

# An Energy Action Plan for **Englewood, Colorado**



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### Englewood's Energy Action Planning Team

The planning team was formed from a varied group of Englewood residents, businesses, elected and appointed officials, and City staff committed to working on energy efficiency in the community.

#### Citizen Group

- Brett Kotal, Keep Englewood Beautiful
- Chad Michels, Alliance for Commerce

#### Business and Organizational Representatives

- Ariel Ramos, Englewood School District
- David Henderson, Englewood School District
- Jim Hamit, Englewood Housing Authority
- Randy Penn, Greater Englewood Chamber of Commerce
- Scott Noyes, EMJD Corporation
- Sean Dressel, Swedish Medical Center
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# CITY OF ENGLEWOOD ENERGY ACTION PLAN

## Executive Summary

**Our Vision:** *The City of Englewood will demonstrate forward-thinking and sustainable energy leadership in leveraging collaborative partnerships that achieve an affordable, adaptive, and renewable energy future.*

**Our Goals:** *The City's overarching goal is to reduce total energy use 1 percent annually through 2030, which could compound to reducing total energy use by 12 percent over the 2015 baseline by that time.*

## How Will We Get There?

### Municipal/ Institutional

**Strategies:**

1. Implement efficiency upgrades in City facilities, organize a City energy committee, implement an energy awareness and engagement campaign, and publicly share success with the community.

### Commercial Sector

**Strategies:**

2. Develop a lighting efficiency campaign targeting the medical sector.
3. Develop a sustainable business program that educates, supports, and recognizes businesses that work to improve their efficiency by joining them together as an identifiable peer group within the community. The program will include a framework that raises awareness, encourages action, and offers tangible and intangible benefits from participating.

### Housing

**Strategy:**

4. Build awareness of Xcel Energy and other programs for residential customers through a targeted, multi-pronged outreach campaign that includes connecting with residents through City channels and at community events and providing tailored information for children in Englewood's schools.



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

# Playbook for Achieving Our Goals

## Ongoing – Tracking

- Track implementation of strategies over time
- Have regular check-ins to stay on course and adjust as needed
- Continue to identify new outreach channels
- Solicit community feedback
- Publicly share successes
- Reward high performance

### Immediate Actions (January 2017 – Aug 2017)

- Convene strategy teams and City committee members
- Identify resources available to fully implement strategies
- Coordinate with City engagement and communication efforts
- Build employee challenge framework
- Coordinate on lighting efficiency approach
- Coordinate on residential outreach approach
- Develop outreach materials and case studies
- Identify key business sectors and develop frameworks for business program

### Longer-term Actions (Aug 2017 – Aug 2018)

- Host and attend first wave of events
- Implement efficiency upgrades in City facilities
- Roll out employee energy challenge
- Develop recognition models
- Execute on lighting campaign
- Offer Developer's Packet for new construction
- Engage schools
- Develop a solar outreach campaign
- Develop and deliver post employee challenge survey
- Develop and deliver business survey
- Identify next wave of efficiency messaging for commercial targets

## Introduction

The purpose of this plan is to outline tangible steps for the City of Englewood to move the community towards its energy goals, by increasing energy efficiency investments and participation across the community. In January of 2016, Assistant City Manager, Murphy Robinson signed a Memorandum of Understanding (MOU) with Xcel Energy, on behalf of Englewood's City Council, to participate in Partners in Energy (see Appendix). From March to November 2016, a 19-member planning team participated in a series of workshops to develop the contents of the Energy Action Plan alongside representatives from Xcel Energy, Englewood's electricity and natural gas provider. The team was comprised of Englewood residents, members of the business community, City staff, and representatives from the Chamber of Commerce, Englewood Housing Authority, Englewood School District, and Swedish Medical Center.

The planning team reviewed utility data for their community, prioritized areas of focus for Englewood, and developed this Energy Action Plan. The group would like to carry out this plan to help the community work toward short- to mid-term energy goals, with the short-term focused on an 18-month initial implementation period (January 2017 to September 2018) and the mid-term looking out to the end of 2030. This plan includes detailed action planning for meeting the identified short-term energy goals. The process was facilitated through Xcel Energy's Partners in Energy offering for communities and convened by the City of Englewood.

The following plan provides an overview of the Englewood community, the community's baseline energy use, documentation of the Partners in Energy planning process, a summary of priority focus areas identified by the Energy Action Team for implementation, and the near-term actions and strategies required to keep the implementation of this plan on track toward achieving its goals.

## Xcel Energy Partners in Energy

Xcel Energy is the electric and gas utility serving the City of Englewood. In the summer of 2014, Xcel Energy launched Partners in Energy to support communities, such as City of Englewood, 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 and implementing plan strategies (Figure 1).

Partners in Energy will work with City of Englewood 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 Englewood deploy its strategies and achieve its goals (Figure 2).

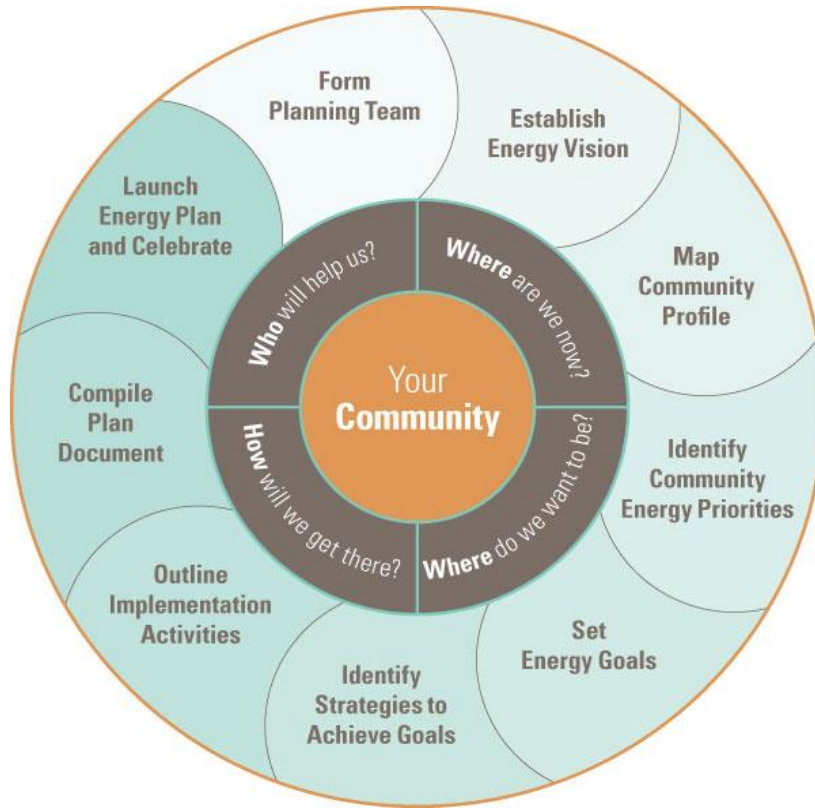


Figure 1. Partners in Energy Process for Success



Figure 2. Resources from Xcel Energy for Implementation



## Who Are We?

Englewood is a suburban community located in the greater Denver metropolitan area and encompasses approximately 6.6 square miles within Arapahoe County. Figure 3 is a map of the City of Englewood municipal boundary in relation to the Denver metro area suburbs.<sup>1</sup> It is bisected by US 285 (Hamden Avenue), which runs East-West through the community. In general, the community's commercial corridors are flanked by residential neighborhoods, and there are plentiful parks and recreation opportunities in the area.

Like many cities along the Front Range of Colorado, Englewood can trace its beginnings to the gold rush of the 1850s. The City was established in 1903 on land that was originally homesteaded by an Irish immigrant named Tom Skerritt. Over the subsequent decades, the Denver region grew, and along with it the City of Englewood.

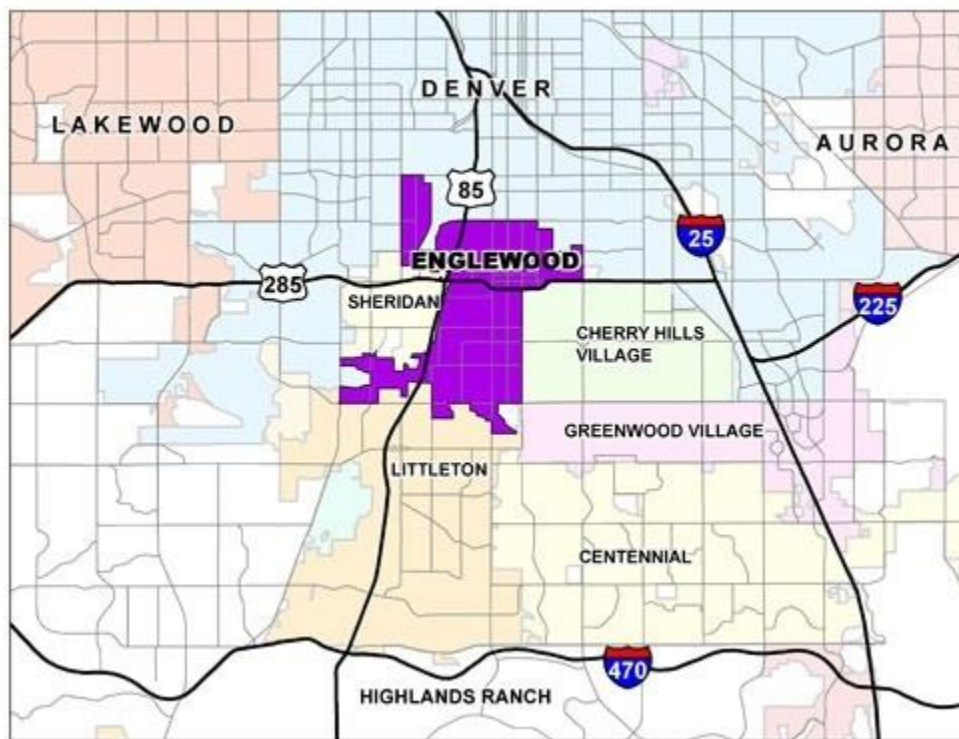


Figure 3. City of Englewood South Metro Suburb Map

## Demographics

Englewood has a growing population – the 2014 population was approximately 32,500 – and the city has experienced approximately 2 percent annual growth since 2010. This is consistent with Denver Metro area trends where the average population growth rate is approximately 1.5 percent per year since 2010.

While the overall population is growing, it appears household sizes in Englewood remain steady. In 2010, there were an estimated 2.1 persons per household, and in 2014 the estimate was 2.0 persons per

<sup>1</sup> “Denver Area Suburb Map.” *City of Englewood, Colorado*. <http://www.englewoodgov.org/our-community/maps-and-directions/denver-area-suburb-map>

household. The median age of Englewood residents is 37, which is the same as the average for the Denver Metro area. Interestingly, Englewood is experiencing a unique demographic trend for the Denver Metro area with a declining population aged between 34 and 44. However, Englewood has the highest percentage of Millennials in the Denver Metro area (19 percent), and an above average percentage of Baby Boomers, which make up 13 percent of the community’s population. In terms of energy, those people between 34 and 44 (in the Generation X range with growing families) are likely the highest energy users because of their growing families. The decline in this range could have an impact on energy trends over time.

Englewood is also becoming less diverse – approximately 17 percent of residents were of Hispanic or Latino origin in 2014. This a 4.6 percent decrease from 2010. Approximately 12 percent speak Spanish. For energy planning purposes, the language needs of the community are important for outreach and education efforts. Figure 4 displays the racial composition of Englewood.

