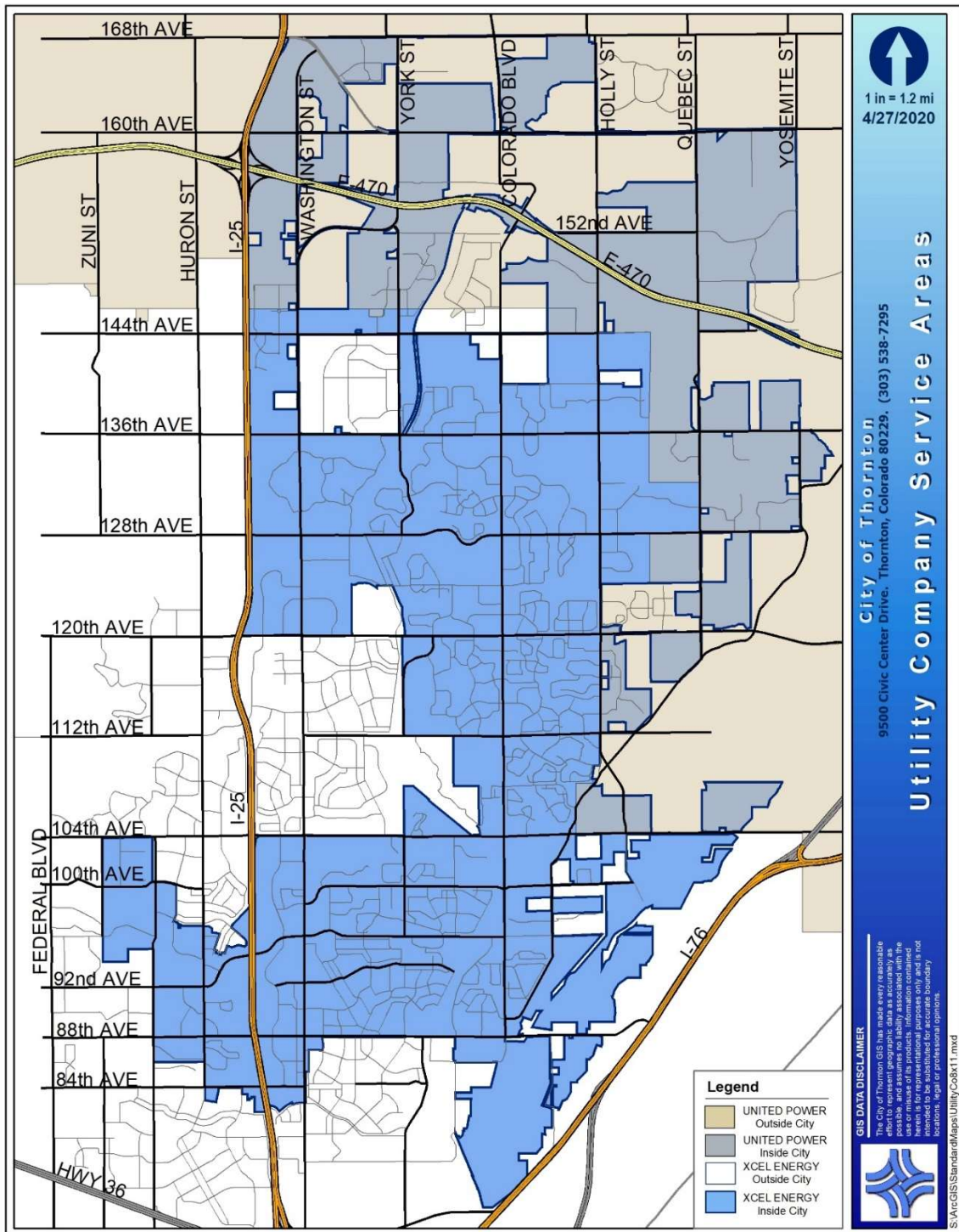


Figure 1. Xcel Energy (shown in blue and white) and United Power (shown in gray and tan) service areas in Thornton (Thornton, 2020c)

## Baseline Energy Analysis

A foundational step in the energy action planning process is conducting a baseline energy analysis, which is used to:

- Understand how much energy is being consumed by the city and the broader community
- Determine whether energy use is increasing or decreasing
- Look for opportunities to reduce energy use and/or save money
- Define metrics that will be tracked in the future to show the benefits of energy initiatives and/or the impacts of new developments

Historical energy data for the period 2016-2018 were analyzed to answer these questions, with the most recent year of available data at the time of plan development (2018) serving as the baseline year.

### Sector Analysis

More than 57,000 unique locations (premises) in Thornton are served electricity, natural gas, or both fuel types. Approximately 93% of these locations are residential housing units. Businesses make up 7% of served locations, while Thornton municipal facilities represent only 0.4% of served locations (**Figure 2**). Streetlights are also served electricity but are not included in the premise counts.

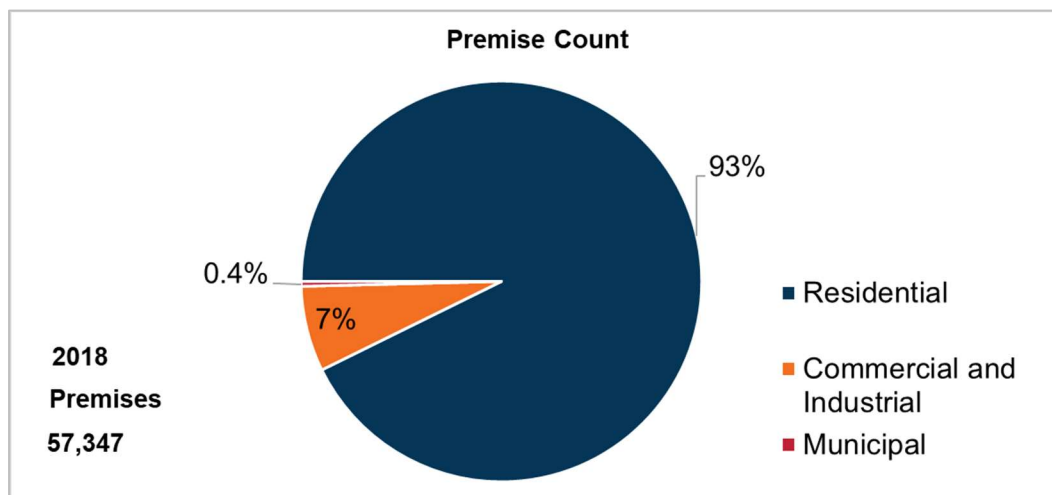


Figure 2. 2018 Premise Count by Sector

### Energy Consumption

In the baseline year of 2018, the Thornton community used almost 718 million kWh of electricity and 38 million therms of natural gas, for a total energy cost of \$89 million (**Figure 3, Figure 4, Figure 5**). This amount of energy usage puts Thornton in line with other Denver metropolitan communities such as Arvada, Broomfield, and Westminster (**Table 2**).

Table 2. Energy Use and Costs for Selected Denver Metropolitan Communities (Xcel Energy, 2019)

Community	2018 Electricity Use (million kWh)	2018 Natural Gas Use (million therm)	2018 Energy Costs (million \$)
Arvada	651	44.6	\$98.3
Broomfield <sup>1</sup>	635	27.9	\$76.5
Denver	6,841	335.4	\$819.0
Englewood	337	18.7	\$43.0
Littleton	381	20.4	\$51.1
Thornton	718	38.2	\$89.0
Westminster <sup>1</sup>	797	41.5	\$108.0
Wheat Ridge	215	17.5	\$32.8

<sup>1</sup> Values exclude a minority portion of electricity usage and costs served by United Power.

Observations by sector include:

- **Residential:** Although 93% of premises are residential, residences consume only 56% of electricity and 76% of natural gas.
- **Commercial and industrial:** The typical commercial and industrial facility uses more energy than a typical residence, so although businesses represent only 7% of premises served, they use 39% of the total electricity and 23% of the total natural gas.
- **Municipal:** Thornton used more than 26 million kWh and 485,000 therms of natural gas, for a total energy cost of \$2.6 million. Although municipal premises account for only 0.4% of locations served, city facilities and operations account for 4% of electricity usage and 1% of natural gas usage.
- **Streetlights:** Streetlights along public streets are owned by Xcel Energy, United Power, and the city, but the energy usage is paid for by the city. Streetlights represent 7.4 million kWh of electricity use and \$1.8 million in annual energy costs.

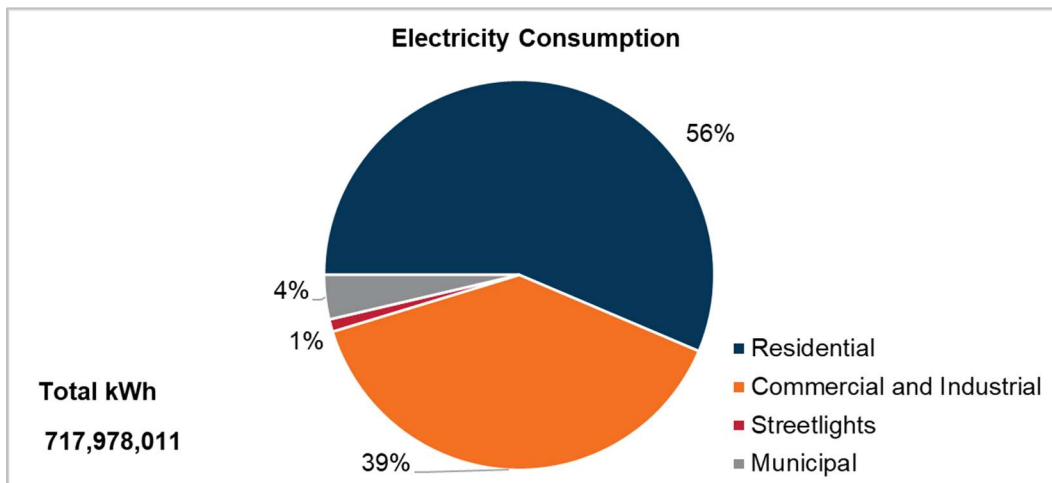


Figure 3. 2018 Electricity Consumption by Sector (kWh)

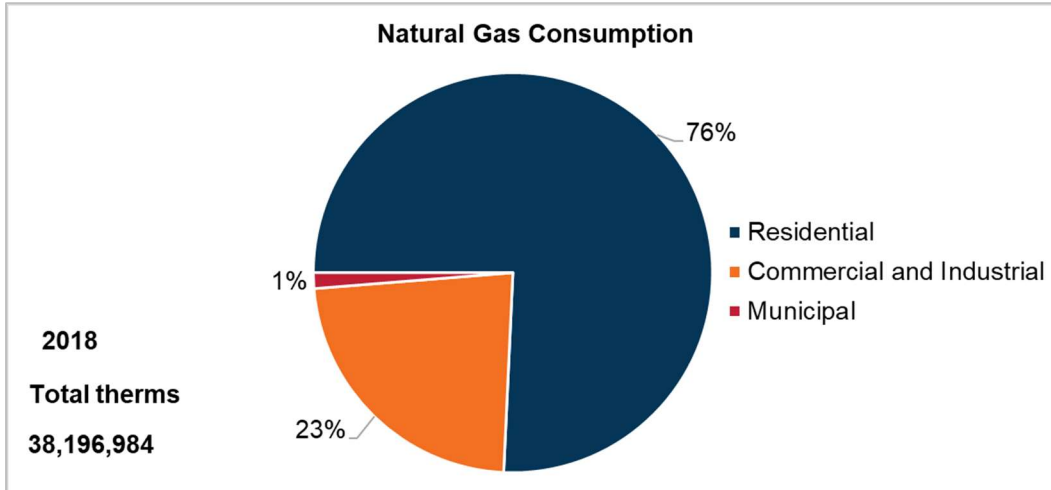


Figure 4. 2018 Natural Gas Consumption by Sector (therms)

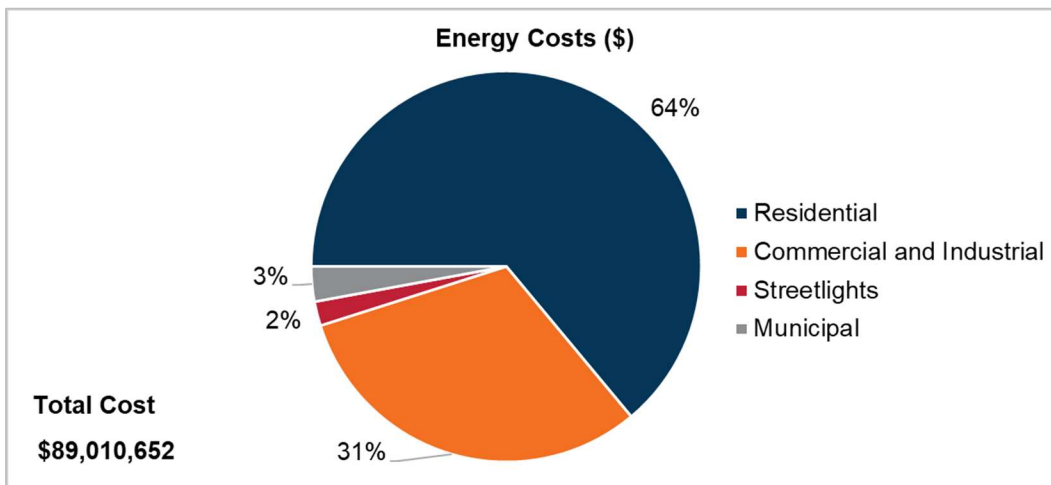


Figure 5. 2018 Energy Costs by Sector (Dollars)

Though the number of premises served increased by 6% (from 54,331 to 57,347) over the 2016-2018 period, there was no corresponding increase in energy use at the community scale. Rather, fluctuations in energy use during this period are primarily attributed to variations in weather because total energy use is correlated with the number of total degree-days (TDD) as shown in **Figure 6**. TDD represent a measure of the days that required heating (expressed as heating degree-days, or HDD) and the number of days that required cooling (cooling degree-days, or CDD). Increases in energy use over this time period at the sector level were observed in streetlights (2% increase) and in municipal natural gas usage (11% increase).

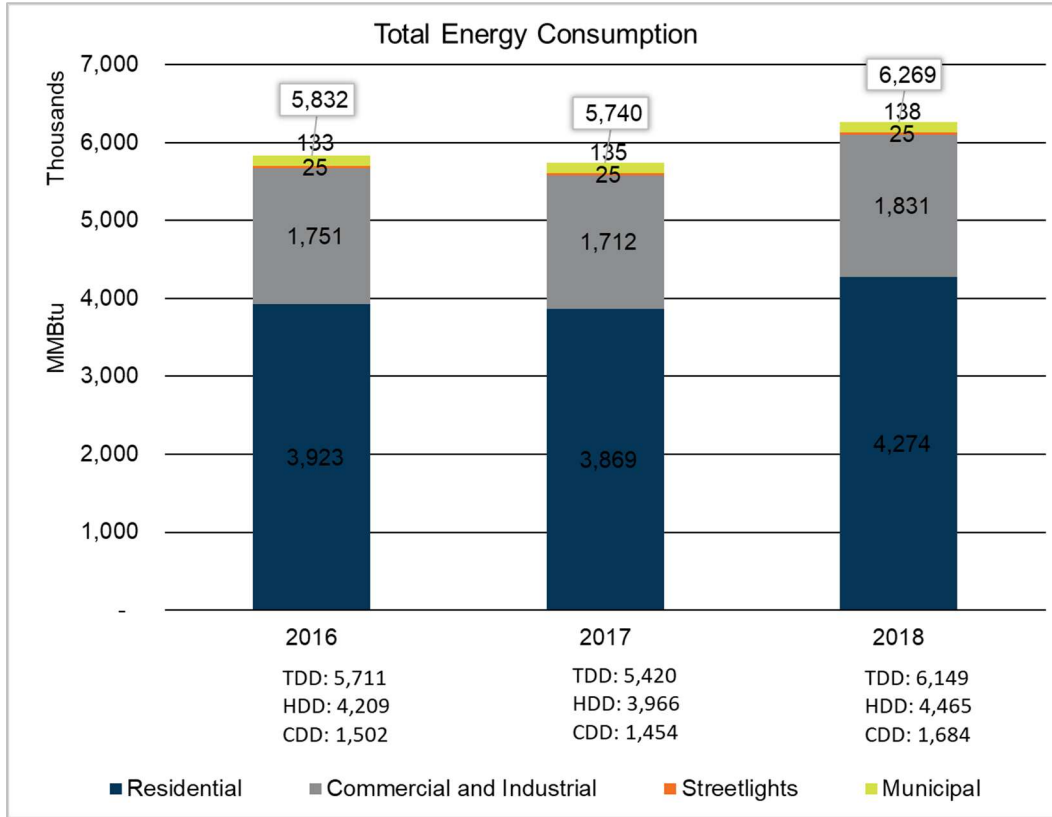


Figure 6. 2016-2018 Energy Consumption by Sector (Thousands MMBtu) (Weather Data Depot, 2020)

Energy use per household is a common metric used in the residential sector for efficiency benchmarking. Residences in Thornton consumed about 80 MMBtu per premise in 2018, inclusive of electricity and natural gas usage. This value is slightly more efficient than the average value of 84 MMBtu per household in the Mountain North region of the United States, likely a reflection of Thornton’s newer housing stock (US Energy Information Administration, 2018).

### Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions from stationary energy use in 2018 represented almost 604,000 metric tons of carbon dioxide equivalent, or MT CO<sub>2e</sub>. This amount of emissions is equivalent to driving 130,400 passenger vehicles for a year, or burning 3,320 railcars’ worth of coal (US Environmental Protection Agency, 2020). It would take 788,400 acres of forests, or planting 10 million new trees, to offset these emissions (US Environmental Protection Agency, 2020).

