Community Logo Placeholder

A Beneficial Electrification Plan for the Town of Erie

DRAFT March 2025

Xcel Energy®

PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

ACKNOWLEDGEMENTS

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

The content of this plan is derived from a series of planning workshops hosted by Xcel Energy's Partners in Energy. Xcel Energy is one of two electric and gas utilities serving Erie. Partners in Energy is a two-year collaboration to develop and implement a community's energy goals.

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

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EXECUTIVE SUMMARY

About this Plan

Erie values sustainability and resilience in the delivery of utilities and the conservation of resources, like electricity and natural gas. The creation of this Beneficial Electrification Plan was a 6-month process through Xcel Energy's Partners in Energy programs. The goals and strategies outlined in this plan were developed collaboratively with a group of stakeholders.

Our Community Vision and Goals

Vision

Erie's pursuit of electrification will take informed and thoughtful approaches to electrification, ensuring accessible, cost-effective, and realistic solutions, with education and community engagement at the heart of our efforts.

Community Goals

1. For the residential and commercial energy use sector, achieve no-net-increase in emissions by 2030 and 100% net-zero greenhouse gas emissions by 2050, compared to 2023 levels.
2. Achieve 30% vehicles on the road in Erie zip codes to zero emissions by 2030.

Municipal Goal

3. For the municipal energy use sector, achieve 100% net-zero greenhouse emissions by 2030.

Focus Areas

To prioritize strategies and resources, four focus areas were Identified.

Existing Residential

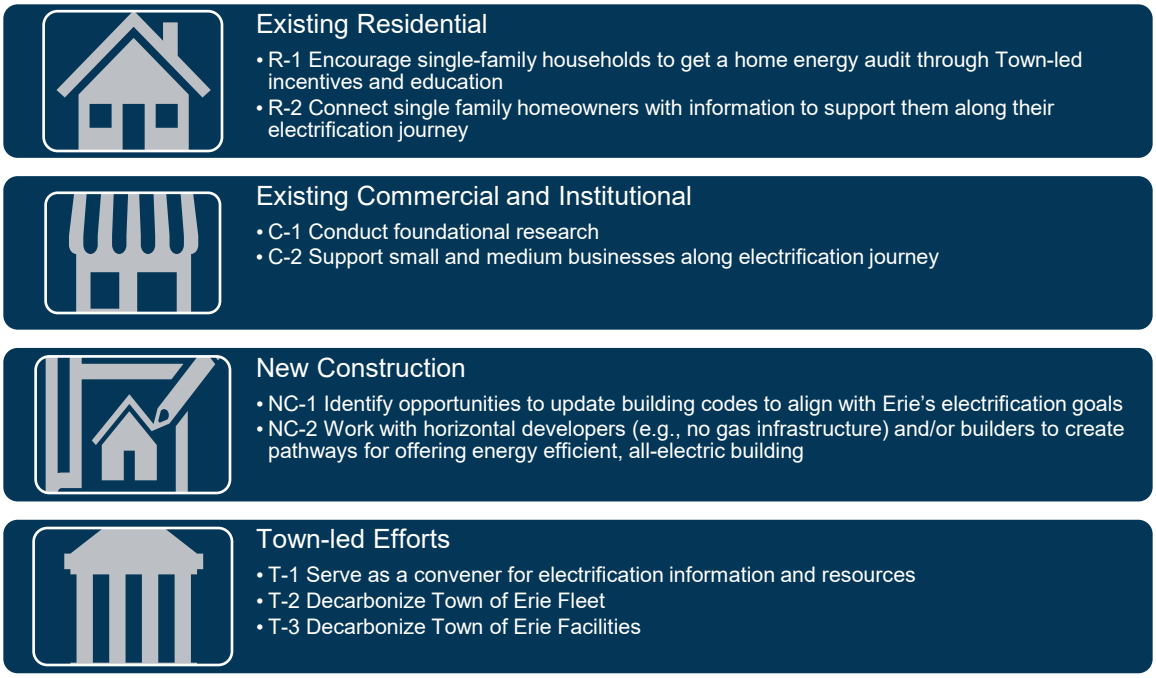
Existing Commercial and Institutional

New Construction

Town-led Efforts

Strategies

The Team identified 9 strategies in 4 focus areas to achieve Erie's vision and goals.



2025 Targets

Home Energy Audits	58 (15% increase from 2023)
Heat Pump Installations	≥ 5 installs
Electrification Pilot Project	1 to 5 properties complete a space or water heating electrification project
Xcel Energy New Construction Program Participation	At least one residential and one commercial new development participant
Energy Efficiency Projects with Local Businesses	Maintain energy use at 1,000 MMBtu per premise
New All-Electric Facility	1
Total Town-Owned Public EV Chargers	35 (58% increase from 2023)

Longer-Term Targets

Residential Natural Gas Use in Existing Buildings (by 2030)	Reduction of 300,000 therms (140 homes per year)
Energy Codes (early 2026)	Adopt IECC 2024 code
Residential Energy Use of New Construction	Reduction of 300,000 therms from Erie's forecasted baseline of energy use.
Municipal Light-Duty Fleet (by 2030)	Electrify 50% of all light duty vehicles
Municipal Light-Duty Fleet	Install adequate fleet-specific charging to support light duty vehicle electrification.
Energy Efficient Buildings or Energy Design Assistance	Enroll all municipal developments and redevelopments in Xcel Energy territory
Municipal Building Energy (by 2030)	Net-zero energy use

INTRODUCTION

About This Plan

Many of our daily activities have carbon dioxide emissions associated with them—from the natural gas we use to heat our homes to the gasoline or diesel used to power our vehicles. Carbon dioxide, referred to as “carbon” in this plan, is a greenhouse gas that traps heat in the earth’s atmosphere and is a main driver of climate change. The Sixth Assessment Report published by the Intergovernmental Panel on Climate Change (IPCC) in 2023 found that human activities have “unequivocally” caused global warming of 1.1°C above pre-industrial levels (IPCC, 2023). The report also points to gaps between emissions projected in the context of current policy commitments and the levels needed to keep global warming below 1.5°C (IPCC, 2023), or what has been identified as the warming threshold for a livable climate.

Beneficial electrification is simply the act of replacing gas- or diesel-powered equipment with more efficient electricity-powered equipment (Figure 2). Electrifying equipment allows for lower-carbon energy sources, like wind and solar, to meet energy demands. Electrification is considered “beneficial” when the replacement reduces operational costs and/or reduces greenhouse gas emissions. Starting with efficiency first is one way to increase operational cost savings and reduce greenhouse gas emissions. This includes activities like insulation and air sealing or replacing drafty windows with more energy efficient ones. This plan is focused on outlining strategies for building efficiency and electrification, transportation electrification, and increasing renewable energy supply.

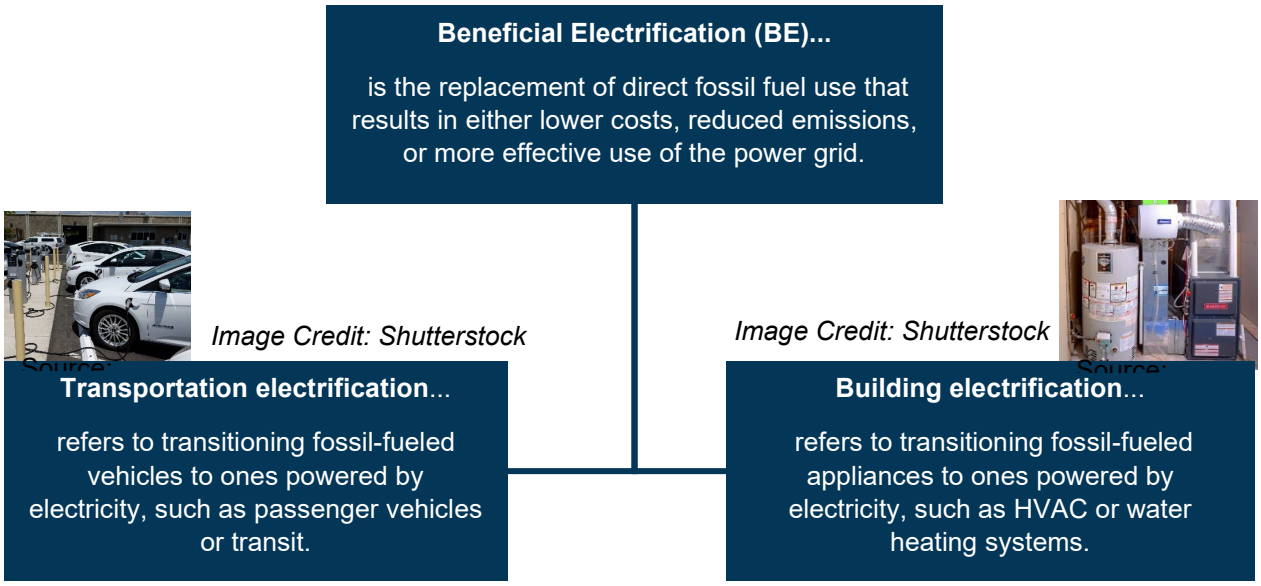


Figure 1. Beneficial electrification has two components: transportation electrification and building electrification.

This Beneficial Electrification Plan is a roadmap to strategically guide Erie's action in a manner that supports the following goals:

1. For the residential and commercial energy use sector, achieve no-net-increase in greenhouse gas emissions by 2030 (despite population growth) and 100% net-zero greenhouse gas emissions by 2050, compared to 2023 levels.
2. Achieve 30% zero-emission vehicles on the road in Erie zip codes by 2030.
3. For the municipal energy use sector, achieve 100% net-zero greenhouse emissions by 2030.

The components of Erie's Beneficial Electrification Plan are detailed below:

Introduction: A look at Erie's motivations for developing a Beneficial Electrification Plan.

Where We Are Now: Outlines the relevant characteristics of the Erie electrification landscape.

Where We Are Going: Describes Erie's electrification vision and goals through a planning horizon of 2050.

How We Are Going to Get There: Identifies focus areas and strategies to guide progress toward interim targets through 2026.

How We Stay On Course: Outlines how Erie will track progress and adapt to a changing landscape during the coming 18-months of implementation support

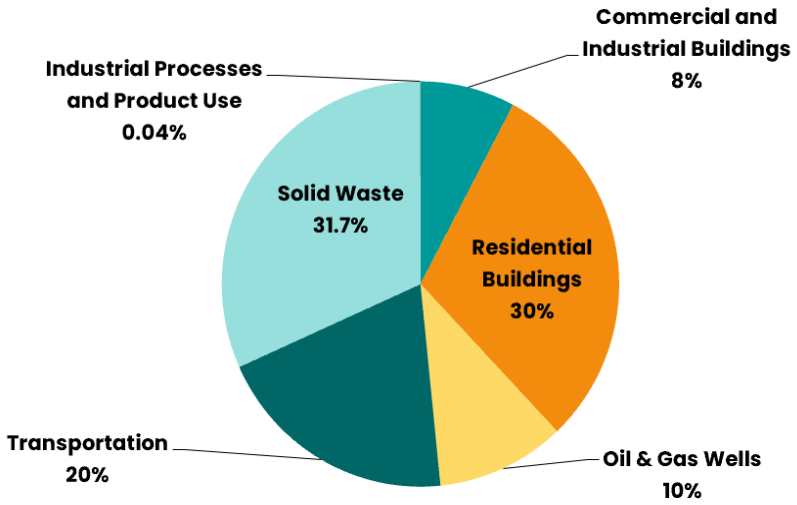
Appendices: Provide additional information about beneficial electrification basics, glossary, and works cited.

