

An Energy Action Plan for Centennial, CO



October 2018

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Members of Centennial's Energy Action Team at their final planning workshop in October 2018.

Acknowledgements

Thanks to the following organizations and individuals for participating in developing this Energy Action Plan.

Centennial's Energy Action Team

The planning team was formed from a varied group of city staff, local and regional organizations, local businesses, and committed community members:

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Executive Summary

This Energy Action Plan outlines tangible steps for the City of Centennial to move the community toward its energy efficiency and resiliency goals. Xcel Energy Partners in Energy facilitated a series of workshops with the Energy Action Planning Team (planning team), starting in the summer of 2018, to develop this plan. The planning team included representatives from Centennial's municipal operations, libraries, park and recreation district, Colorado State University Arapahoe County Extension, and the community.

Our Vision

The City of Centennial will create a resilient future for its residents and businesses through improved energy efficiency, enhanced connectivity, education, and cost savings.

Our Goals

The City of Centennial aspires to achieve the following energy goals in 2019-2020:

- Connect with 20,000 residents to double participation in Xcel Energy programs in one year.
- Connect with 15 percent of large businesses and engage 10 percent in Xcel Energy programs in one year.
- Connect with 20 percent of small and medium businesses and engage 10 percent in Xcel Energy programs in one year.
- Engage 25 percent of new buildings and/or development construction and major renovations in Energy Efficient Buildings (EEB) or Energy Design Assistance (EDA) program.
- Conduct 10 Onsite Energy Audits or Building Tune-Ups and 5 associated projects at community facilities.

How Will We Get There?

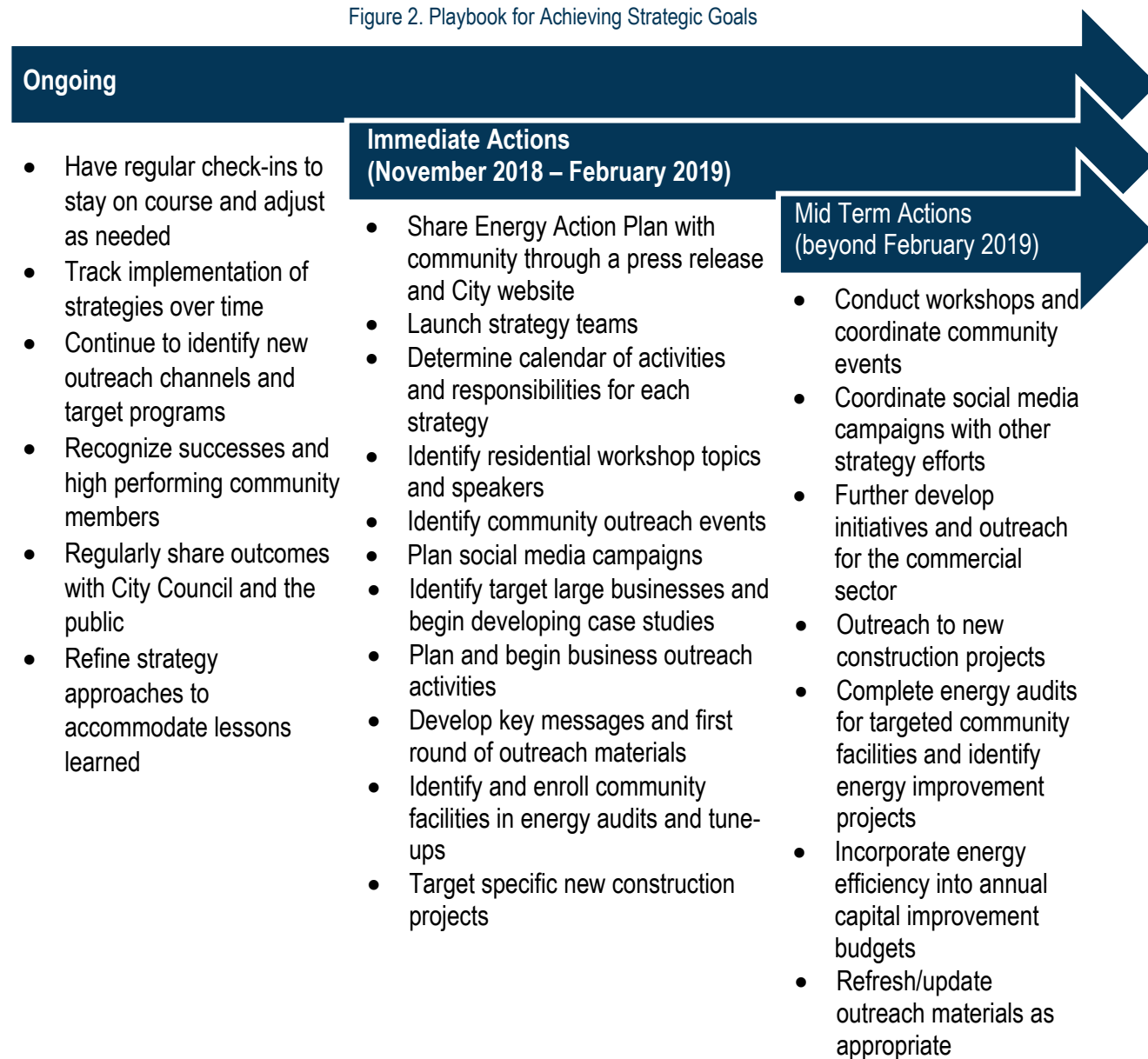
To move toward its goals, the City of Centennial's planning team identified strategic initiatives and targets for three important focus areas. These focus areas and strategic initiatives are the working elements of the Energy Action Plan and will generate concrete actions and impacts. The focus areas are shown in Figure 1.

Figure 1. Focus Areas for City of Centennial's Energy Action Plan

Residential	Strategies: <ul style="list-style-type: none"> • Educational Workshops and Outreach • Community Event Coordination • Social Media Outreach
Commercial & Industrial	Strategies: <ul style="list-style-type: none"> • Targeted Large Businesses Outreach • Targeted Small and Medium Business Outreach • New Construction Outreach
Community Facilities	Strategies: <ul style="list-style-type: none"> • Facility Audits and Improvements

The playbook outlining key actions and timing, as well as what follows the Partners in Energy engagement period is summarized in Figure 2.

Figure 2. Playbook for Achieving Strategic Goals



Introduction

This Energy Action Plan outlines tangible steps for the City of Centennial to move the community towards its energy efficiency and resiliency goals. The community's main energy priorities are outlined below:

- Identify and implement opportunities to drive energy savings for residents and businesses that will result in cost savings on energy bills.
- Identify and implement opportunities for municipal and other community facilities to lead by example.

This plan provides documentation of the Xcel Energy Partners in Energy planning process, an overview of the City of Centennial's demographics, the community's baseline energy use and profile, a summary of the priority focus areas identified, and the near-term actions required to implement the plan. The plan was developed over the course of four, 2.5-hour workshops held in the summer and fall of 2018.

Xcel Energy Partners in Energy

Xcel Energy is one of two electric utilities and the primary gas utility serving the City of Centennial. In the summer of 2014, Xcel Energy launched Partners in Energy to support communities, such as the City of Centennial, in developing and implementing Energy Action Plans that supplement existing sustainability plans, strategies, and tools. 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, following the process provided by Partners in Energy (Figure 3), and implementing plan strategies.

Partners in Energy will work with the City of Centennial to coordinate support for implementing the plan and will develop a Memorandum of Understanding that outlines specific support Xcel Energy will provide to help the City of Centennial deploy its strategies and achieve its goals. Typical resources provided to communities during implementation are summarized in Figure 4.