Greenhouse gas emissions at the sector level varied according to their relative energy use, with the residential sector accounting for 63% of emissions; businesses accounting for 33% of emissions; city operations accounting for 3% of emissions; and streetlights accounting for 1% of emissions (**Figure 7**).

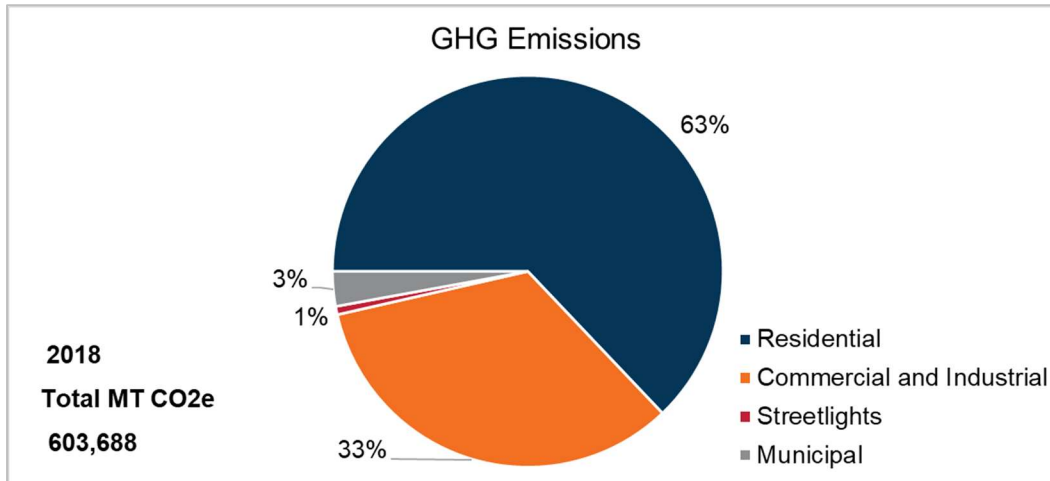


Figure 7. 2018 Greenhouse Gas Emissions by Sector (MT CO<sub>2</sub>e)

### Energy Efficiency Program Participation

Xcel Energy and United Power offer a variety of energy efficiency programs that financially benefit their customers through rebates and other financial incentives, as well as the ongoing benefits of reduced energy use and cost savings. Historical participation and energy savings data from these programs are useful for assessing which types of programs customers are using and to what degree. The data also illuminate opportunities for greater participation in the available programs and for increased education and awareness.

In 2018, more than 2,000 residents, businesses, and city facilities in Thornton participated in these energy efficiency programs, for a total savings of 5.7 million kWh of electricity and 142,000 therms of natural gas.

In the residential sector, almost 4% of residences participated in the energy efficiency programs, saving nearly 1.5 million kWh and 140,000 therms. This energy savings translates to an average annual cost savings of \$105 per participating residence, in addition to rebates and other financial incentives associated with program participation. The top programs in 2018 were Residential Heating, ENERGY STAR New Homes, and Refrigerator & Freezer Recycling (**Figure 8**).



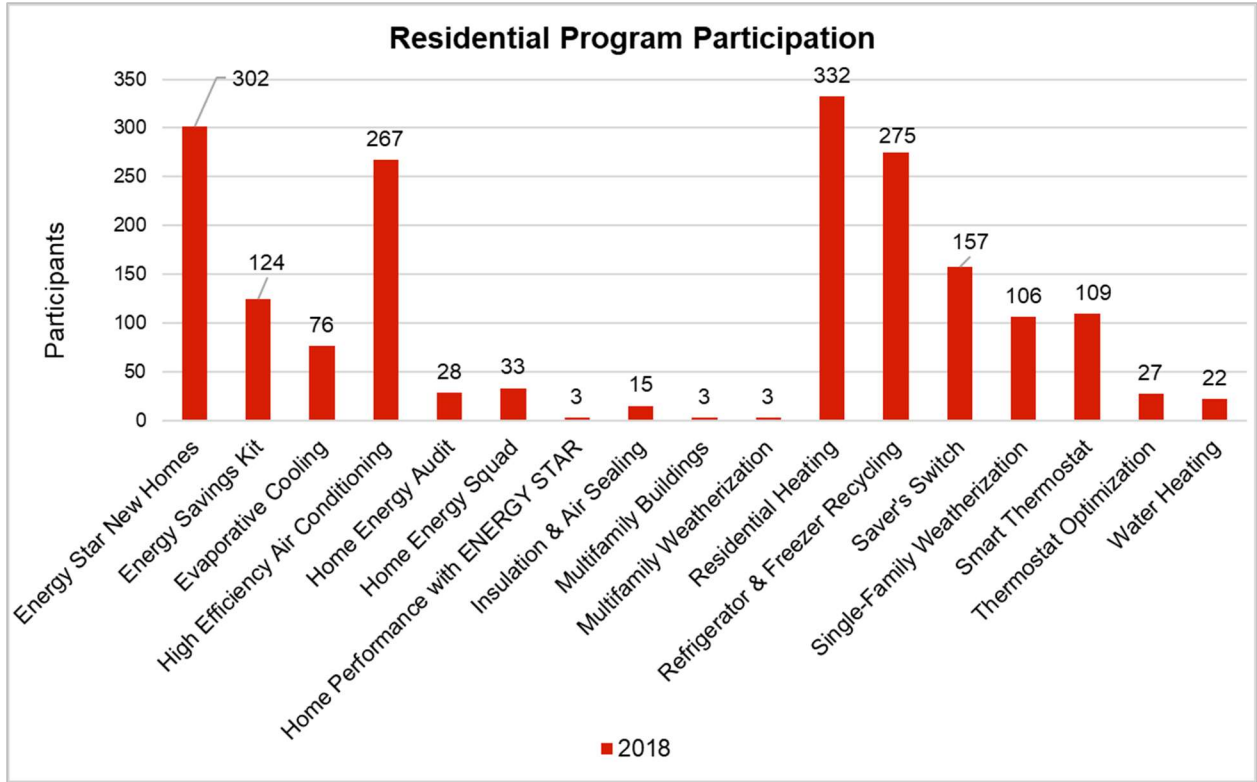


Figure 8. 2018 Residential Energy Efficiency Program Participation

In the commercial and industrial sector, about 5% of businesses and city facilities participated in the energy efficiency programs, saving 4.2 million kWh and 1,700 therms. This energy savings equates to an average annual cost savings of about \$2,000 per participating business or facility, in addition to rebates and other financial incentives associated with program participation. The top programs in 2018 were Lighting Efficiency, Small Business Lighting, and Cooling (**Figure 9**).

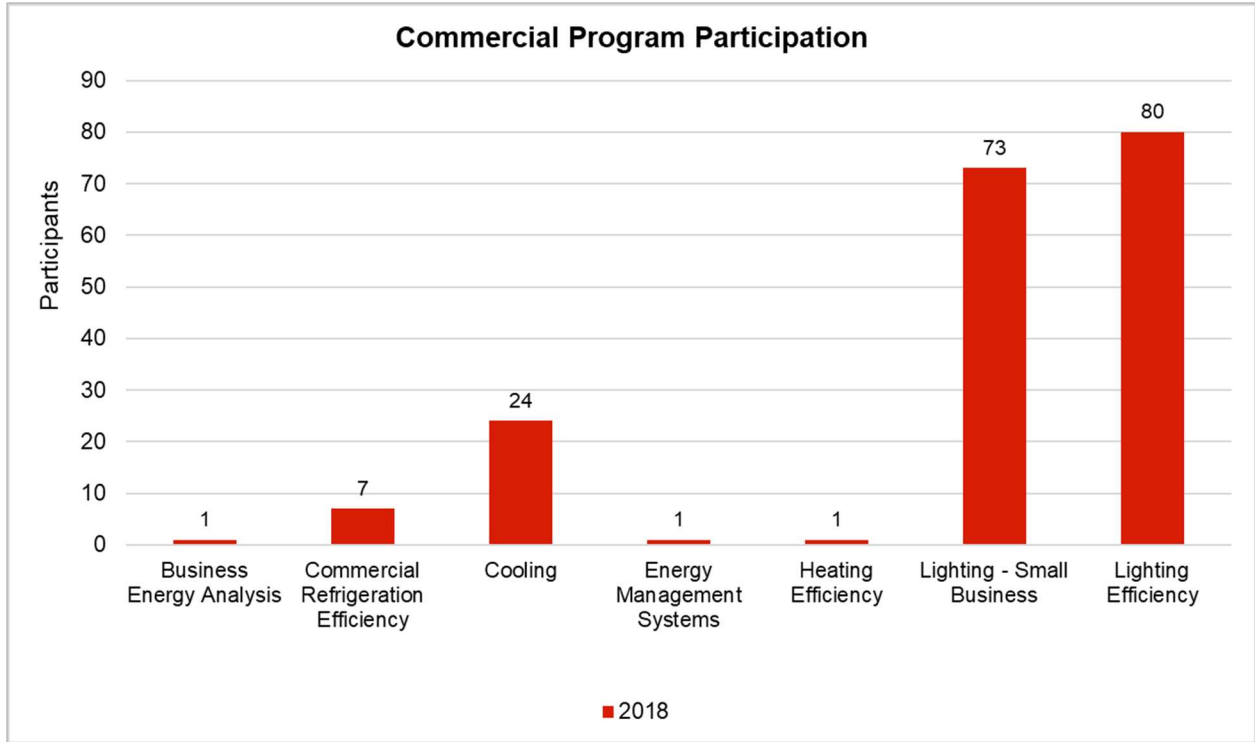


Figure 9. 2018 Commercial & Industrial Energy Efficiency Program Participation

### Renewable Energy Program Participation

Xcel Energy and United Power also offer a variety of renewable energy programs that provide customers access to carbon-free energy sources. In 2018, about 5% of Thornton residences and 1% of Thornton businesses participated in one of these renewable energy offerings (**Table 3**).

Table 3. 2018 Renewable Energy Program Participation (Xcel Energy, 2019)

Program	Business		Residential	
	Participation	Subscribed Energy	Participation	Subscribed Energy
Xcel Energy Windsource®	3	21,202 kWh	1,253	2,720,723 kWh
Xcel Energy Renewable*Connect®	--	--	--	--
Xcel Energy Solar*Rewards (on-site)	24	1,450 kW	1,532	7,328 kW
Xcel Energy Solar*Rewards Community (solar gardens)	7	351 kW	58	177 kW
United Power Green Power Partners	7	--	1	--
On-site (net metered)	Total unknown	Total unknown	Total unknown	Total unknown

Note: Xcel Energy's Renewable\*Connect® program is included for completeness but the program did not become available until 2019.

## Existing Energy Practices

Thornton has a strong history of energy improvements in its own facilities and operations, as well as energy initiatives undertaken by partner organizations in the community. **Table 4** contains a summary of key past projects on which this Energy Action Plan builds.

Table 4. Community Energy Initiatives

<b>Thornton Municipal Operations</b>
<ul style="list-style-type: none"> <li>● <b>Lighting projects</b> <ul style="list-style-type: none"> <li>○ By the end of 2020, all city-owned buildings will use light-emitting diode (LED) lighting for interior and exterior building lights, including parking lot lights.</li> <li>○ As of 2012, all new streetlights in Xcel Energy service territory are city-owned and installed with LED lighting.</li> <li>○ Traffic signals have been upgraded to LED lighting.</li> </ul> </li> <li>● <b>Facilities and operations</b> <ul style="list-style-type: none"> <li>○ Heating, ventilation, and air conditioning (HVAC) systems are automated.</li> <li>○ The city's largest electricity users (Wes Brown Water Treatment Plant and Thornton Water Treatment Plant) are participating in Xcel Energy's Strategic Energy Management program.</li> </ul> </li> <li>● <b>Carbon-free energy sources</b> <ul style="list-style-type: none"> <li>○ Thornton City Hall and the Carpenter Recreation Center have rooftop solar photovoltaic (PV) systems.</li> </ul> </li> <li>● <b>Sustainable design</b> <ul style="list-style-type: none"> <li>○ Trail Winds Recreation Center and Carpenter Recreation Center are Leadership in Energy and Environmental Design (LEED) certified and incorporate sustainable design concepts such as white roofs.</li> <li>○ Thornton City Hall is all electric, which would allow the building to be served entirely by renewable energy sources.</li> </ul> </li> </ul>
<b>Adams 12 Five Star Schools</b>
<ul style="list-style-type: none"> <li>● <b>Energy efficiency</b> <ul style="list-style-type: none"> <li>○ Adams 12 Five Star School District is entering into an energy performance contract to implement energy efficiency and renewable energy measures. Two schools in and one bordering Thornton to which some Thornton residents attend will be included in the contract.</li> <li>○ Past participation in Xcel Energy's Commercial Refrigeration Efficiency, Computer Efficiency, Cooling, and Lighting programs.</li> <li>○ In 2017, eighteen schools upgraded their computers to energy-efficient models.</li> </ul> </li> <li>● <b>Carbon-free energy sources</b> <ul style="list-style-type: none"> <li>○ The Aquatic Center has a rooftop solar thermal array to preheat the pool.</li> <li>○ All C-schedule meters are enrolled in Xcel Energy's Renewable*Connect renewable energy program.</li> <li>○ The District has a subscription of 1.4 MW/yr to a community solar garden (<b>Adams 12 Five Star Schools, 2020</b>).</li> </ul> </li> </ul>
<b>Other Community Projects</b>
<ul style="list-style-type: none"> <li>● The largest single rooftop solar installation (6.05 MW) in Colorado sits atop Amazon's robotics fulfillment center in Thornton (<b>Thornton, 2019</b>).</li> </ul>

## Outreach and Communication Channels

Engaging with residents and businesses in the community, to share information about available energy programs, is critical to reaching the goals set forth in this Energy Action Plan. **Table 5** lists some of the ways residents and businesses currently receive information from the city.

Table 5. Outreach and Communication Channels

<b><i>Digital and Printed Communications</i></b>
<ul style="list-style-type: none"> <li>• ThorntonCO.gov</li> <li>• Thornton Sustainability Web Site (<a href="http://www.thorntonsustainability.com">www.thorntonsustainability.com</a>)</li> <li>• Thornton Facebook Page</li> <li>• @CityofThornton Twitter Feed</li> <li>• Thornton T-Alerts Email Newsletters</li> <li>• Targeted emails from Xcel Energy</li> <li>• ThorntonWater.com</li> <li>• Partner websites</li> <li>• Utility Bill Mailings</li> <li>• City Voice</li> </ul>
<b><i>Community Events</i></b>
<ul style="list-style-type: none"> <li>• Thorntonfest</li> <li>• Thornton Harvest Fest</li> <li>• Thornton WinterFest</li> </ul>
<b><i>Community Spaces for Collateral Distribution</i></b>
<ul style="list-style-type: none"> <li>• Margaret W. Carpenter Recreation Center</li> <li>• Trail Winds Recreation Center</li> <li>• Thornton Community Center</li> <li>• Youth &amp; Teen Center</li> <li>• Adams 12 Five Star Schools</li> <li>• Anythink Libraries</li> </ul>

## Where Do We Want To Go?

### Our Energy Vision

With input gathered via the planning workshops and a survey, energy action team members crafted an energy vision statement that expresses Thornton's energy intentions and values:

**Thornton will lead the way in creating a more resilient community through energy efficiency improvements and the adoption of energy sources that reduce carbon emissions from municipal operations while also facilitating equitable access to energy programs and opportunities for residents and businesses.**

## Our Energy Goals

In discussing what Thornton should aim to achieve through this Energy Action Plan, the planning team expressed a collective desire to “move the needle” on a community scale through energy efficiency improvements and promotion of renewable energy sources in the short term (2020-2022), and through alignment with the State of Colorado’s climate commitments in the long term (2030 and beyond).

Based on these shared intentions, Thornton commits to:

- **By 2022, increasing participation in energy efficiency and renewable energy programs by 30% over the 2018 baseline year.** This additional program participation is expected to lead to an **additional:**
  - 625 completed energy projects (30% increase over baseline)
  - 2 million kWh of electricity savings (40% increase over baseline)
  - 54,000 therms of natural gas savings (28% increase over baseline)
  - 0.7 million kWh of renewable energy supplies (at a minimum), with the potential to add up to 9.4 million kWh of renewable energy supplies if all planned projects move forward.
  - 21% reduction (at a minimum) in GHG emissions from stationary building energy use, attributable to improvements in utility source fuel mixes, energy efficiency measures, and renewable energy supplies. This reduction in emissions represents 126,300 MT CO<sub>2</sub>e, which is approximately equivalent to the carbon dioxide emitted from 26,870 passenger vehicles per year.
- **By 2030, aligning with state climate and energy goals, which means reducing GHG emissions by at least 50% across all sectors** (Colorado General Assembly, 2019).
  - Upon implementation of this Energy Action Plan, Thornton is on track to reduce GHG emissions from stationary building energy use by at least 56% by the year 2030, attributable to improvements in utility source fuel mixes, energy efficiency measures, and renewable energy supplies.

## How Are We Going to Get There?

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To achieve Thornton’s energy goals, the planning team identified four focus areas: municipal, institutional, residential, and business. The following sections define each focus area, including its scope, objectives, and key metrics and targets to measure success. Strategies for the 2020-2022 timeframe are organized into tables that summarize the strategy, implementation activities, responsible parties, timeline, implementation resources, partners, and communication and outreach channels.

### Focus Area 1: Municipal Facilities and Operations

#### What is included in this focus area?

- Any energy-related initiative on a property owned or leased solely by Thornton.
- Electric vehicles are not included in this focus area – electric vehicles will be addressed through the city’s Sustainability Action Agenda.