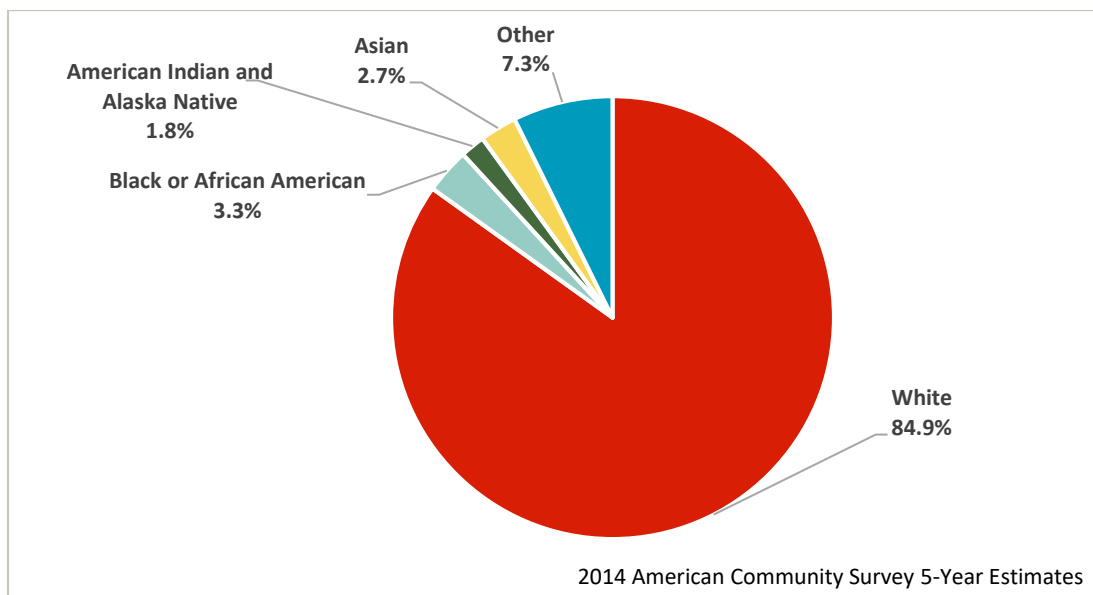
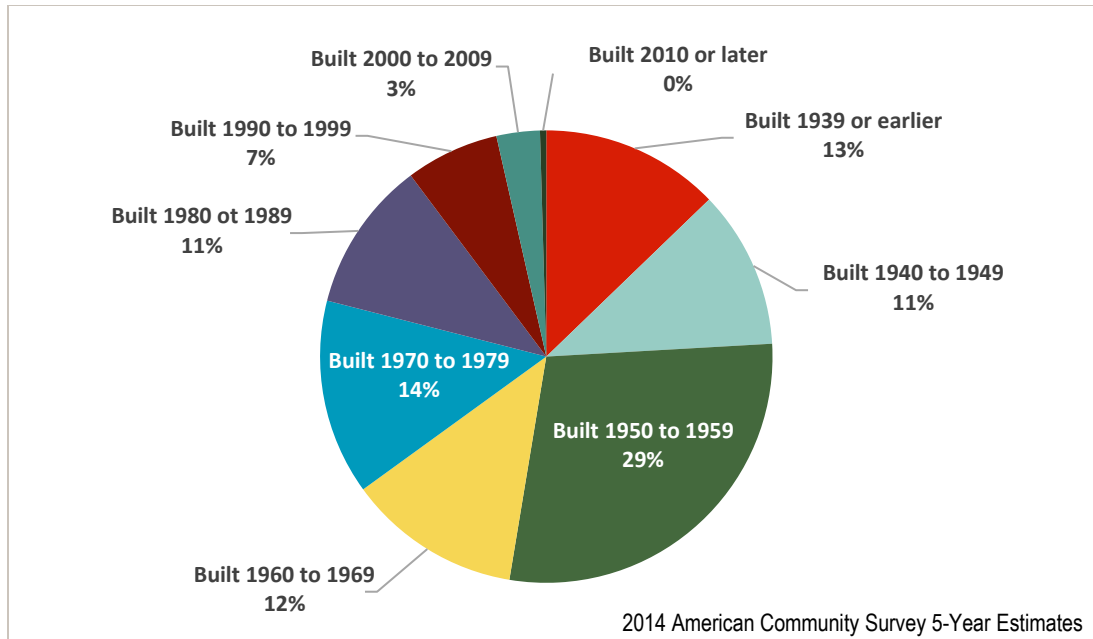


Figure 4. City of Englewood Demographics

## Housing

There are approximately 15,200 housing units in Englewood, 50 percent of which are single-family detached or attached structures. Approximately 49 percent of homes are owner-occupied. The housing stock in Englewood is considered mature, with only 10 percent of all units having been built since 1990. In fact, 43 percent of all homes were built prior to 1940. Many of these older homes are large, with 57 percent of homes having five rooms or more. The combination of age and size presents a significant opportunity for potential energy efficiency improvements and savings. Furthermore, Englewood’s housing vacancy rate is 6.6 percent, meaning that the housing inventory is healthy for home buyers. This provides further evidence that energy efficiency updates for the older housing stock could be well supported. Figure 5 shows the relative age of Englewood’s housing stock.



**Figure 5. Original Year of Construction for Englewood's Housing Stock**

Large multi-family apartments (20 or more units) comprise a significant portion of Englewood's housing stock (24 percent). The affordability of housing and utilities for renter households are of concern - approximately 50 percent of renter households spend 30 percent or more of their monthly income on housing and utility costs. Energy efficiency improvements in these aging apartment areas could likely support revitalization and reinvestment efforts, as well as provide savings for cost-burdened residents.

### **Business and Economy**

There are approximately 2,000 businesses that employ about 21,250 workers. Interestingly, Englewood has more jobs than resident workers. Unemployment, as of 2014, was approximately 9 percent and the median household income was \$42,000. Major industries in Englewood include health care; manufacturing; retail; and professional, scientific, and technical services. Figure 6 illustrates the major business types within Englewood.

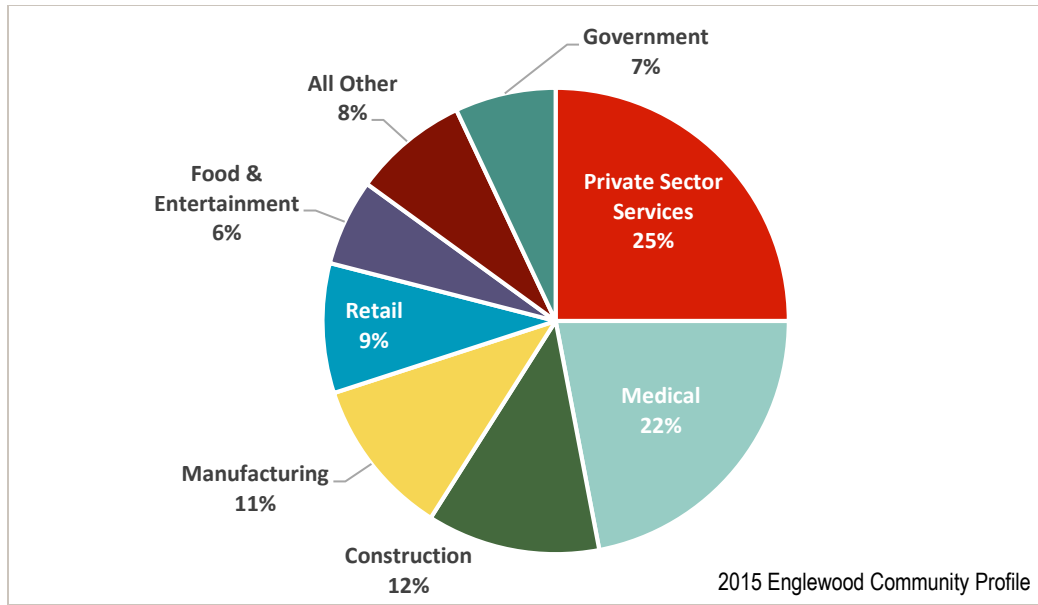


Figure 6. Englewood Employment Base

The City of Englewood has a Business and Employment Strategic Plan that identifies five comprehensive plan goals and objectives for the community:

1. Provide an economically viable environment that builds and maintains a diverse base of businesses.
2. Build, attract, and retain a quality workforce.
3. Promote economic growth by building on Englewood’s strong sense of community image, identity, and quality of life.
4. Recognize the importance of infrastructure and municipal services to ensure the economic viability of Englewood’s business community.
5. Recognize the unique characteristics and associated opportunities for enhancing the value of Englewood’s commercial, industrial, and mixed-use districts.

Many of these goals relate to energy action planning in Englewood in that reducing the utility cost burden through energy efficiency strategies helps new and existing businesses thrive.

### Commitment to Sustainability

Englewood’s participation in Partners in Energy was preceded by several years of sustainability work. The City is focused on initiatives aimed at increasing energy efficiency, supporting renewable energy, conserving resources, reducing waste, and increasing fuel savings for City operations in addition to promoting programs the help residents lead more environmentally friendly lifestyles. It will be essential to coordinate the Energy Action Plan so that it fits well with existing community efforts. For more information about Englewood’s green initiatives, visit the City’s [website](#).

### The Case for a Community Energy Action Plan

While the City of Englewood is home to a number of existing energy-related programs and initiatives, these initiatives have not historically been coordinated or tied to any overarching plan or goals. This community Energy Action Plan will serve as a guidepost for collective activities and a road map for collaborative

initiatives that leverage available resources in a concerted and targeted fashion for results that are impactful, visible, and measurable in the community. The evolution of this plan and the resulting implementation efforts will enable businesses, residents, and the City itself to save energy and cost and inspire greater participation and pride.

## Where Are We Now?

### Baseline Energy Analysis

An early step in the Partners in Energy planning process was to review current energy use in Englewood. The Xcel Energy team calculated and presented energy statistics from 2013 to 2015.<sup>2</sup> Comparing these data helped the planning group understand how and where energy is used in the city.

Electricity and natural gas data supplied by Xcel Energy show that Englewood has approximately 17,548 residential, commercial, and industrial accounts that consumed approximately 345 million kWh of electricity and 17.2 million therms of natural gas in 2015. Approximately 14,943 residential accounts consumed 96 million kWh (28 percent) of electricity and 6.9 million therms (40 percent) of natural gas while 2,605 commercial and industrial accounts consumed 249 million kWh (72 percent) of electricity and 10.3 million therms (60 percent) of natural gas in 2015. Figures 7 and 8 show Englewood’s electricity and natural gas use, respectively, in 2015.