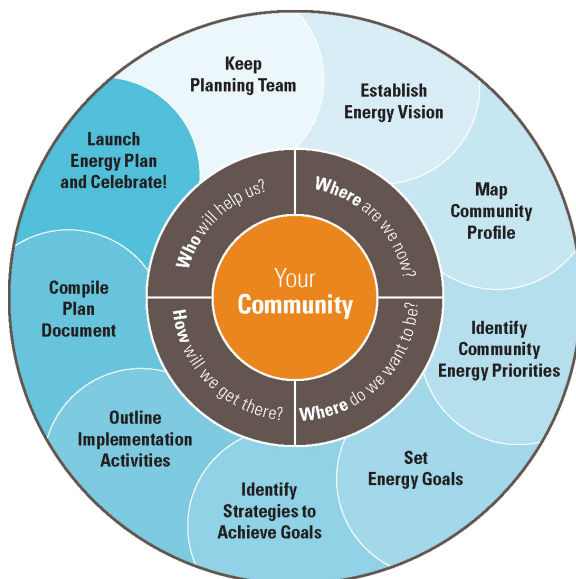


Figure 3. Partners in Energy Process for Success



Figure 4. Resources from Xcel Energy for Implementation

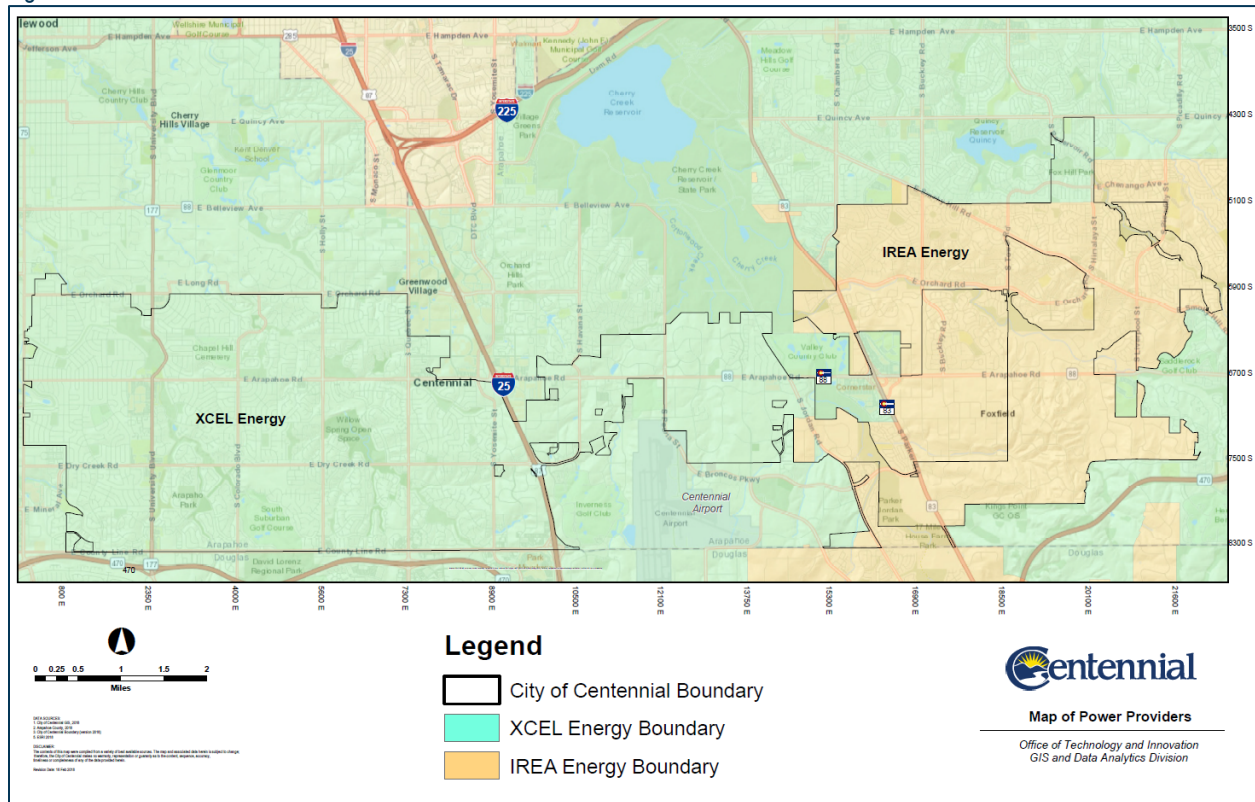
Who Are We? – Community Background

Centennial was founded in 2001, when a group of motivated residents decided to incorporate as a city, setting the foundation for taking action and making progress as the City of Centennial. Since incorporating, the city has grown by nearly 10 percent in population, attracted many businesses to the area, and expects to see continued growth.

Energy Utilities

Xcel Energy provides natural gas service to the entire Centennial community. In addition, Xcel Energy provides electricity to the western portion of the community. Intermountain Rural Electric Association (IREA) is a member-owned electric distribution cooperative that provides service to the eastern side of the Centennial community. See Figure 5 for a map of each utility's electric service territory. This Energy Action Plan focuses on sharing energy efficiency and renewable energy information with the community regardless of service territory; however, specific goals and targets focus on participation in Xcel Energy's programs and will be coordinated with IREA programs as applicable.

Figure 5. Electric Utilities in Centennial



Geography, Population, and Demographics

The City of Centennial is located in the southern portion of the Denver-metro area and spans 29.69 square miles in Arapahoe County. The majority of the city resides on the west side of Interstate 25 and north of Highway C-470, with the remainder located east of Interstate 25 and north of Highway E-470. Cities surrounding Centennial are Greenwood Village, Aurora, and Denver to the north; Lone Tree and Highlands Ranch to the south; Littleton to the west. There are four City Council districts in the City of Centennial with eight City Council members comprised of two representatives from each district (Figure 6).¹ The Mayor represents the community at large.

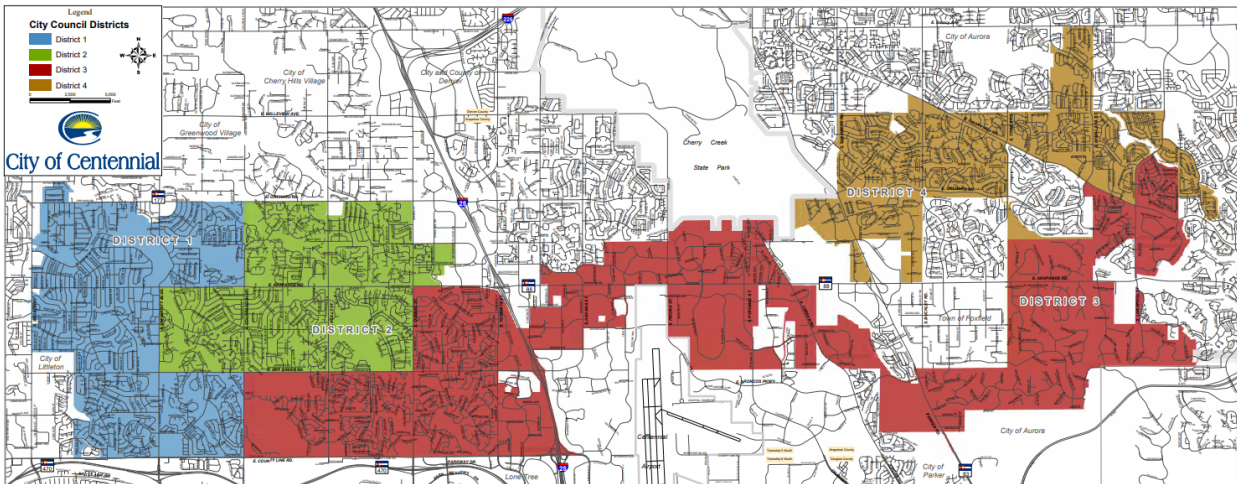


Figure 6. City of Centennial Council Districts

According to the Colorado State Demography Office, Centennial is the 10th most populous city in Colorado with an estimated population of 110,250 in 2017.² Centennial's population has grown by nearly 10 percent in the last seven years and is expected to continue growing over the next decade.³ As the population grows, it is expected that the energy use would also grow. The median age in Centennial is 42.14, higher than the national median of 37.7.⁵ More than 18 percent of residents are over the age of 62, indicating an aging population that is a continued focus for Centennial in their community planning efforts.

The majority of Centennial's population identifies as white, at 81.5 percent, with 8 percent identifying as Hispanic or Latino, 5 percent as Asian, and 2.4 percent as black/African American.⁴ Racial diversity has increased slightly over the last decade as the population has grown.

The median household income in Centennial in 2016 was \$96,634,⁴ considerably higher than state average of \$62,520.⁵ Centennial households may be better able to invest in their homes and in energy efficiency upgrades because of this.

¹ Official Council District Map of Centennial, CO. <http://www.centennialco.gov/uploads/files/Maps/Officialpercent20Councilpercent20Districtpercent20Map.pdf>

² Municipalities Ranked by population (July 2016). Colorado State Demographers Office. https://www.colorado-demographics.com/cities_by_population.

³ U.S. Census Bureau, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2017.

<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>.

⁴ 2017 Centennial Community Profile. http://www.centennialco.gov/uploads/files/2017%20Community%20Profile_updated%204_26.pdf.

⁵ U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates. https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml.

Housing

As of 2017, Centennial had an estimated total of 41,324 housing units.⁶ Single family homes account for 86.2 percent of all units, and the majority of these (75.9 percent) were built between 1970 and 1999,⁷ showing an aging housing stock and homes that are likely due for efficiency and appliance upgrades. Most of these units (81.7 percent) are owner occupied, which allows for increased investment and engagement in energy efficiency. Table 1 shows the number of housing units built by year.

Of the single-family homes, 80.1 percent use utility gas for heating, and 18.1 percent use electricity.⁷ Coupled with the age of the housing stock, residents in these homes could likely realize significant savings by improving the efficiency of older heating units.

Table 1. Age of Housing Stock in Centennial

Year Built	Number of Units
Total (2017)	41,324
2010 or later	421
2000-2009	2,514
1990-1999	7,902
1980-1989	11,827
1970-1979	11,672
1960-1969	5,364
1950-1959	1,331
1949 or earlier	292

Source: US Census Bureau. 2012-2016 American Community Survey 5-Year Estimates

Business and Economy

According to the United States Census American Community Survey 2012-2016, Centennial employed 56,817 people, a number that is just over half its population. The unemployment rate is low, at 3.2 percent.⁷ The top five industries were: professional and business services (24 percent); finance, insurance and real estate (16 percent); education and healthcare (10 percent); retail trade (10 percent); and leisure and hospitality (9 percent)⁶, with over 4,700 registered businesses.⁶ As Centennial has grown, the City government has implemented many innovative practices, such as city-wide fiber infrastructure and improved development codes, to promote business growth. Business growth is expected to continue, as Centennial attracts more technology companies. Many of these businesses are small to medium sized and could see significant benefits to their bottom line with improved energy efficiency.

The Case for a Community Energy Action Plan

An Energy Action Plan can assist Centennial in supporting the growing senior population, families, and businesses with energy efficiency measures, programs, and education that can lead to energy and cost savings, and increased community resiliency. This plan can also support [Centennial's NEXT](#) community planning process, which will provide a roadmap for future development in the city from now to 2030.

Together, these plans can enhance the quality of life and provide economic vitality for the businesses and residents of the City of Centennial.

⁶ 2017 Centennial Community Profile. http://www.centennialco.gov/uploads/files/2017%20Community%20Profile_updated%204_26.pdf

⁷ U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates. https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml

Where Are We Now?

Baseline Energy Analysis

An introductory step in the Partners in Energy planning process (see Figure 3) is to develop a community energy profile. The Partners in Energy team analyzed historical energy data in Centennial by source (electricity, natural gas) and sector (residential, commercial and industrial, municipal). Three years of data (2015-2017) were used for the analysis, and 2017 was established as the baseline year for this plan. Only Xcel Energy data were used in the electricity analysis; however, it is important to note that a portion of the electric service in Centennial is provided by Intermountain Rural Electric Association.

Community Energy Use and Trending

Based on aggregated utility data provided by Xcel Energy, in 2017 Centennial had 42,921 residential, commercial and industrial, and municipal premises (Figure 7). A premise is a unique identifier for the location of electricity or natural gas service. In most cases, it is a facility location. This total includes premises served by electricity, natural gas, or both. More than 90 percent of the premises are residential (38,783 premises); they account for 54 percent of the total energy consumption in the community in 2017 (Figure 8).