## Objectives

- Help the city save energy and money
- Continue to lead by example for energy action in the broader community
- Promote adoption of energy sources that reduce carbon emissions and are cost-neutral or cost-beneficial
- Promote smart, green, and equitable growth through fiscally responsible design and construction of the built environment by facilitating infill and redevelopment, promoting and incentivizing sustainable development practices, and leveraging new technology to foster a “smart” city
- Benchmark against state energy and climate goals

## Metrics

- Municipal annual energy use (electricity and natural gas)
- Municipal annual energy costs (electricity and natural gas)
- Annual project participation and savings (electricity and natural gas)
- Energy use intensity (building energy use per square foot)
- Municipal greenhouse gas emissions

## Targets

- Maintain historical levels of four energy projects and 59,000 kWh electricity savings.
- Complete an additional 20 energy projects over the next two years for 1.1 million kWh of additional electricity savings and 9,000 therms of additional natural gas savings.
- Increase renewable energy supplies up to 2,445 kW over the next two years.

## Strategies

### Strategy 1-1: Manage Energy Action Plan Implementation

Table 6. Municipal Focus Area, Strategy 1-1: Manage Energy Action Plan Implementation

Strategy 1-1: Manage Energy Action Plan Implementation
Description
<p>The Manage Energy Action Plan Implementation strategy encompasses the administrative tasks necessary to implement this Energy Action Plan. This strategy will be led by the Water Resources department.</p>
Implementation Activities (2020-2022)
<ul style="list-style-type: none"> <li>• <b>Manage the implementation of the Energy Action Plan for the period 2020-2022.</b> <ul style="list-style-type: none"> <li>○ Designate a project management team responsible for administering the energy plan implementation project.</li> <li>○ Designate an implementation advisory team to advise on the priority and resources available to support the city’s energy implementation activities within the context of the broader sustainability action agenda.</li> <li>○ Designate energy teams within each strategy to execute the city’s energy projects.</li> </ul> </li> </ul>

### Responsible Parties (or Designated Representatives)

- PM Team
  - Pia Gerstle, Water Resources, Thornton
  - Emily Hunt, Water Resources, Thornton
  - John Orr, Water Resources, Thornton
  - Martin Postma, City Development, Thornton
- Implementation Advisory Team (aka Sustainability Task Force)
  - Paul Burkholder, Parks and Open Space, Thornton
  - Emily Hunt, Water Resources, Thornton
  - Martin Postma, City Development, Thornton
  - Erika Senna, Management and Budget Office, Thornton
  - Jaylin Stotler, Community Connections, Thornton
  - Lisa Wilson, Communications, Thornton
- Kynnie Martin, Xcel Energy Account Manager
- Xcel Energy Partners in Energy and program staff

### Timeline

- Implementation Q1 (Sep-Nov 2020)
  - Kick off the 2020-2022 implementation project.
  - Finalize the project management, implementation advisory, and energy teams.
  - Submit 2021 budget requests.
  - Quarterly check-in and status review.
- Implementation Q2 (Dec 2020-Feb 2021)
  - Quarterly check-in and status review.
- Implementation Q3 (Mar-May 2021)
  - Quarterly check-in and status review.
- Implementation Q4 (Jun-Aug 2021)
  - Quarterly check-in and status review.
  - Submit 2022 budget requests.
- Implementation Q5 (Sep-Nov 2021)
  - Quarterly check in and status review.
- Implementation Q6 (Dec 2021-Feb 2022)
  - Quarterly check in and status review.
  - Close out 2020-2022 implementation project and determine plans for 2022 and beyond.

### Implementation Resources

- Thornton Staffing Resources
  - 580 hours.
- Funding Needs
  - None identified.
- Partners in Energy Implementation Requests
  - Program management (check-in calls, invoice and status reporting, portal updates)

### Communication and Outreach Channels

- Quarterly check-in meetings

### Strategy 1-2: Manage Energy Program

To date, Thornton has not maintained a centralized energy management program, though various departments and staff have contributed substantially to energy efficiency efforts.

Table 7. Municipal Focus Area, Strategy 1-2: Manage Energy Program

#### Strategy 1-2: Manage Energy Program

##### Description

The Energy Program Management strategy encompasses the foundational technical and financial tasks necessary to implement this Energy Action Plan. This strategy will be led by the Water Resources department.

##### Implementation Activities (2020-2022)

- **Conduct energy data management and analysis**
  - Complete the municipal facility inventory that was started during the planning phase (**Appendix B: Municipal Facility Inventory**).
  - Leverage Xcel Energy's Benchmarking program, and the ENERGY STAR Portfolio Manager tool, to assess building efficiency through a performance metric such as energy use intensity (EUI, calculated as energy used per sq ft). Portfolio Manager is a tool that will allow the city to assess energy use at a high level across the city's portfolio and to use benchmarking results to assess which buildings may benefit from an audit or other operational evaluation.
  - Analyze implementation data every six months to ensure plan implementation is on track. This analysis is done through the Partners in Energy implementation support. The analysis results are provided to every community that participates in the program.
  - Conduct annual reporting on the past year's successes and the upcoming year's goals and priorities.
- **Coordinate funding need assessments and annual budget requests.**
  - In addition to the city's general fund and enterprise funds, evaluate the potential to finance projects through bonds, public-private partnerships, energy performance contracts, the Colorado Commercial Property Assessed Clean Energy (C-PACE) program, and grant funding (e.g., Department of Energy). The United States Bureau of Reclamation (USBR) WaterSMART grant program has been used in the past to fund water infrastructure projects (including metering) and may be a good candidate to fund joint water-energy projects. Projects with a demonstrated simple payback period of 3-5 years or less will be prioritized.
  - Ensure that the city is maximizing rebates and other financial incentives from utility energy programs.

##### Future Implementation Activities (2022 and beyond)

- Monitor and analyze energy use and cost information on a regular (monthly or annual) basis. Identify which software systems are currently being used for billing and building maintenance. Consider if additional data management and analysis software (such as EnergyCAP, ARC, or Energy Manager) would be beneficial to analyze energy use at a detailed level (by meter, by month, etc.).
- Evaluate the need for a sustainability director and staff.



### Responsible Parties (or Designated Representatives)

- Water Resources, Thornton (John Orr, PM Team Representative)
- Engineering Services, Thornton (Jason Pierce, Engineering Services Director)
- Management and Budget Office, Thornton (Erika Senna, Budget Manager)
- Management Services, Thornton (Jim Tully, Building Maintenance Supervisor)
- Utilities Operations, Thornton (Steve McFadden, Mechanical Maintenance Supervisor)
- Water Resources, Thornton (Josh Redman, Senior Water Resources Administrator)
- Water Treatment and Quality, Thornton (Martin Kimmes, Water Treatment and Quality Manager)
- Kynnie Martin, Xcel Energy Account Manager
- Xcel Energy Partners in Energy and program staff

### Timeline

- Implementation Q1 (Sep-Nov 2020)
  - Identify energy projects with energy incentives (e.g., LED lighting upgrades, HVAC, variable frequency drive (VFDs)).
- Submit 2021 budget requests.
  - Enroll in benchmarking program and set up Portfolio Manager.
  - Conduct 2020 Q2 implementation data processing.
- Implementation Q2 (Dec 2020-Feb 2021)
  - Complete benchmarking analysis based on energy use intensity.
- Implementation Q3 (Mar-May 2021)
  - Conduct 2020 Q4 implementation data processing.
- Implementation Q4 (Jun-Aug 2021)
  - Submit 2022 budget requests.
- Implementation Q5 (Sep-Nov 2021)
  - Conduct 2021 Q2 implementation data processing.
- Implementation Q6 (Dec 2021-Feb 2022)

### Implementation Resources

- Thornton Staffing Resources
  - 470 hours.
- Funding Needs
  - None identified.
- Partners in Energy Implementation Requests
  - Implementation data analysis and reporting
  - Support in setting up ENERGY STAR Portfolio Manager

### Partners

- Tom Green, Account Manager, United Power
- Colorado Energy Office (CEO) – facilitates the energy performance contracting process
- Energy services companies (ESCOs) – design, execute, and implement the energy performance contract
- Property Assessed Clean Energy (PACE) – offers the C-PACE financing program

## Communication and Outreach Channels

- Focus area lead check-in meetings
- Share annual reporting with all city staff via intranet

### Strategy 1-3: Promote Existing Facility Efficiency

The 2020 Thornton Comprehensive Plan includes a policy to seek new opportunities to incorporate energy efficiency, conservation, and renewable energy into city operations and facilities (Thornton, 2020a).

Table 8. Municipal Focus Area, Strategy 1-3: Promote Existing Facility Efficiency

### Strategy 1-3: Promote Existing Facility Efficiency

#### Description

The Promote Existing Building Efficiency strategy encompasses existing buildings, equipment, and processes in facilities owned and operated by Thornton. This strategy will be led by the Building Maintenance, Water Treatment & Quality, and Transportation departments.

#### Implementation Activities (2020-2022)

- Complete LED lighting upgrades at city facilities in 2020 as planned (Management Services).
- Identify new opportunities for energy efficiency improvements in existing buildings (Management Services).
  - Use data analysis and benchmarking results to prioritize top energy-using and highest energy-use-intensity buildings and to complete at least three audits/assessments.
  - Use audit/assessment results to prioritize opportunities for implementation (e.g., automated lighting controls, on-demand hot water systems, efficient heating and cooling equipment, building envelope upgrades, variable frequency drives, data center efficiencies).
  - Look for opportunities to take advantage of Xcel Energy's Energy Management Systems and Retro-commissioning programs.
  - Look for opportunities to promote joint energy-water savings (e.g., irrigation systems, hot water heaters, boilers).
  - Maximize financial incentives available through utility programs.
- Continue participation in Xcel Energy's Strategic Energy Management Program for the water system. Planned next steps include incorporation of energy monitoring, tracking, and trend reporting into the SCADA system as well as field verification of pump curves to support energy-efficient pump selection.
- Continue conversations and cost-benefit analyses of upgrading existing streetlights served by Xcel Energy and United Power to LEDs and installing lighting controls.
  - To retrofit Xcel Energy-owned streetlights to LEDs, the city could choose one of two options – paying for the upgrades up front or paying for the upgrades over time through the monthly billing process. Because only 2% of streetlight usage served by Xcel Energy is metered, while 98% is contracted, the city would realize relatively limited cost savings from the upgrades, estimated at \$30,000-90,000 per year, though the retrofits have the potential to save a large amount of energy (1.4 million kWh/yr). The city would consider authorizing the retrofits if a clear cost benefit could be demonstrated, specifically the financial tradeoff

between reduced maintenance costs over the life of the LED fixtures and the costs of replacing the LED fixtures at the end of their life.

- United Power-owned streetlights are currently being upgraded to LEDs in a multi-phase project. The retrofits should be completed by the end of 2021.
- Lighting controls could be used to alter lighting based on need (e.g. motion sensing, dimming during certain hours, turning off during certain hours, remote controls).
- Evaluate the pros and cons of moving to a four-day work week and/or promoting work-from-home policies. Investigate best practices for using similar policies to achieve energy savings and avoid unintended consequences.

#### **Implementation Activities (2022 and beyond)**

- Complete participation in Xcel Energy's Strategic Energy Management Program for the water system Infrastructure. Activities to be considered include power monitoring equipment at outlying facilities such as booster and pump stations; development of an operational model to identify and test tactical operational efficiencies; and equipment adjustments such as pressure-reducing valve (PRV) settings.

#### **Responsible Parties (or Designated Representatives)**

- Water Resources, Thornton (John Orr, PM Team Representative)
- Engineering Services, Thornton (Jason Pierce, Engineering Services Director)
- Management and Budget Office, Thornton (Erika Senna, Budget Manager)
- Traffic Engineering and Operations, Thornton (Darrell Alston, Traffic Engineer)
- Utilities Operations, Thornton (Steve McFadden, Mechanical Maintenance Supervisor)
- Water Resources, Thornton (Josh Redman, Senior Water Resources Administrator)
- Water Treatment and Quality, Thornton (Martin Kimmes, Water Treatment and Quality Manager)
- Preston Gibson, Xcel Energy Area Manager
- Kynnie Martin, Xcel Energy Account Manager
- Xcel Energy Partners in Energy and program staff

#### **Timeline**

- Implementation Q1 (Sep-Nov 2020)
  - Submit 2021 budget requests.
  - Initiate participation in next phase of Strategic Energy Management program.
- Implementation Q2 (Dec 2020-Feb 2021)
  - Complete LED lighting upgrades project.
  - Install power monitoring equipment.
  - Perform field verification of pump curves.
  - Develop energy performance indicators.
  - SCADA programming.
- Implementation Q3 (Mar-May 2021)
  - Go out to bid for audit services.
- Implementation Q4 (Jun-Aug 2021)
  - Submit 2022 budget requests.

- Implementation Q5 (Sep-Nov 2021)
  - Complete audits.
  - Implement and evaluate operational changes.
- Implementation Q6 (Dec 2021-Feb 2022)
  - Implement and evaluate operational changes (ongoing - may require up to three years).
  - Complete retrofit of United Power-owned streetlights to LED lighting.

### **Implementation Resources**

- Thornton Staffing Resources
  - 600 hours.
- Funding Needs
  - \$20,000 to complete facility lighting upgrades (allocated in the 2020 budget).
  - Up to \$150,000 to complete operational modeling for water system (alternatively, work may be done in house by Thornton staff).
  - Funding to complete audits, assessments, and/or additional identified energy projects.
- Partners in Energy Implementation Requests
  - Program management (check-in calls).
  - Technical analysis, based on benchmarking and other data analytics, to help identify potential buildings for audits.
  - Utility program information and other support.

### **Partners**

- Tom Green, United Power Account Manager
- Shannon Oliver, Energy and Sustainability Manager, Adams 12 Five Star Schools
- Cascade Energy – Xcel Energy vendor for the Strategic Energy Management program
- CLEARresult – Xcel Energy vendor that can help with program documentation and realizing financial incentives, especially for lighting programs
- Graphet Data Analytics – Xcel Energy vendor for the Strategic Energy Management program

### **Communication and Outreach Channels**

- Focus area implementation group check-in meetings

### Strategy 1-4: Promote Efficient New Development

Table 9. Municipal Focus Area, Strategy 1-4: Promote Efficient New Development Strategy

Strategy 1-4: Promote Efficient New Development
<b>Description</b>
<p>The Promote Efficient New Development strategy encompasses new facilities designed and built by Thornton, and codes related to new development across the community. This strategy will be led by the City Development, Building Maintenance, Contracts &amp; Purchasing, and Infrastructure Engineering departments.</p>
<b>Implementation Activities (2020-2022)</b>
<ul style="list-style-type: none"> <li>• Establish a policy governing the design and construction of city facilities (<b>Infrastructure, Management Services</b>). Evaluate all new city facilities for the feasibility of: <ul style="list-style-type: none"> <li>○ LEED certification. While LEED certification is not always feasible based on the cost, site constraints, and/or intended building use, all of Thornton’s design contracts require green or sustainable systems and equipment as items that are required by current code. A list of recommendations is generated at the 70% design phase.</li> <li>○ Beneficial electrification (also known as fuel-switching) to increase electricity use and minimize natural gas use, thus maximizing the amount of energy that can be supplied from carbon-free fuel sources.</li> <li>○ On-site solar PV projects (e.g., ground, building rooftops, or solar parking canopies) and/or subscriptions to renewable energy through utility programs.</li> </ul> </li> <li>• Evaluate all planned new buildings in the design phase (Fire Station 7 and Police Training Facility) for the feasibility of pursuing LEED certification, beneficial electrification, and renewable energy sources (<b>Infrastructure, Management Services</b>). New buildings under construction (e.g., Fire Station 1, Active Adult Facility) are assumed to be too far along to implement additional energy efficiency or renewable energy design features. Depending on building location and utility provided, take advantage of financial incentives from Xcel Energy’s Energy Design Assistance and Energy Efficient Buildings programs. Incorporate findings into design and construction scoping requirements.</li> <li>• Explore options to incentivize above-code construction (<b>City Development</b>).</li> <li>• Engage and educate the developer community on energy codes and energy-efficient design guidelines (<b>City Development</b>).</li> </ul>
<b>Future Implementation Activities (2022 and beyond)</b>
<ul style="list-style-type: none"> <li>• Continue to adopt the latest International Code Council (ICC) code bundles every three years and train city staff on code updates (<b>City Development – Building Division</b>). In summer 2022, Thornton will adopt the 2021 codes.</li> </ul>
<b>Responsible Parties (or Designated Representatives)</b>
<ul style="list-style-type: none"> <li>• City Development, Thornton (Martin Postma, PM Team Representative)</li> <li>• City Development, Thornton (Jim Bilyeu, Plans Examining Supervisor)</li> <li>• Contracts, Thornton (Sean Saddler, Contracts and Purchasing Director)</li> <li>• Engineering Services, Thornton (Jason Pierce, Engineering Services Director)</li> <li>• Management and Budget Office, Thornton (Erika Senna, Budget Manager)</li> </ul>

- Management Services, Thornton (Jim Tully, Building Maintenance Supervisor)
- Kynnie Martin, Xcel Energy Account Manager
- Xcel Energy Partners in Energy and program staff

### Timeline

- Implementation Q1 (Sep-Nov 2020)
  - Assemble team.
  - Prepare budget requests for FY 2021.
  - Establish initial policy goals for municipal and community developments.
  - Draft policies and circulate for review, including legal review. Finalize draft policies.
  - Establish “concept-level” curriculum focused on the developer community.
- Implementation Q2 (Dec 2020-Feb 2021)
  - Refine developer community curriculum.
  - Submit policies to City Manager for approval
  - Distribute for review and refine developer curriculum. Develop materials.
- Implementation Q3 (Mar-May 2021)
  - Implement as opportunities become available.
  - Present developer curriculum to City Manager for review and program approval.
- Implementation Q4 (Jun-Aug 2021)
  - Prepare budget requests for FY 2022.
- Implementation Q5 (Sep-Nov 2021)
- Implementation Q6 (Dec 2021-Feb 2022)

### Implementation Resources

- Thornton Staff Resources
  - 630 hours
- Funding
  - None identified.
- Partners in Energy Implementation Requests
  - Provide example policies and design checklists for “green” design and construction guidelines in municipal facilities.
  - Provide information on code trainings funded by Xcel Energy and/or the Colorado Energy Office.
  - Develop collateral to share with developers (e.g., through the Building department) to highlight programs, educational opportunities, and/or other important information about the latest energy code requirements.