Why a Beneficial Electrification Plan?

Erie values sustainability and resilience in the delivery of utilities and the conservation of resources, like electricity and natural gas (Town of Erie, 2024). Beneficial electrification can reduce greenhouse gas emissions, improve air quality, save on operational costs, and increase building performance and comfort. In short, beneficial electrification is in direct alignment with one of Erie's values to be sustainable. This section summarizes some of the general drivers of electrification.

Reducing Greenhouse Gas Emissions

According to Erie's 2023 community and municipal greenhouse gas emissions inventory report, the buildings (both residential and commercial) and transportation sectors account for 58% of emissions (Figure 3).



Source: Town of Erie 2023 Community and Municipal Greenhouse Gas Emissions Inventory Report

Figure 2. Town of Erie 2023 Community and Municipal Greenhouse Gas Emissions

Beneficial electrification reduces greenhouse gas emissions in two ways:

1) Leveraging renewable energy and
2) Improving equipment efficiency

Building electric technology can be up to four times as efficient as its natural gas (methane) counterparts in communities along Colorado's front range (RMI, 2022). Electric vehicle technology can be up to twice as efficient as its gasoline counterparts (Energy Sage, 2022). Furnaces generate energy from fuel through combustion, and some energy is always lost in this conversion process. Conversely, heat pumps simply "move" energy from one place to another, which typically results in less energy lost. Similarly, gas powered vehicles only convert about 30% of fuel energy into motion, while electric vehicles (EVs) convert up to 80% of fuel energy to kinetic energy (U.S. Department of Energy, 2022). More efficient technology can help community members save on operational costs, because less fuel is required to achieve the same output.

Xcel Energy is reducing carbon emissions from electricity and natural gas systems

Xcel Energy has a bold vision to be a net-zero energy provider, meaning Xcel Energy will deliver carbon-free electricity and natural gas system by 2050. Xcel Energy's 2030 electricity goal is to reduce carbon emissions 80%. In 2023, 42% of Xcel Energy's electricity energy mix was carbon free. In 2023 Xcel Energy announced its Clean Heat Plan. The plan establishes a goal to achieve a net-zero natural gas system by 2050. The plan includes an interim goal to reduce greenhouse gas emissions by 25% by 2030, by addressing emissions associated with the supply, distribution and use of natural gas. The Clean Heat Plan provides resources and incorporates beneficial electrification to reduce the overall amount of natural gas needed.

Placeholder for United Power Carbon Reduction Goals

Improving Air Quality

In addition to emitting greenhouse gases, burning fossil fuels produces hazardous air pollutants including sulfur dioxide, nitrogen oxides (NOx), particulate matter (PM), carbon monoxide (CO), mercury, and volatile organic compounds (VOCs) (Environmental and Energy Study Institute, 2021). Air pollution from burning fossil fuels can cause multiple health issues, including asthma, cancer, heart disease, and premature death (World Bank, 2021). As the fuel mix for electricity continues to decarbonize, the magnitude of air quality benefits associated with beneficial electrification and electrifying transportation will increase. Rocky Mountain Institute recently found that children who are raised in homes with fossil fuel combusting equipment are 42% more likely to develop asthma than those that did not (Rocky Mountain Institute, 2024).

Improving Air Quality in Homes with Combustion Appliances

The following steps can be taken to improve air quality in homes with combustion:

- Ensuring gas appliances are in proper working order.
- Installing carbon monoxide monitors.
- Using ventilation, either a range hood that vents to the outside or an open window or both.
- For homes that rely on wood burning for heat or cooking, an air cleaning device that uses HEPA filtration can provide some protection from the soot and smoke.

Increasing Performance and Comfort

In addition to reducing greenhouse gas emissions and improving air quality, modern electric equipment offers better performance and comfort. Heat pumps provide steady, consistent warm air, gradually maintaining a comfortable temperature without sudden fluctuations. In contrast, furnaces deliver hot air blasts that can create temperature swings, often leading to less even heat distribution. This makes heat pumps a more efficient and comfortable choice for maintaining a stable indoor climate.

EVs deliver a fun driving experience with their instant torque, allowing for smooth, powerful acceleration that gas combustion engines can't match. The lack of shifting gears provides a seamless ride, while the low center of gravity from the battery placement enhances stability and handling.

Potential Savings on Operational Cost

Making the switch from an inefficient system, like baseboard heating or electric furnaces, to air source heat pumps which consume less energy, and could offer cost savings. An electric vehicle also offers cost savings since it can cost up to 50% less to own and operate as compared to its internal combustion engine counterpart (Consumer Reports, 2020). Though the upfront cost of electric equipment like heat pumps and EVs can be greater than natural gas or gas counterparts, the incremental cost is decreasing, and in some cases disappearing due to a major influx of rebates and incentives. See How We Stay on Course for more details.

While electricity prices tend to be more stable than natural gas prices, currently, the cost of electricity is more than natural gas. Therefore, replacing a natural gas furnace or water heater with a heat pump could increase operational costs. Pairing electrification with insulation, air sealing, and other building envelope efficiency measures can help offset operational cost increases. Adding on-site renewable energy systems to the building is another way to potentially offset operational costs, depending on the solar production potential of the building.

Erie's Beneficial Electrification Planning Process

Erie joins more than 45 other Colorado communities that have developed Beneficial Electrification, EV, and Energy Action Plans through Xcel Energy's Partners in Energy, an offering that provides resources for community energy planning. Partners in Energy also supports 18 months of plan implementation in the form of marketing and communications, data tracking and analysis, program expertise, and project management.

The goals and strategies outlined in this plan were developed collaboratively with a group of stakeholders, referred to as the Beneficial Electrification Action Team, through three planning workshops conducted between August 2024 to January 2025. The stakeholder team included representatives from Boulder County Energy Smart, Boulder

County PACE, Boulder Valley School District, St. Vrain Valley School District, Town of Erie, United Power, Xcel Energy, and the development community (see Acknowledgements for full list of participants). Several Beneficial Electrification Action Team members are also Erie residents. Team members coordinated throughout the process to share information and identify potential opportunities for partnership during implementation.

Additional staff and council members were engaged through a beneficial electrification 101 webinar and a Town Council presentation in March 2025. By the numbers, we engaged: 35 participants through three workshops, one staff training, and one presentation for the Town Council.

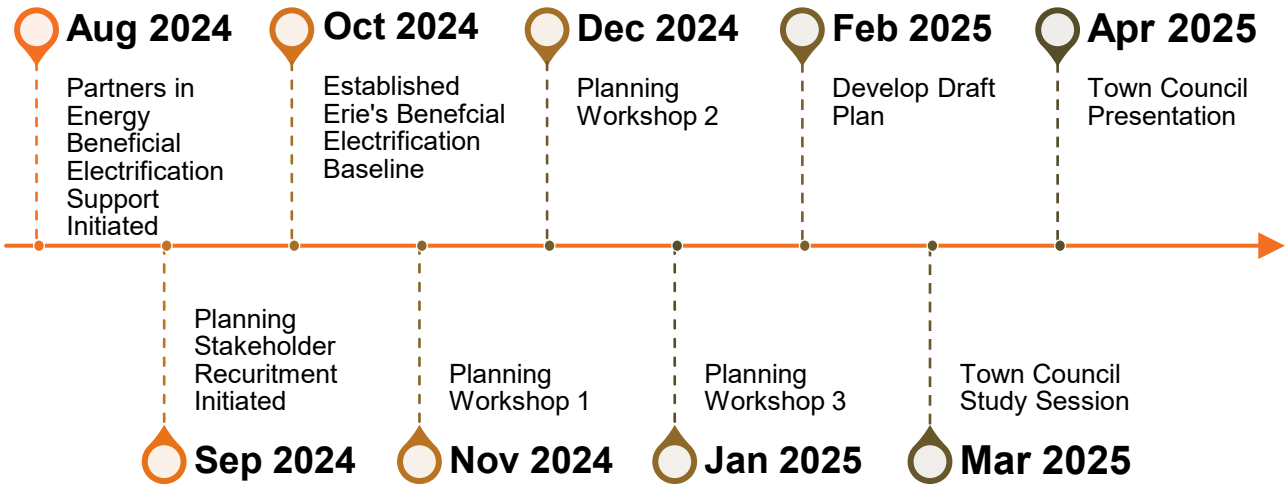


Figure 3. Timeline of Erie's Beneficial Planning Process

WHERE WE ARE NOW

This chapter summarizes the community demographics, EV baseline, energy trends, and related planning and policies that inform areas of opportunity for advancing beneficial electrification in the Town of Erie.

There are multiple utilities who provide electricity and natural gas to Erie including Xcel Energy (electricity and natural gas), United Power (electricity), and Black Hills Energy (electricity and natural gas). The energy data included throughout this plan includes 2021-2023 energy use data from Xcel Energy and United Power. Black Hills Energy did not provide energy use data for the purposes of this plan. The energy baseline analyzes energy use data, renewable energy program data, energy efficiency program data, and other utility data.

Community Characteristics

This section outlines the unique community characteristics, such as population growth, demographics, housing, community patterns, and existing public EV charging infrastructure, that make Erie well suited for beneficial electrification.

Erie's Population is Growing

Erie has experienced rapid growth over the past two decades and has outpaced many of the surrounding municipalities along the Front Range (Town of Erie, 2024). This anticipated growth demonstrates the immense opportunity for addressing beneficial electrification in new development.

To better understand growth trends, Partners in Energy reviewed premise count and energy use data between 2021 and 2023.

Note that a “premise” is not equivalent to a “customer”. For example, a single premise may be occupied by more than one customer within a single building or property. Alternatively, a single building, like a condominium, may have multiple premises.

Between 2021 and 2023, premise counts grew by 13% overall. Most of the growth occurred in the residential sector. The residential sector grew by 14% and the commercial and industrial (CI) grew by 3% between 2021 and 2023. Figure 8 shows the steady premise count growth during these years and shows a snapshot of premises in 2023 that were within Xcel Energy and United Power territories. Most residential premises are within Xcel Energy territory while the CI premises count is evenly distributed between Xcel Energy and United Power territories. Town of Erie staff have indicated that they anticipate the majority of greenfield residential development to occur in United Power service territory, while commercial development and redevelopment is expected to be a mix of United Power and Xcel Energy service.