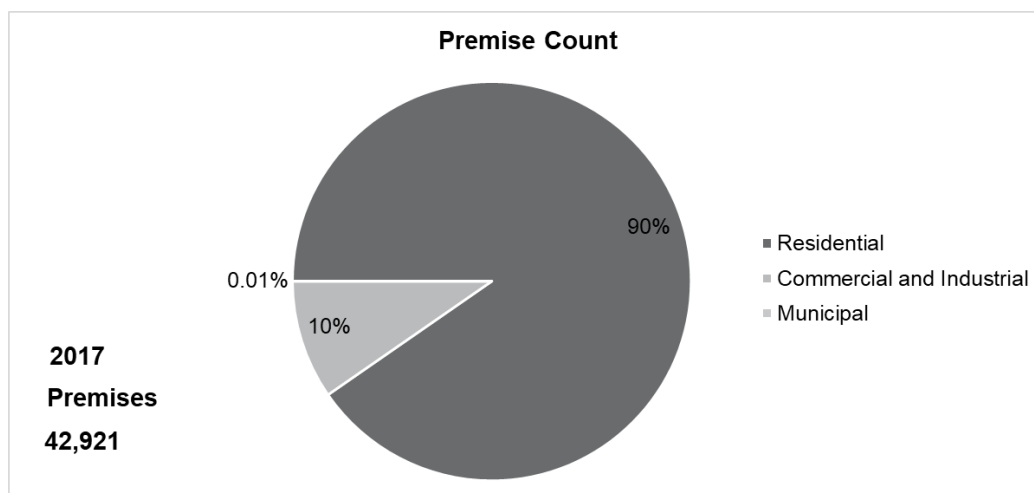


Figure 7. Centennial Premises

While the number of commercial and industrial and municipal premises is small compared to the residential sector, these sectors account for 46 percent of the total energy use in the community (Figure 8) and 58 percent of the overall energy costs (Figure 9).

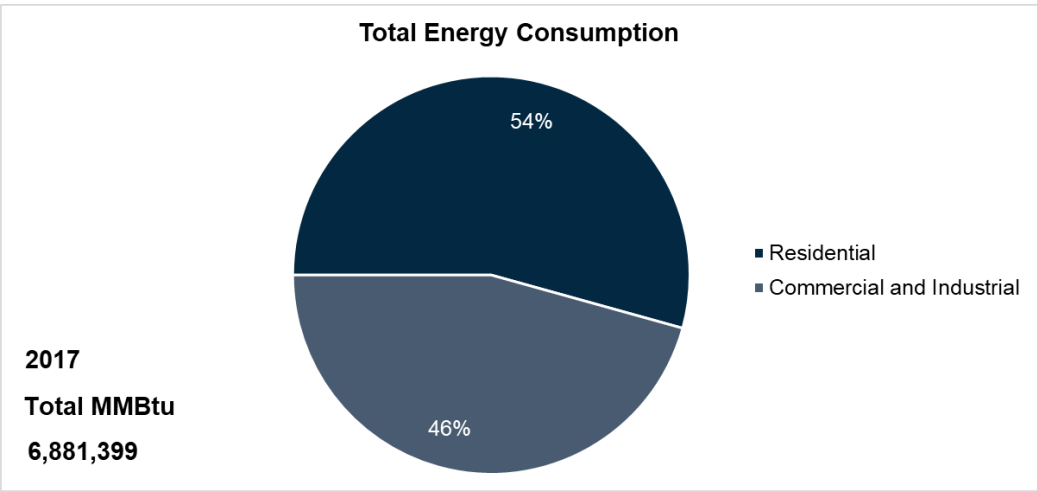


Figure 8. Total Energy Consumption

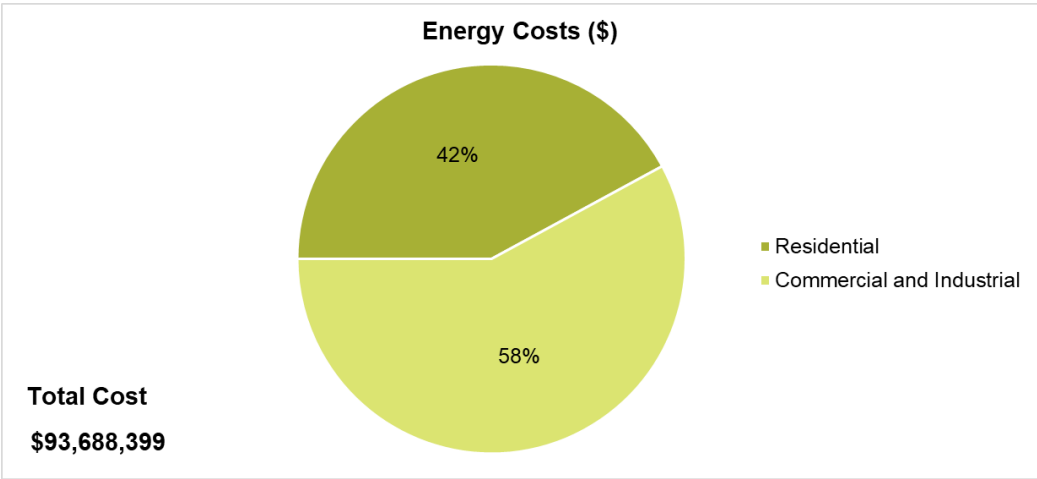


Figure 9. Overall Energy Costs

The bulk of these energy costs are spent on electricity across all sectors. Figure 10 shows the cost per premise in 2017 for electricity and natural gas. Although municipal facilities make up a small portion of the total energy costs, they have the highest annual cost per premise, presenting opportunities for savings in this sector.

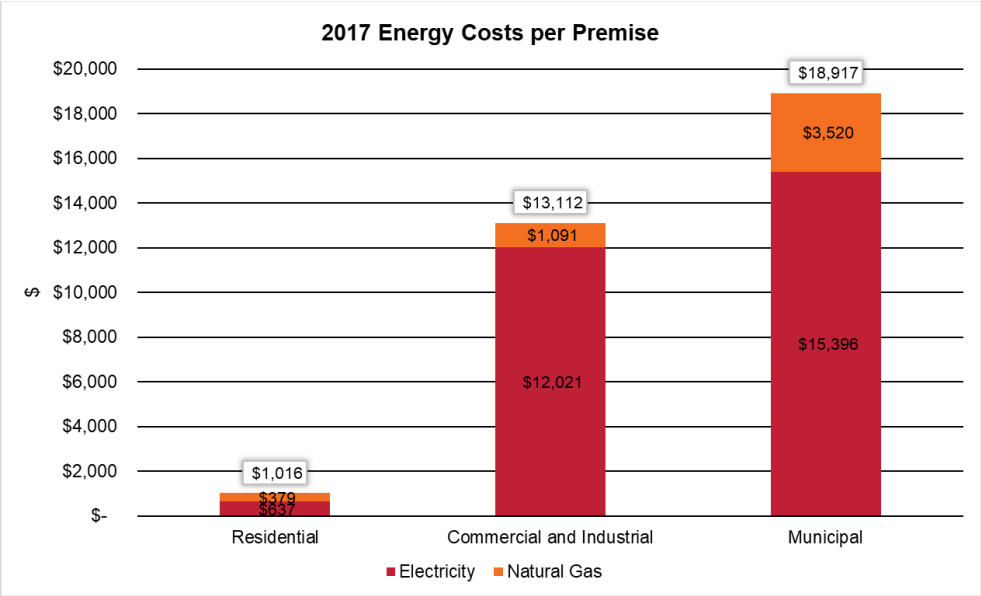


Figure 10. Energy Cost Per Premise

In total, approximately 821 million kilowatt hours (kWh) of electricity and 40.8 million therms of natural gas were consumed by residents and businesses in the City of Centennial in 2017. The commercial and industrial sector consumed the majority of the electricity, accounting for more than 585 million kWh (71 percent), while the residential sector consumed 235 million kWh (29 percent), and the municipal sector consumed 1 million kWh (0.08 percent) (Figure 11).

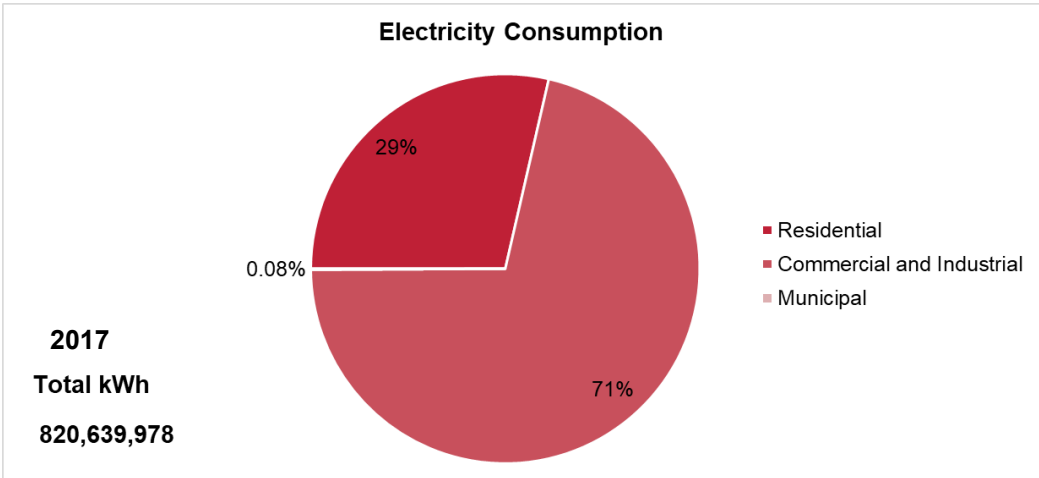


Figure 11. Electricity Consumption by Sector

Natural gas was primarily consumed by the residential sector, accounting for 29.3 million therms (72 percent), while the commercial and industrial sector consumed 11.5 million therms (28 percent), and the municipal sector consumed 0.02 million therms (0.06 percent) (Figure 12).