### Partners

- Tom Green, United Power Account Manager
- Colorado Energy Office (code webinar training series)

### Communication and Outreach Channels

- Focus area implementation group check-in meetings
- Thornton website (development web pages)
- Thornton registered contractor emails

## Strategy 1-5: Promote Carbon-Free Energy Sources

Table 10. Municipal Focus Area, Strategy 1-5: Promote Carbon-Free Energy Sources

### Strategy 1-5: Promote Carbon-Free Energy Sources

#### Description

The Promote Carbon-Free Energy Sources strategy encompasses on-site energy generation (e.g., micro-hydropower, ground-mount solar, building rooftop-solar, solar parking canopies), solar gardens, and on-bill utility programs. This strategy would be led by the City Manager's Office, Engineering Services Division, Water Resources Division, and Water Treatment & Quality Division.

#### Implementation Activities (2020-2022)

- Build the proposed 294 kW solar project at the Thornton Water Treatment Plant, which is estimated to generate 0.4 million kWh of energy annually (Infrastructure).
- Complete the Northern Properties Stewardship plan and include solar projects and carbon sequestration projects as two potential future land uses that are evaluated (Infrastructure).
- Evaluate facilities (buildings and parking structures) to determine feasibility of new solar projects.
  - GRID Alternatives provided a preliminary assessment of the potential for new rooftop solar projects at Thornton facilities (**Appendix B: Municipal Facility Inventory**).
  - The evaluation or planning phase would include an assessment of the system size and capacity against the facility's energy usage; a structural assessment of the roof condition (ability to hold the weight of the solar system, and in good enough condition that roof replacement is not expected for at least ten years); and system design and funding strategy. Design and construction follow the planning phase and are assumed to occur in 2022 or later to allow time for project budgeting.
- If requested by Xcel Energy as part of the regulatory filing process, write a letter of support to the Public Utilities Commission for Xcel Energy's Renewable\*Connect program.

#### Implementation Activities (2022 and beyond)

- Secure funding, design, and construct new solar projects (based on the outcomes from the Northern Properties Stewardship Plan, Adams 12 Five Star Schools Shared Facilities Feasibility Study, and/or other opportunities such as carport roofs).
- If the Renewable\*Connect program is approved, subscribe qualifying meters to Xcel Energy's Renewable\*Connect program under a 10-year contract term (the longer the term, the more financially beneficial to the city).
  - A screening analysis was conducted in the preparation of this plan to assess the city's potential to enroll in Round 2 of the program if and when it becomes available in 2022. Based on the terms of the first offering made in 2018-2019, a theoretical maximum of 9,781 kW of the city's energy use could be subscribed under the program - resulting in an estimated 26.1 million kWh of renewable energy produced each year, which would cover more than 99% of the city's energy use (**Appendix D: Preliminary Analysis of Renewable\*Connect Eligibility**). However, the actual subscription amount that the city can access will be limited by the program capacity and the program demand from other customers. In the first round of the program offering, customers were limited to 25% of the

requested subscription amount. For the purposes of establishing planning targets, 2,445 kW is assumed to be the maximum subscription that the city could access.

### **Responsible Parties (or Designated Representatives)**

- Water Resources, Thornton (Pia Gerstle, PM Team Representative)
- Communications, Thornton (Todd Barnes, Communications Director)
- Engineering Services, Thornton (Jason Pierce, Engineering Services Director)
- Management and Budget Office, Thornton (Erika Senna, Budget Manager)
- Management Services, Thornton (Jim Tully, Building Maintenance Supervisor)
- Water Resources, Thornton (Emily Hunt, Deputy Infrastructure Director)
- Water Treatment and Quality, Thornton (Martin Kimmes, Water Treatment and Quality Manager)
- Kynnie Martin, Xcel Energy Account Manager
- Dara Ward, Xcel Energy Renewable Energy Product Development
- Xcel Energy Partners in Energy and program staff

### **Timeline**

- Implementation Q1 (Sep-Nov 2020)
  - Submit 2021 budget requests.
- Implementation Q2 (Dec 2020-Feb 2021)
- Implementation Q3 (Mar-May 2021)
- Implementation Q4 (Jun-Aug 2021)
  - Complete Northern Properties Stewardship Plan, including recommendations for future solar projects, if any.
  - Submit 2022 budget requests.
- Implementation Q5 (Sep-Nov 2021)
  - Complete installation of Thornton Water Treatment Plant solar system.
  - Complete planning phase of new solar project on shared facility with Adams 12 Five Star Schools.
- Implementation Q6 (Dec 2021-Feb 2022)

### **Implementation Resources**

- Thornton Staff Requests
  - 350 hours
- Funding
  - \$978,000 to construct solar project at Thornton Water Treatment Plant as planned – of which \$323,000 has been spent for construction in 2020 and the remaining \$655,000 will be requested in the 2021 budget.
- Partners in Energy Implementation Resources
  - Help with net metering, interconnection agreement, and/or need for grounding transformer for solar project at Thornton Water Treatment Plant.
  - Act as liaison with Xcel Energy’s renewable energy product development team.
  - Analyze meters to identify those eligible for Renewable\*Connect subscriptions under current terms.



**Partners**

- Tom Green, United Power Account Manager
- Douglass Colony, Solar installer proposed for Thornton Water Treatment Plant project
- Garney Construction, Thornton Water Treatment Plant Project Manager
- THK, ICS, CDR, Northern Properties Stewardship Plan consultants

**Communication and Outreach Channels**

- Focus area implementation group check-in meetings

Strategy 1-6: Promote Energy Awareness and Training

Table 11. Municipal Focus Area, Strategy 1-6: Promote Energy Awareness and Training

**Strategy 1-6: Promote Energy Awareness and Training**

**Description**

The Promote Energy Awareness and Training strategy encompasses staff trainings, and project and staff recognition. This strategy will be led by Human Resources and Communications departments.

**Implementation Activities (2020-2022)**

- Include materials about Thornton’s climate and energy goals, improving energy efficiency, and increasing carbon-free energy supplies in new employee onboarding and training materials, using intranet and Neogov platform.
- Recognize the completion of LED lighting conversion project through posters or flyers or other effective communication method(s).
- Recognize the buildings supplied by renewable energy through posters or flyers or other effective communication method(s).

**Responsible Parties (or Designated Representatives)**

- Water Resources, Thornton (Pia Gerstle, PM Team Representative)
- Communications, Thornton (Todd Barnes, Communications Director)
- Human Resources, Thornton (Tricia Hinton-Potter, Human Resources Director)
- Management and Budget Office, Thornton (Erika Senna, Budget Manager)
- Management Services, Thornton (Jim Tully, Building Maintenance Supervisor)
- Recreation, Thornton (Jill Collins, Wellness Coordinator)
- Implementation Advisory Team, Thornton
- City Council, Thornton
- Xcel Energy Partners in Energy and program staff

**Timeline**

- Implementation Q1 (Sep-Nov 2020)
  - Submit 2021 budget requests.
  - Develop training strategy.
- Implementation Q2 (Dec 2020-Feb 2021)
  - Complete first flyer, poster, and e-mail for distribution to recognize lighting project completion.
  - Complete onboarding and training materials for inclusion in intranet and NeoGov (due Jan 2021).

- Implementation Q3 (Mar-May 2021)
  - Make NeoGov training operational.
- Implementation Q4 (Jun-Aug 2021)
  - Submit 2022 budget requests.
- Implementation Q5 (Sep-Nov 2021)
- Implementation Q6 (Dec 2021-Feb 2022)

### **Implementation Resources**

- Thornton Staff Needs
  - 85 hours
- Funding
  - None identified
- Partners in Energy Implementation Requests
  - Support development of onboarding materials about Thornton’s climate and energy goals, improving energy efficiency, and increasing carbon-free energy supplies.
  - Design a poster or flyer to recognize the completion of the LED lighting conversion project.
  - Design a poster or flyer to recognize buildings supplied by renewable energy.

### **Partners**

- Tom Green, United Power Account Manager
- Colorado State University Extension – supports energy efficiency and renewable energy trainings

### **Communication and Outreach Channels**

- Focus area implementation group check-in meetings
- Thornton employee emails, intranet, and NeoGov
- Thornton Sustainability website
- Collateral distribution at city facilities

## Focus Area 2: Institutional

### What is included in this focus area?

- School district properties (Adams 12 Five Star Schools, Mapleton Public Schools, 27J Schools, Adams 14 School District)
- Anythink properties (Wright Farms, Huron Street, York Street library locations)
- Hospitals (UC Health, North Suburban Medical Center, Concentra)
- Regional Transportation District (RTD)

### Objectives

- The city should serve as a nexus for community services and education around energy awareness, efficiency, and renewable options.

### Metrics

- Annual project participation and savings (electricity and natural gas) – for Adams 12 Five Star School District only, as data waivers are needed to share these data at a customer level
- Number of community events held and number of event attendees

## Targets

- Maintain historical levels of 24 energy projects and 405,800 kWh electricity savings.
- Complete an additional 9 energy projects over the next two years for 0.3 million kWh of additional electricity savings and 1,000 therms of additional natural gas savings. These targets can be updated from Adams 12 Five Star School District's energy performance contract when data are available in Summer 2020.
- Increase renewable energy supplies by 0-2.14 MW over the next two years.

## Strategies

### Strategy 2-1: Collaborate with Adams 12 Five Star School District

Table 12. Institutional Focus Area, Strategy 2-1: Collaborate with Adams-12 Five Star School District

#### **Strategy 2-1: Collaborate with Adams 12 Five Star School District**

##### **Description**

The collaboration with Adams 12 Five Star School District strategy encompasses facilities and properties owned and operated by Adams 12 Five Star School District within the Thornton community. This strategy will be led by the Adams 12 School District.

##### **Implementation Activities (2020-2022)**

- Adams 12 Five Star Schools will complete the energy performance contract for as planned, including both energy efficiency and renewable energy projects. Where new solar projects are installed, consider coupling projects with signage (for awareness), hands-on lab experience for students (for education), and installation internships (for workforce development).
- Adams 12 Five Star Schools will evaluate the potential for new solar projects at:
  - The transportation maintenance facility known as the Consolidated Service Center. This facility is shared between the city and Adams 12 under an intergovernmental agreement. GRID Alternatives has provided Adams 12 a preliminary assessment of three buildings.
  - Parking structures.
- Adams 12 Five Star Schools will identify new energy projects at schools or other District facilities not included in the energy performance contract and include them in budgeting processes.
- The city will promote energy awareness by participating in and/or tabling at one event per year (Colorado Association of School District Energy Managers (CASDEM) meetings, and/or annual Water Festival).
- Adams 12 Five Star Schools will share energy efficiency and renewable energy efficiency information through the Adams 12 Five Star Schools Facebook page and other social media platforms.
- Adams 12 Five Star Schools will evaluate the potential for Thornton and Adams 12 communications departments to collaborate to amplify messaging on relevant topics.

##### **Responsible Parties (or Designated Representatives)**

- City Development, Thornton (Martin Postma, PM Team Representative)
- Shannon Oliver, Energy and Sustainability Manager, Adams 12 Five Star Schools
- Melanie Gavin, Account Manager, Xcel Energy
- Xcel Energy Partners in Energy and program staff

### Timeline

- Implementation Q1 (Sep-Nov 2020)
  - Identify an appropriate Colorado Association of School District Energy Managers (CASDEM) meeting for Thornton and Xcel Energy Partners in Energy participation and tabling. Meetings are held every two months during the school year (September, November, January, March, and May).
  - Prepare materials for and participate in annual Water Festival.
  - Create a social media calendar in collaboration with Adams 12.
- Implementation Q2 (Dec 2020-Feb 2021)
  - Target November CASDEM meeting for Xcel Energy Partners in Energy participation.
- Implementation Q3 (Mar-May 2021)
- Implementation Q4 (Jun-Aug 2021)
  - Submit 2022 budget requests, as needed.
- Implementation Q5 (Sep-Nov 2021)
- Implementation Q6 (Dec 2021-Feb 2022)

### Implementation Resources

- Thornton Staffing Resources
  - 177 hours.
- Funding Needs
  - None identified.
- Partners in Energy Implementation Requests
  - Support events with collateral, giveaways, and attendance where needed.
  - Scope and help identify funding for a joint technical assistance engineering study among Xcel Energy, Thornton, and Adams 12 to identify future energy projects at shared facilities (Aquatic Center and Consolidated Service Center).
  - Provide a social media calendar.

### Partners

- Tom Green, United Power Account Manager
- Colorado Energy Office – facilitates the energy performance contracting process.
- McKinstry, ESCOs – responsible for the design, execution, and implementation of the Adams 12 energy performance contract.
- Colorado PACE – offers the C-PACE financing program.
- Matt McNearney, Grid Alternatives – provides solar feasibility assistance for shared facilities.

### Communication and Outreach Channels

- Focus area implementation group check-in meetings – consider in-person meetings at city or School District facilities for ongoing communication and coordination.
- Adams 12 Five Star Schools websites and emails.

## Strategy 2-2: Engage with Other Institutional Stakeholders

Table 13. Institutional Focus Area, Strategy 2-2: Engage with Other Institutional Stakeholders

Strategy 2-2: Engage with Other Institutional Stakeholders
<p><b>Description</b></p> <p>The Engage with Other Institutional Stakeholders strategy encompasses engagement with institutional stakeholders (e.g., libraries, school districts, hospitals, public transportation) that did not participate in the planning process - to raise awareness of energy efficiency, renewable energy, and utility programs. This strategy will be led by the Thornton City Development department.</p>
<p><b>Implementation Activities (2020-2022)</b></p> <ul style="list-style-type: none"> <li>• Develop tailored collateral for each type of institution or for Regional Transportation District (RTD) transit modes within Thornton.</li> <li>• Identify points of contact for each institution and schedule one-on-one meetings to share information, gauge interest in and potential for energy projects (energy efficiency and/or renewable energy), and opportunities to promote energy awareness.</li> </ul>
<p><b>Responsible Parties (or Designated Representatives)</b></p> <ul style="list-style-type: none"> <li>• City Development, Thornton (Martin Postma, PM Team Representative)</li> <li>• City Development, Thornton (Kent Moorman, Regional Transportation Engineer)</li> <li>• Communications, Thornton (Todd Barnes, Communications Director)</li> <li>• Community Connections, Thornton (Adam Lyons, Grant and Housing Supervisor)</li> <li>• Economic Development, Thornton (Adam Krueger, Deputy Economic Development Director)</li> <li>• Water Resources, Thornton (Emily Hunt, Deputy Infrastructure Director)</li> <li>• Xcel Energy Partners in Energy and program staff</li> </ul>
<p><b>Timeline</b></p> <ul style="list-style-type: none"> <li>• Implementation Q1 (Sep-Nov 2020) <ul style="list-style-type: none"> <li>○ Gather stock materials from Xcel Energy.</li> <li>○ Brand and tailor promotional materials.</li> <li>○ Identify points of contact and reach out to schedule meetings.</li> <li>○ Submit 2021 budget requests, as needed.</li> </ul> </li> <li>• Implementation Q2 (Dec 2020-Feb 2021) <ul style="list-style-type: none"> <li>○ Schedule and engage with institutional stakeholders to share information and develop buy-in.</li> </ul> </li> <li>• Implementation Q3 (Mar-May 2021) <ul style="list-style-type: none"> <li>○ Schedule and engage with institutional stakeholders to share information and develop buy-in.</li> <li>○ Compile meeting summaries and outcomes report.</li> </ul> </li> <li>• Implementation Q4 (Jun-Aug 2021) <ul style="list-style-type: none"> <li>○ Submit 2022 budget requests, as needed.</li> </ul> </li> <li>• Implementation Q5 (Sep-Nov 2021)</li> <li>• Implementation Q6 (Dec 2021-Feb 2022)</li> </ul>

### Implementation Resources

- Thornton Staffing Resources
  - 90 Hours.
- Funding Needs
  - None identified.
- Partners in Energy Implementation Requests
  - Develop tailored collateral for up to three institutional business types.

### Partners

- Tom Green, United Power Account Manager
- Anythink Libraries
- Mapleton School District
- North Suburban Medical Center
- Regional Transportation District

### Communication and Outreach Channels

- Focus area implementation group check-in meetings
- Institutional partners' websites and emails

## Focus Area 3: Residential

### What is included in this focus area?

- Any single-family or multi-family property located within Thornton limits.

### Objectives

- The city should promote smart, green, and equitable development through fiscally responsible growth patterns, promoting infill and redevelopment, promoting sustainable development practices, and leveraging new technology to foster a “Smart” City.
- The city should serve as a nexus for equitable community services and education around energy awareness, efficiency and renewable options, and electrification.
- The city should provide vulnerable populations, including lower-income and seasonally employed residents, with access to affordable energy programs.

### Metrics

- Residential annual energy use (electricity and natural gas)
- Residential annual energy costs (electricity and natural gas)
- Annual project participation and savings (electricity and natural gas)
- Average energy use (MMBtu/premise)
- Number of LEED (or other sustainably certified) housing units

### Targets

- Maintain historical levels of 1,900 energy projects, 1.4 million kWh electricity savings, and 140,000 therms of natural gas savings.
- Complete an additional 570 energy projects over the next two years for 0.5 million kWh of additional electricity savings and 40,000 therms of additional natural gas savings.
- Increase renewable energy supplies by 0.3 million kWh over the next two years.