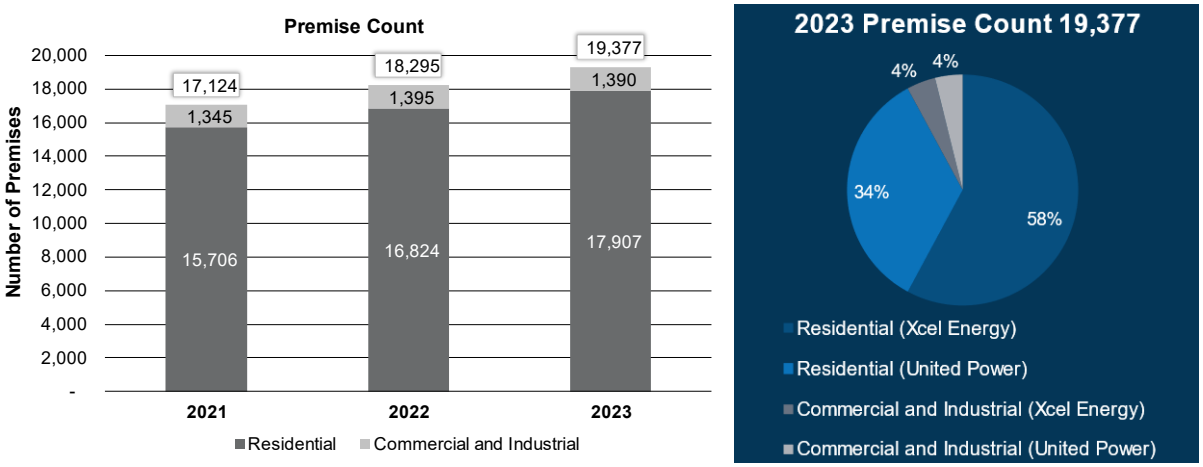


Figure 4: Residential and commercial & industrial premise counts (2021-2023)

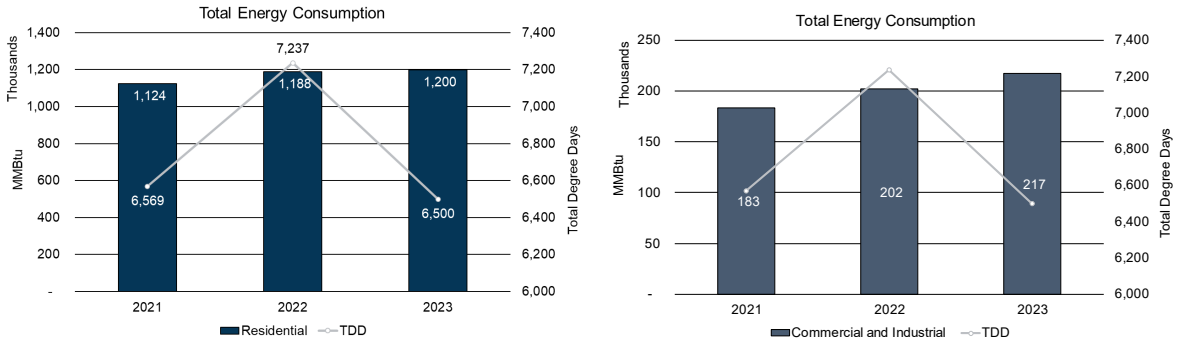


Figure 5: Residential (left) and commercial (right) total energy use

Figure 9 shows how energy consumption compares from 2021-2023 in the residential and CI sectors. Comparing Figure 8's increase in residential premise count to the residential energy consumption shown in the left graph in Figure 8, one sees that residential premise count is growing proportionally faster than residential energy consumption. This trend indicates a few potentials:

- New homes may be more energy efficient than older homes
- Residents may be improving older home efficiency
- Residents may be improving their personal energy use practices
- Residents may be reducing their grid-electricity dependence (e.g. via solar electricity generation)

In comparing the commercial premise count in Figure 8 to the commercial energy consumption in the right graph in Figure 9, one can see that CI premise counts are not increasing as rapidly as CI energy consumption. In fact, even with a slight decrease in CI premise count from 2022-2023, energy consumption increased. This trend may indicate an energy efficiency opportunity in the CI sector.

Housing Characteristics are Favorable for Beneficial Electrification Switching

Homeownership and housing type are two of the most important factors for electrification. Most homeowners do not need to request permission to electrify building equipment, add rooftop solar, or install an at-home EV charger. Additionally, homeowners get to directly reap the benefits of any improvements. Alternatively, renters may not have permission from the homeowner to switch equipment or install charging infrastructure and may be reluctant to invest in improving property they do not own. Finally, single-family detached homes can be more readily electrified because there are no shared building systems, and these homes typically have an easily accessible garage where EV charging can be hosted. Of Erie's existing housing stock 87% is primarily detached, single-family housing (Figure 4) and 87% is owner occupied (Figure 5) of the total housing stock and ownership (U.S. Census Bureau, 2023) (U.S. Census Bureau, 2023).

In Erie, new homes are built to International Energy Conservation Code 2021 standards. Homes built under the 2021 IECC are estimated to be 10% more energy efficient than homes built under the 2018 IECC (Colorado Energy Office, 2020)**. In Erie, homes built after October 2023 are all equipped to support solar panels, electric building equipment, and EV charging in garages. This means that homeowners of new homes are especially well suited to install rooftop solar and at-home EV charging.**

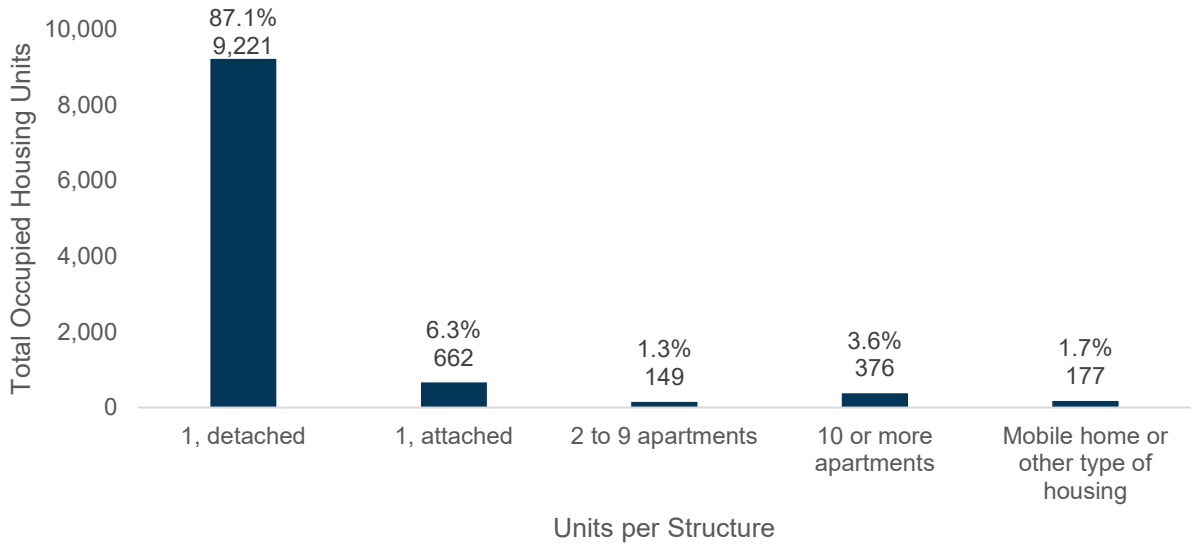


Figure 6. Number and Percent of Housing Types in Erie

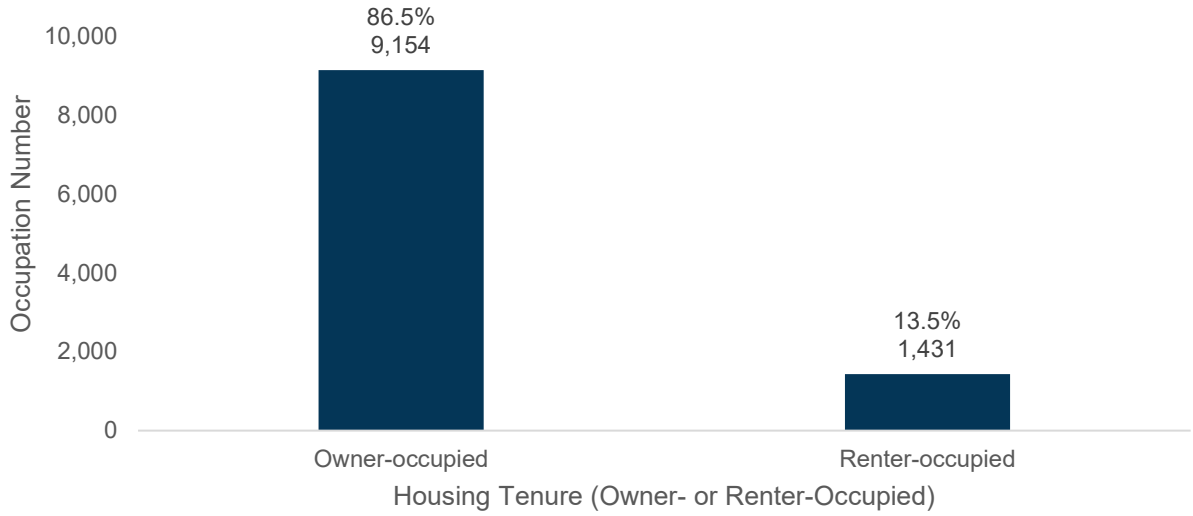


Figure 7. Number and Percent of Owner-Occupied or Renter-Occupied Housing in Erie

Commuting Characteristics Are Favorable for EVs

Several characteristics are important considerations for a transition to an EV. Households with two or more vehicles available to them are more easily persuaded to switch one of their vehicles to an electric alternative. 79% of Erie residents have two or more vehicles per household indicating an opportunity for vehicle switching (U.S. Census Bureau, 2023). Over 60% of Erie residents rely on private vehicles for their daily commute and making EVs more attractive to this group would have a big impact on the community's emissions. Over 90% of residents commute less than one hour to work. Given the average range of EVs, these residents could complete their daily commute with an EV without experiencing any range limitations.

EV adoption is Erie is growing (Figure 6). Erie saw a 525% increase from 2021 to 2023 for EV ownership (Town of Erie, 2021) (Town of Erie, 2023). New public charging and at-home charging infrastructure will be necessary to support the continued growth of EV vehicle registrations.