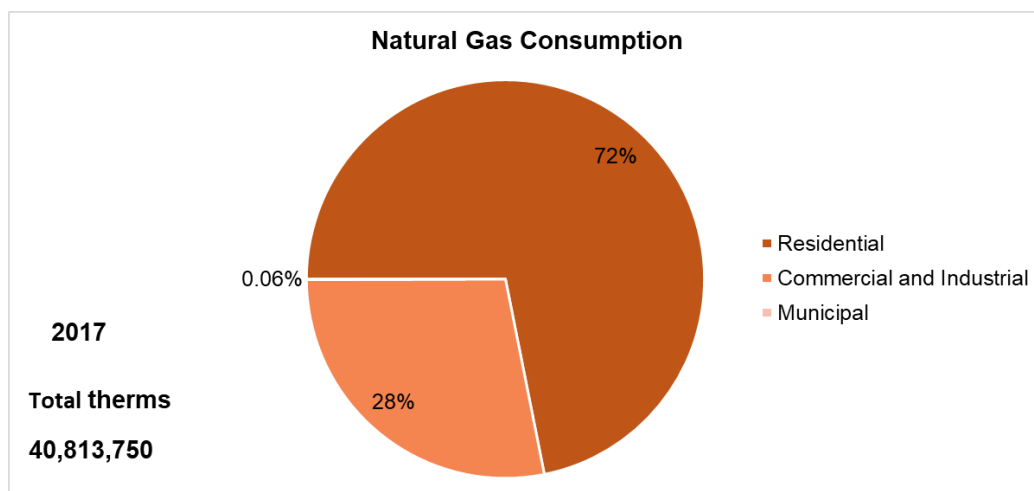


Figure 12. Natural Gas Consumption by Sector

Electricity use in Centennial in the residential and commercial and industrial sectors has seen a modest decrease of 3 percent from 2015 to 2017 (Figure 11). Over the same period, natural gas in the residential and commercial and industrial sectors has declined by 2.4 percent (Figure 12). These declines could be attributed to energy efficiency but could also be the result of weather conditions, as the number of both heating degree days (HDD) and cooling degree days (CDD) also decreased over this time.

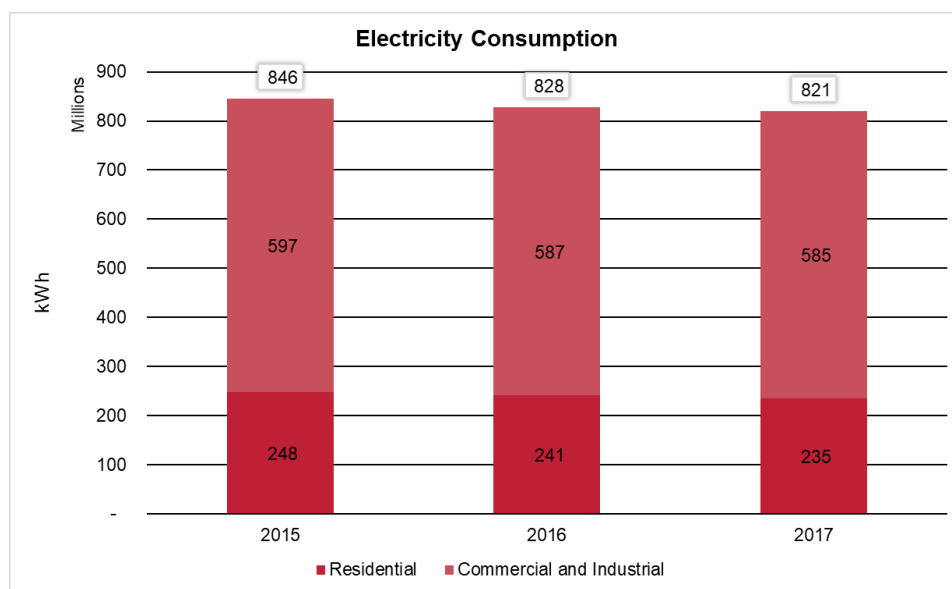


Figure 13. Commercial and Residential Electricity Consumption

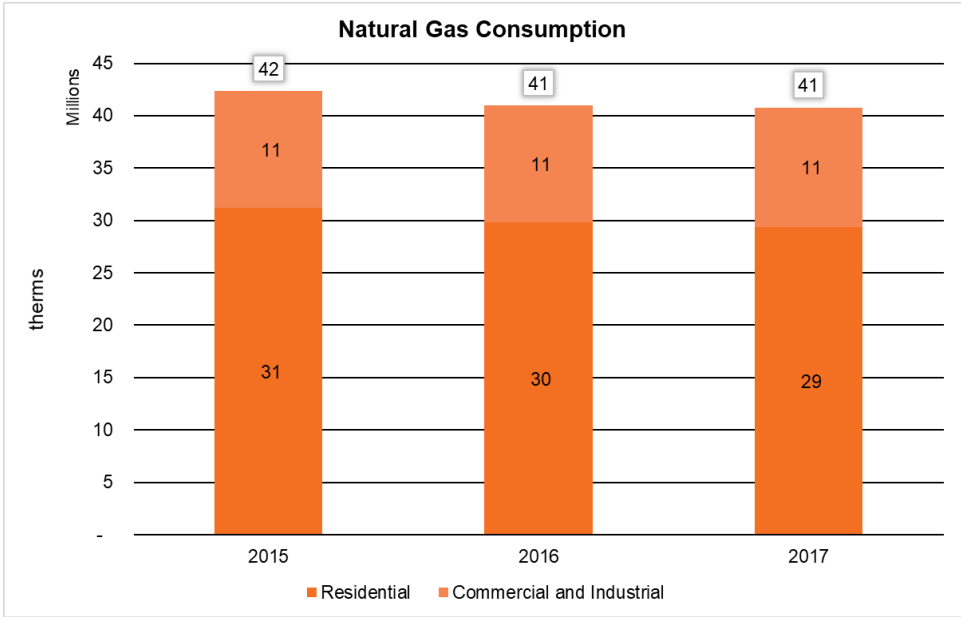


Figure 14. Commercial and Residential Natural Gas Consumption

The municipal sector saw an increase in electricity consumption of 31 percent from 2015-2017 (Figure 16), however there are only four premises that are included in this analysis, so small consumption changes may have large implications on the overall percentage. During the same time frame, there was an overall decrease in natural gas use of 8.8 percent, however this was preceded by an increase from 2015 to 2016 of 13 percent (Figure 16). It is difficult to draw conclusions from the electricity and natural gas trends due to the 2016 City Hall renovation, which impacted energy usage during the renovation period and changed the number of occupants and use of the building space after the renovation.

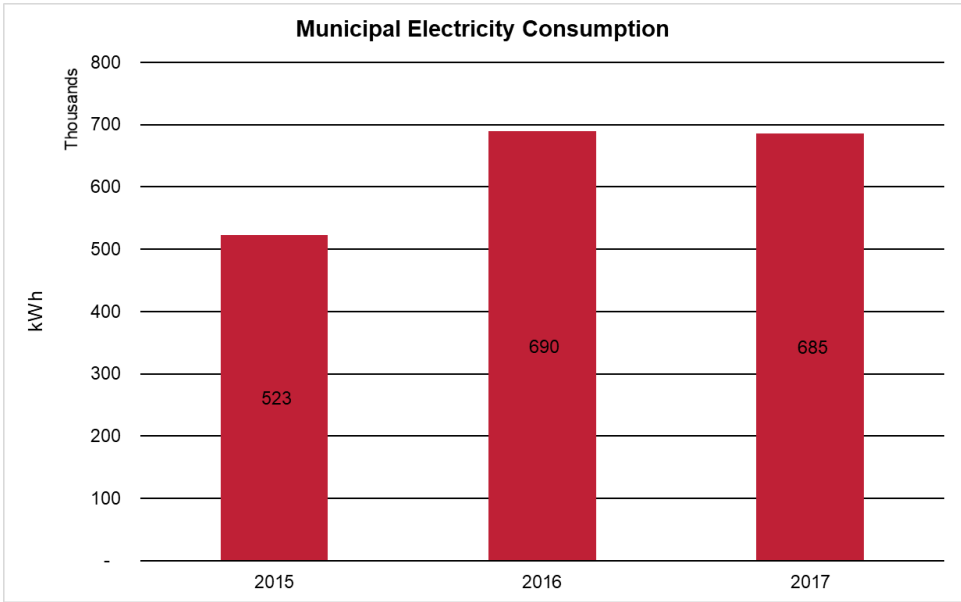


Figure 15. Municipal Facilities Electricity Consumption

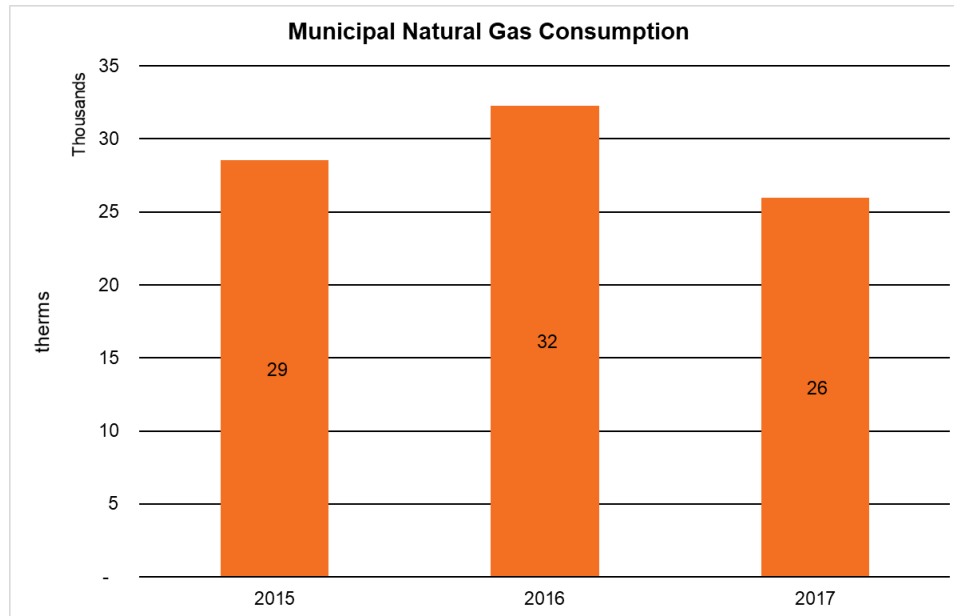


Figure 16. Municipal Facilities Natural Gas Consumption

Efficiency Program Participation

Part of the community energy profile includes Xcel Energy's historic demand-side-management (DSM) program participation and associated energy savings for the residents and businesses of Centennial. These data provide a snapshot of what types of programs customers are using and to what extent. The data also show opportunities for greater participation in the available programs and the need for increased education and awareness.