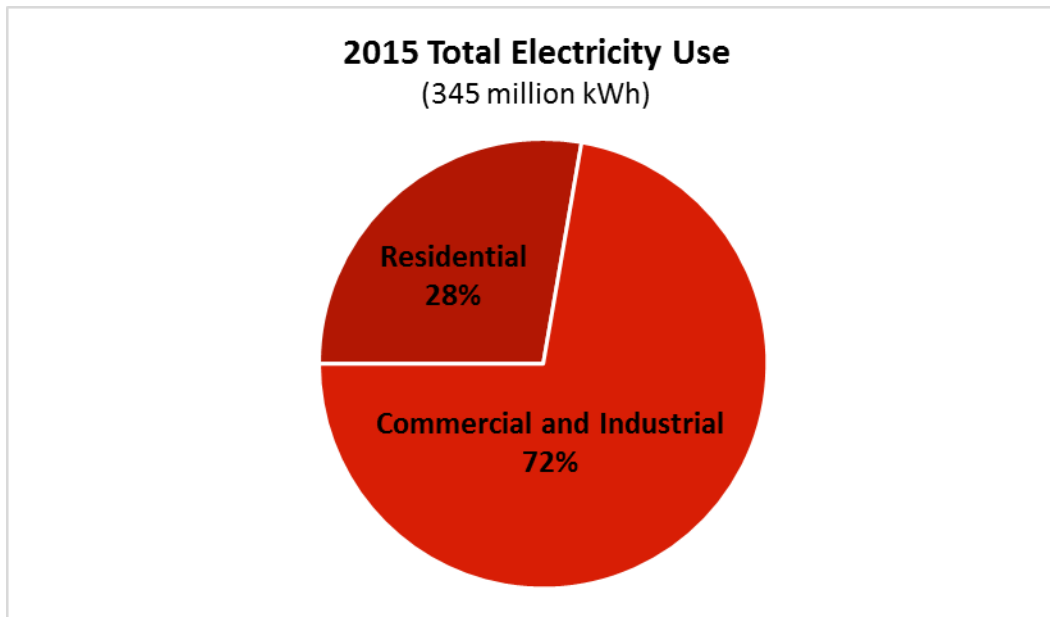
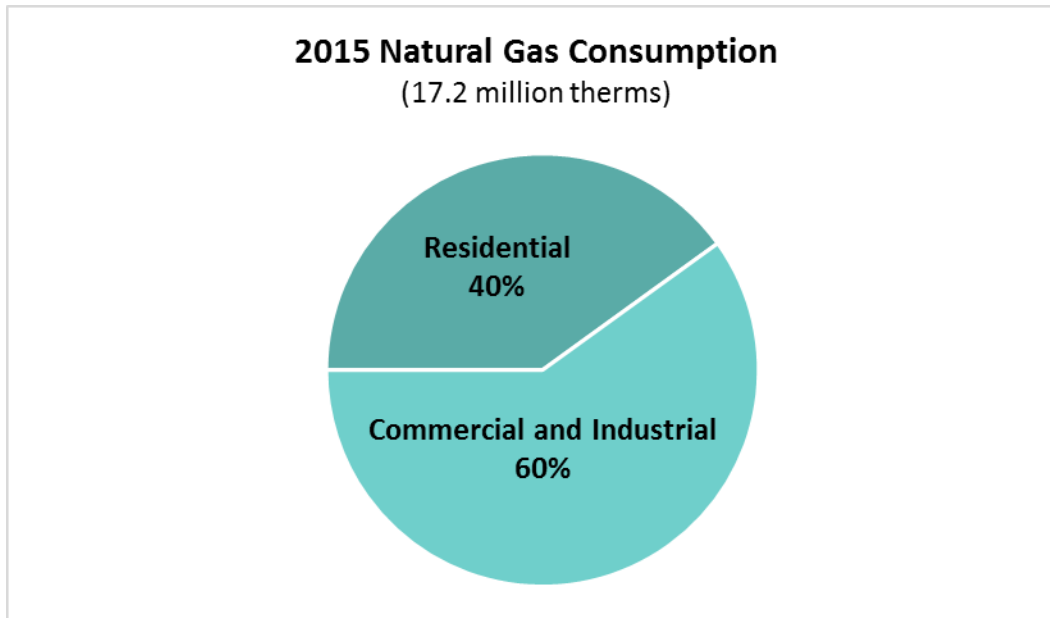


Figure 7. City of Englewood Electricity Use in 2015

<sup>2</sup> All energy data presented through this process was developed for planning purposes and may contain variations from data obtained through other sources. All energy and program data presented here comply with Xcel Energy’s Colorado data privacy policies (all summary statistics must contain at least 15 entities, and no single entity can be responsible for more than 15 percent of the total or they will be removed from the summary).



**Figure 8. City of Englewood Natural Gas Consumption in 2015**

Over the 3-year period from 2013 to 2015 for which data was available, Englewood experienced a decreasing trend for total energy use across both residential and commercial/industrial sectors. The residential sector experienced a decrease of 8.5 percent on average over the 3-year period, despite approximately 1 to 2 percent annual population growth. The commercial/industrial sector decreased 2 percent on average over the 3-year period. Over the 3-year period natural gas use decreased 9.7 percent across both sectors – 12 percent in the residential sector and 8.0 percent in the commercial/ industrial sector. Figure 9 displays the natural gas consumption year-to-year trends. Comparatively, electricity use increased 2.9 percent across both sectors over the same period corresponding to a less than one percent decrease in the residential sector offset by a 4.2 percent increase in the commercial/ industrial sector. Figure 10 displays the electricity consumption year-to-year trends.

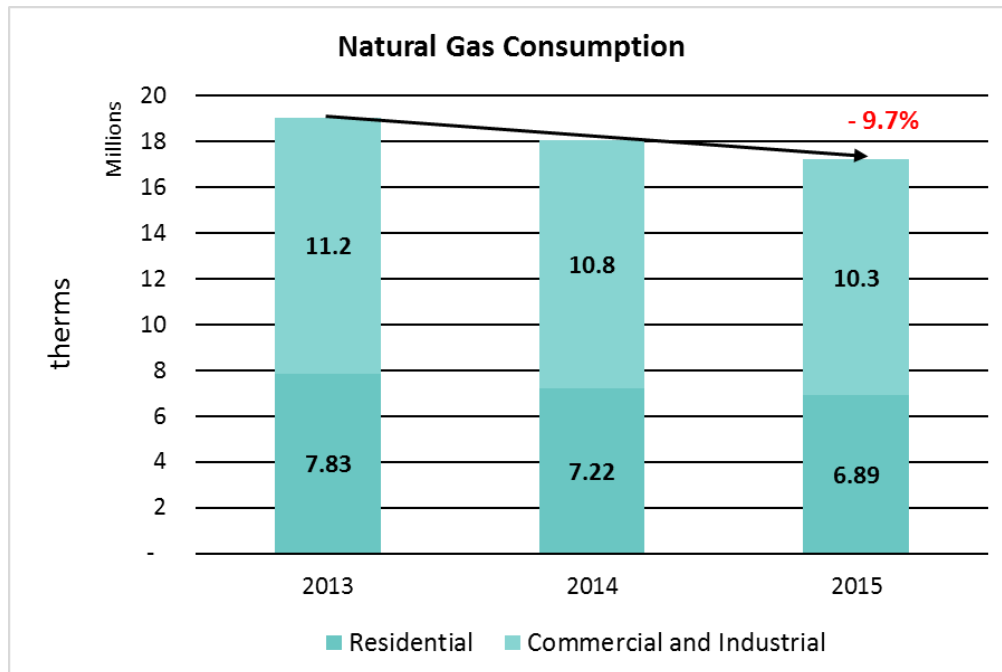


Figure 9. Year-to-Year Natural Gas Consumption Trends

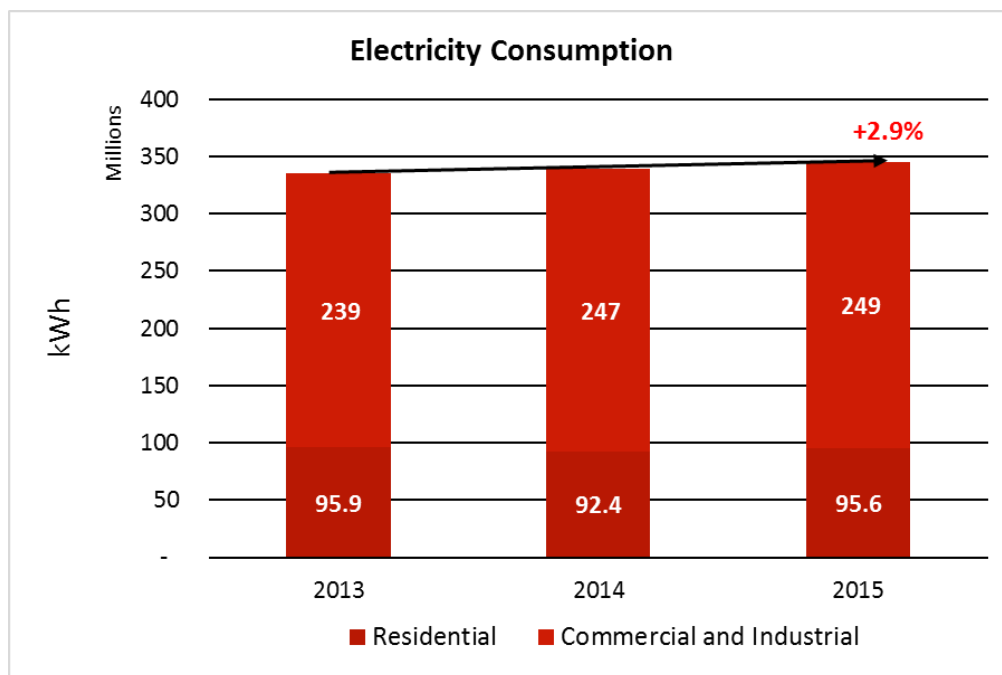


Figure 10. Year-to-Year Electricity Consumption Trends

Considering community total energy costs, on average, residential premises spent \$910 annually while commercial/industrial premises spent \$10,300 annually. This corresponds to monthly energy costs of \$76 and \$860 for a residential and commercial/industrial premise, respectively. Electricity usage comprises the majority of the average annual energy cost per premise for both residential and commercial/industrial

customers. In total, Englewood residents and businesses spent \$40.3 million on energy utilities in 2015. For comparison, the City of Englewood’s Operating Fund was \$44.6 million in 2015. Figure 11 shows the average dollars spent on energy per sector in 2015.

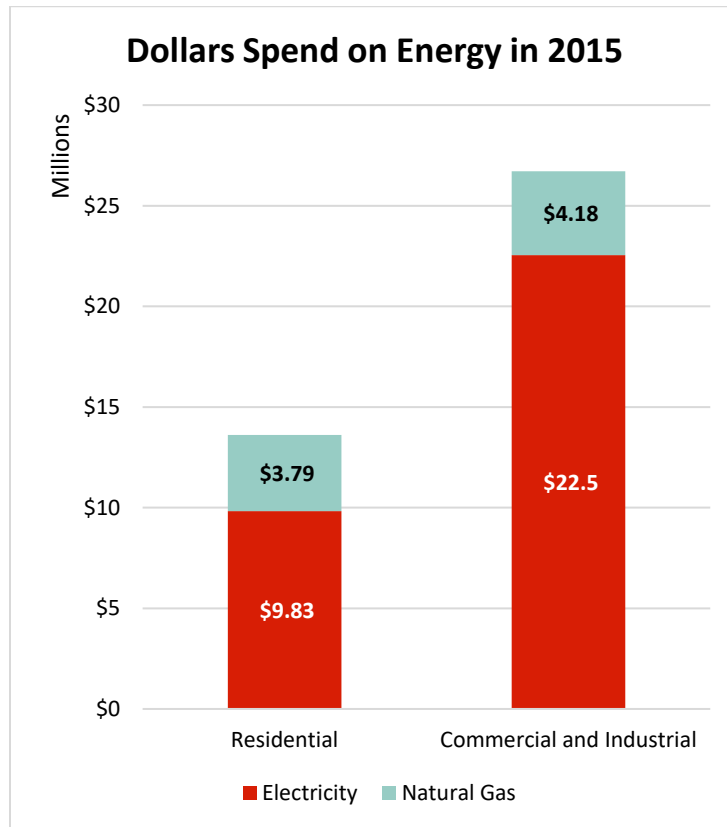


Figure 11. Dollars Spent on Total Energy in 2015

### Community Efficiency Program Participation

Baseline data gathered to help in developing this Energy Action Plan include historic Xcel Energy demand side management (DSM) rebate program participation counts specifically for Englewood. These data (shown in Figures 12 and 13) provide a snapshot of what types of programs both residential and commercial/industrial customers are using, to what degree, and likely channels of information. They also show opportunities for greater participation in the available DSM programs and need for increased education and awareness.