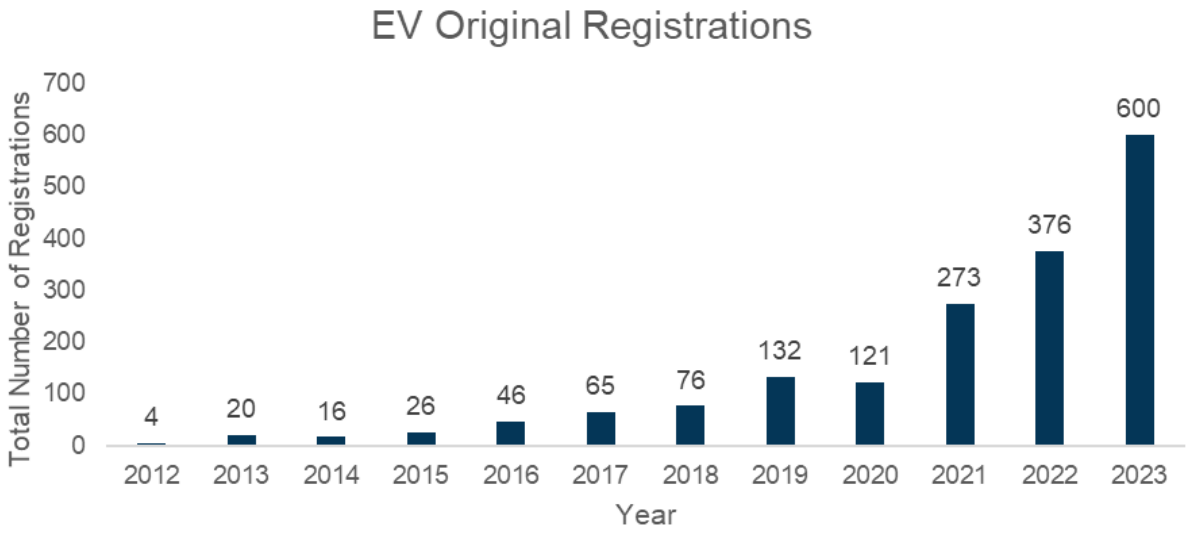


Figure 8. Number of New EV Registrations Each Year in Erie (Atlas Public Policy, 2025)

Studies have shown that employees of workplaces with EV charging are six times more likely to own an electric vehicle than those at workplaces without EV charging (U.S. Department of Energy, 2017). Though most EV charging occurs at home, supporting the adoption of EV charging at commercial facilities is an important strategy to bolster EV adoption overall.

Erie is on Track to Exceed Public EV Charging Goals

Public charging is an important signal to the community that the Town values EVs and is committed to supporting access to convenient charging. As of November 2024, there are 34 Level 2 charging ports and four DC fast charging ports that are publicly accessible (Figure 7) (Atlas Public Policy, 2025). These could be on private property such as at retail locations or Town facilities. The Town of Erie has a goal to achieve 25 public charging stations by 2025. Currently, the Town owns and operates 22 public charging stations and will reach 35 charging stations by the end of 2025 with the support of a recent Charge Ahead grant award.

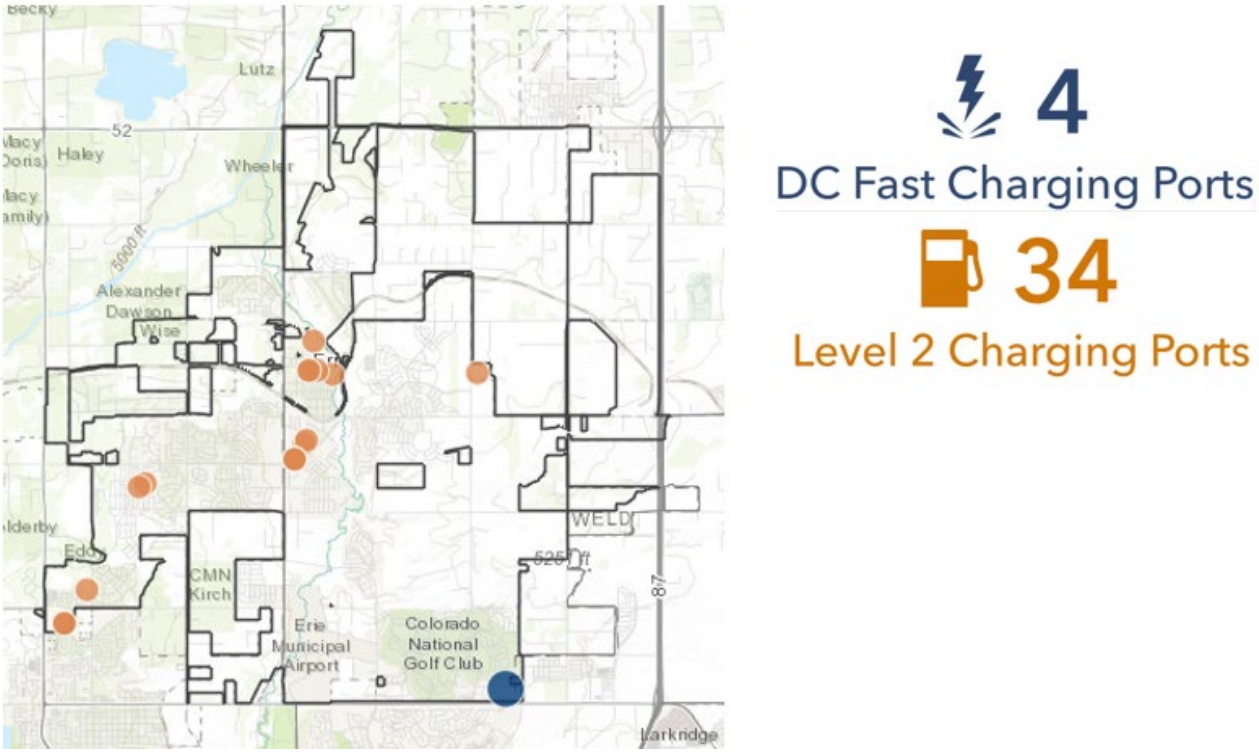


Figure 9. Public EV Charging Stations in Erie

Energy Baseline

This section summarizes key energy trends that present opportunities for beneficial electrification in Erie.

There Is Ample Opportunity to Reduce Natural Gas Use in All Sectors

Within the energy baseline, it is helpful to understand what proportion of energy use is consumed as electricity and what proportion is consumed as natural gas. Figure 10 breaks out the energy use for the residential and commercial and industrial (CI) sectors. Both sectors represent ample opportunity for electrification, especially the residential sector where 68% of energy use is from natural gas. Townwide, the right-most graph in Figure 10 shows that overall, 64% of Erie's energy use is consumed as natural gas while 36% is consumed as electricity.

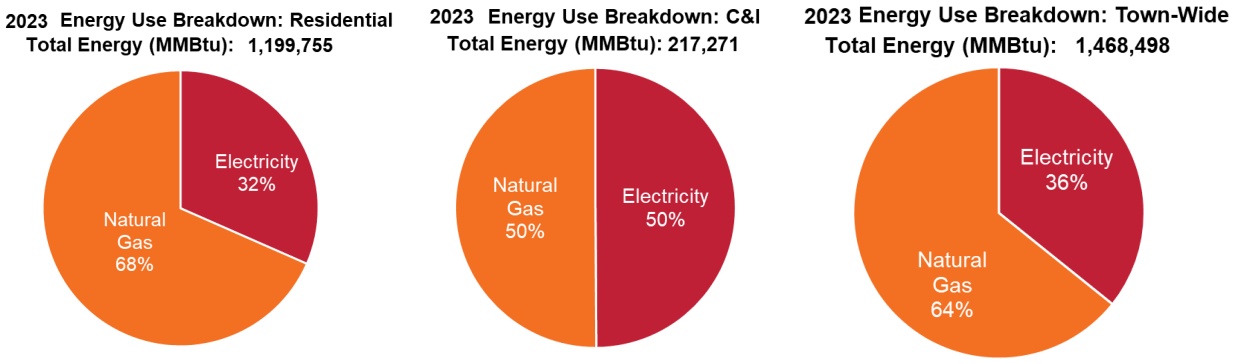


Figure 10: 2023 Energy Use Breakout – Residential (left), CI (middle), Town-Wide (right)

The Residential Sector Presents the Greatest Opportunities for Electrification

Within the Town of Erie, the residential sector drives both electricity and natural gas use (Figure 11). This indicates that the existing residential sector remains one of the most important areas of opportunity for beneficial electrification.

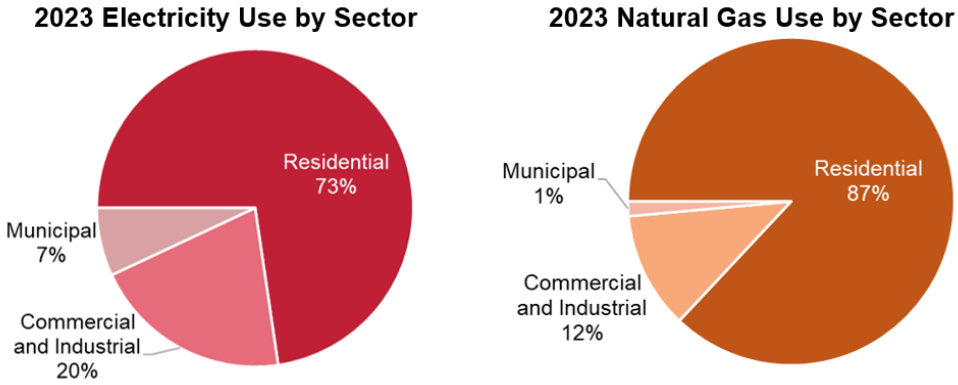


Figure 11: Electricity (left) and Natural Gas (right) Use by Sector in 2023

Space Heating Is the Biggest Opportunity for Fuel Switching

Space heating dominates natural gas use at approximately 80% of its total use for both sectors (Figure 12). This means that replacing natural gas furnaces with heat pumps is the biggest area of opportunity for electrification.

Additionally, water heating systems account for 19% of residential natural gas use and 7% of CI use which suggests that water heating is another major area of opportunity. The primary distinction between residential end use and CI end use is that, in addition to space and water heating equipment, CI interior equipment is another area of opportunity with slightly more natural gas use than CI water heating systems.

Note, the graphs below are from a National Renewable Energy Laboratory (NREL) data set and are not specific to Erie (National Renewable Energy Laboratory, n.d.). The

usage breakout is aggregated regional data that encompasses Longmont City and the Town of Erie.

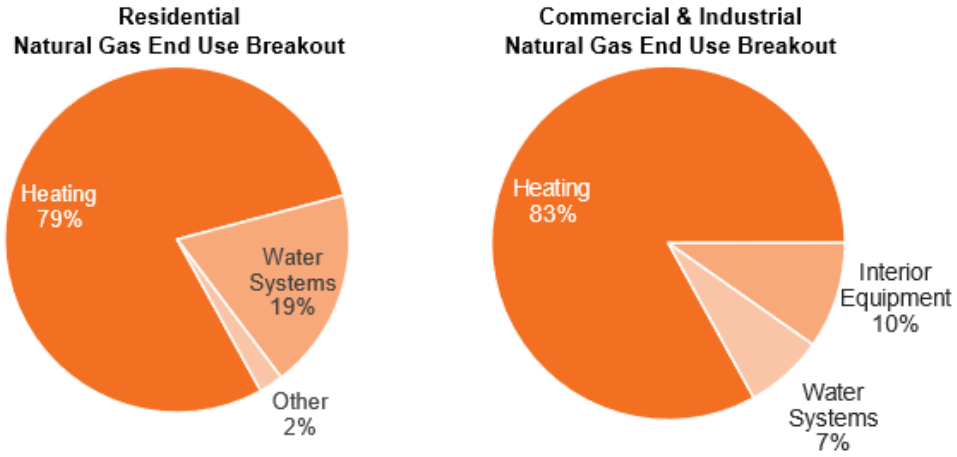


Figure 12: Regional Average Residential (left) and Commercial & Industrial (right) Natural Gas End Use Breakout

Electrification Efforts Must Be Paired with Other Cost-Saving Considerations

For both regional residential and commercial properties, electricity presents a higher average cost per premise. On average for residents, their electricity costs are 66% of their energy costs and natural gas is 34%. For businesses, on average, their electricity costs are 82% of their energy costs and natural gas is 18% (Figure 13). This highlights the importance of pairing electrification and energy efficiency.