In 2017, about 7 percent of eligible residents participated in Xcel Energy DSM programs (see Appendix 2: Xcel Energy Program Offerings), saving over 1 million kWh and 63,900 therms. This equates to an average

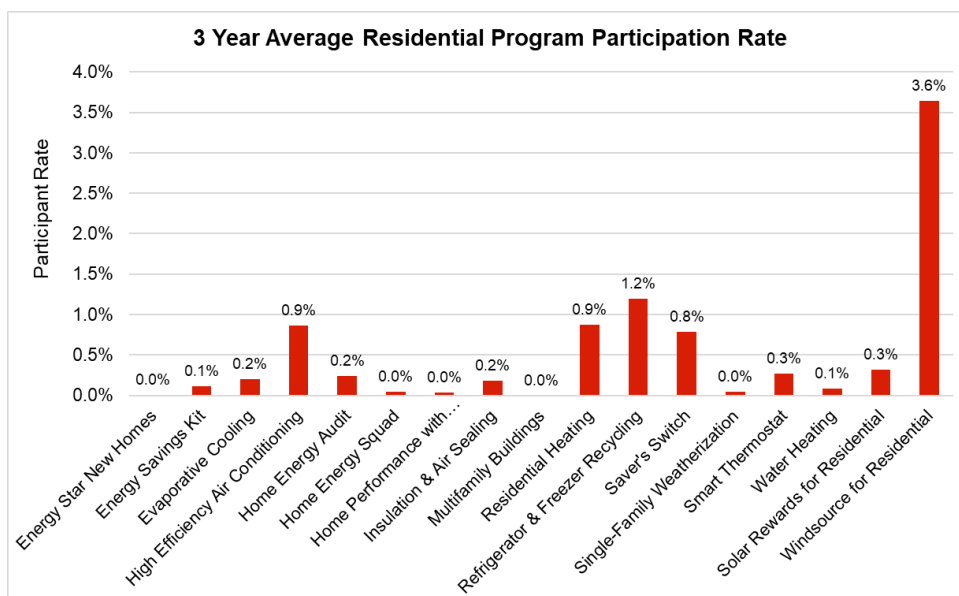


Figure 17. Residential Program Participation Rates

annual energy cost savings of \$45 per participating residence, in addition to rebates and other financial incentives associated with program participation. Figure 17 shows the average residential program participation rate from 2015 through 2017.

In 2017, more than 8 percent of businesses (including City facilities) participated in Xcel Energy DSM programs, saving over 8.5 million kWh and 9,500 therms. This equates to an average annual energy cost savings of about \$2,291 per participating business, in addition to rebates and other financial incentives associated with program participation. Figure 18 shows the average business program participation rate from 2015 through 2017.

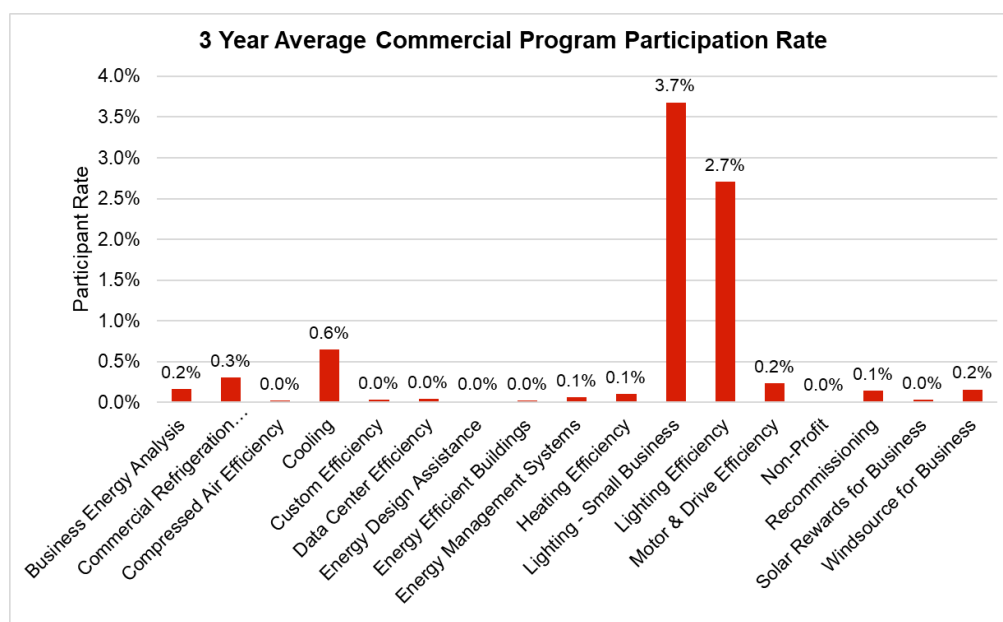


Figure 18. Commercial Program Participation Rates

Existing Energy Practices

Table 2. Community Energy Initiatives

City of Centennial
<ul style="list-style-type: none"> • Adopted several energy-related codes and standards including the Land Development Code and Municipal Code (chapter 18), and the IECC 2015 building energy code. • Civic Center building remodel included new energy-efficient lighting, window film, and HVAC upgrades. • Public Works facility remodel included LED lighting (including the parking lot). • Lighting at the Centennial Center Park is set on a timer and was recently upgraded to LEDs. The City has explored options for solar and other alternative energy sources.
Arapahoe Libraries
<ul style="list-style-type: none"> • LED lighting in various facilities • Solar at Castlewood Library
South Suburban Parks and Recreation District
<ul style="list-style-type: none"> • Energy performance contract to perform energy upgrades throughout District facilities
Arapahoe County Extension
<ul style="list-style-type: none"> • Conducts energy efficiency and renewable energy workshops across the state. • Provides rural energy assessments. • Facilitates local government energy goal setting and attainment strategies.

Local Outreach and Communication Channels

Engaging the community is critical to reaching the Energy Action Plan goals. Table 3 summarizes some of the ways residents and businesses currently receive information. These communication channels will be helpful during implementation efforts.

Table 3. Local Outreach

Local Outreach Channels
Digital Communications <ul style="list-style-type: none"> • City of Centennial Facebook • @CentennialGov Twitter • CentennialGov Instagram • Targeted emails from Xcel Energy • Nextdoor • Partner websites • Press Releases • City of Centennial Events webpage • City of Centennial e-newsletter • Centennial Connection newsletter • South Metro Denver Chamber of Commerce newsletter
Events <ul style="list-style-type: none"> • Centennial Holiday Celebration • Brew-n-Que • Centennial Under the Stars • Car Show & Concert • Summer Kickoff • And others TBD
Community Spaces for Collateral Distribution <ul style="list-style-type: none"> • Centennial Civic Center • Libraries • Family Sports Center • Goodson Recreation Center • Trails Recreation Center • Retirement Communities • South Suburban Parks and Recreation Facilities • Arapahoe Parks and Recreation District Facilities



Figure 19. Centennial Connection Newsletter

Where Do We Want to Go?

Our Energy Vision

During the first planning workshop, team members worked together to craft an energy vision statement that expresses the Centennial community's energy intentions and values. Figure 20 shows a word cloud that was developed based on the planning team's input, with larger words representing concepts and values that were identified the most frequently and were therefore of greatest interest.



Figure 20. Energy Vision Word Cloud

From this activity, the planning team developed a vision for this Energy Action Plan:

The City of Centennial will create a resilient future for its residents and businesses through improved energy efficiency, enhanced connectivity, education, and cost savings.

The Centennial planning team chose to realize this vision by focusing on three key areas based on the needs of the community: residential, commercial and industrial, and community facilities. Common themes to all focus areas are outreach and education, energy efficiency, renewable energy, and new technologies.

How will We Get There?

Centennial will work to achieve its energy vision by establishing goals and implementing strategies across the following three focus areas.

Focus Area 1: Residential

The residential sector in Centennial accounts for 90 percent of Xcel Energy premises, 54 percent of energy consumption, and 72 percent of natural gas consumption, as discussed in the Baseline Energy Analysis section of this document. This customer group represents a significant opportunity to reduce energy consumption and save money in Centennial by impacting how residents view and consume energy. The aging housing stock in Centennial also represents a significant opportunity, as many homes are likely to realize savings through efficiency upgrades. Further, during the baseline year of 2017, 7 percent of residential premises participated in efficiency and renewable energy programs, representing considerable room for increased participation and engagement.

Historical Program Participation

Figure 21 shows participation in each of Xcel Energy's residential efficiency and renewable programs over the last three years. In 2017, there were 2,762 participants, representing 7 percent of the residential premises in Centennial. This participation resulted in a 0.5 percent energy reduction across the community. The planning team used this information to inform the residential focus area goals, primarily focused on increasing participation rates and overall community energy savings.

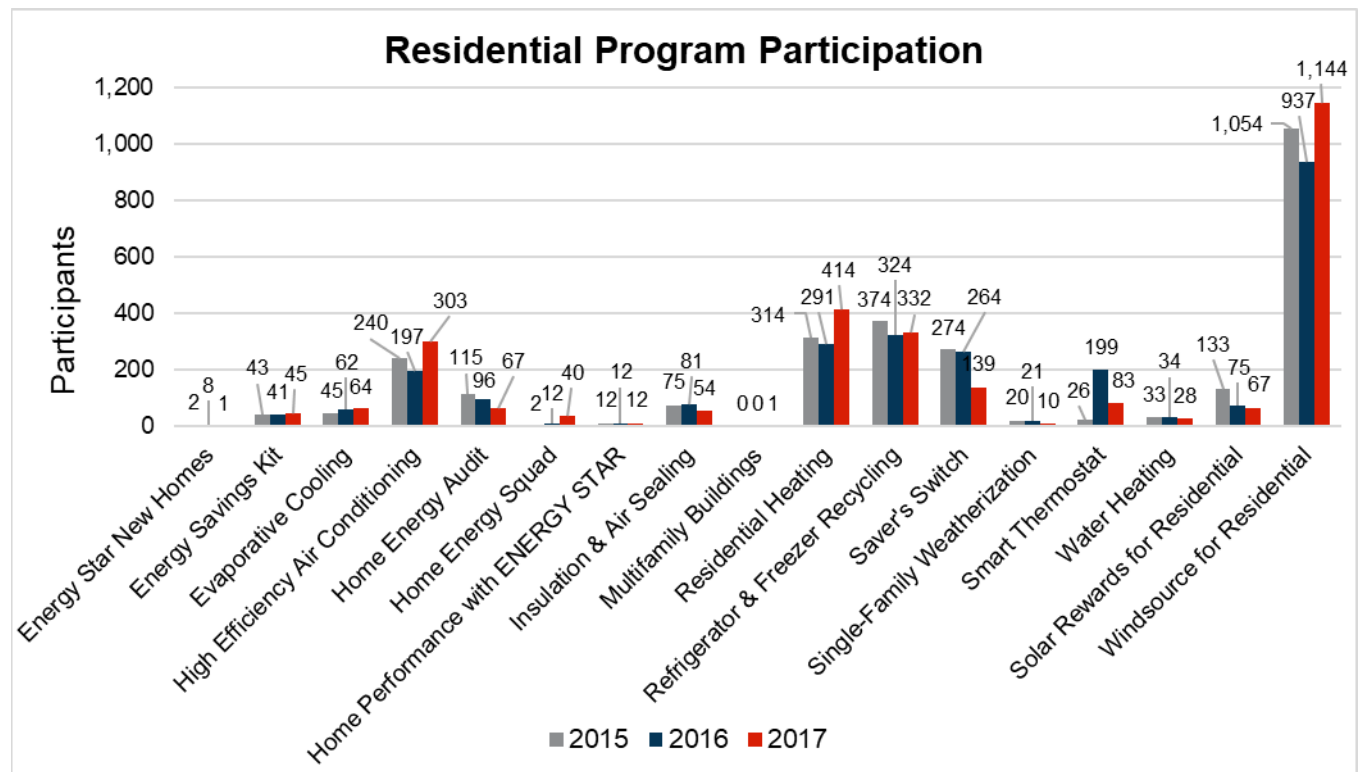


Figure 21. Three Year Residential Program Participation

Goal

Connect with 20,000 residents to double participation in Xcel Energy programs in one year.