## Strategies

### Strategy 3-1: Promote Residential Energy Improvements

Table 14. Residential Focus Area, Strategy 3-1: Promote Residential Energy Improvements

Strategy 3-1: Promote Residential Energy Improvements
<p><b>Description</b></p> <p>The Promote Residential Energy Improvements strategy encompasses all types of energy improvements targeted at the residential sector, including new home efficiency, existing home efficiency, multi-family programs, renewable energy supplies, and energy awareness. This strategy will be led by the Parks Recreation &amp; Community Programs and Water Resources departments.</p>
<p><b>Implementation Activities (2020-2022)</b></p> <ul style="list-style-type: none"> <li>● Purchase (or buy-down) Home Energy Squad® visits for 500 residents, beginning with low-income residents or targeted neighborhoods with relatively high energy use; and then open up the offering to any qualified resident. <b>Appendix E: Residential Energy Efficiency Programs</b> contains information about Xcel Energy’s Home Energy Squad and Home Energy Squad Plus programs. <b>Appendix F: Residential Energy Heat Maps</b> contains maps of average electricity use per premise, and average natural gas use per premise, by census block.</li> <li>● Use existing city programs with customer outreach channels to cross-promote energy programs.       <ul style="list-style-type: none"> <li>○ City programs to leverage include water conservation programs delivered by Resource Central and the Home Loan Repair program.</li> <li>○ Programs to be promoted may include those with historically high participation and savings, including but not limited to:           <ul style="list-style-type: none"> <li>▪ Xcel Energy Home Energy Squad®</li> <li>▪ Xcel Energy and United Power heating programs</li> <li>▪ Xcel Energy and United Power refrigerator and freezer recycling programs</li> <li>▪ Xcel Energy Single-Family Weatherization program</li> </ul> </li> </ul> </li> <li>● Raise energy awareness in the community by holding one educational workshop per year – the first to be focused on residential energy efficiency and the second to be focused on renewable energy options for residents.       <ul style="list-style-type: none"> <li>○ The energy efficiency workshop will focus on “Top 10” energy-savings tips and provide an overview of relevant energy programs.</li> <li>○ The renewable energy workshop will cover (1) tools and resources (e.g., CSU Extension Solar Calculator, Google Project Sunroof); (2) information about Xcel Energy and United Power solar and wind subscription programs; and (3) funding programs to help homeowners with PV solar system installations.</li> </ul> </li> <li>● Promote energy education and awareness at city events (e.g., tabling and distributing conservation kits at Thorntonfest and Harvest Fest).</li> <li>● Promote new home efficiency by connecting with the development community and raising awareness of Xcel Energy’s Energy Star New Homes and other programs targeted at new construction.</li> <li>● Promote energy efficiency in multifamily buildings by working with CLEAResult and promoting the Xcel Energy Multifamily Buildings and Multifamily Weatherization Programs.</li> </ul>

- Consider Community Development Block Grant (CDBG) funding to help homeowners with energy efficiency improvements.

### Responsible Parties (or Designated Representatives)

- Water Resources, Thornton (John Orr, PM Team Representative)
- City Development, Thornton (Jim Bilyeu, Plans Examining Supervisor)
- Communications, Thornton (Todd Barnes, Communications Director)
- Community Connections, Thornton (Adam Lyons, Grant and Housing Supervisor)
- Management and Budget Office, Thornton (Erika Senna, Budget Manager)
- Water Resources, Thornton (Emily Hunt, Deputy Infrastructure Director)
- Xcel Energy Partners in Energy and program staff

### Timeline

- Implementation Q1 (Sep-Nov 2020)
  - Submit 2021 budget requests.
  - Communicate with CLEAResult to determine timing of 2021 Home Energy Squad campaign, and mechanisms for promoting the multi-family buildings programs. Define marketing and outreach strategy.
  - Work with Resource Central to market energy programs.
  - Identify possibilities to utilize CDBG funding for energy efficiency improvements.
- Implementation Q2 (Dec 2020-Feb 2021)
  - Work with procurement for sole source contract justification and approval.
  - Develop marketing materials and submit for brand review.
  - Conduct residential energy efficiency workshop.
  - Participate in Harvest Fest.
- Implementation Q3 (Mar-May 2021)
  - Execute contract with CLEAResult for Home Energy Squad campaign.
  - Begin marketing for Home Energy Squad campaign. Consider in-person event promotions.
- Implementation Q4 (Jun-Aug 2021)
  - Continue marketing and begin implementing Home Energy Squad campaign.
  - Work with Resource Central to market energy programs.
  - Conduct a residential renewable energy workshop.
  - Submit 2022 budget requests, as needed.
- Implementation Q5 (Sep-Nov 2021)
  - Work with Resource Central to market energy programs.
  - Participate in Thorntonfest.
- Implementation Q6 (Dec 2021-Feb 2022)

### Implementation Resources

- Thornton Staffing Resources
  - 240 hours.
- Funding Needs
  - \$12,500-\$50,000 to subsidize (or purchase, depending on the level of funding available) Home Energy Squad visits on behalf of Thornton residents. Potential grant funding sources,



such as Community Development Block Grants, will also be evaluated for suitability to this project.

- Partners in Energy Implementation Requests
  - Coordinate and market the Home Energy Squad campaign with Thornton and CLEARResult, including sending marketing e-mails to Thornton residents.
  - Develop collateral for residents, to be distributed by Resource Central and other program visits.
  - Plan and attend two educational workshops.
  - Develop collateral for developers, promoting Energy Star New Homes and other programs
  - Leverage the New Development, Multifamily, Congregation, and Underserved toolkits for resident engagement.
  - Event tabling support (e.g., collateral development, printing, giveaways, attendance).

### **Partners**

- Tom Green, United Power Account Manager
- Matt McNearney, GRID Alternatives – vendor that offers multiple programs to help Thornton residents install rooftop solar, including free installations and energy generation for low-income residents.
- Resource Central – City vendor that implements various water conservation programs
- CLEARResult –Xcel Energy vendor for Multifamily Buildings program and Home Energy Squad®.
- Brothers Redevelopment – City vendor that provides home repairs to Thornton homeowners.
- Colorado State University Extension – provides informational resources for home energy efficiency and solar PV systems

### **Communication and Outreach Channels**

- Focus area lead check-in meetings
- Thornton Sustainability website
- Thornton email, newsletters
- Resource Central emails, visits, customer surveys, and website
- Xcel Energy emails
- United Power emails
- Collateral distribution at city facilities

## Focus Area 4: Business

### What is included in this focus area?

- Any business property located within Thornton limits, excluding municipal and institutional properties.

### Objectives

- The city should serve as a nexus for community services and education around energy awareness, efficiency, and renewable options.
- The city should promote growing smarter and greener through fiscally responsible growth patterns, promoting infill and redevelopment, promoting sustainable development practices, and leveraging new technology to foster a “Smart” City.
- The city should promote energy efficiency standards in public and private developments.

### Metrics

- Commercial and industrial annual energy use (electricity and natural gas)
- Commercial and industrial annual energy costs (electricity and natural gas)
- Annual project participation and savings (electricity and natural gas)

### Targets

- Maintain historical levels of 190 energy projects, 4.2 million kWh electricity savings, and 1,700 therms of natural gas savings.
- Complete an additional 28 energy projects over the next two years for 0.1 million kWh of additional electricity savings and 4,000 therms of additional natural gas savings.

## Strategies

### Strategy 4-1: Promote Business Energy Improvements

Table 15. Business Focus Area, Strategy 4-1: Promote Business Energy Improvements

#### Strategy 4-1: Promote Business Energy Improvements

##### **Description**

The Promote Business Energy Improvements strategy encompasses all types of energy improvements targeted at the private sector, including new business efficiency, existing business efficiency, renewable energy supplies, and energy awareness. This strategy will be led by the Economic Development Department.

##### **Implementation Activities (2020-2022)**

- Conduct a lighting campaign for a selected business corridor in Thornton. Potential locations include shopping centers such as Thornton Town Center, Eastlake, Thorncreek Shopping Center, etc.
- Develop an engagement strategy, for large businesses, that includes tailored energy packets by business type (collateral and case studies) and one-on-one engagement led by the Economic Development Department. The city’s business database includes contact information, ownership versus rental information, and other attributes that will allow engagement with targeted businesses. Contact will be initiated by email, with follow-up conversations with interested businesses.
- Leverage connections with the Businesses In Thornton Advisory Council (BTAC) to share general collateral and program information suitable for small businesses. Identify business types that are interested in more detailed or tailored information. Networking events, hosted twice per year (May/June and Sept/Oct), allow tabling and networking opportunities with small businesses.

- Leverage connections with the Alianza organization, to connect with Spanish-speaking businesses.
- Incorporate information from the Partners in Energy Small/Medium Business Toolkit.
- Evaluate whether Annual Green Business Award (given out in April) can be used to recognize businesses that have achieved energy excellence, whether through efficiency or renewable energy initiatives.

#### **Responsible Parties (or Designated Representatives)**

- City Development, Thornton (Martin Postma, PM Team Representative)
- Communications, Thornton (Todd Barnes, Communications Director)
- Economic Development, Thornton (Adam Krueger, Deputy Director of Economic Development)
- Management and Budget Office, Thornton (Erika Senna, Budget Manager)
- Water Resources, Thornton (Emily Hunt, Deputy Infrastructure Director)
- Xcel Energy Partners in Energy and program staff

#### **Timeline**

- Implementation Q1 (Sep-Nov 2020)
  - Develop a plan for business lighting campaign, large business outreach, BTAC and Alianza outreach, and material development for small businesses.
  - Communicate with CLEAResult to determine timing of small business lighting campaign and define marketing and outreach strategy.
  - Submit budget requests.
  - Develop marketing materials and submit for brand review. Translate into Spanish where needed and feasible.
- Implementation Q2 (Dec 2020-Feb 2021)
  - Identify points of contact and reach out to schedule meetings with large businesses.
- Implementation Q3 (Mar-May 2021)
  - Begin marketing for and implementing lighting campaign. Consider in-person event promotions.
  - Attend BTAC meeting and coordinate with Alianza.
  - Meet with large businesses.
- Implementation Q4 (Jun-Aug 2021)
  - Meet with large businesses.
  - Submit budget requests.
- Implementation Q5 (Sep-Nov 2021)
  - Meet with large businesses.
- Implementation Q6 (Dec 2021-Feb 2022)

#### **Implementation Resources**

- Thornton Staffing Resources
  - 275 Hours.
- Funding Needs
  - None identified.
- Partners in Energy Implementation Requests
  - Attend up to three business networking events.

- Leverage the Small Business and Medium Business toolkits for business engagement.
- Event tabling support (e.g., collateral development, printing, giveaways, attendance).
- Support one-on-one business engagement as needed.

**Partners**

- Tom Green, United Power Account Manager and BTAC chairman
- CLEAResult –Xcel Energy vendor for the Small Business Lighting program.
- BTAC – represents and communicates with Thornton businesses
- Colorado State University Extension – supports energy efficiency and renewable energy trainings

**Communication and Outreach Channels**

- Focus area lead check-in meetings
- Thornton Economic Development web site
- Thornton Sustainability web site
- Thornton business email newsletters
- Xcel Energy emails
- United Power emails
- Business partner websites and emails (e.g., TBAC)
- Tabling at business events

**How Are We Going to Stay on Course?**

Thornton intends to create an Implementation Project Management Team consisting of the following staff members to act as overall stewards of the plan.

**Implementation Team**

- Emily Hunt, Deputy Infrastructure Director
- John Orr, Water Resources Administrator
- Martin Postma, Senior Policy Analyst
- Pia Gerstle, Water Resources Analyst II

**Project Management and Tracking**

Partners in Energy will host biweekly project management check-in calls with the Implementation Team to ensure we stay on course to achieve our strategies. From there, the Implementation Team will coordinate with relevant Energy Team members, identified in the strategy tables above, to take identified actions, share progress, and make course corrections to meet the realities of implementation.

**Data and Reporting**

This Energy Action Plan is intended to be a living document (**Figure 10**). Goals and strategies will be assessed every six months and refined if needed. Partners in Energy will provide biannual progress reports with metrics of success and overall progress toward goals. These progress reports will be available publicly

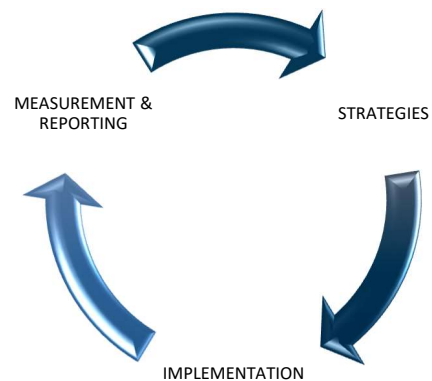


Figure 10. Actions and Tracking

and shared with the Energy Team. If needed, ad hoc participation reports for specific Xcel Energy programs (e.g., Home Energy Squad) are available to measure the success of campaigns.

### Beyond the Plan Horizon

As Thornton sets out to achieve its 2030 goal of aligning with the State of Colorado’s GHG emission reduction targets, Xcel Energy is moving in the same direction and working hard to support customers in achieving their climate goals. To this end, Xcel Energy has committed to achieving 100% carbon-free electricity by 2050 (**Figure 11**).



Figure 11. Xcel Energy Carbon-Free Energy Commitments

In partnership, Thornton along with its energy utility service providers, community partners, residents, and businesses can realize the energy vision and goals set forth in this Energy Action Plan to make Thornton a more sustainable and resilient community.

## References

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- Adams 12 Five Star Schools. (2020, Feb 3). *Sustainability Management Plan 2017-2020*. Retrieved from Energy and Sustainability: <https://www.adams12.org/facilities/energy-and-sustainability>
- Colorado General Assembly. (2019, May 30). *House Bill (HB) 19-1261: Climate Action Plan to Reduce Pollution*. Retrieved from Second Regular Session | 72nd General Assembly: <https://leg.colorado.gov/bills/hb19-1261>
- Thornton. (2018, Dec). *Community Profile*. Retrieved from Final Draft Comprehensive Plan Documents Library: <http://www.thorntontomorrow.com/wp-content/uploads/2018/12/Community-Profile.pdf>
- Thornton. (2019, Sep 9). *Amazon Debuts Colorado's Largest Solar Installation*. Retrieved from Economic Development: <https://businessinthornton.com/amazon-debuts-colorados-largest-solar-installation/>
- Thornton. (2020a, Apr 7). *Final Draft Comprehensive Plan*. Retrieved from Thornton Tomorrow Together: <http://www.thorntontomorrow.com/document-library>
- Thornton. (2020b, Apr 7). *Major Employers*. Retrieved from Thornton Economic Development: <https://businessinthornton.com/find-location/data/major-employers/>
- Thornton. (2020c, Apr 12). *Utility Service Map*. Retrieved from Electric & Gas Utility Services: <https://www.thorntonco.gov/services/Pages/electric-gas-utility.aspx>
- US Census Bureau. (2018). *2018: American Community Survey 1-Year Estimates Data Profiles*. Retrieved from <https://data.census.gov/cedsci/profile?g=1600000US0877290&q=Thornton%20city,%20Colorado>
- US Energy Information Administration. (2017, Nov 20). *Link between growth in economic activity and electricity use is changing around the world*. Retrieved from Today in Energy: <https://www.eia.gov/todayinenergy/detail.php?id=33812>
- US Energy Information Administration. (2018, May). *2015 RECS Survey Data*. Retrieved from <https://www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce1.1.pdf>
- US Environmental Protection Agency. (2017, Jan 19). *Greenhouse Gas Emissions from a Typical Passenger Vehicle*. Retrieved from Green Vehicle Guide: [https://19january2017snapshot.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle-0\\_.html](https://19january2017snapshot.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle-0_.html)
- US Environmental Protection Agency. (2020, Mar). *Greenhouse Gas Equivalencies Calculator*. Retrieved from Energy and the Environment: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
- Weather Data Depot. (2020, Apr 16). *Monthly Degree Day Comparison (Weather Station: WSTY)*. Retrieved from Degree Day Comparison: <https://www.weatherdatadepot.com/>
- Xcel Energy. (2019, July). *Xcel Energy Community Energy Reports*. Retrieved from Xcel Energy: [https://www.xcelenergy.com/working\\_with\\_us/municipalities/community\\_energy\\_reports](https://www.xcelenergy.com/working_with_us/municipalities/community_energy_reports)

## Appendix A: Glossary of Terms

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

**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 Action Plan:** A written plan that includes an integrated approach to all aspects of energy management and efficiency. This includes both short- and long-term goals, strategies, and metrics to track performance.

**Energy Use Intensity:** A metric that expresses a building's energy use as a function of its size (e.g. kWh/sq. ft.) or other characteristics.

**Greenhouse Gas (GHG):** Gas in the atmosphere that absorbs and emits radiant energy within the thermal infrared range (primary GHGs include water vapor, carbon dioxide, methane, nitrous oxide, and ozone); GHGs are associated with affecting climate change.

**Goals:** The results toward which efforts and actions are directed. There can be a number of objectives and goals outlined in order to successfully implement a plan.

**HOA:** Homeowners' association.

**HVAC:** Heating, ventilation, and air conditioning.

**LED:** light-emitting diode.

**kW:** kilowatt (1,000 watts); a unit of electric power.

**kWh (kilowatt-hour):** A unit of electric consumption

**MMBtu:** One million British Thermal Units; a measure of energy content in fuels.

**MTCO<sub>2</sub>e:** Metric tons of carbon dioxide equivalent (MTCO<sub>2</sub> Eq.); measure used to compare the emissions from different greenhouse gases based on their global warming potential (GWP). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by its associated GWP.