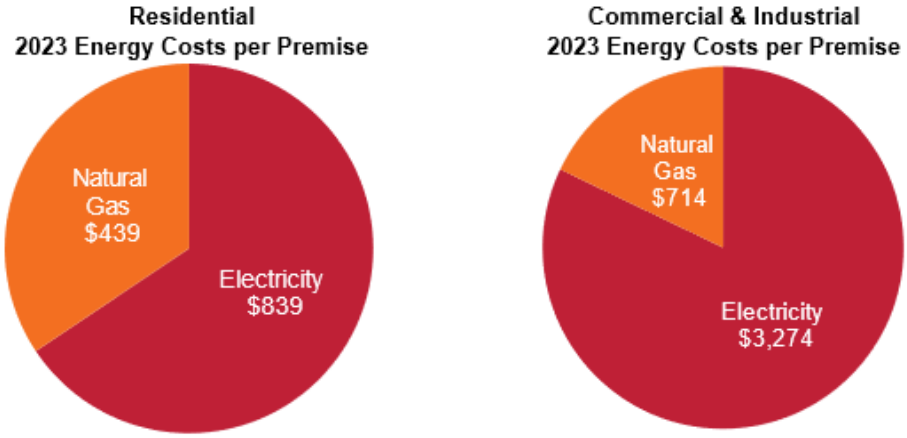


Figure 13: 2023 Residential (left) and Commercial & Industrial (right) Energy Costs Per Premise; Xcel Energy and United Power Aggregate Data for the Town of Erie

With electricity costs being higher than natural gas, residents and business owners may be more hesitant to electrify. This presents several opportunities to consider during implementation including:

- Using clear and transparent messaging
- Encouraging energy efficiency actions first
- Identifying opportunities where operational cost savings may be present (e.g., electric baseboard heating to heat pump)
- Encouraging energy demand management strategies

Related Planning Efforts

This section summarizes relevant plans and policies that support beneficial electrification in Erie.

Inflation Reduction Act

The Inflation Reduction Act, passed in 2021, established the Home Electrification and Home Efficiency Rebate Programs to help American households save money on energy bills, upgrade to clean energy equipment and improve energy efficiency, reduce indoor and outdoor air pollution, and create workforce training programs. These programs established $8 billion in funding to support home electrification. Due to changes in the administration and ongoing policy reviews, the funding and programs outlined in the Inflation Reduction Act may be temporarily on hold. This pause is part of a broader reassessment of government priorities and strategies. Check the Internal Revenue Service website for updates on program and funding status.

Front Range Beneficial Electrification Network

The Front Range Beneficial Electrification Network was formed in August 2022 to accelerate the adoption of beneficial electrification technologies in Colorado through regional collaboration and a focus on equity. Sustainability Staff actively participate in this organization.

Regional Transportation Electrification Plan for Boulder County Communities

Completed in 2022, representatives from local governments within Boulder County came together with key stakeholders, including Town of Erie Sustainability Staff, business associations, state agencies and nonprofit organizations, and Xcel Energy to develop a strategic plan to reduce greenhouse gas (GHG) emissions in Boulder County through equitable transportation electrification solutions.

Xcel Energy Transportation Electrification Plan

The Transportation Electrification Plan defines Xcel Energy's portfolio and programs to enable one out of five vehicles in the areas they serve to be electric by 2030 and all vehicles to run on carbon-free electricity or other clean energy by 2050. This includes advisory services, EV rebates for income-qualified customers, expanded access to public charging stations, support for residential customers with home EV charging,

support for commercial customers with rebates to support select charging infrastructure investments, and promoting innovation in the EV field.

Colorado EV Plan 2023

The Colorado EV Plan 2023 is an update to the state's 2018 and 2020 plans and continues to accelerate adoption of EVs of all types in Colorado. The plan reinforces the state's existing goal of 940,000 light-duty EVs on the road by 2030 and establishes a new goal of 2.1 million on the road by 2035. These interim goals support a vision for 100% electric light-duty vehicles and 100% zero-emissions medium-duty vehicles by 2050. The plan identifies policies and programs by which to achieve these goals and includes a focus on personal and shared electric mobility with cross-cutting initiatives that affect multiple parts of the transportation system.

Xcel Energy Clean Heat Plan

In 2023, Xcel Energy announced its Clean Heat Plan. It is one of the first of its kind to provide a net-zero natural gas system by 2050 with an interim goal to reduce greenhouse gas emissions by 25% from the supply, distribution, and customer use of natural gas by 2030. The Clean Heat Plan provides resources and incorporates beneficial electrification to reduce the overall amount of natural gas needed.

Decarbonize DRCOG

In 2024, the Denver Regional Council of Governments (DRCOG) was awarded a federal grant of nearly $200 million to support several coordinated initiatives that will reduce carbon pollution from buildings, foster workforce development, and offer financial incentives for home services and electric appliances such as heat pumps, water heaters, and electric cooktops and ranges. Erie Sustainability Staff and Councilors actively participated in the grant application process and will similarly support grant implementation.

Erie's Planning Efforts

Energy Action Plan (2018)

The Town of Erie developed its Energy Action Plan to help institute a series of actions and activities to lower energy use communitywide and engage residents and businesses to take advantage of utility rebates that save resources.

Sustainability Plan (2019)

This five-year plan provides a roadmap and approach through which the community can protect natural resources, support the local economy and culture, and promote a sustainable lifestyle for its residents and visitors. Erie's Sustainability Plan includes several priority strategies related to energy efficiency and renewable energy.

Energy Action Plan 2.0 (2021)

The focus of the Energy Action Plan 2.0 is to contribute to the aspirational energy goals outlined in the 2019 Sustainability Plan by working towards targets related to renewable energy, reducing residential electricity and natural gas use, and increasing green buildings in the community.

2021 IECC Building Codes, Electric Preferred (2023)

The Town of Erie adopted the 2021 International Energy Conservation Code (IECC) Building Codes and includes Colorado's Model Electric Ready and Solar Ready Code in alignment with the State of Colorado's regulations.

Transportation and Mobility Plan

The Town of Erie adopted their Transportation and Mobility Plan in 2024. This plan includes EV-specific policy TMP 5.1: EV charging stations meet national standards and are equitably distributed by requiring them as a part of all new developments. Erie works with Xcel and United Power as needed to ensure Erie's electrical grid can support an increase in EV charging.

EV First Procurement Policy (2024)

In April 2024, the Town of Erie adopted an EV procurement policy to support the Town's fleet electrification goals.

Climate Emergency Proclamation (2024)

https://www.erieco.gov/DocumentCenter/View/21666/Climate-Emergency-Proclamation--04-09-2024

Comprehensive Plan (2024)

The Comprehensive Plan provides guidance for Town leadership, staff, and residents in making choices regarding Erie's future, quality of life, and experience. The plan establishes the following policy: The Town will pursue innovative technologies and work closely with utility providers to ensure reliable, quality service. The Town has made a commitment to being carbon neutral by 2050 and will continue to pursue solar and other renewable energy sources.

Fleet Electrification (ongoing)

The Town of Erie set fleet electrification goals in its EV First Procurement Policy as follows:

1. Transition 50% of the Town's light duty fleet to EVs by 2030 and 100% by 2040.

2. Transition 100% of the Town's medium and heavy-duty fleet and equipment by 2050.

Building Electrification (ongoing)

The Town of Erie has several building renovations and new construction where staff is exploring all electric design. The Town Hall renovation will make it an all-electric building. The Town has several additional projects on the horizon, including a redesign of the Police Department and multiple investment grade energy audits to inform future electrification retrofits.

Climate and Sustainability Action Plan Development (2025)

The Town of Erie is currently developing a Climate and Sustainability Action Plan that will be completed in 2025.

WHERE WE ARE GOING

Beneficial Electrification Vision

The Beneficial Electrification Action Team developed the following vision to inform the Town of Erie's approach to beneficial electrification:

> Erie's pursuit of electrification will take informed and thoughtful approaches to electrification, ensuring accessible, cost-effective, and realistic solutions, with education and community engagement at the heart of our efforts.

Beneficial Electrification Plan Goals

Working together, the team set near-term and long-term goals for both the community and municipal facilities to measure plan success.

Community Goals:

1. For the residential and commercial energy use sector, achieve no-net-increase in greenhouse gas emissions by 2030 (despite population growth) and 100% net-zero greenhouse gas emissions by 2050, compared to 2023 levels.

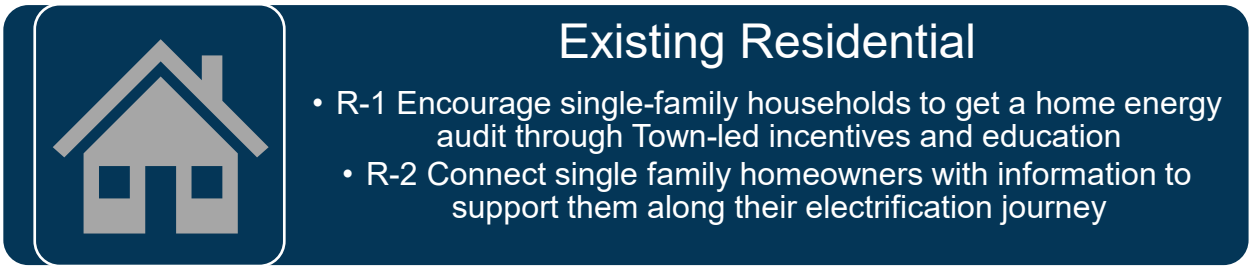
2. Achieve 30% zero-emission vehicles on the road in Erie zip codes by 2030.

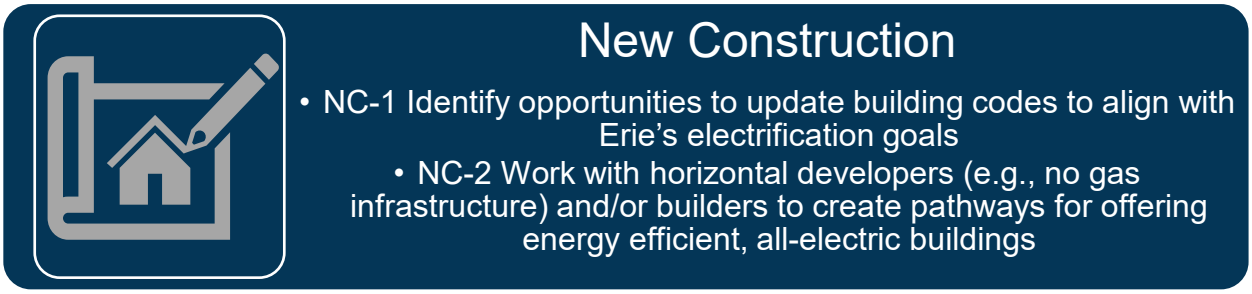
Municipal Goal

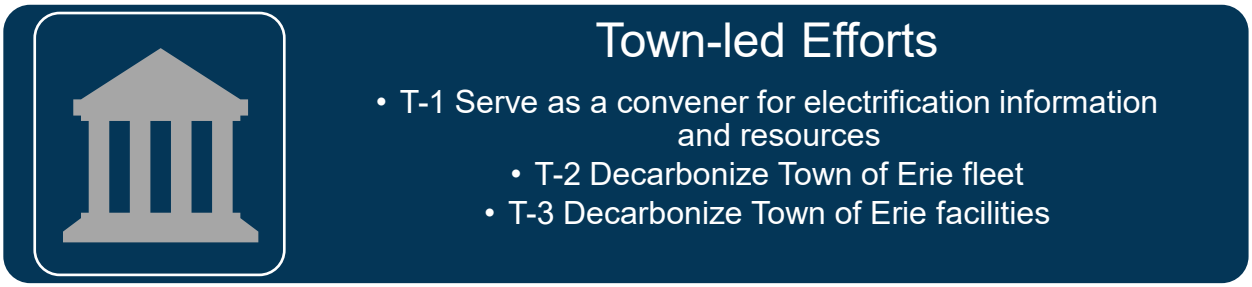
3. For the municipal energy use sector, achieve 100% net-zero greenhouse emissions by 2030.