Strategies

The planning team chose to focus on increasing awareness of energy efficiency and renewable energy opportunities, including increasing participation in Xcel Energy programs. To achieve the residential goal, the planning team will focus on educational workshops, event coordination, and social media campaigns as strategies, as summarized in the tables below.

Table 4. Residential Focus Area Strategy 1

Strategy 1: Educational Workshops
<p>Description</p> <p>This strategy primarily focuses on hosting various educational workshops to inform community members about energy efficiency and renewable energy opportunities for their homes. The workshops will provide opportunities for participants to interact with topic experts, learn about different program and rebate opportunities, and share their stories. Messages will focus on ways for participants to save money through energy efficiency improvements.</p>
<p>Targets</p> <ul style="list-style-type: none"> • Hold one educational workshop per quarter during the implementation period (2019 and early 2020) in the fall, winter, and spring • Contact at least 12,000 people about workshop opportunities (2,000 each workshop) • Enroll at least 20 participants at each workshop (120 total)
<p>Scope</p> <ul style="list-style-type: none"> • Identify workshop topics and speakers. Potential topics include: <ul style="list-style-type: none"> ○ Electric vehicles ○ Energy efficiency basics for your home (potentially target first time homeowners and seniors/those who are aging and want to stay in their homes) ○ Renewable energy ○ Selecting energy efficient equipment for your home • Determine dates and venues • Coordinate on workshop logistics and co-presenters <ul style="list-style-type: none"> ○ Arapahoe County Weatherization Division - information on home weatherization and energy efficiency support for low-income households ○ CLEAResult – send Home Energy Squad technicians to workshops ○ IREA - information about opportunities for customers in their service territory • Market workshops <ul style="list-style-type: none"> ○ Leverage City outreach channels, event calendars ○ Advertise through HOAs and other community groups • Deliver workshops
<p>Responsible Parties</p> <ul style="list-style-type: none"> • Arapahoe County Extension

- Help with marketing workshops to their distribution lists
 - Lead workshop delivery for some topics (EVs, Renewable Energy, Energy Efficiency)
- Xcel Energy and Partners in Energy
 - Lead workshop planning
 - Support marketing
 - Support workshop delivery
- City of Centennial
 - Help spread the word
 - Help identify or provide venue
- Energy Action Team
 - Help spread the word about workshops through everyone's channels (e.g., Senior Commission, NextDoor)
 - Provide personal connections and stories at workshops
- CLEAResult, Arapahoe County Weatherization Division, IREA
 - Support workshop development and delivery

Timeline

- Begin workshop planning in Fall 2018 and begin outreach
- Workshop 1 in late Fall 2018 (topic: electric vehicles)
- Workshop 2 in Winter 2019 (preliminary topic: energy efficiency basics for seniors)
- Workshop 3 in Spring 2019 (preliminary topic: renewable energy opportunities for your home)
- Workshop 4 in Fall 2019 (preliminary topic: energy efficiency basics for new homeowners)
- Workshop 5 in Winter 2020 (preliminary topic: selecting energy efficient home equipment)
- Workshop 6 in Spring 2020 (topic TBD)

Resources

- Leverage the Universal Design Demonstration Home at Southglenn Library for a senior-focused workshop
- Have LED bulbs or raffle items at workshops as an incentive to participate
- Offer Home Energy Squad demonstrations and testimonials
- Each workshop will need a PowerPoint, handouts, and refreshments

Outreach Channels

- City Newsletter (mailed to all households)
- Social media (City, Xcel Energy, Arapahoe County Extension)
- City Council district meetings
- Personal connections
- Homeowners Associations
- Churches
- City Commissions (e.g., Senior Commission, Youth Commission)

Measurement

- Number of people contacted about event

- Attendance at events
- Enrollment for programs at/following workshop events

Table 5. Residential Focus Area Strategy 2

Strategy 2: Community Event Coordination

Description

This strategy is designed to leverage existing City of Centennial events to provide information about energy efficiency and renewable energy resources that are available to community members. Outreach messages will emphasize cost-savings to participants, and easy-to implement solutions. Volunteers will table at events to pass out information, answer questions, and encourage participants to learn more about energy efficiency opportunities.

Targets

- Attend at least 4 major community events during the 18-month implementation period
- Connect with at least 50 residents at each event

Scope

- Determine calendar of events and staffing needs. Potential events include:
 - Centennial Holiday Celebration (i.e., promote discounted LED holiday lights and Home Energy Squad visits)
 - Picnic in the Park
 - Brew-n-Que
 - Centennial Under the Stars
 - Car Show & Concert
 - Chalk Art Festival
 - Service Club Meetings
 - National Night Out
- Coordinate Xcel Energy and City messaging and program information with other energy-related opportunities:
 - Arapahoe County Weatherization Division - information on home weatherization and energy efficiency support for low-income households
 - IREA - information about opportunities for customers in their service territory
- Develop event collateral materials and tabling details
- Train volunteers
- Attend events

Responsible Parties

- City of Centennial
 - Share Partners in Energy information at all planned events
 - Help identify which events might be most beneficial to have more of a formal/increased presence
- Xcel Energy
 - Lead material development
 - Support outreach at a targeted number of activities
 - Coordinate list of activities with company sponsorship team

- Arapahoe County Extension
 - Lead or support tabling at high-priority events
- Senior & Youth Commissions
 - Share Partners in Energy information at all planned events
- Arapahoe County Weatherization Division and IREA
 - Support collateral development and distribution

Timeline

- Winter 2018: Consider attending Holiday Celebration
- Winter/Spring 2019: Develop event materials and complete volunteer training
- Spring 2019: Apply for summer event participation
- Summer 2019: Attend events
 - June: Summer Kickoff Concert, Picnic in the Park
 - July: Brew-n-Que, Picnic in the Park
 - August: Centennial Under the Stars, National Night Out
 - September: Car show & Concert, Centennial Chalk Art Festival
- Winter 2019: Holiday Celebration

Resources

- Volunteer training /speaking points (e.g., for members of the Senior Commission, Youth Commission, City Communications staff)
- Tabling materials (e.g., tablecloths, collateral flyers/brochures, LEDs or other giveaways, eye-catching display)

Outreach Channels

- Social media
- City Newsletter
- City Council district meetings

Measurement

- Number of contacts made
- Number of materials distributed
- Enrollment for programs at/following community events

Table 6. Residential Focus Area Strategy 3

Strategy 3: Social Media Awareness Campaign
<p>Description</p> <p>This strategy is designed to leverage existing City of Centennial and partner social media channels to share information about energy efficiency and renewable energy opportunities for community residents through a coordinated social media campaign.</p>
<p>Targets</p> <ul style="list-style-type: none"> • Deploy at least 3 coordinated and comprehensive social media campaigns during the 18-month implementation period • Reach more than 9,000 social media users
<p>Scope</p> <ul style="list-style-type: none"> • Determine the list of social media accounts and administrators (e.g., City, Arapahoe County Extension, etc.) • Develop a library of video segments, testimonials, graphics, and information to use for campaigns • Develop social media campaign details (e.g., delivery approach through a drip campaign) • Launch campaign and track metrics
<p>Responsible Parties</p> <ul style="list-style-type: none"> • City of Centennial <ul style="list-style-type: none"> ◦ Lead campaign development, including video production ◦ Deploy campaign on social media • Xcel Energy <ul style="list-style-type: none"> ◦ Support campaign development and deployment ◦ Provide graphics and photos for campaign • Arapahoe County Extension <ul style="list-style-type: none"> ◦ Support campaign development and deployment • Senior & Youth Commissions <ul style="list-style-type: none"> ◦ Support campaign development and deployment • Energy Action Team <ul style="list-style-type: none"> ◦ Help spread the campaign on your social media profiles
<p>Timeline</p> <ul style="list-style-type: none"> • Fall 2018: Begin development of campaign (including videos, photos, informational bits, etc.) • Winter 2019: Finalize campaign logistics • Spring 2019: Launch campaign 1 • Summer 2019: Plan campaign 2 • Fall 2019: Launch campaign 2 • Winter 2020: Plan campaign 3 • Spring 2020: Launch campaign 3

Resources

- Video segments (e.g., Home Energy Squad visit, Business Lighting visit, customer testimonials, etc.)
- Simple graphics and photos for posts

Measurement

- Social media reach (i.e., number of people who see content)
- Social media impressions (i.e., number of times content is displayed)

Focus Area 2: Commercial & Industrial

As identified in the Baseline Energy Analysis section of this document, commercial and industrial facilities in Xcel Energy's service territory represent 46 percent of energy consumption in Centennial, 71 percent of all electricity consumption, and 28 percent of natural gas consumption. There are over 4,000 Xcel Energy business premises in Centennial and relatively low participation in energy efficiency and renewable energy programs, representing a sizeable opportunity to provide energy and cost savings to all businesses. While this focus area presents challenges since businesses are busy and it can be difficult to connect with decision makers on energy matters, a simple and impactful targeted approach will allow this sector to benefit from and contribute to overall community energy efforts. This focus area includes strategies targeting large businesses, small and medium businesses, and new construction. Outreach messaging will focus on cost savings through energy efficiency improvements.