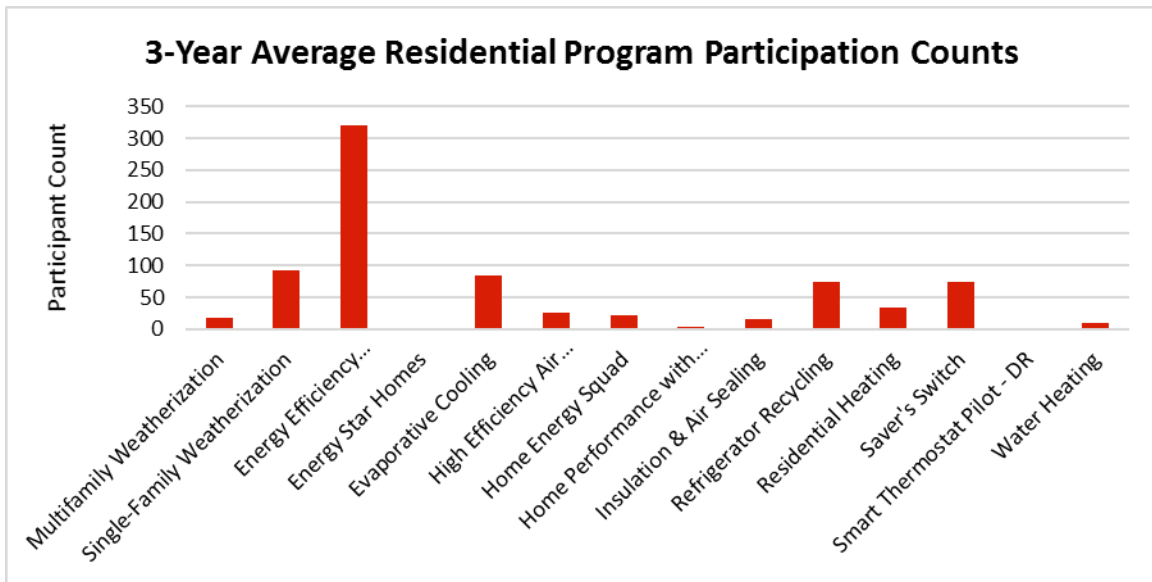


Figure 12. 3-Year Average Residential Program Participation Counts

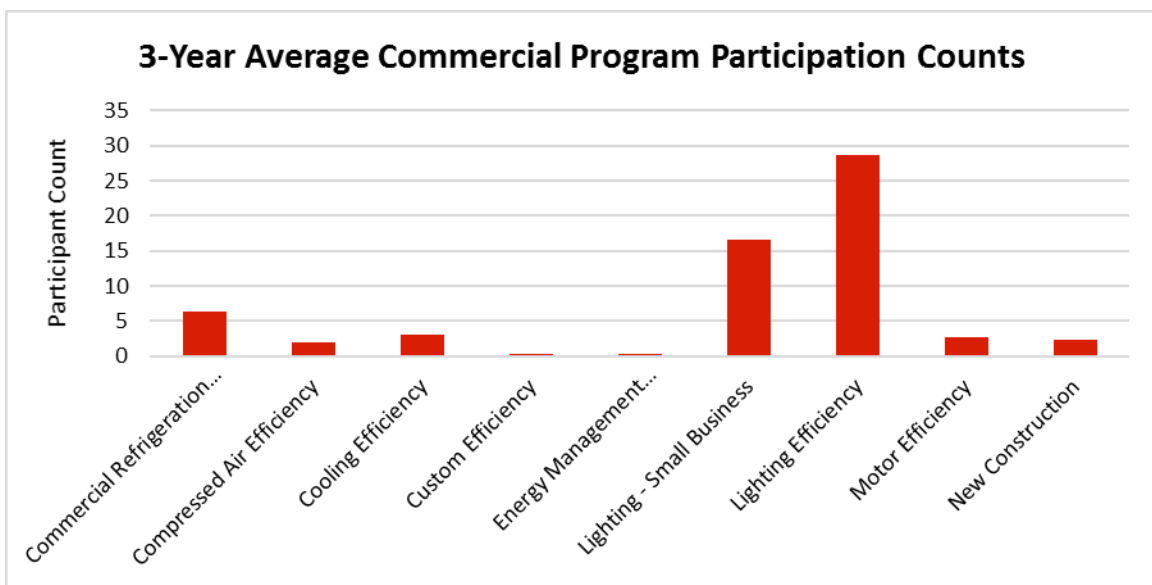


Figure 13. 3-Year Average Commercial Program Participation Counts

### Other Energy Initiatives and Sustainability Practices

The city has been proactive in addressing its own facilities and energy and resource consumption, with a variety of projects completed in the last few years. It also has participated in renewable energy opportunities, where possible, and supports a volunteer citizen board dedicated to promoting community participation and environmentally responsible behavior. Other organizations in the community have been making progress on the efficiency front as well, from the school district to the medical district. Table 1 includes many of these activities and offers a sense of investment in efficiency and sustainability.

**Table 1. Existing Energy and Sustainability Initiatives in Englewood.**

**Energy and Sustainability Initiatives**

**Municipal Initiatives**

- Purchased 42 solar photovoltaic (PV) panels through the community solar operative Colorado Energy Collective and Xcel Energy to power the pumping station off Union Avenue, which yielded 24 percent payback in the first year
- Installed solar PV panels on four city facilities:
  - Englewood Civic Center
  - Malley Senior Recreation Center
  - Englewood Service Center
  - Police/Fire Complex
- Littleton/ Englewood Wastewater Treatment Plant leading conservation and process efficiency efforts including:
  - Lighting projects
  - Replacing three 150 HP drives with VFD’s
  - Exploring biogas and solar installation projects
- In 2012, participated in an energy audit with Ameresco and implemented multiple energy saving initiatives on city buildings
- Installed energy efficient lighting in all facilities and traffic signals
- Launched energy conservation program in partnership with the Colorado Energy Office (CEO) for weatherization measures, heating and electrical improvements, and water conservation measures
- Implemented single stream recycling program at all City facilities in 2009 made possible by Keep America Beautiful grant funding
- Implemented water conservation measures using technology and non-potable water for irrigation at facilities
- Initiated recycling and diversion efforts for construction/demolition waste and hard to recycle items (i.e., traffic signs, street signs, water meters, fleet supplies etc.)
- Offers the Energy Efficiency Englewood grant program to help low- and moderate-income homeowners update their homes to be more energy efficient
- Participates in regional, state, and federal environmental safety measures to meet air quality and emissions standards
- Partnered with Xcel Energy to upgrade the Civic Center to evaporative cooling

**Keep Englewood Beautiful (KEB)**

- A volunteer citizen board dedicated to promoting community participation and environmentally responsible behavior through partnerships
- Offers cleanup coupons, household hazardous waste and electronics drop-off events, paint recycling, and other resources for residents throughout the year

**Arapahoe County**

- With grant funding provided by the Colorado Energy Office, provides household weatherization for low-income residents in Englewood and the rest of the county

**Englewood School District**

- Englewood Campus (middle school and high school) meets LEED certification

- Lighting occupancy sensors, timers, and shutoffs
- Building automation and demand control ventilation

**Swedish Medical Center**

- Transitioned to LED lighting and net metering in all facilities
- Upgraded to chillers and chiller systems

**Local Outreach and Communication Channels**

Engaging the community is critical to reaching Energy Action Plan goals. Below are some of the ways that residents and businesses currently receive information about existing programs, events, and initiatives in Englewood. These and other communication channels will be helpful during implementation efforts.

**Local Outreach Channels**

**Publications**

- Englewood Citizen Newsletter (<http://www.englewoodgov.org/our-community/news-and-events/citizen-newsletter>)
- Englewood City Council Weekly Newsletter
- New City of Englewood Magazine (will replace newsletter)

**Other Media**

- City of Englewood website (<http://www.englewoodgov.org/home>)
- Arapahoe County website (<http://www.co.arapahoe.co.us/>)
- City of Englewood Facebook Page
- Nextdoor

**Events**

- Annual Leaf and Tire Drop Off (November)
- Keep Englewood Beautiful Holiday Lighting event (December)

**Community Spaces**

- Englewood Civic Center
- Englewood Recreation Center
- City Center Englewood Amphitheater



Figure 14. City of Englewood Citizen Newsletter

## Where Do We Want To Go?

### Our Energy Vision

Englewood’s energy vision statement is an expression of the community’s shared energy intentions. During the first workshop, attendees were asked to complete an exercise to share their energy vision for Englewood. The planning team brainstormed a list of words, graphically displayed below in Figure 15.



Figure 15. Energy Vision Cloud

From these efforts, the planning team developed the following vision to inform the planning and implementation process.

***The City of Englewood will demonstrate forward-thinking and sustainable energy leadership in leveraging collaborative partnerships that achieve an affordable, adaptive, and renewable energy future.***

### Focus Areas

Three focus areas were identified as priorities for Englewood around which meaningful goals and action strategies were developed. The rationale behind the focus areas was built on the basis of utility data analytics, potential for energy savings, ease of implementation, and contribution to Englewood’s priorities and values.

#### Focus Area 1: Municipal/ Institutional

The City of Englewood recognizes that it has an opportunity and obligation to operate as efficiently as possible, to lead by example, and to share outcomes with the community it serves. In addition, given the combined energy use of municipal facilities and the



Wastewater Treatment Plant it jointly operates with Littleton, this focus area accounts for about 8 percent of electricity use (26 million kWh) and 1 percent of natural gas use (84,000 therms), or about 3 to 4 percent of total community energy use. With centralized planning, authority, and commitment, the City can have a significant impact. Figure 16 shows a breakout of estimated municipal energy use for the City (the figure is based on an incomplete list of City facilities, but is illustrative to show where the greatest areas of energy use fall).

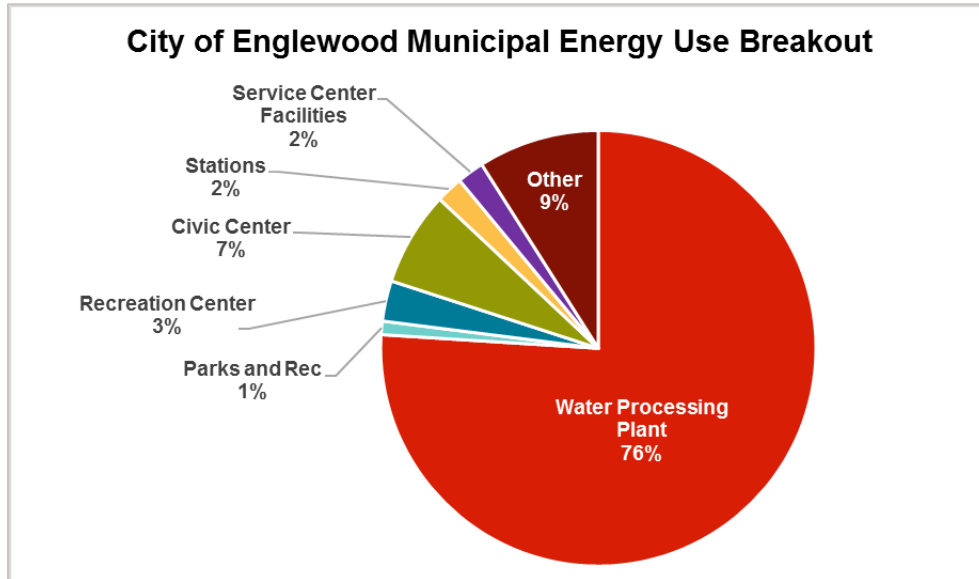


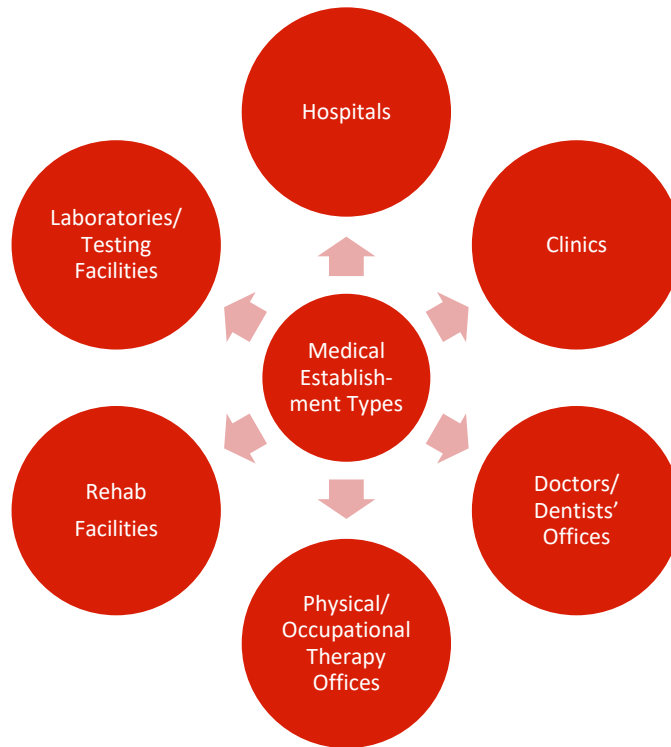
Figure 16. City of Englewood Municipal Energy Use

### Focus Area 2: Commercial Sector

The commercial sector is quite varied in Englewood both in business type and geographic location and also accounts for more than half of total community energy use. To help narrow the commercial scope, the planning team opted to start first with business types for which it has existing channels and relationships through the planning team and previous economic development activity that can be replicated to other business types over time.