Focus Areas

To achieve communitywide progress on Erie's goals, the Beneficial Electrification Action Team identified four focus areas to prioritize strategies and resources.







HOW WE ARE GOING TO GET THERE

To achieve Erie's energy vision and goals, the Beneficial Electrification Action Team identified a set of strategies to support plan implementation. The following sections organize strategies by focus area and include the strategy name, description, audience, targets, key steps and roles, and available resources/key considerations.

EXISTING RESIDENTIAL

The Town of Erie's housing stock is well suited for electrification. The vast majority of homes in Erie are single-family detached (87%) and owner-occupied (87%). While Erie's housing stock is relatively new, even homes as old as 10 years might be eligible for equipment upgrades. Additionally, homes built after 2023 are equipped with features to make rooftop solar and at-home EV charging easier.

R-1 Encourage single-family households to get a home energy audit through Town-led education and resource connections

Home energy audits evaluate the current energy use in your home, where your home is inefficient, and which problem areas and fixes you should prioritize to save energy and improve the comfort of your home. They are an important first step in any home electrification journey. Energy audits can help identify areas of opportunity and may help identify funding to support electrification projects. Xcel Energy and Boulder County offer free or reduced-cost home energy assessments to qualifying residents. The Town has an opportunity to increase participation in home energy audits through education and by connecting residents with existing resources.

Audience

- Residents in older homes (i.e., Old Town)
- Senior residents

- Mobile home park residents
- New residents

Target

- 58 home energy audits completed in 2025 (a 15% increase over 2023 participation).

Scope

- Compile available home energy audit programs information and eligibility.
    - Information can be found through Xcel Energy, United Power, Boulder County EnergySmart, and the Town of Erie. More information may be available from the federal government, state government, DRCOG, and others.
- Educate targeted homeowners about home energy audits.
    - Develop up to two flyers about home energy audits.
    - Develop one utility bill insert.
    - Add the flyers to the existing new resident packet.
    - Consider developing an existing resident packet to send in mail to reconnect with these residents and include a flyer about home energy audits.
    - Include resources about home energy audits through Erie's housing rehabilitation program for potential support where applicants are checked for eligibility and guided to any appropriate resources.
    - Coordinate a home energy audit buy down for Erie residents.

Roles and Responsibilities

- Partners in Energy
    - Lead research for home energy audit program information and eligibility.
    - Lead collateral development for home energy audit program outreach and education.
    - Support material distribution.
- Town of Erie
    - Lead material review.
    - Include resources about home energy audits through Erie's housing rehabilitation program and Habitat for Humanity.
    - Lead outreach and distribution of program materials.
    - Lead buy-down coordination with CLEAResult.

Available Resources/Key Considerations

- Erie's communications team uses many channels and has insights into best engagement strategies.
- Use existing outreach channels such as the Town website, social media, email, newsletters, new resident packet, etc.

- At the time of plan writing, there is uncertainty with federal funding and programs such as from the Inflation Reduction Act and during implementation of this plan the PM team will monitor for updates.
- The Decarbonize DRCOG plan may include resources for free home energy advising, for which Town of Erie residents would be eligible.

R-2 Connect single family homeowners with information to support them along their electrification journey

There is an abundance of information and an influx of financial resources to support residential electrification (HVAC, water heaters, cooking equipment, home EV charging, rooftop solar). The Town of Erie, utility providers, and community partners can advance community electrification by connecting residents with information and resources to support electrification. Single family homeowners are best equipped to be early adopters of electrification because they have more control over making improvements to their home.

Audience

- Residents in older single-family homes (i.e., Old Town)
- Senior residents in single-family houses
- Mobile home park residents
- Residents in new homes

Target

- At least five existing homes install a heat pump (HVAC) or heat pump water heater in 2025.
- Reduce residential natural gas use in existing buildings by 300,000 therms (140 homes per year) through energy efficiency and efficient fuel switching by 2030.

Scope

- Compile resources on available electrification incentives and programs.
- Share resources with residents on available electrification incentives and programs.
    - Update website on resources and an FAQ section. Questions might include: Who pays for grid upgrades? Who needs electrical upgrades?
    - Develop collateral to advertise the resources through existing communication channels.
    - Include resources about electrification through Erie's housing rehabilitation program and Habitat for Humanity.
    - Share materials and information through Erie events such as Erie's Arbor Day/Earth Day Event, Boo on Briggs, and Farmer's Markets.
- Develop a line of communication with contractors to ensure they are kept up to date with the latest electrification incentive information.
    - Work with the Building Division to provide permitting coordination to track heat pump installation information.

    - The Building Division directs the incentive information to the appropriate people.

Roles and Responsibilities

- Partners in Energy
    - Lead development of collateral about available heat pump incentives and programs, including content for Erie's website that directs users to organizations and available resources and content to be shared with contractors through Erie's Permitting Department.
    - Support collateral distribution (e.g., mailers, social media posts, emails, event handouts).
- Town of Erie
    - Lead material review.
    - Connect resources into Erie's housing rehabilitation program and Habitat for Humanity.
    - Lead outreach and distribution of program materials, including attending events to distribute materials.
    - Lead contractor line of communication and coordination with Building Division.

Available Resources/Key Considerations

- Some older homes, especially in the Old Town area, may not be able to support electrification without electrical upgrades, which can be costly for homeowners.

EXISTING COMMERCIAL AND INSTITUTIONAL

Erie's commercial building sector offers opportunities for impactful electrification. Commercial buildings contribute to about 15% of Erie's total energy use. Briggs Street is one of the main commercial corridors while most of the additional commercial buildings are within United Power's service area. Top employers include St. Vrain Valley School District, the Town of Erie, King Soopers, Safeway, and Lowe's. The Town of Erie, Boulder Valley School District, and St. Vrain Valley School District collaborate frequently to advance sustainability initiatives within the community. The Town of Erie is committed to continued collaboration to facilitate the mutual sharing of knowledge and inspiration.

C-1 Conduct foundational research

The commercial sector is diverse, and getting a lay of the land is a critical first step to help focus commercial support for more meaningful impact. Research should create a clearer picture of existing commercial building stock, including age of buildings and equipment. Research should also identify potential implementation partners and help refine the funding landscape.

Audience

- Restaurants
- Boulder Valley School District and St. Vrain Valley School District

- Retail stores
- Places of worship
- Office buildings

Target

- There is no target associated with this strategy.

Scope

- Compile a list of businesses and property owners.
    - Use the business contacts listed for licenses and permits.
    - Identify businesses that are required to participate in the state benchmarking requirements.
- Identify sectors of businesses to segment by likely questions, process, program interest, etc.
    - Identify potential high energy users for high impact programs.
    - Identify any sector specific stakeholder groups such as the Erie Restaurant Group, Erie Economic Development Council, business membership groups (e.g., Erie Chamber of Commerce)
    - Classify businesses into sectors with related uses and equipment needs (e.g., restaurants, retail, places of worship, office buildings, school districts).
- Develop survey or other data collection methods on building ownership, age of building, equipment age, and potential interest in electrification from businesses.
- Distribute survey or data collection to identified businesses from previous steps.
- Identify potential implementation partners.
- Compile available resources for the commercial sector.

Roles and Responsibilities

- Partners in Energy
    - Support the identification of business contacts.
    - Support the classification of different sectors and use cases.
    - Lead survey development.
    - Lead compiling of available commercial sector resources.
- Town of Erie
    - Lead identification of businesses with the Economic Development Department.
    - Lead identification of business groups (e.g., Erie Restaurant Group, Erie Economic Development Council, Erie Chamber of Commerce).
    - Lead the classification of different sectors and use cases.
    - Support and review data collection survey development.
    - Lead distribution of data collection surveys to identified businesses.
    - Lead identification of potential implementation partners.
    - Support compiling of available commercial sector resources.

Available Resources/Key Considerations

- It will be important to support businesses to determine what programs they are eligible for. This includes clarifying the different programs available by county, utility, etc.
- It is important to connect with businesses participating in the state benchmarking requirements.
- Longmont has their own bench marking program that offers tailored programing and connects to the Partners for a Clean Environment (PACE) program.
- Restaurants may be more invested; retail stores are likely to be more mom and pop and may not have resources to devote to navigating energy program processes.
- Small and medium-sized businesses may need more support in understanding available resources and going through the process.

C-2 Support small and medium businesses along electrification journey

Businesses use more energy per premise than residents, presenting bigger natural gas-savings opportunities per project. The majority of commercial natural gas saving opportunities are in the space heating sector. Erie has a history of supporting businesses with sustainability and energy efficiency efforts with its green business program efforts, establishing a strong foundation for continued collaboration. However, businesses often need high-touch custom support, which is currently only available to Boulder County businesses through the PACE program. This presents an opportunity to look for creative solutions to support Erie's businesses in their electrification journeys.

Audience

- Restaurants
- Boulder Valley School District and St. Vrain Valley School District
- Retail stores
- Places of worship
- Office spaces

Target

- At least one commercial property in Erie completes a space or water heating electrification pilot project in 2025.
- Complete energy efficiency projects with local businesses and maintain energy use at 1,000 MMBtu per premise.

Scope

- Reach out to identified business owners and stakeholder groups from C-1 to organize information gathering.
- Explore with businesses their interests and challenges related to electrification by gathering information through outreach to the groups. This can be done by attending meetings, conducting focus groups, etc.

- Develop plain language collateral to address interests and challenges along with case studies of the return on investment, and a list of certified contractors, including the following:
    - Develop collateral for a family resource toolkit for the school districts to share with students and families.
    - Develop resources for home-based businesses.
- Explore a technical assistance approach to support businesses by walking them through the process.
- Conduct outreach to sector specific stakeholder groups to share resources.
- Distribute collateral through appropriate Town channels such as the Town monthly newsletter, quarterly business roundtables, etc.