Historical Program Participation

In 2017, 337 commercial and industrial facilities in Centennial participated in Xcel Energy programs, representing about 8 percent of all businesses. This resulted in a 1.5 percent energy reduction across the community. The majority of participation is in the Small Business Lighting and Lighting Efficiency programs (Figure 22), presenting many opportunities for further engagement. The 2017 participation rates were used to inform the commercial and industrial focus area goals.

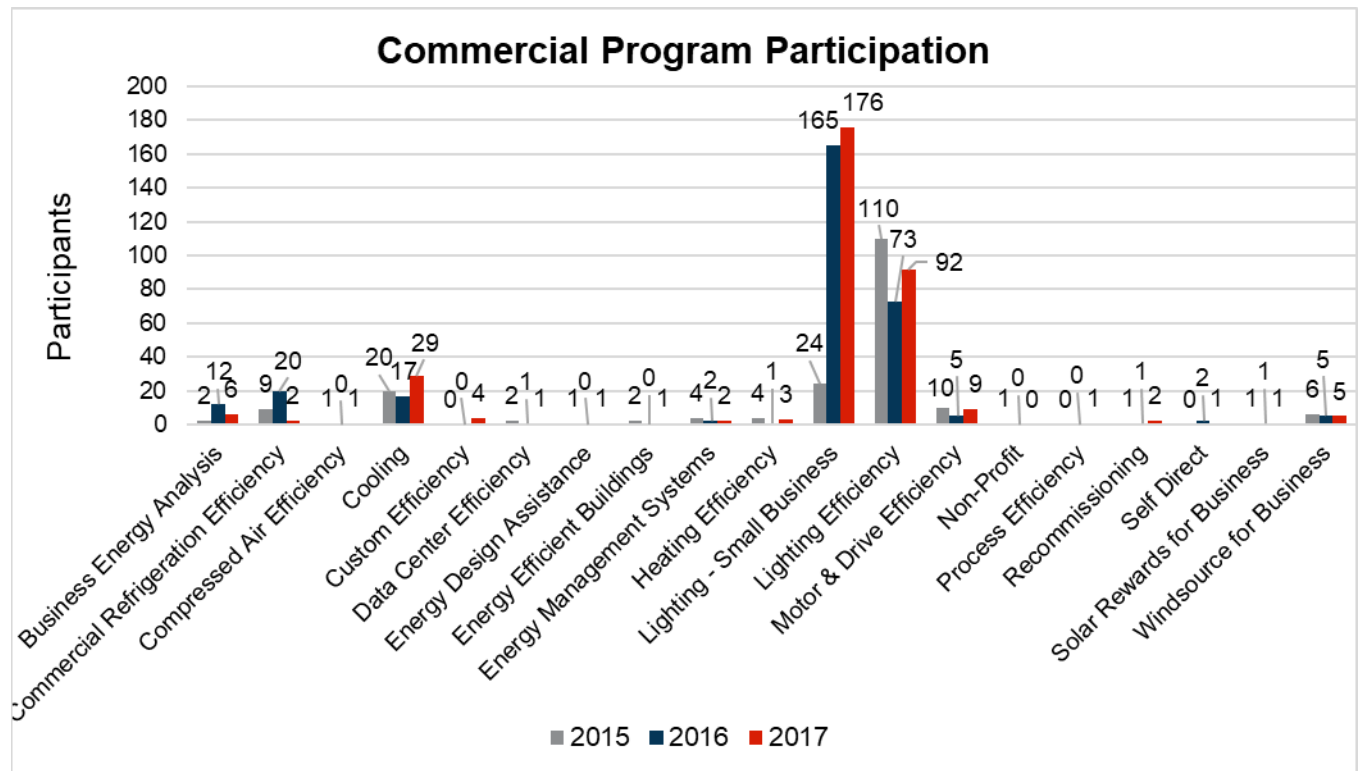


Figure 22. Three Year Commercial Program Participation

Goals

- **Connect with 15 percent of large businesses and engage 10 percent in Xcel Energy programs in one year.**
- **Connect with 20 percent of small and medium businesses and engage 10 percent in Xcel Energy programs in one year.**
- **Engage 25 percent of new buildings and/or development construction and major renovations in Xcel Energy's Energy Efficient Buildings (EEB) or Energy Design Assistance (EDA) program.**

Strategies

The planning team chose to focus on increasing awareness of energy efficiency and renewable energy opportunities, including increasing participation in Xcel Energy programs. To achieve the commercial and industrial goals, the planning team will focus on initial marketing outreach with detailed outreach following action plans, as summarized in the tables below.

Table 7. Commercial and Industrial Focus Area Strategy 4

Strategy 4: Large Commercial Outreach

Description

This strategy will focus on engaging large businesses, defined by having a dedicated Xcel Energy account manager, in energy efficiency and renewable energy programs utilizing existing Centennial and Xcel Energy resources to create a specific action plan for outreach and education. Previous year participation in programs by large businesses was approximately 25.

Targets

- Connect with 15 percent of large businesses (60) served by Xcel Energy and engage 10 percent (40) in Xcel Energy programs in one year (an increase of approximately 15 from previous year participation)

Scope

- Include large commercial case studies tailored to specific markets in Centennial's monthly business newsletter
 - Identify and prioritize case studies to match large business types in Centennial
 - Develop a timeline for publishing case studies that fits within the business newsletter publication schedule
 - Work with Centennial's Economic Development Team to leverage other current business marketing efforts
- Create a detailed outreach action plan for large businesses
 - Work with Centennial's Economic Development Team, Community Development Team, and Xcel Energy Account Managers to create a detailed strategy by account/specific business that ties in any existing contacts, events and collateral
- Incorporate Commercial Property Assessed Clean Energy (CPACE)
 - Review CPACE requirements and coordinate messaging and participation mechanics with Arapahoe County

Responsible Parties

- Lead: Economic Development Team Member at the City of Centennial
- Other Responsible Parties:
 - Centennial's Economic Development Team
 - Centennial's Communications Team Members
 - Xcel Energy Account Managers
 - Xcel Energy Communications Staff
 - Energy Action Team

Timeline

- Winter 2018: Finalize case study publication plan and outreach action plan
- Spring/Summer 2019: Begin in person meetings with prioritized large businesses
- Fall 2019: Schedule regular check-ins with prioritized large businesses
- Winter 2019: Annual update of large business action plan

Resources

- Xcel Energy Large Business Case Studies
- List of Large Business Contacts
- Other Sector Specific Collateral as Needed

Outreach Channels

- City of Centennial monthly business newsletter
- Chamber of Commerce newsletter
- Social Media (see Strategy #3)

Measurement

- Increase in small and medium business program participation rate

Table 8. Commercial and Industrial Focus Area Strategy 5

Strategy 5: Small/Medium Business Outreach
<p>Description</p> <p>This strategy will focus on engaging small and medium businesses in energy efficiency and renewable energy programs utilizing existing Centennial, Xcel Energy, and Chamber resources to create a specific action plan for outreach and education. Previous year participation in programs by small and medium businesses was approximately 310.</p>
<p>Targets</p> <ul style="list-style-type: none"> • Connect with 20 percent of all small and medium businesses (760) and engage 10 percent (380) in Xcel Energy programs in one year (an increase of approximately 70 from previous year participation)
<p>Scope</p> <ul style="list-style-type: none"> • Include small and medium commercial case studies tailored to specific markets in Centennial's monthly business newsletter <ul style="list-style-type: none"> ○ Identify and prioritize case studies to match small and medium business types in Centennial ○ Develop a timeline for publishing case studies that fits within the business newsletter publication schedule ○ Work with Centennial's Economic Development Team to leverage other current business marketing efforts • Create a detailed outreach action plan for small and medium business sectors <ul style="list-style-type: none"> ○ Work with Centennial's Economic Development Team and Xcel Energy Program Managers to create a detailed strategy by specific sectors ○ Leverage Aurora and South Metro Denver Chamber of Commerce resources and events ○ Coordinate with the local Rotary Club to present at their meetings
<p>Responsible Parties</p> <ul style="list-style-type: none"> • Lead: Economic Development Team Member at the City of Centennial • Other Responsible Parties: <ul style="list-style-type: none"> ○ Centennial's Economic Development Team Members ○ Centennial's Communications Team Members ○ Xcel Energy Communications Staff ○ Energy Action Team
<p>Timeline</p> <ul style="list-style-type: none"> • Winter 2018: Finalize case study publication plan and outreach action plan • Spring/Summer/Fall 2019: Implement plan • Winter 2019: Annual update of small and medium business action plan
<p>Resources</p> <ul style="list-style-type: none"> • Xcel Energy Small/Medium Business Case Studies • Other Sector Specific Collateral as Needed

Outreach Channels

- City of Centennial monthly business newsletter
- Chamber of Commerce newsletter
- Social Media (see Strategy #3)

Measurement

- Increase in small and medium business program participation rate

Table 9. Commercial and Industrial Focus Area Strategy 6

Strategy 6: New Construction
<p>Description</p> <p>This strategy focuses on high performing new construction and renovations in both businesses and community facilities.</p>
<p>Targets</p> <p>One quarter of new buildings and major renovations to participate in Xcel Energy's Energy Efficient Buildings (EEB) or Energy Design Assistance (EDA) program (estimated at 5 per year).</p>
<p>Scope</p> <ul style="list-style-type: none"> • Create a detailed outreach action plan for new construction <ul style="list-style-type: none"> ○ Utilize city's existing connections with new development and building sites for face to face outreach and education on Energy Design Assistance (EDA) and Energy Efficient Buildings (EEB) programs. ○ Incorporate EDA and EEB consideration into the development review process and pre-application meeting • Include information about energy efficiency and renewable energy opportunities with all new development and renovation applications and permits • Provide EDA and EEB information and links on the City's Planning & Engineering webpage • Lead by example with all new construction at community facilities utilizing EDA and EEB programs
<p>Responsible Parties</p> <ul style="list-style-type: none"> • Lead: City of Centennial Community Development Staff • Other Responsible Parties: <ul style="list-style-type: none"> ○ Centennial's Economic Development Team Members ○ Xcel Energy Communications Staff ○ Energy Action Team
<p>Timeline</p> <ul style="list-style-type: none"> • Winter 2018: Finalize outreach action plan • Spring/Summer/Fall 2019: In person meetings with prioritized developers • Winter 2019: Annual update of new construction outreach action plan
<p>Resources</p> <ul style="list-style-type: none"> • Brochures to incorporate into the development process • Website content to include with the online development process
<p>Outreach Channels</p> <ul style="list-style-type: none"> • Existing Centennial connections to identify potential participants • Littleton Public Schools (if bond for new construction passes)
<p>Measurement</p> <ul style="list-style-type: none"> • Increase in EDA and EEB program participation rate

Focus Area 3: Community Facilities

The City of Centennial already conserves energy by converting to LED lighting wherever feasible and incorporating energy efficiency into design of new facilities. Although community facilities represent less than 1 percent of energy use in Centennial, there is an opportunity to lead by example within city facilities, libraries, schools, and parks and recreation facilities. Further, energy savings in these facilities has an impact on all Centennial community members by enabling organizations to save taxpayer dollars.