Recognizing the prominence of the medical economy in Englewood and the nature of many medical facilities that operate 24 hours every day, the sector was identified as a high potential target within the larger and more diverse commercial market. The planning team determined that focusing efforts on the needs of a particular business sector/type would benefit the sector itself as well raise awareness of its employee base. Figure 17 displays the different types of establishments included in the medical sector in Englewood.<sup>3</sup>

<sup>3</sup> NAICS



**Figure 17. Types of Medical Establishments**

In addition, efforts also may be rolled out to specific corridors of greatest potential based on historical efficiency program participation as well as identified high-potential savings opportunities. The darkest elements in Figures 18 and 19 illustrate the areas with the highest energy savings from program participation. Considering the commercial/industrial sector, the northwest section of Englewood, in particular, has both high energy savings and program participation. This area is generally characterized by general and light industrial businesses. Figure 20 shows areas with the greatest number of program participants. Figure 21 shows areas of active commercial activity in Englewood and where there may be gaps in participation.

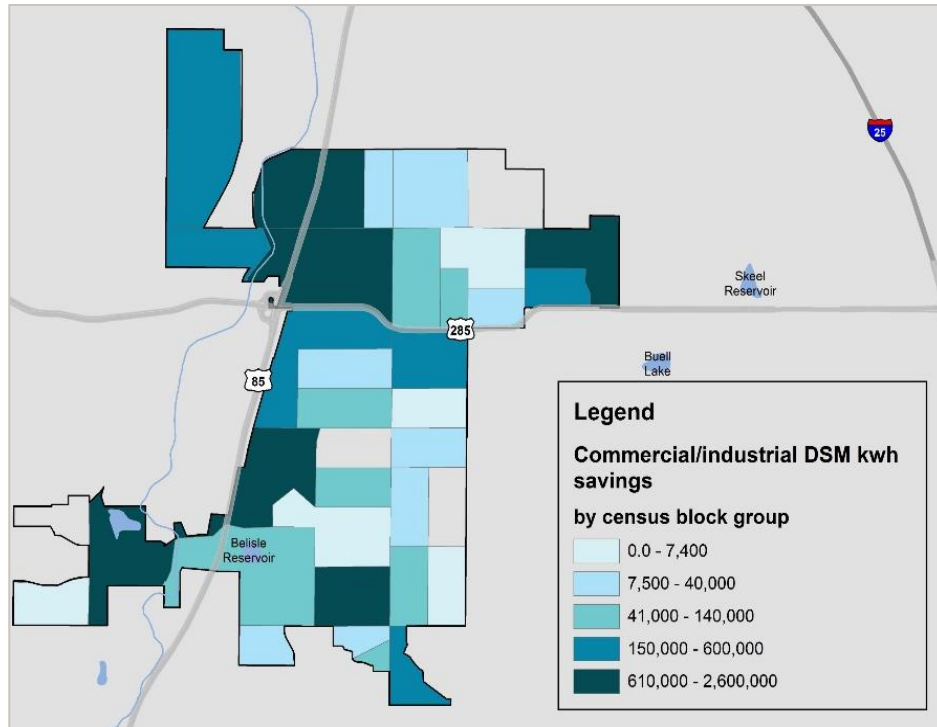


Figure 18. Historical Commercial/ Industrial Electricity Savings across Englewood

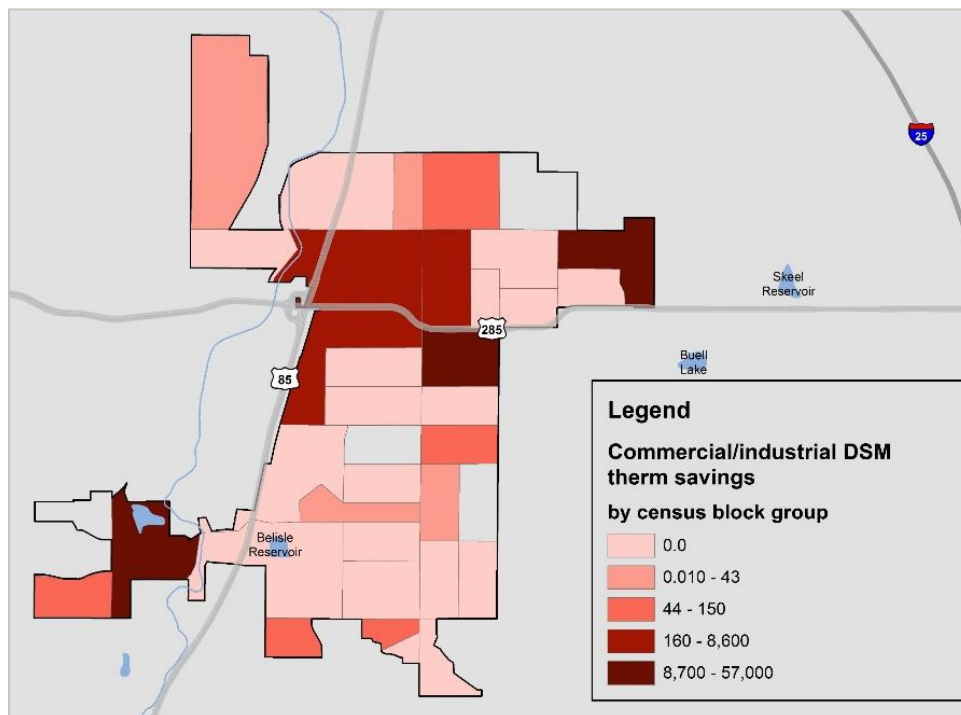


Figure 19. Historical Commercial/ Industrial Natural Gas Savings across Englewood

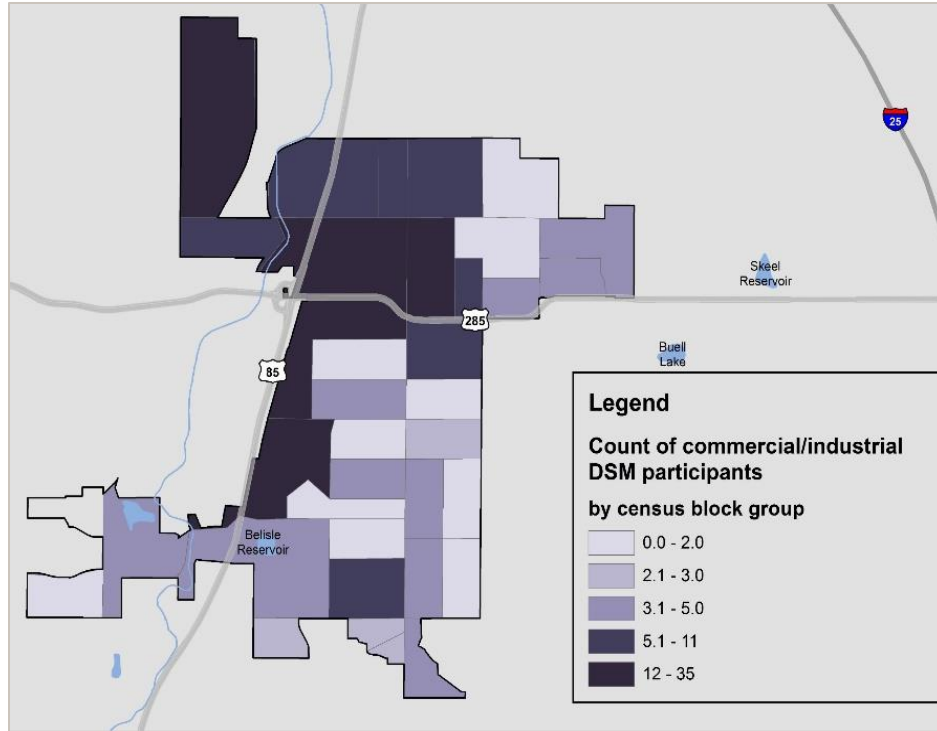


Figure 20. Historical Commercial/ Industrial Program Participants across Englewood



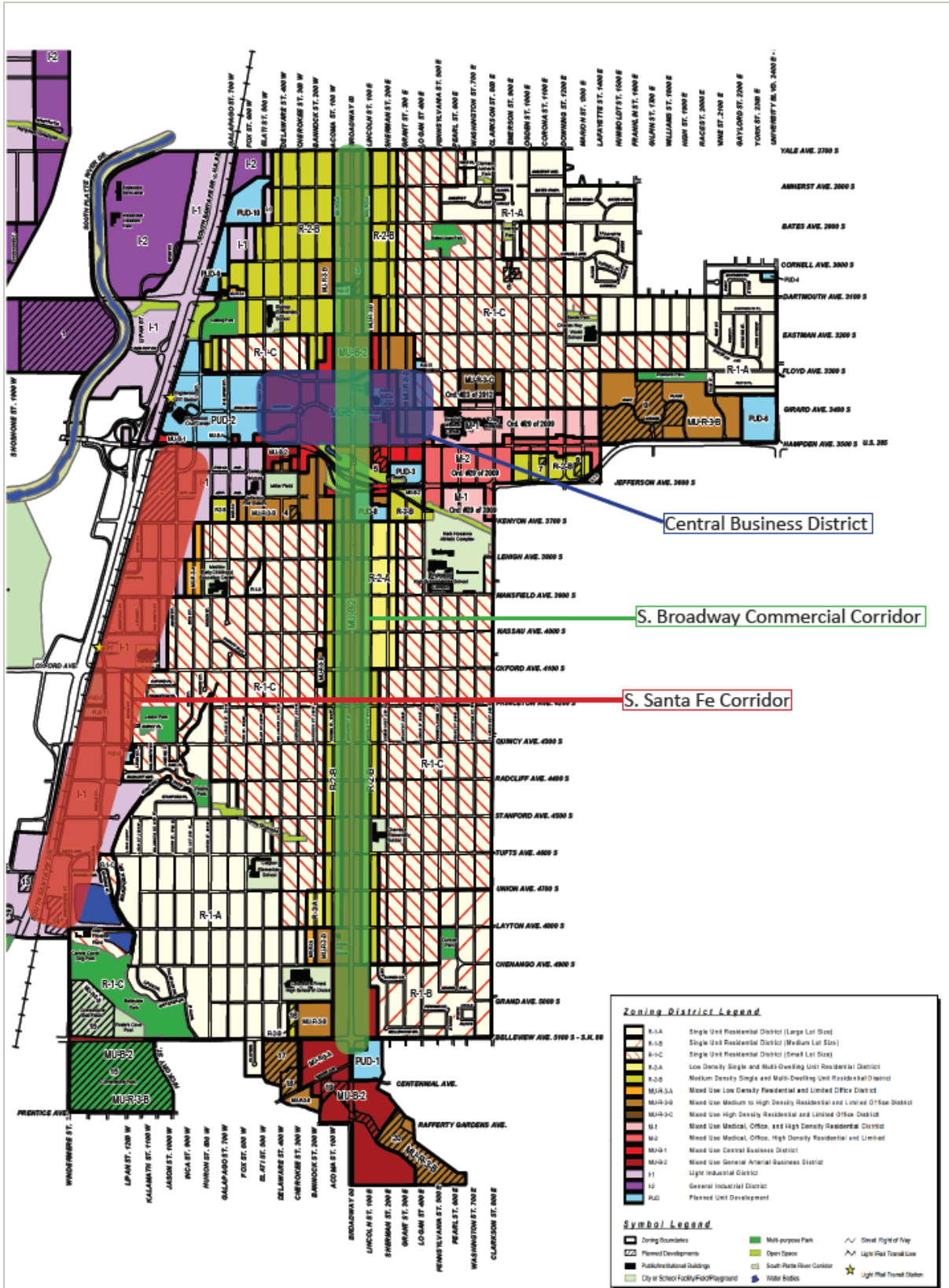


Figure 21. Active Commercial Zones

### Focus Area 3: Housing

The residential sector accounts for 35 percent of total baseline energy consumption in Englewood, the housing market is older (more than half of homes built before 1970 – refer to Figure 5) and many people who work in Englewood actually live outside of the City. However, the need to reach residential customers is still critical to community energy savings. As with other communities, the challenge to increasing energy savings in the residential market is raising awareness about existing programs and communicating about those programs in a way that overcomes barriers to take advantage of these programs. Education through trusted channels with clear and easy steps for participating were identified by the planning team as key to reaching this important sector.