**MW:** Megawatt (1 million watts); a unit of electric power.

**Premise:** A unique identifier for the location of electricity or natural gas service. In most cases, it is a facility location. There can be multiple premises per building and multiple premises per individual debtor.

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

**RFP:** Request for proposals (solicitation of services).

**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:** A unit of heat energy (natural gas).

**Weatherization:** Insulation, air sealing, weather stripping, etc., that improve the building envelope.



## Appendix B: Municipal Facility Inventory

Complex	Building	Address	Square Feet
City Hall	Civic Center Main Building	9500 Civic Center Dr	106,561
	Justice Center	9551 Civic Center Dr	102,426
	<i>Complex Total</i>		- 208,987
Infrastructure Maintenance Center	Administration	12450 Washington St	23,204
	Operations	12450 Washington St	18,252
	Storage	12450 Washington St	7,298
	Fleet Shops	12450 Washington St	14,030
	Heated Storage	12450 Washington St	9,511
	Shop Addition	12450 Washington St	8,000
	Ice slicer dome	12450 Washington St	5,000
	New Fleet Buildings	1330 E 126th Ave	28,000
	<i>Complex Total</i>		- 113,295
Maintenance Service Center	Building A	8651 Colorado Blvd	16,222
	Building B	8651 Colorado Blvd	40,350
	Building D	8651 Colorado Blvd	4,850
	Building E	8651 Colorado Blvd	4,800
	Building F	8651 Colorado Blvd	1,200
	<i>Complex Total</i>		- 67,422
Fire Station #1	Fire Station #1	9451 Dorothy Blvd	6,113
Fire Station #2	Fire Station #2	9667 Huron St	3,500
Fire Station #3	Fire Station #3	11257 Birch Dr	2,000
Fire Station #4	Fire Station #4	1400 E 128th Ave	7,500
Fire Station #5	Fire Station #5	14051 Colorado Blvd	11,800
Community Center	Fossil Ridge Public Safety Building	13150 Quebec St	-
	Community Center	2211 Eppinger Blvd	24,881
	Community Building	2141 E 95th Ave	2,901
	Community Pool Storage	2141 E 95th Ave	1,525
	Boiler\Pump Building	2141 E 95th Ave	1,700
	Pool Building	13401 Albion Way Pool 13401 Albion Way	
	<i>Complex Total</i>		- 31,007
Margaret W. Carpenter Recreation Center	Building	11151 Colorado Blvd	78,780
	Park Restrooms	11151 Colorado Blvd	1,600
	Open Space Buildings	11151 Colorado Blvd	3,000
	<i>Complex Total</i>		- 83,380
Trail Winds Recreation Center	Building	13495 Holly St	88,000
	Restrooms	13495 Holly St	800
	Restrooms	13385 Holly St	1,236
	<i>Complex Total</i>		- 90,036
Woodglen Park	Restrooms	11551 Madison St	800
Thornton Arts & Cultural Center	Thornton Arts & Cultural Center	9209 Dorothy Blvd	7,500
	<i>Complex Total</i>		- 7,500
Thorncreek Golf Course	Club House	13555 Washington St	6,000
	Maintenance Shop	13555 Washington St	8,000

Complex	Building	Address	Square Feet
	Maintenance Shop		
	<i>Complex Total</i>		- 14,000
Riverwalk Ballfields	Riverwalk Ballfields	8651 Riverdale Rd	5,000
	ESP Dewatering PS		
	<i>Complex Total</i>		- 5,000
Northern Lights Ballfield	Restrooms		800
Thornton Sports Complex	Restrooms		800
Active Adult Center	Active Adult Center	9471 Dorothy Blvd	8,039
Park Village Pool	Building	4051 Summit Grove Pkwy	2,665
Lambertson Farm	Main Farm House	751 E 100th Ave	4,000
	Small Farm House	751 E 100th Ave	1,500
	Outbuildings		
	<i>Complex Total</i>		- 5,500
Thornton WTP	Thornton WTP	9520 Ellen Ct	34,042
	UV Building	9520 Ellen Ct	820
	Thornton Treatment Plant	9520 Ellen Ct	2,277
	<i>Complex Total</i>		- 37,139
Wes Brown (Columbine) WTP	Wes Brown (Columbine) WTP	3651 E 86th Ave	119,459
	Midgordon Garage	3651 E 86th Ave	1,920
	West Raw Water	3651 E 86th Ave	1,800
	West Pre-Treat	3651 E 86th Ave	600
	Tani Lakes Pump	3651 E 86th Ave	1,300
	East Raw Water	3651 E 86th Ave	2,100
	South I-76 Pre-Treatment	3651 E 86th Ave	600
	<i>Complex Total</i>		- 127,779
Pumps	McKay Pump Station	9800 McKay Road	370
	Rogers Pump Station	13600.5 E 168th Ave	
	Hammer Pump Station	14790 Riverdale Road	
	Hilltop Repeater Station	4500 140th Ave	500
	Holly Pump Station	12663 Holly Street	500
	Grange Hall Pump Station	4225 108th Ave	214
	Woodglenn Pump Station	11698 Milwaukee Circle	600
	Cherry Park Pump Station	11590.5 Birch Dr	
	Zone 2-3 Pumphouse	1000 Thornton Parkway	1,800
	Zone 3A Pump Station	14055 S Colorado Blvd	400
	Margaret W. Carpenter Center Pump Station	3444 E 112th Ave	368
	Zone 3/4 Pump Station	9520 Ellen Ct	2,972
	Community Park Pump Station	2141 E 95th Ave	500
	East Gravel Lake Pump Station	4300 E 88 <sup>th</sup> Ave	
	West Gravel Lake Pump Station	8590 Riverdale Rd	
	Riverdale Lift Station	8651 Riverdale Rd Building D	
Eastlake Elevator Building / Beauty Shop		1245 York St	5,877
	Western Hills		3,257

## Appendix C: Energy Programs for Businesses

Business Type and Common Energy Opportunities	Program Recommendations	First Steps	Avg. Electricity Savings - (kWh/yr) <sup>1</sup>	Avg. Natural Gas Savings (therm/yr) <sup>1</sup>	Avg. Cost Savings <sup>1</sup>
<b>Restaurant</b> <b>Lighting</b> <b>Refrigeration</b> <b>Water heating</b> <b>Cooking</b> <b>Heating, ventilation, and cooling</b>	Small Business Lighting ( <i>quick win</i> )	Sign up for a lighting audit and get free equipment installations and recommendations for more savings	6,540 kWh/yr	199 therm/yr	\$688 cost savings; \$682 in rebates
	Commercial Refrigeration Efficiency ( <i>quick win</i> )	Sign up for a refrigeration audit and get free equipment installations and recommendations for more savings	5,029 kWh/yr	300 therm/yr	\$602 cost savings; \$377 in rebates
	Energy Audit ( <i>informed investment</i> )	Schedule your site visit and review your report for best projects to implement, including process improvements and equipment recommendations	Businesses under 50,000 sq. ft. qualify for a free audit. Savings vary by the projects you choose to implement. Your report will include recommended energy-efficient improvements along with their estimated costs, rebates, and paybacks.		
<b>Retail</b> <b>Lighting</b> <b>Heating and cooling</b>	Small Business Lighting ( <i>quick win</i> )	Sign up for a lighting audit and get free equipment installations and recommendations for more savings	6,540 kWh/yr	199 therm/yr	\$688 cost savings; \$682 in rebates
	Building Tune-up ( <i>quick win</i> )	Sign up for a tune-up for equipment optimization	Savings will vary by the measures you choose. Your report will include all applicable low- and no-cost measures with their estimated costs, rebates, and paybacks.		
	Energy Audit ( <i>informed investment</i> )	Schedule your site visit and review your report for best projects to implement, including process improvements and equipment recommendations	Businesses under 50,000 sq. ft. qualify for a free audit. Savings vary by the projects you choose to implement. Your report will include recommended energy-efficient improvements along with their estimated costs, rebates, and paybacks.		

Business Type and Common Energy Opportunities	Program Recommendations	First Steps	Avg. Electricity Savings - (kWh/yr) <sup>1</sup>	Avg. Natural Gas Savings (therm/yr) <sup>1</sup>	Avg. Cost Savings <sup>1</sup>
<b>Grocery</b> <b>Convenience</b> <b>Liquor</b> <b>Refrigeration</b> <b>Lighting</b> <b>Heating and cooling</b>	Small Business Lighting ( <i>quick win</i> )	Sign up for a lighting audit and get free equipment installations and recommendations for more savings	6,540 kWh/yr	199 therm/yr	\$688 cost savings; \$682 in rebates
	Commercial Refrigeration Efficiency ( <i>quick win</i> )	Sign up for a refrigeration audit and get free equipment installations and recommendations for more savings	5,029 kWh/yr	300 therm/yr	\$602 cost savings; \$377 in rebates
	Building Tune-up ( <i>quick win</i> )	Sign up for a tune-up for equipment optimization	Savings will vary by the measures you choose. Your report will include all applicable low- and no-cost measures with their estimated costs, rebates, and paybacks.		
	Energy Audit ( <i>informed investment</i> )	Schedule your site visit and review your report for best projects to implement, including process improvements and equipment recommendations	Businesses under 50,000 sq. ft. qualify for a free audit. Savings vary by the projects you choose to implement. Your report will include recommended energy-efficient improvements along with their estimated costs, rebates, and paybacks.		
<b>Healthcare</b> <b>Lighting</b> <b>Heating and cooling</b> <b>Water heating</b>	Small Business Lighting ( <i>quick win</i> )	Sign up for a lighting audit and get free equipment installations and recommendations for more savings	6,540 kWh/yr	199 therm/yr	\$688 cost savings; \$682 in rebates
	Low-flow water fixtures ( <i>quick win</i> )	Check out the Xcel Energy Store for low-flow water fixtures	Savings will vary by the fixtures you choose. The Xcel Energy Store provides estimated savings by water fixture.		
	Plug load control ( <i>quick win</i> )	Check out the Xcel Energy Store for programmable thermostats and power supplies	Savings will vary based on the items you choose.		
	Building Tune-up ( <i>quick win</i> )	Sign up for a tune-up for equipment optimization	Savings will vary based on the measures you choose. Your report will include all applicable low- and no-cost measures with their estimated costs, rebates, and paybacks.		

Business Type and Common Energy Opportunities	Program Recommendations	First Steps	Avg. Electricity Savings - (kWh/yr) <sup>1</sup>	Avg. Natural Gas Savings (therm/yr) <sup>1</sup>	Avg. Cost Savings <sup>1</sup>
	Energy Audit ( <i>informed investment</i> )	Schedule your site visit and review your report for best projects to implement, including process improvements and equipment recommendations	Savings vary by the projects you choose to implement. Your report will include recommended energy-efficient improvements along with their estimated costs, rebates, and paybacks.		
	Building Recommissioning ( <i>informed investment</i> )	Contact the Building Services Commissioning Firm for more information on building recommissioning	85,804 kWh/yr	814 therm/yr	\$8,129 cost savings; \$5,728 in rebates
<b>Small Office</b> <b>Lighting</b> <b>Heating and cooling</b> <b>Water heating</b> <b>Plug load</b>	Small Business Lighting ( <i>quick win</i> )	Sign up for a lighting audit and get free equipment installations and recommendations for more savings	6,540 kWh/yr	199 therm/yr	\$688 cost savings; \$682 in rebates
	Building Tune-up ( <i>quick win</i> )	Sign up for a tune-up for equipment optimization	Savings will vary based on the measures you choose. Your report will include all applicable low- and no-cost measures with their estimated costs, rebates, and paybacks.		
	Low-flow water fixtures ( <i>quick win</i> )	Check out the Xcel Energy Store for low-flow water fixtures	Savings will vary based on the fixtures you choose. The Xcel Energy Store provides estimated savings by water fixture.		
	Plug load control ( <i>quick win</i> )	Check out the Xcel Energy Store for programmable thermostats and power supplies  Adjust thermostats to match occupancy schedule	Savings will vary based on the items you choose.		
	Energy Audit ( <i>informed investment</i> )	Schedule your site visit and review your report for best projects to implement, including process improvements and equipment recommendations	Businesses under 50,000 sq. ft. qualify for a free audit. Savings vary based on the projects you choose to implement. Your report will include recommended energy-efficient improvements along with their estimated costs, rebates, and paybacks.		

Table notes: <sup>1</sup> State of Colorado average

## Appendix D: Preliminary Analysis of Renewable\*Connect Eligibility

Xcel Energy's Renewable\*Connect program is currently being considered by the Public Utilities Commission. If approved, Thornton should consider subscribing qualifying meters under a 10-year contract term (the longer the contract term, the more financially beneficial the terms are to the city).

A screening analysis was conducted in the preparation of this plan to assess the city's potential to enroll in Round 2 of the program if and when it becomes available in 2022. Based on the terms of the first offering made in 2018-2019, a theoretical maximum of 9,781 kW of the city's energy use could be subscribed under the program - resulting in an estimated 26.1 million kWh of renewable energy produced each year, which would cover more than 99% of the city's energy use (**Table 16**). However, the actual subscription amount that the city can access will be limited by the program capacity and the program demand from other customers. In the first round of the program offering, customers were limited to 25% of the requested subscription amount. For the purposes of establishing planning targets, 2,445 kW is assumed to be the maximum subscription that the city could access in round 2 when it becomes available.

Table 16. Preliminary Analysis of Municipal Meter Eligibility for Renewable\*Connect Enrollment

No.	Premise	Premise Annual kWh	Subscription Level (%)	Selected kWh	kW	Eligibility Check
1	304258724	6,077	100%	6,077	2.00	Pass
2	304287666	4,657	100%	4,657	1.50	Pass
3	304300755	7,309	100%	7,309	2.50	Pass
4	304310554	1,550	100%	1,550	0.50	Pass
5	304332380	9,604	100%	9,604	3.50	Pass
6	304360427	6,889	100%	6,889	2.50	Pass
7	304367901	832	100%	832	-	Fail
8	304385982	6,927	100%	6,927	2.50	Pass
9	304478876	6,682	100%	6,682	2.50	Pass
10	304519864	7,580	100%	7,580	2.50	Pass
11	304633330	4,817	100%	4,817	1.50	Pass
12	304748942	3,330	100%	3,330	1.00	Pass
13	304758627	357	100%	357	-	Fail
14	300683066	972,620	100%	972,620	365.00	Pass
15	300685277	146,080	100%	146,080	54.50	Pass
16	300687286	259,680	100%	259,680	97.50	Pass
17	300687309	3,109,457	100%	3,109,457	1,168.0	Pass
18	300691371	8,516	100%	8,516	3.00	Pass
19	300694303	51	100%	51	-	Fail
20	300699604	-	100%	-	-	
21	300722159	72	100%	72	-	Fail
22	300736329	200,888	100%	200,888	75.00	Pass
23	300736931	14,000	100%	14,000	5.00	Pass
24	300784251	1	100%	1	-	Fail

No.	Premise	Premise Annual kWh	Subscription Level (%)	Selected kWh	kW	Eligibility Check
25	300785501	3,172	100%	3,172	1.00	Pass
26	300788838	114	100%	114	-	Fail
27	300792865	729	100%	729	-	Fail
28	300811803	44	100%	44	-	Fail
29	300831908	40	100%	40	-	Fail
30	300832510	3,225	100%	3,225	1.00	Pass
31	300844520	344,800	100%	344,800	129.50	Pass
32	300934338	885,748	100%	885,748	332.50	Pass
33	300936251	24	100%	24	-	Fail
34	300936934	2,936	100%	2,936	1.00	Pass
35	300938126	10,000	100%	10,000	3.50	Pass
36	300943152	10	100%	10	-	Fail
37	300947933	158,017	100%	158,017	59.00	Pass
38	300962747	83,934	100%	83,934	31.50	Pass
39	300964654	1,807	100%	1,807	0.50	Pass
40	300984611	45	100%	45	-	Fail
41	300989566	2,695	100%	2,695	1.00	Pass
42	300993191	3,991	100%	3,991	1.00	Pass
43	301039517	347,040	100%	347,040	130.00	Pass
44	301088454	208	100%	208	-	Fail
45	301088593	3,810	100%	3,810	1.00	Pass
46	301093742	6	100%	6	-	Fail
47	301106498	33	100%	33	-	Fail
48	301116467	-	100%	-	-	
49	301121271	2,800	100%	2,800	1.00	Pass
50	301121279	1,416	100%	1,416	0.50	Pass
51	301135994	2,040	100%	2,040	0.50	Pass
52	301147189	1,359	100%	1,359	0.50	Pass
53	301169696	9	100%	9	-	Fail
54	301172901	1,682	100%	1,682	0.50	Pass
55	301188762	20	100%	20	-	Fail
56	301236425	19,840	100%	19,840	7.00	Pass
57	301238848	1,116	100%	1,116	-	Fail
58	301239544	18,236	100%	18,236	6.50	Pass
59	301239825	2,141,640	100%	2,141,640	804.50	Pass
60	301245135	84	100%	84	-	Fail
61	301246224	107	100%	107	-	Fail
62	301259216	51	100%	51	-	Fail
63	301273053	2,139	100%	2,139	0.50	Pass
64	301274897	-	100%	-	-	
65	301296465	447	100%	447	-	Fail