Roles and Responsibilities

- Partners in Energy
    - Support outreach to sector specific stakeholder groups.
    - Lead development of collateral based on results of outreach.
    - Support outreach to share resources with business groups.
    - Support distribution of collateral resources through Town channels as appropriate.
- Town of Erie
    - Lead outreach to sector specific stakeholder groups.
    - Lead exploration of interest and challenges of businesses.
    - Support and review collateral related to resources.
    - Lead in the exploration of a technical assistance approach program.
    - Lead in the outreach to share resources with business groups.
    - Lead the distribution of collateral about resources through Town channels as appropriate.
- Boulder Valley School District and St. Vrain Valley School District
    - Participate in outreach to inform the interests and challenges specific to school districts.
    - Distribute collateral with family resources toolkit to students and families.

Available Resources/Key Considerations

- Resources vary by the County the business resides in and the utility servicing the business.
- For the most success, it is important that contractors and businesses are educated about resources prior to entering the permitting process.

NEW CONSTRUCTION

The Town of Erie is experiencing significant population growth. Missing an opportunity to install electric building equipment at the time of development can slow electrification progress by 10-30 years, based on the approximate life span of heating equipment and water heaters. As such, new development represents a tremendous opportunity to

offset the emissions impact of the Town's growing population and curb related greenhouse gas emissions.

NC-1 Identify opportunities to update building codes to align with Erie's electrification goals

The Town's Comprehensive Plan (2024) prioritizes timely building code amendments that support sustainability efforts. Erie's 2019 Sustainability Plan commits to adopting the most recent International Energy Conservation Code (IECC) every three years. The Town is currently under IECC 2021 with supplemental solar ready, EV-ready, and electric-ready appendices. This plan seeks to reinforce the Sustainability Plan's commitment to continue adopting the most recent IECC every three years, starting with IECC 2024, which integrates the above-mentioned appendices into the main code body.

Audience

- All new building construction including new development and infill development.

Target

- Adopt IECC 2024 code in early 2026.

Scope

- Establish an energy conservation code update timeline resulting in 2024 IECC code adoption in Q1 2026.
- Educate decision-makers and development community on the cost-benefit of more efficient energy codes.
    - Conduct research to summarize the incremental costs and benefits of 2024 IECC compared to Erie's currently adopted energy code (2021).
    - Consider first costs to developers, and ongoing savings to building occupants.
    - Identify programs and rebates available to support building to more energy efficient standards.
    - Develop presentation materials to share with the Town Council and development focus groups (organized through Planning & Development Department).
- Leverage DRCOG energy code specialist grant staff and resource support.
    - Determine requirements for receiving technical assistance from DRCOG energy code grant.
    - Pursue grant funding if desired.

Roles and Responsibilities

- Partners in Energy
    - Lead research to summarize the cost and benefits of the new energy code adoption.
- Town of Erie
    - Inform desired outcomes of research (e.g., what is most helpful to know).
    - Lead code adoption process.

    - Apply for DRCOG energy code funding, if desired.

Available Resources/Key Considerations

- 70% of Marshall Fire homes rebuilt to standards above and beyond requirements as 2021 IECC code exemptions were made for residents rebuilding, including a large proportion that were all electric.
- For the Front Range Climate Zone 5, the increase of total construction costs for the 2021 IECC compared to the 2018 IECC is about $3,500 before rebates (Pacific Northwest National Laboratory, 2021).
- Xcel Energy's Clean Heat Plan offers substantial bonus rebates for new all-electric development. With bonus rebates, some heat pump rebates are now triple their previous amount. Funding is subject to change due to market demands.
- Decarbonize DRCOG is offering grant funding to provide technical assistance to municipalities seeking to strengthen energy codes. Funding may be available for communities in late summer/early fall 2025. Communities must apply to access funding.
- Eligibility for certain funding opportunities (Colorado Energy Office, Decarbonize DRCOG) may require staying up to date with certain IECC codes.

NC-2 Work with horizontal developers (e.g., no gas infrastructure) and/or builders to create pathways for offering energy efficient, all-electric buildings

Erie's code requires developers to install measures to allow for future electrification of building equipment, installation of EV chargers, and installation of rooftop solar. However, most developers and builders do not offer all-electric, EV-installed, or solar-installed options. This presents a significantly missed opportunity to electrify new development, since most residents and businesses will not replace existing gas equipment until the end of its useful life (10-30 years).

Audience

- Large-scale horizontal developers leading greenfield development.
- Large-scale builders working in greenfield development sites.
- Small- and medium-scale developers and builders leading infill projects (e.g., redevelopment projects in Old Town).

Target

- Connect at least one commercial and one residential new development with new development programs.
- Reduce residential energy use of new construction by 300,000 therms from Erie's forecasted baseline of energy use.

Scope

- Educate staff on relevant new development programs
    - Train relevant staff on new development program information and work with staff to identify the appropriate channels for sharing resources with

developers and builders (e.g., during pre-application meetings for land use applications).
    - Develop up to two flyers summarizing new development programs (one residential, one commercial).
    - Share flyers with developers and builders in accordance with identified processes.
- Work with developers to identify opportunities to offer all-electric development.
    - Pilot a peer sharing opportunity (e.g., connect Diverge homes with other local developers to share lessons learned and highlight benefits).
    - Highlight the benefits and evidence of demand for all-electric development (e.g., occupant comfort and improved air quality; Marshall Fire rebuild all-electric builds).
    - Brainstorm barriers and opportunities for providing all electric options to residents (with and without natural gas back up).
    - Connect developers and builders with Xcel Energy and United Power to support relationship building and to underscore the importance of connecting with relevant utility partners as early as possible to address energy supply questions.
- Work with utility partners to identify innovative energy supply solutions. Examples may include, but are not limited to:
    - Community solar farm near Town Center or Erie Community Center.
    - Networked, utility scale, horizontal geothermal energy opportunities in greenfield development areas or interconnected infill development areas.
    - A Virtual Power Plant for one or more new developments.

Roles and Responsibilities

- Partners in Energy
    - Organize and host new development program training with Town staff.
    - Lead update of new development program flyer.
    - Lead organization and facilitation of a peer sharing opportunity, in coordination with existing quarterly developer meetings.
    - Identify the appropriate Xcel Energy contacts to support conversations related to innovative energy supply solutions.
- Town of Erie
    - Ensure appropriate Town staff members attend new development program training.
    - Lead identification of appropriate opportunities for sharing program information with new development.
    - Review and provide feedback on new development program flyer.
    - Share new development program flyers through identified channels.
    - Invite developers to a peer sharing opportunity.
    - Lead coordination with utilities to explore innovative energy supply solutions.

Available Resources/Key Considerations

- Town of Erie has an existing new development program flyer.
- McStain's all-electric model at Westerly is an opportunity to host community outreach and education events.
- The Cottages at Erie Village by Boulder Creek Neighborhoods and Erie Junction by Diverge homes built all-electric developments in Erie.
- 70% of Marshall Fire rebuilds to date have built above and beyond code, including some all electric – could be an opportunity for testimonials from builders and residents.
- A lot of new, greenfield development is happening in Weld County (primarily served by United Power). Development opportunities within Xcel Energy service territory are primarily redevelopment and infill development opportunities.
- Recent redevelopment projects in Xcel Energy service territory have experienced grid capacity constraints (e.g., Erie Town Center and County Line project).
- Key developer partners Southern Land Company and Community Development Group respectively control two square miles and one square mile of greenfield development opportunity.
- For commercial new development, it is primarily one-off applicants, consisting of both small local businesses and national chains looking for pad sites rather than a consistent pool of developers.
- United Power and Xcel Energy are actively exploring opportunities to increase utility-scale renewable energy production, including storage.

TOWN-LED EFFORTS

While the Town of Erie is relatively small, the Town is a leader in beneficial electrification and can grow its impact as the town is expected to grow rapidly over the next few decades. In 2024, the Town of Erie began construction on Phase 1 of the Town Hall renovation, opting to move toward an all-electric new construction of the expansion. The second and final phase is also slated to be an all-electric renovation of the historic structure. The Town has several additional projects on the horizon, including a redesign of the Police Department and multiple investment grade energy audits to inform future electrification retrofits.

The Town has also proven its commitment to beneficial electrification in the transportation sector, establishing an electric vehicle-first procurement policy. The EV-first procurement policy established a target of electrifying 50% of all light-duty vehicles by 2030, which is anticipated to be more than 30 new vehicles. Town staff took steps toward this goal in 2024 by leasing five new electric vehicles.

Finally, the 2019 Sustainability Plan established a goal for the Town to install 25 public chargers by 2025. In 2024, the Town of Erie received Charge Ahead Colorado grant funding to install 13 additional charging ports, bringing the total anticipated charging ports to 35 by the end of 2025!

T-1 Serve as a convener for electrification information and resources

The Town of Erie already serves as a community convener, sharing information and resources through Town of Erie websites and community events. The Town currently has a Beneficial Electrification landing page. This strategy focuses on maintaining that webpage with up-to-date information throughout the implementation period of this plan (18 months).

Audience

- Town of Erie residents and businesses.

Target

- There is no target associated with this strategy.

Scope

- Review and refresh Erie's Beneficial Electrification website quarterly (e.g., new program and rebate information, implementation activity information).
- Actively participate in regional efforts that support Beneficial Electrification (e.g., Decarbonize DRCOG)

Roles and Responsibilities

- Partners in Energy
    - Review website and identify any changes in information or new information to be added related to utility program and Boulder County program information.
- Town of Erie
    - Review website and identify any changes in information or new information to be added related to Town program information.
    - Update website with new information.

Available Resources/Key Considerations

- Regional groups like DRCOG, working on the Decarbonize DRCOG work plan, and Boulder County are continuously working to collate and streamline information about beneficial electrification that can be distributed through the Town of Erie's communication channels.

T-2 Decarbonize Town of Erie Fleet

The Town of Erie has an EV procurement policy in place. Erie has an opportunity to build on existing momentum by continuing to identify and prioritize vehicles for electrification as they are up for replacement. The majority of Erie's fleet are leased with a five-year replacement schedule, which provides ample opportunity for incorporating new technology and meeting the Town's ambitious goal of electrifying 50% of the Town's light duty fleet. Erie's EV-first procurement policy includes opportunities for exemption; a formal electrification study (e.g., telematics) could help provide a more rigorous rubric for evaluating proposed exemptions. Erie has two fleet-specific chargers and as the Town moves toward its fleet electrification goal, it will likely need more dedicated charging for fleet vehicles.

Audience

- Town of Erie light duty fleet vehicles.

Target

- Electrify 50% of all light duty vehicles by 2030.
- Install adequate fleet-specific charging to support light duty vehicle electrification.

Scope

- Conduct a fleet electrification telematic study.
    - Leverage relevant Xcel Energy programs, if applicable.
    - Meet with fleet users to cultivate buy-in for telematics study.
    - If not using Xcel Energy, secure funding for third party telematics study.
    - Conduct telematics study.
- Use study results to develop a prioritized list of vehicles to target for electrification, based on replacement cycles, fleet expansion, and duty cycles.
- Based on prioritized list of vehicles, develop a charging infrastructure plan
    - Coordinate charging infrastructure procurement and installation with electric vehicle procurement.

Roles and Responsibilities

- Partners in Energy
    - Connect Town of Erie with relevant Xcel Energy programs (e.g., fleet assessment, charging infrastructure rebates).
    - Serve as a liaison to Xcel Energy to support installation of EV chargers on Town property.
- Town of Erie
    - Apply for relevant Xcel Energy and United Power programs.
    - Budget and pursue third-party telematics study, if necessary.
    - Lead integrated vehicle electrification and charging infrastructure investment planning.