#### Goals

The planning team was rooted in realistic expectations and setting achievable goals for the best chance of success. And, while an overarching goal is important to the community, it was developed on the basis of bottom-up targets for strategies within each focus area with the idea that making progress, sharing good outcomes, and carrying forward momentum are the best approach for longer term community support.

One of the primary benefits of the planning process was to examine the potential impacts of various strategies envisioned by the community for each focus area. On the basis of these strategy impacts, the overall energy-related goal for the City of Englewood is to **reduce total energy use 1.0 percent annually through 2030**. This community reduction goal was developed by assuming continued average historical participation in existing Xcel Energy programs as well as increased participation related to the strategies identified in this plan for each focus area. The focus area annual reduction goals are as follows:

- Municipal/ Institutional – 3.5 percent of municipal energy use
- Key Commercial Sectors – 1.5 percent of commercial energy use (not including municipal use)
- Housing – 0.5 percent of residential energy use

Achieving this goal has the potential to reduce Englewood’s annual carbon footprint by 3,093 MTCO<sub>2e</sub>, approximately equivalent to the carbon emitted from 650 passenger vehicles driven per year.<sup>4</sup>

Figure 22 shows Englewood’s 2.4 percent annual downward trend in historical total energy consumption (light solid) from 2013 to 2015 compared with projected growth in total energy informed by the city’s 1.8 percent forecasted annual population growth rate (dark solid). When taking the average of these two factors, the result is a relatively flat line business-as-usual (BAU) growth assumption; therefore, a zero growth BAU assumption was made for Englewood’s energy and goals forecasting (shown in Figure 22).

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<sup>4</sup> Greenhouse Gas Equivalencies Calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>).

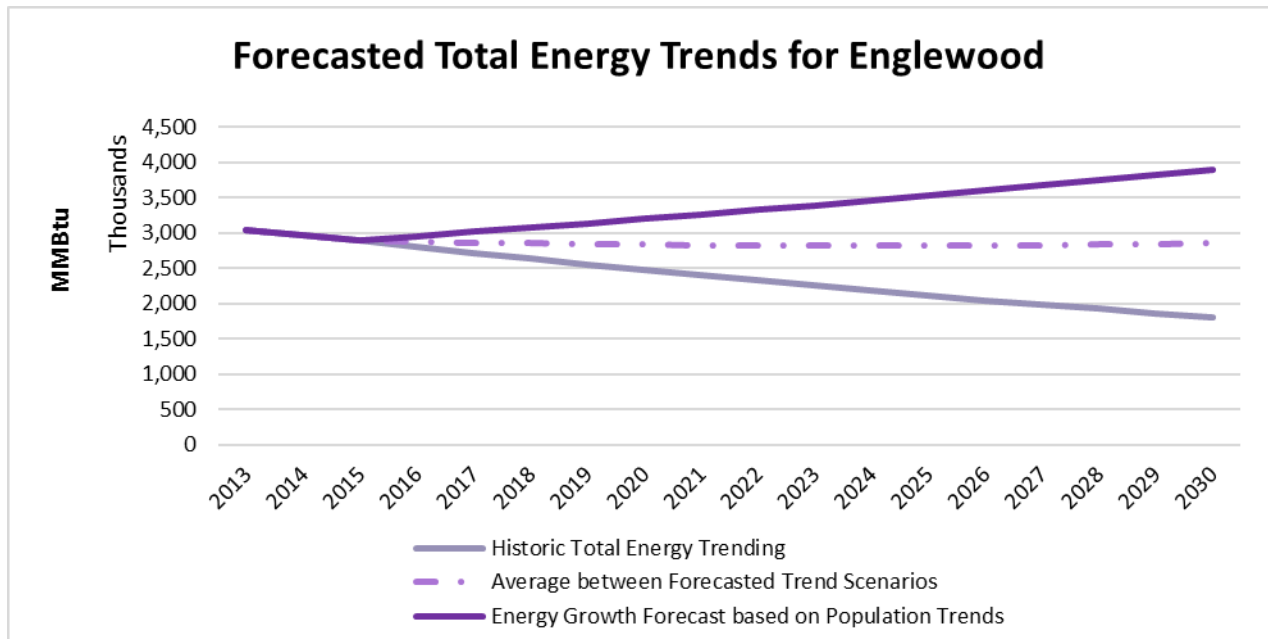


Figure 22. Englewood's Energy Growth Forecast Based on Historic Total Energy Use and Population Trends

Figure 23 illustrates Englewood’s community reduction goal compared to the BAU forecast, as well as Xcel Energy’s statewide annual reduction goals for Colorado over the same period (1.5 percent for electricity and 1.0 percent for natural gas). The BAU line (dark solid) indicates the level of total energy use expected if no actions are taken. The Xcel Energy goal line (dashed-dot) indicates the utility’s own efficiency goals for the state. The Englewood goal line (light dashed) indicates the expected outcomes from the strategies in this plan. As shown in the figure, Englewood’s goal of 1.0 percent total energy reduction per year through 2030 is on track with Xcel Energy’s goals for Colorado.

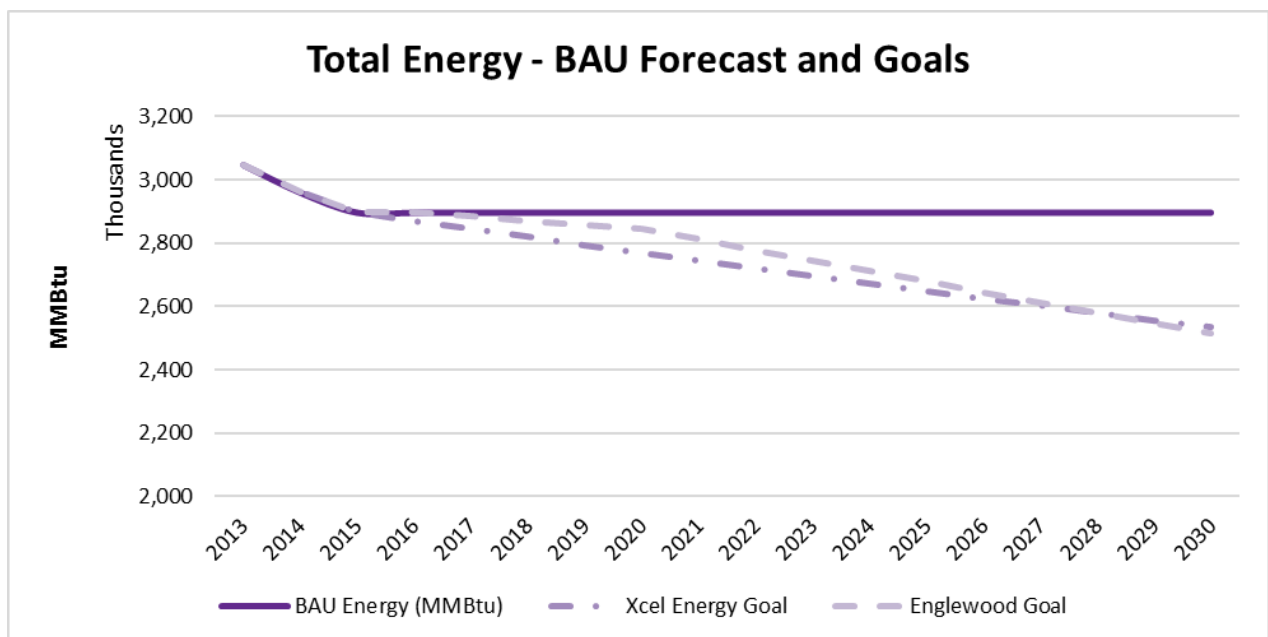


Figure 23. Englewood's Energy Action Plan Goal

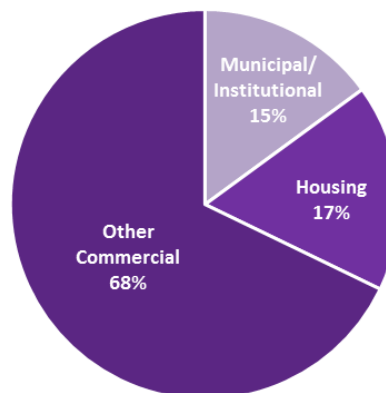
## How Are We Going To Get There?

Strategies are specific actions that Englewood and its partners plan to take to achieve the goals and targets stated in this plan. Englewood’s Energy Action Planning team developed energy strategies by examining energy data, brainstorming, and prioritizing possible actions, considering existing programs and opportunities, and assessing the potential impacts compared to the identified goals.

Each strategy identified has its own action plan that identifies a responsible leader and team members, outlines implementation steps and a timeline, identifies partners and resources, and assigns metrics for tracking progress. **While Xcel Energy is committed to providing resources to support 18 months of implementation, the full implementation of many of the strategies is dependent upon the level of resources and commitments made by Englewood and its implementation partners.** By providing staffing support and/or additional incentives to encourage participation, whether in the form of additional rebates or process efficiencies, many of the strategies could have amplified impacts if they are supported both by Xcel Energy and the City of Englewood.

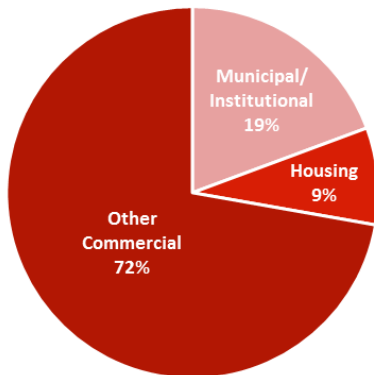
Combined with continued historical participation rates, the strategies detailed on the following pages could provide year one (2017) energy savings of approximately 4.28 million kWh (1.2 percent of total 2015 baseline electricity consumed), and 79,400 therms (0.5 percent of total 2015 baseline natural gas consumed), equating to total energy savings of 22,500 MMBtu. Figure 24 shows the contribution from each focus area to the total energy savings. For comparison, Figures 25 and 26 below show the contributions by focus area for electricity and natural gas, respectively.

**Focus Area Contributions - Total Energy**  
(22,500 MMBtu)



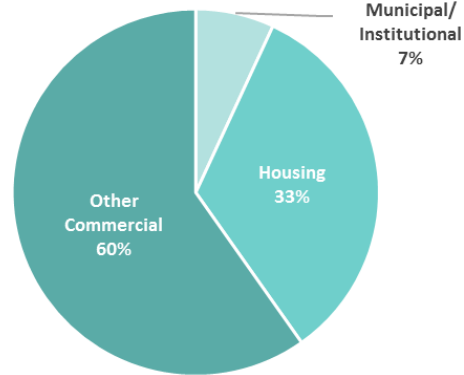
**Figure 24. Total Energy Savings by Focus Area**

**Focus Area Contributions - Electricity**  
(4.28 million kWh)



**Figure 25. Electricity Savings by Focus Area**

**Focus Area Contributions - Natural Gas**  
(79,400 therms)



**Figure 26. Natural Gas Savings by Focus Area**

Projected first year energy cost savings for Englewood residents and businesses will be nearly \$1.3 million. The net cost to implement these strategies (which includes implementation costs incurred by all participating residents and businesses minus utility incentives) is approximately \$3.4 million in the first year, with a breakeven point of 2020 assuming ongoing implementation. Moving forward, these savings will continue to increase, especially if the momentum from the first year of implementation of this plan is sustained. These strategies will help Englewood start down the path toward sustainable energy savings, but it should be noted that continuous improvements to energy efficiency and program participation, introduction of additional renewable energy sources, and adoption of other energy strategies over time will be necessary.