No.	Premise	Premise Annual kWh	Subscription Level (%)	Selected kWh	kW	Eligibility Check
66	301296541	1,934,754	100%	1,934,754	726.50	Pass
67	301343978	60	100%	60	-	Fail
68	301350284	-	100%	-	-	
69	301356470	140	100%	140	-	Fail
70	301387733	280	100%	280	-	Fail
71	301390705	265,440	100%	265,440	99.50	Pass
72	301399036	834,400	100%	834,400	313.50	Pass
73	301399713	71	100%	71	-	Fail
74	301399723	49	100%	49	-	Fail
75	301438034	1,060	100%	1,060	-	Fail
76	301443140	1,960	100%	1,960	0.50	Pass
77	301443191	2,564	100%	2,564	0.50	Pass
78	301447004	67	100%	67	-	Fail
79	301447550	1,281	100%	1,281	-	Fail
80	301465339	8,631	100%	8,631	3.00	Pass
81	301512649	41,080	100%	41,080	15.00	Pass
82	301514030	547	100%	547	-	Fail
83	301566202	3,615	100%	3,615	1.00	Pass
84	301567805	15,028	100%	15,028	5.50	Pass
85	301586860	169,538	100%	169,538	63.50	Pass
86	301592517	52	100%	52	-	Fail
87	301597525	1,446	100%	1,446	0.50	Pass
88	301599664	3,878	100%	3,878	1.00	Pass
89	301634437	2,875	100%	2,875	1.00	Pass
90	301692065	1	100%	1	-	Fail
91	301698037	47,201	100%	47,201	17.50	Pass
92	301698318	35	100%	35	-	Fail
93	301702585	3,191	100%	3,191	1.00	Pass
94	301718455	1,059,423	100%	1,059,423	398.00	Pass
95	301726919	4,679	100%	4,679	1.50	Pass
96	301727646	1,702	100%	1,702	0.50	Pass
97	301738414	1,718	100%	1,718	0.50	Pass
98	301761595	2	100%	2	-	Fail
99	301781127	86,920	100%	86,920	32.50	Pass
100	301810554	8,165,270	100%	8,165,270	3,068.0	Pass
101	301815415	49	100%	49	-	Fail
102	301836934	21,818	100%	21,818	8.00	Pass
103	301842547	71,840	100%	71,840	26.50	Pass
104	301850183	3,024	100%	3,024	1.00	Pass
105	301852879	1,071	100%	1,071	-	Fail
106	301853401	31,201	100%	31,201	11.50	Pass



No.	Premise	Premise Annual kWh	Subscription Level (%)	Selected kWh	kW	Eligibility Check
107	301869436	-	100%	-	-	
108	301878949	130	100%	130	-	Fail
109	301944808	14,333	100%	14,333	5.00	Pass
110	301947984	793	100%	793	-	Fail
111	301993376	101	100%	101	-	Fail
112	301999291	1,936,973	100%	1,936,973	727.50	Pass
113	302003667	43	100%	43	-	Fail
114	302016264	75	100%	75	-	Fail
115	302025386	353	100%	353	-	Fail
116	302032831	444	100%	444	-	Fail
117	302040529	4,996	100%	4,996	1.50	Pass
118	302041343	752	100%	752	-	Fail
119	302041362	1,800	100%	1,800	0.50	Pass
120	302041605	169,400	100%	169,400	63.50	Pass
121	302043650	38	100%	38	-	Fail
122	302045975	145,520	100%	145,520	54.50	Pass
123	302046425	184,960	100%	184,960	69.50	Pass
124	302049759	136	100%	136	-	Fail
125	302051730	1,848	100%	1,848	0.50	Pass
126	302104456	818	100%	818	-	Fail
127	302104577	630	100%	630	-	Fail
128	302121205	38	100%	38	-	Fail
129	302125111	18,166	100%	18,166	6.50	Pass
130	302127267	21,760	100%	21,760	8.00	Pass
131	303918868	71	100%	71	-	Fail
132	303926658	56	100%	56	-	Fail
133	303929950	46,765	100%	46,765	17.50	Pass
134	303941017	67	100%	67	-	Fail
135	303971978	51,803	100%	51,803	19.00	Pass
136	303973603	1,320	100%	1,320	-	Fail
137	303981603	3,525	100%	3,525	1.00	Pass
138	303999488	2,252	100%	2,252	0.50	Pass
139	303999604	107	100%	107	-	Fail
140	304045380	3,255	100%	3,255	1.00	Pass
141	304045381	2,221	100%	2,221	0.50	Pass
142	304047558	50	100%	50	-	Fail
143	304047754	2,132	100%	2,132	0.50	Pass
144	304050192	729,051	100%	729,051	273.50	Pass
145	304060010	288,000	100%	288,000	108.00	Pass
146	304070745	3,564	100%	3,564	1.00	Pass
147	304079507	38,461	100%	38,461	14.00	Pass

No.	Premise	Premise Annual kWh	Subscription Level (%)	Selected kWh	kW	Eligibility Check
148	304079872	404	100%	404	-	Fail
149	304081830	45	100%	45	-	Fail
150	304086264	41	100%	41	-	Fail
151	304089074	76	100%	76	-	Fail
152	304108611	61,306	100%	61,306	23.00	Pass
153	304114181	21,120	100%	21,120	7.50	Pass
154	304132071	5,991	100%	5,991	2.00	Pass
155	304132151	237,120	100%	237,120	89.00	Pass
156	304133795	1,391	100%	1,391	0.50	Pass
157	304133867	2,380	100%	2,380	0.50	Pass
158	304138416	95,880	100%	95,880	36.00	Pass
159	304146027	100	100%	100	-	Fail
160	304166235	74	100%	74	-	Fail
161	304168719	171,200	100%	171,200	64.00	Pass
162	304170853	3,366	100%	3,366	1.00	Pass
163	304205265	43	100%	43	-	Fail
164	304214772	14,069	100%	14,069	5.00	Pass
165	304225741	64	100%	64	-	Fail
166	304227735	405	100%	405	-	Fail
167	304235214	54	100%	54	-	Fail
168	304244997	798	100%	798	-	Fail
169	304254239	231	100%	231	-	Fail
170	304275118	1,390	100%	1,390	0.50	Pass
171	304288278	82	100%	82	-	Fail
172	304298324	33,685	100%	33,685	12.50	Pass
173	304298517	16,856	100%	16,856	6.00	Pass
174	304299321	3	100%	3	-	Fail
175	304305959	527	100%	527	-	Fail
176	304307011	640	100%	640	-	Fail
177	304307014	1,840	100%	1,840	0.50	Pass
178	304307018	838	100%	838	-	Fail
179	304310338	13,637	100%	13,637	5.00	Pass
180	304313398	3,241	100%	3,241	1.00	Pass
181	304336004	10,842	100%	10,842	4.00	Pass
182	304434491	81	100%	81	-	Fail
183	304479640	-	100%	-	-	
184	304494506	51	100%	51	-	Fail
185	304523594	2,997	100%	2,997	1.00	Pass
186	304524283	1,244	100%	1,244	-	Fail
187	304613027	2,666	100%	2,666	1.00	Pass
188	304665628	121,320	100%	121,320	45.50	Pass

<b>No.</b>	<b>Premise</b>	<b>Premise Annual kWh</b>	<b>Subscription Level (%)</b>	<b>Selected kWh</b>	<b>kW</b>	<b>Eligibility Check</b>
189	304748942	-	100%	-	-	
190	304758627	-	100%	-	-	

## Appendix E: Residential Energy Efficiency Programs



### Home Energy Squad & Home Energy Squad PLUS

Engages residential customers with the goal of improving energy-efficiency in their homes with one quick and affordable visit from our expert technicians.

**How do I qualify for a Squad Visit?**

- Live in a single-family home or a town home with 4 or less units
- Receive residential combination natural gas and electric service from Xcel Energy
  - Residential electric-only customers also qualify, but are limited in receivable measures
- Authorization form completed by Xcel Energy account holder

Schedule an appointment online or call (303) 446-7910

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### Home Energy Squad

Schedule an appointment online or call (303) 446-7910

For \$50 (\$200 value), customers receive professional installation of energy-saving equipment that may include:

- LED bulbs
- Programmable thermostat installation and programming
- Weather stripping for (1) one external door
- Energy-efficient showerheads
- Kitchen and bathroom faucet aerators
- Water heater insulation and temperature assessment



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## Home Energy Squad Plus

For \$150 (\$600 value) you will receive a standard Squad Visit from our expert technicians, plus a full Energy Audit of your home.

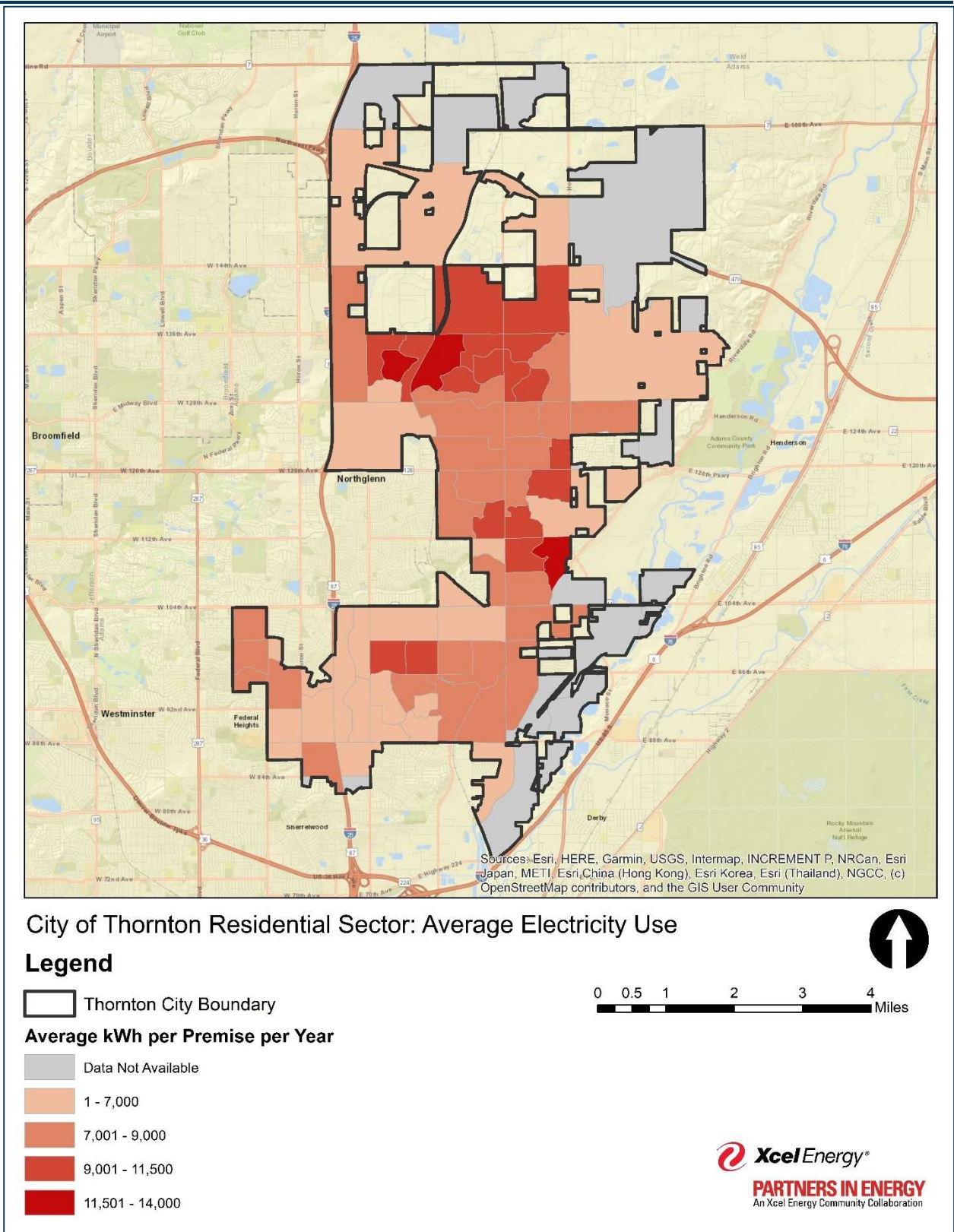
### Additional benefits include:

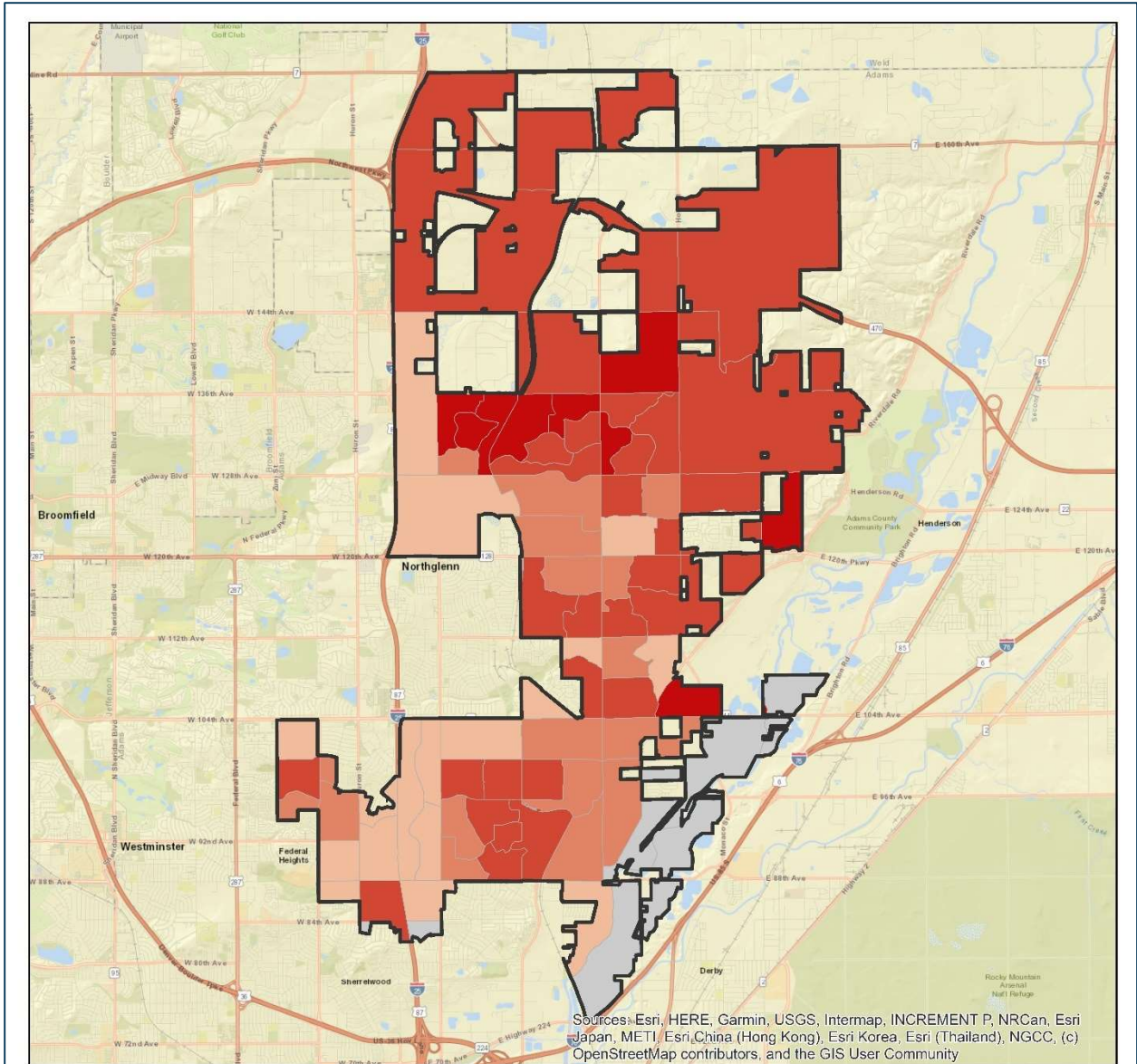
- Inspection of home exterior, insulation, and mechanical systems
- Air Leak analysis with Blower-Door diagnostic test
- Combustion safety test
- Carbon monoxide check
- Infrared imaging and analysis
- Full summary report with findings and recommendations

Schedule an appointment online or call (303) 446-7910



## Appendix F: Residential Energy Heat Maps





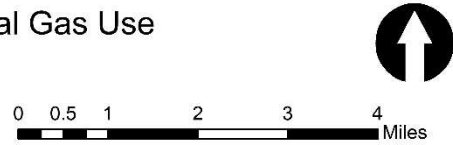
City of Thornton Residential Sector: Average Natural Gas Use

**Legend**

Thornton City Boundary

**Average Therm per Premise per Year**

- Data Not Available at This Scale
- 1 - 500
- 501 - 600
- 601 - 800
- 801 - 1,100



## Appendix G: Memorandum of Understanding for Phase 1 – Plan Development



### **Memorandum of Understanding Phase 1 – Plan Development**

Brett Henry  
City of Thornton  
12450 Washington St.  
Thornton, CO 80241

Congratulations on being selected to participate in Xcel Energy's Partners in Energy. This offering is designed to provide your community with the tools and resources necessary to develop and implement an energy action plan that reflects the vision your community has for shaping energy use and supply in its future. Participation is intended to span 24 months with the initial 6-8 months dedicated to developing a strategic energy action plan and the remaining time focused on implementing that plan.

The intent of this Memorandum of Understanding is to confirm the City of Thornton's intent to participate in the initial plan development phase of Partners in Energy and outline the commitment that your community and Xcel Energy are making to this collaborative initiative. The primary objective of this phase of Partners in Energy is to develop your energy action plan.

#### **In order to achieve this Xcel Energy will provide:**

- Consulting support to assist in identifying potential community stakeholders and constructing or delivering an invitation or informational announcement regarding the planning process.
- Data analysis of community energy use and Xcel Energy program participation to the extent that it is legally and technically prudent and feasible. The results can be used to identify potential opportunities to implement plan strategies. Xcel Energy will attempt to integrate data provided by the City of Thornton into the analysis if feasible.
- Professional facilitation of 4 plan development work sessions with the community stakeholder group to develop the energy action plan's vision, focus areas, goals and implementation strategies.
- Assistance as needed in synthesizing the community and program data collected with the vision of the community to identify attainable goals that align with suitable strategies and tactics.
- Development of the documented energy action plan that will incorporate inputs from the stakeholder planning team and will be accessible to the community.
- Commitment to delivering an actionable and complete energy action plan within 8 months of the City of Thornton and Xcel Energy signing this Memorandum of Understanding.