Historical Program Participation

Community facilities program participation is included in commercial participation, as shown in Figure 22. There are about 35 total premises in the community facilities category, across seven organizations (City of Centennial, South Suburban Parks and Recreation District (SSPRD), Arapahoe Park and Recreation District (APRD), Arapahoe Libraries, Littleton Public School, Cherry Creek Schools, and Arapahoe County). Because there are fewer community facilities compared to commercial entities, the planning team chose to focus on engaging these community organizations when forming the focus area goal. This is also an opportunity for community organizations to lead by example.

Goal

Conduct 10 Onsite Energy Audits or Building Tune-Ups and 5 projects at community facilities.

Strategies

The planning team discussed various ways to engage facility managers and decision makers in energy efficiency improvement projects. The result is a strategy that targets exploring opportunities at facilities as a first objective, followed by implementing recommendations from energy audits and studies as a second.

Table 10. Community Facilities Focus Area Strategy 7

Strategy 7: Facility Energy Audits & Improvements
Description
<p>This strategy focuses on increasing energy efficiency in community facilities by identifying opportunities for improvements through energy studies and audits and implementing the recommendations as feasible.</p>
Targets
<ul style="list-style-type: none"> • Conduct 10 Onsite Energy Audits or Building Tune-Ups at community facilities (see Appendix 2: Xcel Energy Program Offerings for program details) • Implement 5 energy efficiency projects at community facilities • Send quarterly email newsletter to participating facility managers and other stakeholders
Scope
<ul style="list-style-type: none"> • Outreach and engagement with community organizations and their facility managers • Submit applications for energy audits and tune-ups through Xcel Energy programs at community facilities • Prioritize energy efficiency recommendations from audits and tune-ups and incorporate into capital plans for next budget cycle

- Engage facility managers through a quarterly newsletter to provide support, check-in and report out on goals, share lessons learned, and celebrate accomplishments

Responsible Parties

- Lead/organizer: City of Centennial
- Newsletter content and distribution
- Energy Action Team comprised of stakeholder representatives:
 - City of Centennial
 - South Suburban Parks and Recreation District
 - Arapahoe Libraries
 - Make connections with facility managers and other community organizations (school districts, Arapahoe Park and Recreation District, Arapahoe County, churches)
 - Support communication between Energy Action Team and their organization
- Implementation to be led by facility managers within each organization
 - Lead energy audits/tune-ups and implementation projects
- Xcel Energy and Partners in Energy
 - Support regular check-in calls with Energy Action Team
 - Provide audit/tune-up support and implementation coaching as needed

Timeline

- Audits and tune-ups to be scheduled within first 6 months of the implementation period (Spring/Summer 2019)
- Two months to review audit and tune-up reports and select recommendations to implement
- Recommendations from audits completed by early 2019 to be incorporated in the 2020 budget planning process starting in spring 2019
- Start preparing newsletter content at the beginning of each quarter and send during the last month of the quarter

Resources

- Xcel Energy [Onsite Energy Audit](#) (\$125-\$250) and [Small Building Tune-up](#) (\$250-\$500) programs
- Facility manager events and associations such as Building Owners and Managers Association (BOMA), Building Operators Association of Colorado (BOAC), and International Facility Management Association (IFMA)
- Email distribution list for all major community facility managers

Outreach Channels

- Personal networks of Energy Action Team members and facility managers
- Direct email to facility managers group

Measurement

- Number of audits/tune-ups
- Number of projects completed
- Number of newsletters sent

Summary: Energy Savings from Focus Areas and Strategies

To meet the City's energy savings goals outlined earlier, the following assumptions were included in the potential impact modeling conducted as part of the planning process:

- Maintain level of historical participation, energy savings, and cost savings from DSM and renewable program offerings
- Increase participation (above historical levels) and energy savings from DSM programs from the implemented strategies in this plan

Table 11 shows estimated savings during the plan implementation period, which will start in 2019 and end in 2020. The savings estimate is calculated based on the targeted Xcel Energy DSM Program participation levels outlined in each of the strategies of this plan (including historical participation). Electric and gas savings in each focus area reflect the community energy profile, with most electricity savings coming from commercial and industrial strategies and the majority of natural gas savings coming from residential strategies. The savings impact from Community Facilities is small due to the relatively few buildings that are part of this focus area. However, it is hoped that the impact will be amplified as community organizations lead by example and influence residents and businesses to participate in energy saving actions. The total impact represents a 40% increase in electricity savings and an 85% increase in natural gas savings, compared to 2017. These energy and cost savings are achieved through investment in energy efficient equipment and building upgrades supported by various rebates and programs available to support these investments. The investment cost will vary depending on the home or business and cost savings are estimated based on typical utility costs in Centennial.

Table 11. Estimated Energy Savings from Strategy Implementation

Summary of Savings	Participation	Total Electric Savings kWh	Total Natural Gas Savings therms	Total Annual Cost Savings
Focus Area 1: Residential	5,300	2,170,000	122,500	\$285,000
Strategy 1: Educational Outreach	2,100	870,000	49,000	\$114,000
Strategy 2: Community Event Coordination	2,100	870,000	49,000	\$114,000
Strategy 3: Social Media Awareness Campaign	1,100	430,000	24,500	\$57,000
Focus Area 2: Commercial & Industrial	425	10,310,000	13,200	\$914,000
Strategy 4: Large Commercial Outreach	40	2,960,000	2,400	\$258,000
Strategy 5: Small/Medium Business Outreach	380	6,500,000	4,800	\$577,000
Strategy 6: New Construction	5	850,000	6,000	\$79,000
Focus Area 3: Community Facilities	15	80,000	0	\$7,000
Strategy 7: Facility Energy Audits & Improvements	15	80,000	0	\$7,000
Total	5,740	12,560,000	135,700	\$1,206,000

How Are We Going to Stay on Course?

The Energy Action Team has worked hard to develop ambitious and achievable goals that align with the energy vision. To achieve the targets and energy goals outlined in this plan, the City of Centennial and its partners identified in the strategies above will work to maintain consistent and clear communication among themselves and with the community at large. Each strategy will have sub-teams that will communicate regularly to work out the details of implementation, carry through on identified actions, and share progress and results. In the first months of implementation, the Energy Action Team will meet as a large group via online meetings to ensure effective group coordination and communication.



Figure 23. Actions and Tracking

Operational Actions and Tracking

Partners in Energy staff will track energy data for Centennial on a bi-annual basis and will report out on quantifiable progress. This tracking and reporting will include participation in Xcel Energy's programs and the associated savings. Each strategy team also will track supplemental quantitative and qualitative information about implementation, such as social media and website analytics, number of materials distributed, event dates, and estimated participants, etc.

Communication and Reporting

The City of Centennial and other community organizations have established communication channels as outlined previously in this plan. The Energy Action Team and Partners in Energy Team will coordinate the use of the various communication channels to support the strategies with outreach efforts, updates, progress, and successes

Changing Course: Corrective Action

Even though this Energy Action Plan is designed for greatest impact over the next 18 months, the residual effect and momentum gained by showcasing efficiency, raising awareness, and leveraging resources will have long-term positive implications. An effective energy plan is cyclical in nature (see Figure 23). In addition, the nature of implementation requires staging, flexibility, and course adjustments when necessary to be successful and to sustain progress. To ensure this plan remains on track, the Energy Action Team will review bi-annual tracking information and compare it against any supplemental strategy tracking metrics and information to assess whether the efforts appear to be making an impact.

To accommodate the fluid nature of action and implementation and learn from experience early in the process, the regularly scheduled team meetings as well as the bi-annual data check-ins will be a forum for agreeing on course adjustments or new approaches necessary to hit plan targets. Any adjustments will be documented and shared with the broader group and community as they occur.

During the implementation period, the best process for obtaining involvement from team members will be determined and lined up with appropriate cycles. These may include budget cycles, school calendars, start

of the heating season, etc. As these cycles and the appropriate review points in these cycles are incorporated, there may be different times of the year that specific elements may change, and at a minimum there should be at least one time every year for the major stakeholders to review progress, weigh in, and suggest changes to direction.

Sharing Progress

Strategies outlined in this plan have methods for measuring and recognizing success; however, it will be important to let the wider community know how things are progressing and to recognize the collaborative efforts of those involved in hitting the plan targets. At critical milestones, the City of Centennial and Xcel Energy will publish updates on progress, share successes, and congratulate participants and partners through various communication channels.

Beyond the Plan Horizon

Looking forward beyond the plan horizon, it is recommended that Centennial reassess the energy efficiency goals and successes achieved over the implementation period. Future updates to this plan may be necessary as goals are achieved and new energy opportunities and ideas emerge. Communities with a successful track record of implementing their goals are welcome and encouraged to apply to future Partners in Energy offerings if new community goals or opportunities arise.

Appendix 1: Glossary of Terms

Use whichever appendices are appropriate. The following is a preliminary glossary.

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

Cooling Degree Day (CDD): number of degrees that a location's average daily temperature exceeds the temperature above which buildings need to be cooled

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.

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.

Heating Degree Day (HDD): number of degrees that a location's average daily temperature falls below the temperature which buildings need to be heated.

HOA: Home owners' 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.

MTCO₂e: Metric tons of carbon dioxide equivalent (MTCO₂ 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 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 2: Xcel Energy Program Offerings