### Municipal/ Institutional

The City of Englewood is keen to show leadership in energy efficiency and renewable energy using its own facilities as examples of how to manage utility costs and invest in meaningful ways that save tax-payer dollars while improving building performance. The city has been proactive in identifying opportunities to improve efficiency and take advantage of financial resources through Xcel Energy to make these improvements more cost effective. The city wants to continue in its quest for improvement, showcase successes to raise awareness and inspire more broad actions in the community, and raise awareness of city staff to take advantage of additional savings that will result from behavior change. This staff awareness will have effects beyond city facilities as employees will take what they learn home and out into the community.

Strategy 1: City Showcase	
<b>Description</b>	To lead by example, the city will continue to implement efficiency upgrades in its facilities, organize an energy committee, and implement an energy awareness and engagement campaign that highlights progress to date, encourages new energy-saving projects, demonstrates how to get involved in reducing energy use, and shares conservation results with city staff and the community.
<b>2017 Targets</b>	<ul style="list-style-type: none"> <li>• Three to four percent annual municipal energy savings in city facilities</li> <li>• Formation of a city staff energy committee</li> </ul>

- Development and delivery of an employee engagement challenge
- Seven new lighting projects, one Custom Efficiency project, one Process Efficiency project
- Signage/information at all major city facilities sharing energy conservation tips and savings

**Implementation Steps**

1. Create messaging for staff that encourages willing leaders and good cross-pollination of participants for energy committee (open forum to get members)
2. Convene committee and determine committee objectives
3. Develop framework for building/department challenge (including awards) that runs 2 to 6 months and can be repeated to keep employees engaged over time
4. Develop communications materials for the challenge that align with the Community Action Plan (signage, conservation tips, challenge results dashboard, etc.)
5. Roll out challenge and track results bi-annually; develop bi-annual employee survey to track participation and awareness
6. Implement planned lighting, process, and custom projects across facilities
7. Continue to identify potential projects and optimization opportunities
8. Develop case studies or promotional pieces illustrating high-profile City projects that save energy or produce energy
9. Work in concert with Community Action Plan activities to share promotional pieces and challenge information and results

**Responsible Parties**

- Mark Woulf, City Energy Committee Organizer
- Darren Hollingsworth, Englewood Economic Development liaison
- Dan Long, City Facilities liaison
- Greg Farmer, Wastewater Treatment Plan liaison
- Murphy Robinson, City Manager’s Office liaison
- Alison Carney, City Communications Manager
- Xcel Energy Partners in Energy team and program staff

**Timeline**

- January 2017: Solicit and convene a city energy committee
- First quarter 2017: Develop committee objectives, responsibilities, and plan for sustained participation and recognition
- First quarter 2017: Identify high-profile examples of city projects that can be shared to inspire further actions
- Second quarter 2017: Develop first city project case study and share with city staff
- Second quarter 2017: Build out details of building challenge framework
- Third quarter 2017: Set a schedule for reporting challenge results, and identify a forum for sharing results to spur competition
- Third quarter 2017: Roll-out building energy challenge
- First quarter 2018: Develop a post-challenge employee survey to gauge results

**Funding**

- City of Englewood

<ul style="list-style-type: none"> <li>• Xcel Energy programs</li> </ul>
<b>Outreach Channels</b>
<ul style="list-style-type: none"> <li>• City of Englewood internal email distribution</li> <li>• City of Englewood website</li> <li>• City of Englewood magazine (to share city activities with the broader community)</li> </ul>
<b>Measurement</b>
<ul style="list-style-type: none"> <li>• Employee participants in challenge</li> <li>• Employee survey results</li> <li>• City of Englewood utility data</li> <li>• Xcel Energy program participation data</li> </ul>

### Commercial Sector

Commercial activity in Englewood accounted for 65 percent of total energy use in 2015, with 72 percent of electricity use and 60 percent of natural gas use. Looking beyond municipal operations, there is significant opportunity for improved efficiency in the commercial sector through targeted channels and strategies to raise awareness. Rather than trying to tackle all the variability of commercial customers, which could dilute efforts and outcomes, the planning team determined that focusing on a few distinct commercial sectors with the greatest opportunity for savings was the best approach and then broadening this effort in subsequent years.

Englewood’s planning team identified a number of important sectors and areas for commercial activity that would benefit from increased attention and resources for energy efficiency. For example, the team identified medical establishments (22 percent of the local employment base – see Figure 17) as a key component of the local economy and a priority sector for education, awareness, and increased energy efficiency efforts. This target sector is a good place to begin given bonus Xcel Energy incentives available for lighting projects through December 2017. In addition, the team identified two commercial geographic areas of priority that are indicated in the map shown in Figure 21– South Broadway Commercial Corridor and South Santa Fe Light Industrial Area. In order to reach these businesses, the team plans to leverage existing Xcel Energy programs and develop a business program to inform and recognize efficiency efforts in the business community. These efforts are estimated to produce 1.5 percent commercial energy reduction on an annual basis.

<b>Strategy 2: Lighting Leading the Way</b>
<b>Description</b>
<p>To support Englewood’s commercial sector with efficiency opportunities and encouragement that will specifically help medical businesses save money and improve their bottom lines, the city and its partners will reach out to decision makers in the medical industry (including property management companies) with education about Xcel Energy’s bonus lighting rebates for medical facilities through December 2017 as an introduction to other programs.</p>
<b>2017 Targets</b>

- Key customer engagement, including property management companies that own many medical facilities (start with lighting and keep engaged for other opportunities)
- Ten Lighting Efficiency projects
- Twenty-five Small Business Lighting projects

### Implementation Steps

1. Work with Xcel Energy to determine details of building ownership to inform outreach to key medical businesses and property owners
2. Identify key accounts and facilities contacts
3. Coordinate with Xcel Energy lighting program staff to develop targeted materials, outreach, and strategy for medical corridors
4. Identify trusted channels for outreach in the medical field (Colorado Medical Society, Colorado Hospital Association)
5. Identify liaisons within Building Owners and Managers Association (BOMA) to help deliver messaging
6. Reach out to property managers in Englewood ([Landlord-Tenant Energy Partnership](#))
7. Work with Xcel Energy to reach out to trades/contractors in Englewood to make them aware of the bonus rebates
8. Continue to leverage communication channels for projects beyond lighting and keep businesses engaged through sustainable business program (see next strategy)

### Responsible Parties

- Darren Hollingsworth, Englewood Economic Development liaison
- Sean Dressel, Swedish Medical Center liaison
- Building Owners and Managers Association liaison
- CBRE Property Manager for medical office buildings liaison
- Xcel Energy Partners in Energy team
- Xcel Energy Lighting Efficiency and Small Business Lighting program staff
- Xcel Energy liaison to CBRE
- Xcel Energy trade channel liaison

### Timeline

- January 2017: Solicit strategy team members and convene group
- First quarter 2017: Identify and refine potential key customer list (business and building owners) and collaborate with Xcel Energy key accounts representatives for direct outreach
- Second quarter 2017: Work with Xcel Energy Lighting Efficiency program staff to develop return on investment messaging for key medical facilities (targeting local as well as corporate decision makers) and property management companies
- Second-third quarter 2017: Conduct audits and initiate projects
- Fourth quarter 2017: Measure participation and identify next wave of efficiency messaging for the sector

### Funding

- Medical facilities
- Xcel Energy rebates



<b>Outreach Channels</b>
<ul style="list-style-type: none"> <li>• Direct contact with key accounts</li> <li>• Key associations</li> <li>• Xcel Energy contractor network</li> </ul>
<b>Measurement</b>
<ul style="list-style-type: none"> <li>• Xcel Energy program participation data</li> <li>• Developed case studies</li> </ul>

While the medical sector is a priority, there are other key commercial sectors that influence Englewood’s energy consumption and could benefit from increased awareness and optimized operations. To address this broader business audience, the city envisions developing a sustainable business recognition forum to educate, support, and recognize high-performing and engaged businesses in the community and promote energy efficiency.

<b>Strategy 3: Sustainable Business Forum</b>
<b>Description</b>
<p>Develop a sustainable business program that educates, supports, and recognizes businesses that work to improve their efficiency by joining them together as an identifiable peer group within the community. The program will include a framework that raises awareness, encourages action, and offers tangible and intangible benefits from participating, both for existing and new businesses.</p>
<b>2017 Targets</b>
<ul style="list-style-type: none"> <li>• An ongoing sustainable business program where businesses can report projects and progress and be rewarded with public recognition, rebate dollars, and increased public support</li> <li>• A city channel of efficiency and rebate information for developers involved in new construction</li> <li>• Increased participation in commercial rebate programs. Example programs and representative participation rates to help Englewood achieve its energy targets could include the following (above historic average participation):             <ul style="list-style-type: none"> <li>○ Commercial Refrigeration: 3</li> <li>○ Compressed Air Efficiency: 3</li> <li>○ Cooling Efficiency: 10</li> <li>○ Custom Efficiency: 3</li> <li>○ Heating Efficiency: 6</li> <li>○ Small Business Lighting: 34</li> <li>○ Lighting Efficiency: 12</li> <li>○ New Construction: 1</li> <li>○ Recommissioning: 1</li> <li>○ Motor &amp; Drive Efficiency: 6</li> <li>○ Business Energy Analysis: 2</li> </ul> </li> </ul>
<b>Implementation Steps</b>
<ol style="list-style-type: none"> <li>1. Identify strategy team members and convene team</li> </ol>

2. Identify business sectors or geographic areas in which to begin that either are high-visibility corridors or are underserved by other offerings
3. Work with Chamber of Commerce to develop the program framework
  - Forum ownership (city or Chamber of Commerce)
  - Eligibility requirements for businesses/institutions
  - Annual application and review process and schedule/cycle
  - Levels of performance (for continued engagement)
  - Benefits (public recognition; branded window clings, stickers, and logos for websites and marketing materials; hosting opportunities; educational workshops, etc.)
  - Menu of potential eligible projects and activities
  - Web page for members (instructions for participation, application, recognition of businesses, opportunities for learning and other resources)
4. Develop work flow and outreach with city Communications and Community Action Plan strategies
5. Engage with the school district as it begins to design and develop the five new schools that were funded by the recent bond approval (design with efficiency in mind, leverage Xcel Energy New Construction resources, be part of the business program)
6. Build a Developer's Packet (also available online like Business Resource Guide) to be given to developers at city Development Review Team meetings that offers Xcel Energy new construction programs, information about the potential for renewable energy, other resources, and the benefits and process to become part of the sustainable business program
7. Collaborate with the city Building Department to incorporate the Developer's Packet in its processes
8. Research businesses and develop an initial outreach list, including facilities managers, for first-year applicants
9. Research channels/organizations to recruit participants and work with Xcel Energy and the city to determine if additional incentives could be added for sector participants
10. Develop survey for program participants to gauge interest and increased awareness in programs

**Responsible Parties**

- Darren Hollingsworth, Englewood Economic Development liaison
- Randy Penn, Greater Englewood Chamber of Commerce
- Mark Woulf, City of Englewood liaison  
Englewood Building Department liaison
- Xcel Energy Partners in Energy team
- Xcel Energy key accounts representatives

**Timeline**

- January 2017: Identify strategy team and convene
- First quarter 2017: Identify pilot sectors and develop list of potential businesses
- First quarter 2017: Engage the school district to ensure efficient design and use of Xcel Energy New Construction and Design Assistance resources
- Second quarter 2017: Work with Chamber of Commerce team member to design program framework, outreach approach, selection criteria and process, and recognition mechanisms for business program

<ul style="list-style-type: none"> <li>• Third quarter 2017: Build Developer's Packet and coordinate with City Building Department to present during Development Review Team meetings</li> <li>• Third quarter 2017: Begin outreach for applications</li> <li>• Fourth quarter 2017: Review applications and identify eligible businesses</li> <li>• First quarter 2018: Recognize businesses (ongoing on web page and in City channels)</li> <li>• First quarter 2018: Develop and deliver business survey on attitudes and value of program</li> <li>• Ongoing: program maintenance and annual updates to Developer's Packet</li> </ul>
<p><b>Funding</b></p> <ul style="list-style-type: none"> <li>• City Economic Development: staff time for research and outreach</li> <li>• Chamber of Commerce</li> <li>• Xcel Energy Partners in Energy staff support</li> </ul>
<p><b>Outreach Channels</b></p> <ul style="list-style-type: none"> <li>• Greater Englewood Chamber of Commerce</li> <li>• Englewood Alliance for Commerce</li> <li>• Colorado Advanced Manufacturing Alliance</li> <li>• Colorado Association for Manufacturing and Technology</li> </ul>
<p><b>Measurement</b></p> <ul style="list-style-type: none"> <li>• Number of business program applicants and awards</li> <li>• Xcel Energy program participation data</li> <li>• Business participant survey results</li> </ul>

## Housing

The housing stock in Englewood is largely single-family homes that are older and likely in need of efficiency upgrades. The planning team identified education and awareness as keys to this market, with an eye toward consolidating information about available programs and resources and engaging accessible channels to sharing these resources. In addition, the city intends to collaborate where possible with Littleton, an adjacent Partners in Energy community, on education and outreach efforts.