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**XCEL ENERGY PARTNERS IN ENERGY**Memorandum of Understanding  
Plan Development Phase

**Although participation in the Plan Development phase of Partners in Energy requires no monetary contribution, the City of Thornton does agree to provide:**

- A single contact point to recruit active and engaged stakeholders, coordinate planning meeting logistics and distribute deliverables, and lead participation of the community in the planning process.
- Community staff engagement in developing workshop agendas, participating in regular check-in meetings, and supporting follow-up work between workshops.
- Commitment to ensuring community stakeholder engagement throughout the planning workshops. This could include consultation with key community stakeholders who may be relevant to the plan but not present on the energy action planning team to gain input on proposed goals and strategies.
- Timely review of the energy action plan document, as well as shepherding the completed plan through stakeholder review process.
- Good-faith evaluation of the recommendations and analysis provided, as well as fair consideration of the potential strategies and tactics identified to ensure alignment with the City's goals and priorities.
- Meeting facilities to host the stakeholder group during the development of the plan.
- Identification of existing community energy plans, programs, or initiatives that could be leveraged in successful development and delivery of this plan.
- Commitment to delivering an actionable and complete energy action plan within a 9-month timeframe of the City of Thornton's and Xcel Energy signing this Memorandum of Understanding. Within this period, the City of Thornton is committed to completing the formation of the energy action planning team and the development and approval of the energy action plan.
- Public distribution of the work products developed with the support of Xcel Energy's Partners in Energy.

**XCEL ENERGY PARTNERS IN ENERGY**

Memorandum of Understanding  
Plan Development Phase

**Resource Commitment Summary  
Plan Development Phase**

The City of Thornton	Xcel Energy
<ul style="list-style-type: none"> <li>• Single point of contact</li> <li>• Support in maintaining community stakeholder engagement throughout the planning process.</li> <li>• Involvement in development and review of energy action plan content.</li> <li>• Meeting facilities</li> <li>• Access to existing energy-related plans and programs</li> <li>• Commitment to completing the plan development and approval</li> <li>• Agreement that the energy action plan resulting from this work will be available to the public</li> </ul>	<ul style="list-style-type: none"> <li>• Assistance identifying and recruiting stakeholders</li> <li>• Analysis of community energy use and program participation</li> <li>• Facilitation of planning sessions</li> <li>• Training and guidance developing goals and strategies</li> <li>• Documentation and delivery of the energy action plan</li> <li>• Commitment to completing energy action plan development</li> </ul>

The Memorandum of Understanding for the Implementation Phase of Partners in Energy will be developed upon completion of the energy action plan and will outline the City of Thornton's goals and the resource commitment from Xcel Energy and the City of Thornton.

**Legal Applicability and Waiver**

This is a voluntary agreement and not intended to be legally binding for either party. This Memorandum of Understanding has no impact, nor does it alter or modify any existing Franchise Agreement or other existing agreements between Xcel Energy and the City of Thornton. Parties agree that this Memorandum of Understanding is to memorialize the intent of the Parties regarding Partners in Energy but does not create a legal agreement between the Parties. It is agreed by the Parties that nothing in this Memorandum of Understanding will be deemed or construed as creating a joint venture, trust, partnership, or any other legal relationship among the Parties. This Memorandum of Understanding is for the benefit of the Parties and does not create third party rights. Nothing in this Memorandum of Understanding constitutes a waiver of the City of Thornton's ordinances, the City of Thornton's regulatory jurisdiction, or Colorado's utility regulatory jurisdiction.

**Single Points of Contact**

All communications pertaining to this agreement shall be directed to John Orr on behalf of the City of Thornton and Tami Gunderzik on behalf of Xcel Energy.

**XCEL ENERGY PARTNERS IN ENERGY**

Memorandum of Understanding  
Plan Development Phase

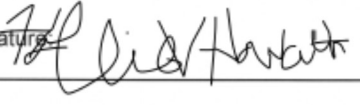
Xcel Energy is excited about this opportunity to support the City of Thornton in advancing its goals. The resources outlined above and provided through Partners in Energy are provided as a part of our commitment to the communities we serve and Xcel Energy's support of energy efficiency and renewable energy as important resources to meet your future energy needs.

Thank you again for your continued interest in Xcel Energy's Partner in Energy. We look forward to assisting the City of Thornton in developing its energy action plan.

For City of Thornton:

For Xcel Energy:

Signature: 

Signature: 

Name: Brett E. Henry

Name: Hollie V Horvath

Title: Executive Director - Infrastructure

Title: Director, Community Relations

Date: 10/2/2019

Date: 10/7/2019

## Appendix H: Memorandum of Understanding for Phase 2 – Plan Implementation



### Memorandum of Understanding Phase 2 – Plan Implementation

Kevin Woods, City Manager  
City of Thornton  
9500 Civic Center Drive  
Thornton, Colorado 80229

The intent of this Memorandum of Understanding is to recognize the achievement of the City of Thornton (the city) in developing an Energy Action Plan. Xcel Energy, through its Partners in Energy offering, has supported the development of this Energy Action Plan. This document outlines how the City of Thornton and Xcel Energy will continue to work together to implement this Energy Action Plan. The term of this joint support, as defined in this document, will extend from approximately July 1, 2020 through March 31, 2022.

### Partners in Energy Contributions

Xcel Energy will support the City of Thornton in achieving the goals of its Energy Action Plan in the following ways. Please note that hour estimates include those provided through our Partners in Energy team from Brendle Group and do not include support provided by Xcel Energy internal program staff.

#### Focus Area 1: Municipal Facilities and Operations

- **Strategy 1-1: Manage Energy Action Plan Implementation.** Support funded by Xcel Energy for this strategy is not to exceed 84 hours for:
  - Project management activities (monthly project coordination calls).
  - Partners in Energy program management activities (coordinate MOU execution, monthly invoice and status reporting, monthly portal updates, develop Energy Action Plan summary).
  - Develop a one-page summary of the energy action plan and sustainability action agenda to share with residents and businesses.

Xcel Energy will also provide up to \$900 for reimbursed expenses related to printing and distribution of co-branded marketing materials, venue fees, food, and other related needs associated with outreach and education. Xcel Energy funding will not be provided for the purchase of alcohol.

- **Strategy 1-2: Manage Energy Program.** Support funded by Xcel Energy for this strategy is not to exceed 86 hours for:
  - Partners in Energy program management activities (implementation data pulls, analysis, and reporting every six months).
  - Support enrollment in the Xcel Energy Benchmarking program.
  - Support development of the municipal facility inventory and setting up ENERGY STAR Portfolio Manager.

## XCEL ENERGY PARTNERS IN ENERGY

Memorandum of Understanding  
Implementation Phase

- **Strategy 1-3: Promote Existing Facility Efficiency.** Support funded by Xcel Energy for this strategy is not to exceed 42 hours for:
  - Support identifying top buildings for energy audits based on benchmarking results, building energy usage and size, or other available factors.
  - Support development of a game plan to conduct building audits through Xcel Energy's Energy Audit program. Buildings < 50,000 sq ft in size often qualify for free audits.
  - Provide on-call support to review or utilize outcomes from Xcel Energy's Strategic Energy Management program in achieving energy efficiency in the water system.
  - Provide on-call support to conduct additional cost-benefit analysis and outreach to other Denver metro communities on the pros and cons of retrofitting streetlights to LEDs.
  - Provide on-call support to investigate best practices on streetlighting controls, benefits of policies targeting occupant behaviors, and/or sharing utility program information.
  - Conduct ad hoc coordination calls as needed.
  
- **Strategy 1-4: Promote Efficient New Development.** Support funded by Xcel Energy for this strategy is not to exceed 21 hours for:
  - Provide on-call support to share policies and design requirements that promote sustainable design and construction practices in municipal facilities.
  - Share information on energy code or other relevant training opportunities.
  - Develop one piece of collateral on utility programs targeted at new construction (e.g., Energy Star New Homes) and other programs to share with developers.
  
- **Strategy 1-5: Promote Carbon-Free Energy Sources.** Support funded by Xcel Energy for this strategy is not to exceed 13 hours for:
  - Act as liaison with Xcel Energy's renewable energy product development team to stay informed about upcoming subscription offerings.
  - Support application to Renewable\*Connect program if the program opens during the implementation period.
  - Provide on-call support for net metering, interconnection agreement, and/or need for grounding transformer for solar project at Thornton Water Treatment Plant.
  
- **Strategy 1-6: Promote Energy Awareness and Training.** Support funded by Xcel Energy for this strategy is not to exceed 28 hours for:
  - Support development of onboarding materials about Thornton's climate and energy goals, improving energy efficiency, and increasing carbon-free energy supplies
  - Design one poster or flyer to recognize the completion of the LED lighting conversion project.
  - Design a poster or flyer to recognize buildings supplied by renewable energy.

## XCEL ENERGY PARTNERS IN ENERGY

Memorandum of Understanding  
Implementation Phase**Focus Area 2: Institutional**

- **Strategy 2-1: Collaborate with Adams 12 Five Star School District.** Support funded by Xcel Energy for this strategy is not to exceed 7 hours for:
  - Provide a social media calendar to share information about energy efficiency and renewable energy.
  - Support up to one event with collateral, giveaways, and attendance.
  - Provide on-call support for scoping and helping identify funding for a joint technical assistance engineering study among Xcel Energy, Thornton, and Adams 12 Five Star School District to identify future energy projects at shared facilities (Aquatic Center and the Consolidated Service Center).
  
- **Strategy 2-2: Engage with Other Institutional Stakeholders.** Support funded by Xcel Energy for this strategy is not to exceed 27 hours for:
  - Develop tailored utility program collateral for up to three institutional business types.

**Focus Area 3: Residential**

- **Strategy 3-1: Promote Residential Energy Improvements.** Support funded by Xcel Energy for this strategy is not to exceed 35 hours for:
  - Coordinate and market the Home Energy Squad campaign with Thornton and CLEAResult, including sending marketing e-mails to Thornton residents.
  - Develop and print one piece of utility program collateral for residents, to be distributed by Resource Central and other program visits. Translation services can be provided if needed.
  - Plan and attend up to two educational workshops.
  - Provide tabling support (e.g., collateral development, printing, giveaways, attendance) for up to one event.

**Focus Area 4: Business**

- **Strategy 4-1: Promote Business Energy Improvements.** Support funded by Xcel Energy for this strategy is not to exceed 35 hours for:
  - Help coordinate and market the business lighting campaign.
  - Develop one piece of collateral to support one-on-one business engagement. Translation services can be provided if needed.
  - Provide tabling support (e.g., collateral development, printing, giveaways, attendance) and attend up to three business networking events.

XCEL ENERGY PARTNERS IN ENERGY

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Implementation Phase

City of Thornton Contributions

The City of Thornton commits to supporting the Energy Action Plan to the best of its ability by:

- Achieving the energy savings impacts outlined in the energy action plan and shown in the table below:

City of Thornton Conservation Goals

	Electricity Savings (in kWh)	Natural Gas Savings (in therms)
Baseline Annual Historic Energy Savings	5.7 million	142,000
Incremental Plan Energy Savings (7/1/20-3/31/22)	2.0 million	54,000
Total Plan Energy Savings over 18-month implementation period <small>(1.5 * annual baseline + incremental energy savings)</small>	10.5 million	267,000

**Focus Area 1: Municipal Facilities and Operations**

- **Strategy 1-1: Manage Energy Action Plan Implementation for the period 2020-2022**
  - Designate a project management team responsible for administering the energy plan implementation project.
  - Designate an implementation advisory team to advise on the priority and resources available to support the city’s energy implementation activities within the context of the broader sustainability action agenda.
  - Designate energy teams within each strategy to execute the city’s energy projects.
  - Print materials to help publicize the plan and educate businesses and residents.
- **Strategy 1-2: Manage Energy Program**
  - Conduct energy data management and analysis.
  - Coordinate funding need assessments and annual budget requests.
- **Strategy 1-3: Promote Existing Facility Efficiency**
  - Complete LED lighting upgrades at city facilities in 2020 as planned.
  - Identify new opportunities for energy efficiency improvements in existing buildings.
  - Continue participation in Xcel Energy’s Strategic Energy Management Program for the water system.
  - Continue conversations and cost-benefit analyses of upgrading existing streetlights served by Xcel Energy and United Power to LEDs and installing lighting controls.
  - Evaluate the pros and cons of moving to a four-day work week and/or promoting work-from-home policies.

## XCEL ENERGY PARTNERS IN ENERGY

Memorandum of Understanding  
Implementation Phase

- **Strategy 1-4: Promote Efficient New Development**
  - Establish a policy governing the design and construction of city facilities.
  - Evaluate all planned new buildings in the design phase (Fire Station 7 and Police Training Facility) for the feasibility of pursuing LEED certification, beneficial electrification, and renewable energy sources.
  - Explore options to incentivize above-code construction.
  - Engage and educate the developer community on energy codes and energy-efficient design guidelines.
  - Print collateral for distribution to development community.
- **Strategy 1-5: Promote Carbon-Free Energy Sources**
  - Build the proposed 294 kW solar project at the Thornton Water Treatment Plant, which is estimated to generate 0.4 million kWh of energy annually.
  - Complete the Northern Properties Stewardship plan and include solar projects and carbon sequestration projects as two potential future land uses that are evaluated.
  - Evaluate facilities (buildings and parking structures) to determine feasibility of new solar projects.
  - If requested by Xcel Energy as part of the regulatory filing process, write a letter of support to the Public Utilities Commission for Xcel Energy's Renewable\*Connect program.
- **Strategy 1-6: Promote Energy Awareness and Training**
  - Include materials about Thornton's climate and energy goals, improving energy efficiency, and increasing carbon-free energy supplies in new employee onboarding and training materials, using intranet and Neogov platform.
  - Recognize the completion of LED lighting conversion project through posters or flyers or other effective communication method(s).
  - Recognize the buildings supplied by renewable energy through posters or flyers or other effective communication method(s).
  - Print posters and/or flyers intended to recognize energy efficiency and renewable energy projects.

**Focus Area 2: Institutional**

- **Strategy 2-1: Collaborate with Adams 12 Five Star School District**
  - Promote energy awareness by printing collateral, participating in, and/or tabling at one event per year (Colorado Association of School District Energy Managers (CASDEM) meetings, and/or annual Water Festival).
  - Continue working with Adams 12 Five Star School District to exchange information on energy efficiency and sustainability projects and to share information with the community.



## XCEL ENERGY PARTNERS IN ENERGY

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- **Strategy 2-2: Engage with Other Institutional Stakeholders**
  - Print tailored collateral for each type of institution or for Regional Transportation District (RTD) transit modes within Thornton.
  - Identify points of contact for each institution and schedule one-on-one meetings to share information, gauge interest in and potential for energy projects (energy efficiency and/or renewable energy), and opportunities to promote energy awareness.

### Focus Area 3: Residential

- **Strategy 3-1: Promote Residential Energy Improvements**
  - Purchase (or buy-down) Home Energy Squad® visits for 500 residents, beginning with low-income residents or targeted neighborhoods with relatively high energy use; and then open up the offering to any qualified resident.
  - Print collateral pieces for residents.
  - Use existing city programs with customer outreach channels to cross-promote energy programs.
  - Raise energy awareness in the community by holding one educational workshop per year.
  - Promote energy education and awareness at city events (e.g., tabling and distributing conservation kits at Thorntonfest and Harvestfest or through food banks).
  - Promote energy efficiency in multifamily buildings by working with CLEAResult and promoting the Xcel Energy Multifamily Buildings and Multifamily Weatherization Programs.
  - Consider Community Development Block Grant (CDBG) funding to help homeowners with energy efficiency improvements.

### Focus Area 4: Business

- **Strategy 4-1: Promote Business Energy Improvements**
  - Conduct a business lighting campaign for a selected business corridor in Thornton.
  - Develop an engagement strategy, for large businesses, that includes tailored energy packets by business type (collateral and case studies) and one-on-one engagement led by the Economic Development Department.
  - Leverage connections with the Businesses In Thornton Advisory Council (BTAC) to share general collateral and program information suitable for small businesses. Identify business types that are interested in more detailed or tailored information. Networking events, hosted twice per year (May/June and Sept/Oct), allow tabling and networking opportunities with small businesses.
  - Leverage connections with the Alianza organization, to connect with Spanish-speaking businesses.
  - Incorporate information from the Partners in Energy Small/Medium Business Toolkit.
  - Evaluate whether Annual Green Business Award (given out in April) can be used to recognize businesses that have achieved energy excellence, whether through efficiency or renewable energy initiatives.
  - Print collateral pieces for businesses.

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**XCEL ENERGY PARTNERS IN ENERGY**Memorandum of Understanding  
Implementation Phase**Single Points of Contact**

All communications pertaining to this agreement shall be directed to John Orr on behalf of the City of Thornton, and Channing Evans, on behalf of Xcel Energy.

**Legal Applicability and Waiver**

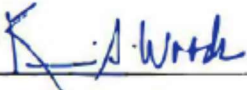
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XCEL ENERGY PARTNERS IN ENERGY

Memorandum of Understanding  
Implementation Phase

For the City of Thornton:

Signature: 

Name: Kevin S. Woods

Title: City Manager

Date: 7/4/20

For Xcel Energy:

Signature: 

Name: Kelly Flenniken

Title: Director, Community Relations

Date: 8/10/2020