<p><b>Strategy 4: Residential Awareness</b></p>
<p><b>Description</b></p> <p>Build awareness of Xcel Energy and other programs for residential customers by crafting a targeted, multi-pronged outreach campaign that includes connecting with residents through City channels and at community events and providing tailored information for children in Englewood's schools.</p>
<p><b>2017 Targets</b></p> <ul style="list-style-type: none"> <li>• Annual energy savings of 0.5 percent of residential energy use</li> <li>• Increased new participation in Xcel Energy programs by 25 percent above historical average participation</li> <li>• Increased Xcel Energy Home Energy Squad participation to 220 homes (above historic average participation)</li> </ul>

- Integrated key messages from this Energy Action Plan into CSU Extension’s School Education Program
- Distribution of Xcel Energy School Kits to 180 students (3 elementary schools)
- Increased participation in Arapahoe County Weatherization program by 40 homes in Englewood (20 percent increase over 2016, pending Arapahoe County resource availability)
- Integrated outreach to residential customers at community events with a target of 2,000 contacts and LED bulbs distributed

**Implementation Steps**

1. Convene strategy team and define outreach tactics
2. Coordinate with City of Littleton awareness efforts and events, including a joint energy workshop series beginning in December 2016
3. Develop appropriate and targeted rebate program information for key opportunities: workshops, in-person events, media outlets, school forums
4. Promote and leverage popularity of Englewood Cubed (Energy Efficiency Englewood) to get homeowners involved in audits and other efficiency activities using the existing waiting list and research possibility of expanding the program for greater impact
5. Develop success case study of Englewood Cubed past participant(s) to encourage community-wide participation in available programs
6. Coordinate with Arapahoe County Extension efforts to deliver “Energy in the Classroom” curriculum and identify participating teachers and schools for Xcel Energy School Kits (kits make their way home to support residential efficiency improvements)
7. Organize calendar of events and determine staffing needs
8. Coordinate with Xcel Energy to support event advertisement and staffing
9. Develop channel pieces for distribution (City, schools, local events)
10. Coordinate with Community Action Plan activities and channels to spread the word to residents (magazine, news release, in-person events)

**Responsible Parties**

- Tim Aston, CSU Extension, team lead
- Nancy Fenton, City of Englewood liaison
- Xcel Energy Partners in Energy team and program vendors (Home Energy Squad)
- Jeremy Lott, Keep Englewood Beautiful liaison
- Steve Elliott, Arapahoe County Weatherization Division Manager, County liaison
- Ariel Ramos, Englewood School District liaison

**Timeline**

- December 2016: Convene strategy team and collaborate on workshop series with Littleton
- January 2017: Develop Energy Action Plan press release in coordination with City
- First quarter 2017: Coordinate resources and develop materials
- First quarter 2017: Establish work plan and targets for City communications efforts (magazine, web site, etc.)
- Second quarter 2017: Identify sponsor at each elementary school for education program in coordination with current Arapahoe County Extension activities
- Throughout 2017: Attend local events with materials
- Third quarter 2017: Roll out school education program

<ul style="list-style-type: none"> <li>• Third quarter 2017: Develop a solar (community garden and rooftop) outreach campaign in collaboration with City of Littleton</li> <li>• Fourth quarter 2017- first quarter 2018: Roll out solar outreach campaign</li> </ul>
<p><b>Funding</b></p> <ul style="list-style-type: none"> <li>• Residences: Improvement costs</li> <li>• Event Materials: City of Englewood, Xcel Energy, Arapahoe County Extension</li> </ul>
<p><b>Outreach Channels</b></p> <ul style="list-style-type: none"> <li>• City of Englewood website</li> <li>• City of Englewood magazine</li> <li>• School district classrooms, newsletter(s), and events</li> <li>• City of Englewood events calendar</li> <li>• Arapahoe County social media sites and bulletins</li> </ul>
<p><b>Metrics</b></p> <ul style="list-style-type: none"> <li>• Xcel Energy program participation data</li> <li>• Number of workshop participants</li> <li>• Number of students engaged</li> <li>• Number of contacts made at events</li> </ul>

## How Are We Going to Stay On Course?

### Operational Actions and Tracking

The planning team will continue to meet every 6 months through the spring of 2018 to share progress, make course adjustments, and offer recognition and support. In addition, each strategy will have sub-teams that will meet regularly to flesh out the details of implementation and carry through on identified actions.

A representative from each of the strategy teams will be present at the 6-month planning team meetings to share progress, successes, and challenges. In between meetings, the planning team may stay up-to-date on implementation efforts using a shared site for resources, messaging, polling, and a group calendar.

Xcel Energy will provide a tracking mechanism into which progress from each strategy team will be maintained on a regular basis. This tracking will also include Xcel Energy results related to DSM program participation, which will be provided bi-annually.

### Communication and Reporting

Because the City of Englewood considers this effort to be highly visible and important in its mission to the community, the Energy Action Plan will be included in a new communications strategy currently being

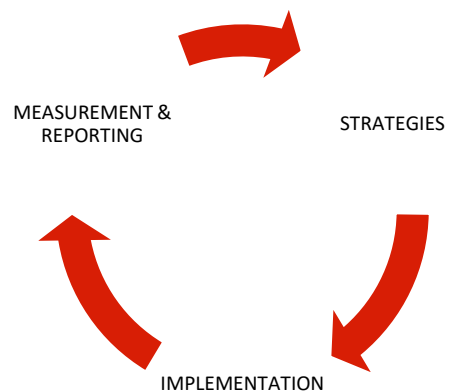


Figure 27. Implementation Process

developed for the City that will update City branding, channels, and messaging. It is anticipated that updates, progress, and successes will be shared via the City website, social media outlets, periodic press releases, and the new City magazine.

**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 be cyclical and will have long-term positive implications. In addition, the nature of implementation requires staging, flexibility, and course adjustments when necessary to be successful and experience sustained progress.

To accommodate the fluid nature of action and implementation and learn from experience early in the process, the regularly scheduled strategy team meetings as well as the planning team meetings 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.

The continued support and insight of the planning team is crucial for this plan’s success. Individual members will be involved in advising and supporting individual strategies as well as engaging those beyond the planning team to get strategies off the ground (see Figure 27 for team leadership). Their level of effort will include 6-month planning team meetings and participation on strategy teams for which they have volunteered. If a planning team member is not able to commit to continued participation, he or she will appoint an alternate to fill the role.

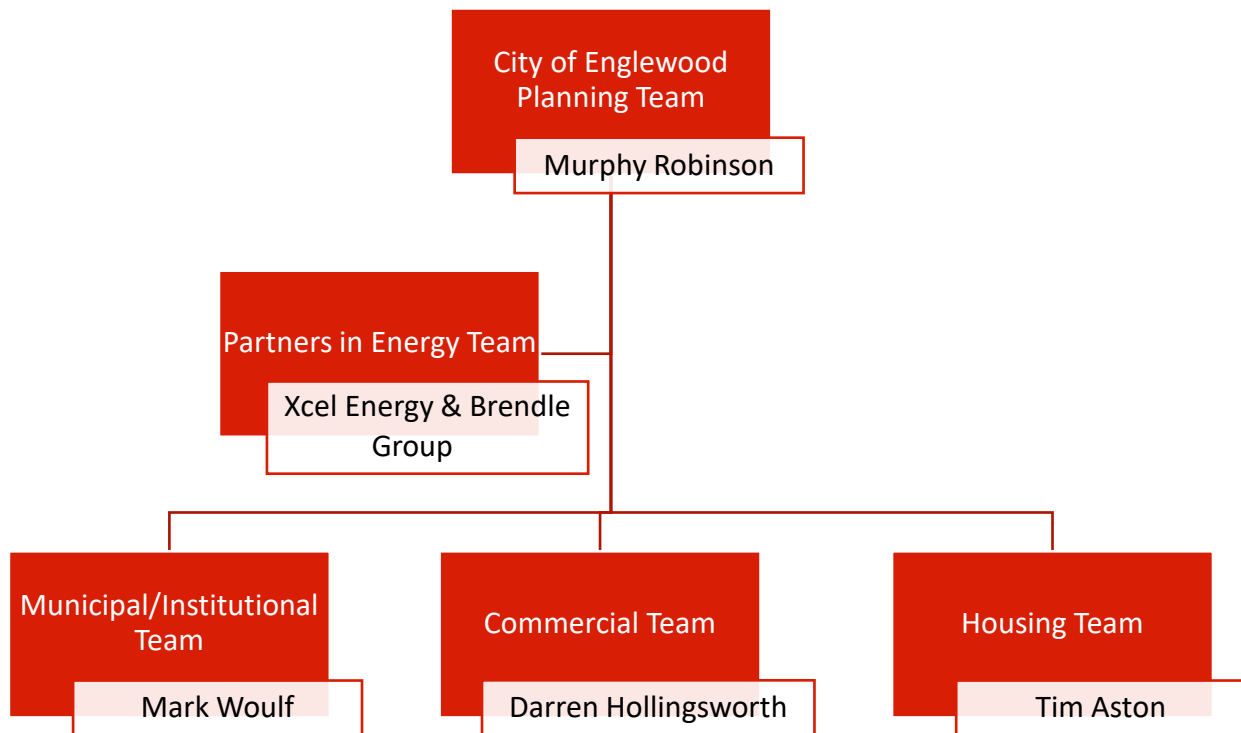


Figure 29. Implementation Leaders

### **Recognition for Achieving Goals**

Each of the strategies outlined in this plan has its own methods for measuring and recognizing success; however, it will be important to let the wider community know how things are progressing and also to recognize the collaborative efforts of those involved in hitting the plan targets. At critical milestones, the City of Englewood and Xcel Energy will publish updates on progress, share successes, and congratulate participants and partners through the City's website.

### **Beyond the Plan Horizon**

Englewood may want to consider an update to this Energy Action Plan once the Partners in Energy implementation period draws to a close to set new goals for subsequent years. One option would be to include future energy goals in any future updates to the City's Comprehensive Master Plan, Area Plans, and/or Economic Development Strategy. This recursive planning approach incorporates all the lessons learned, new technologies, new programs, changing resources, and evolving priorities for the community.

## **Appendix: Implementation Memorandum of Understanding**

To be added.