Available Resources/Key Considerations

- Charge Ahead Colorado funding can only be used to purchase public chargers and beyond what is required by local code.
- Fleet Zero funding is limited to areas within disproportionately impacted communities.
- Xcel Energy may have funding available to support municipal EV charging stations.
- Assess available Xcel Energy fleet related programs for reducing greenhouse gas emissions such as https://co.my.xcelenergy.com/s/business/rate-plans/critical-peak-pricing.

T-3 Decarbonize Town of Erie Facilities

The Town of Erie facilities represent an opportunity for Erie to lead by example. The Town of Erie has already invested in one municipal electrification project (Town Hall Phase 1) and is planning several more.

Audience

- New Town facility development and large-scale redevelopment (e.g., Town Hall, Police Department).
- Existing Town facility retrofits (e.g., Erie Chamber of Commerce, Erie Community Center, Leon A. Wurl Service Center).

Target

- One all-electric facility by the end of 2025.
- Enroll in Energy Efficient Buildings or Energy Design Assistance for all developments and redevelopments within Xcel Energy territory.
- Net-zero energy use by 2030.

Scope

- Identify, prioritize, and implement municipal building electrification projects through 2030.
    - Support Town Hall Phase 2 electrification.
    - Enroll in Energy Design Assistance to support Police Department electrification.
    - Use findings from investment grade audits to identify and prioritize electrification retrofits for the Erie Chamber of Commerce, Erie Community Center, and Leon A. Wurl Service Center.
    - Leverage utility, regional, and federal funding to support new development and retrofits.
- Identify and pursue offsets to reach net-zero energy by 2030.
    - To offset electricity emissions, pursue community solar garden partnership or subscription opportunities.
    - To offset natural gas emissions, pursue carbon offsets such as tree planting.
- Conduct outreach and education to share with Town leadership.
    - Host an informational session with Council to share the Town's electrification progress, highlighting benefits such as "walking the talk", occupant comfort, health benefits, leveraged funding, and operational savings.
    - Create a Channel 8 spotlight to showcase electrification projects to the community.
    - Host a community tour for Town Hall highlighting all electric features. Consider partnering with local schools for class field trips.

Roles and Responsibilities

- Partners in Energy

    - Serve as a liaison to Xcel Energy representatives and programs as needed, to support building electrification projects.
    - Identify and share available funding and incentives to support municipal electrification projects (e.g., utility programs, state funding).
    - Support a high-level energy use and cost analysis (e.g., not an engineering study) for proposed electrification projects through 2030.
    - Research carbon offset opportunities.
    - Support Council presentations by sharing relevant information about planning process and Xcel Energy programs.
    - Provide process management support for Channel 8 story development.
- Town of Erie
    - Lead implementation of municipal electrification projects, including project prioritization and pursuit of relevant funding.
    - Lead pursuit of carbon offsets, including selection of offset opportunities and purchase of offsets.
    - Lead council presentation(s), including development of educational materials and delivery of presentation.
    - Lead development of Channel 8 spotlight, including coordination with Channel 8, development of story details, and participation in production.

Available Resources/Key Considerations

- For all new developments, the Town of Erie is meeting or exceeding IECC 2021 code requirements.
- The Police Department redevelopment may qualify for Energy Design Assistance from Xcel Energy
- The Town is considering electric HVAC, geothermal, solar, and battery storage for the Police Department expansion.

Beneficial Electrification Plan Impact

In summary, the strategies outlined in this plan are intended to achieve the Xcel Energy program participation targets shown in Table 1 through 2025. Meeting these targets will be aided through 18 months of Partners in Energy implementation support.

Table 1: Annual Implementation Tracking Targets Through 2025

Implementation Targets (Annual)	Baseline (2023)	Target (2025)	% Increase
Existing Residential Program Participation			
Home Energy Audit, Home Energy Squad	50	58	15%
Heat Pump Installations HVAC or peat pump water heater	n/a	≥ 5 installs	n/a
Existing Commercial Program Participation			
Electrification Pilot Project Properties to complete a space or water heating electrification pilot project	n/a	1 to 5	n/a
New Construction Program Participation			

Xcel Energy New Construction Program Participation At least one residential and one commercial new development participant	n/a	≥ 1 residential ≥ 1 commercial	n/a
Town-Led Program Participation			
Implement One New All-Electric Facility	0	≥ 1	n/a
Total Town-Owned Public EV Chargers	22	35	59%

The above targets will leverage an assortment of Xcel Energy Demand Side Management (DSM) programs. DSM programs are offerings made available to residents and businesses to improve building energy efficiency or to redistribute energy demand to different times of day. For residential and commercial properties residing in territory served by United Power, related United Power incentive programs may also be leveraged to aid the Town of Erie in meeting its targets and goals.

HOW WE STAY ON COURSE

This Energy Action Plan is a living document. Goals and strategies will be assessed and refined as needed based on data and community capacity. Implementation of this plan is anticipated to span 18 months and will then be reevaluated.

Project Management

The day-to-day implementation of this plan will be led by the Project Management Team, consisting of the Town of Erie and Xcel Energy Partners in Energy. Partners in Energy will provide project management and technical support throughout the 18-month implementation period, as described in the roles and responsibilities section of each strategy work plan. Partners in Energy will also continue to facilitate regular project management team check-in meetings.

Data and Reporting

Partners in Energy will provide biannual progress reports with metrics of success and overall progress towards goals for Xcel Energy rebates and programs. These reports will be available publicly and shared with the Town of Erie. United Power will be responsible for sharing electricity consumption and program participation data.

Rebates, Resources, and Financing Tools to Support Plan Impact

Partners in Energy can readily track participation in Xcel Energy's DSM and renewable energy programs, which is why program participation was selected as the primary metric for implementation targets. However, there are other incentives, resources, and financing tools available to support residents and businesses along their decarbonization journeys. To maximize the impact of this plan, the Energy Action Team will connect residents and businesses with relevant resources from the Town of Erie, Boulder County, the state, and the federal government. The Town of Erie developed the

following non-exhaustive summary of resources available to support residents and businesses on their electrification journeys.

Residential Resources

Advising

- Xcel Energy Home Services: Options such as a Home Energy Squad or home energy audit to identify ways to save energy with a personalized home assessment.
- Boulder County EnergySmart: Advisors provide no-cost advising to residents interested in home energy projects.
- The Denver Regional Council of Governments (DRCOG) was awarded a $199 million federal grant from the Environmental Protection Agency's Climate Pollution Grants for a building decarbonization program. The grant-funded program will support several coordinated initiatives to reduce carbon pollution from buildings, foster workforce development and offer financial incentives for home services and electric appliances, such as heat pumps, water heaters and electric cooktops and ranges.

Rebates and Incentives

- Xcel Energy Rebates: In part from the Clean Heat Plan which has bonus rebates, utility rebates include heat pumps, heat pump hot water heaters, insulation/air sealing, smart thermostats, and EV-related investments.
- United Power Rebates: Utility rebates for heat pumps, electric water heaters, electrification wiring, outdoor power equipment, and EV-related investments.
- Boulder County EnergySmart Rebates: County rebates for heat pumps, heat pump hot water heaters, insulation/air sealing, fuel switching (gas stove removal), solar PV, electric panel upgrades, etc.
- Town of Erie Rebates: Town rebates for heat pumps, heat pump hot water heaters, evaporative coolers, electric appliances, solar PV and battery storage, EV charging, E-Bikes, smart meters, electric lawn equipment, etc.
- Inflation Reduction Act (IRA) Incentives: IRA tax credits are available for residential decarbonization projects including energy audits, electrification, weatherization, heat pumps, renewable energy, and EVs. Due to changes in the administration and ongoing policy reviews, the funding and programs outlined in the Inflation Reduction Act may be temporarily on hold. This pause is part of a broader reassessment of government priorities and strategies.
- The Denver Regional Council of Governments (DRCOG) was awarded a $199 million federal grant from the Environmental Protection Agency's Climate Pollution Grants for a building decarbonization program. The grant-funded program will support several coordinated initiatives to reduce carbon pollution from buildings, foster workforce development and offer financial incentives for home services and electric appliances, such as heat pumps, water heaters and electric cooktops and ranges.

Financing

- Colorado Residential Energy Upgrade (RENU) Loan: Statewide residential loan program through the Colorado Clean Energy Fund in partnership with Colorado-based credit unions.
    - Loans up to $75,000, up to 20 years, no money down.
    - Can finance solar PV, battery storage, space heating/cooling, water heating, EV charging, insulation/air sealing, and windows/doors.

Commercial Resources

Advising

- Boulder County Partners for a Clean Environment (PACE) Advising: Provides no-cost advising to business owners interested in building energy projects.
- Colorado Clean Energy Fund: Provides no-cost advising to business owners interested in financing options for energy projects.

Rebates and Incentives

- Xcel Energy Rebates & Programs
    - Utility rebates for LED lighting upgrades and HVAC equipment, facility assessments, energy management systems, etc.
    - Businesses less than 50,000 square feet may qualify for Xcel Energy's Direct Install program and could receive free LED lightbulbs and additional items.
- Xcel Energy Commercial EV Charger Rebates
    - EV Supply Infrastructure (EVSI) rebates cover the costs of equipment and labor associated with the installation of Level 2 and Direct Current Fast Charging (DCFC) EV charging systems such as meter cabinets, electrical panels and wiring. EVSI does not cover the cost of the charger itself.
    - EV Supply Equipment (EVSE) rebates will cover a portion of the costs of the charging equipment for eligible charger types.
    - Rebates are also available to cover the costs of EVSI for new construction parking spaces that exceed local building codes.
- Boulder County Partners for a Clean Environment (PACE) Rebates
    - County rebates for building electrification studies, space heating/cooling, water heaters, heat/energy recovery ventilators, insulation/air sealing, lighting, solar PV, and fuel switching.
    - PACE also offers custom rebates for efficiency measures not covered by prescriptive rebate programs including new rebates for installers
- Town of Erie Programs: Rebates for heat pumps, heat pump hot water heaters, evaporative coolers, electric appliances, solar PV and battery storage, EV charging, E-Bikes, smart meters, electric lawn equipment, etc.
- The Denver Regional Council of Governments (DRCOG) was awarded a $199 million federal grant from the Environmental Protection Agency's Climate Pollution Grants for a building decarbonization program. The grant-funded program will support several coordinated initiatives to reduce carbon pollution from buildings,

foster workforce development and offer financial incentives for home services and electric appliances, such as heat pumps, water heaters and electric cooktops and ranges.

- Inflation Reduction Act (IRA) Incentives: IRA tax credits are available for commercial decarbonization projects including building efficiency and electrification, renewable energy, and EVs. Due to changes in the administration and ongoing policy reviews, the funding and programs outlined in the Inflation Reduction Act may be temporarily on hold. This pause is part of a broader reassessment of government priorities and strategies.

Financing

- Colorado Commercial Property Assessed Clean Energy (C-PACE): Commercial loan program through Colorado Clean Energy Fund in partnership with Sustainable Real Estate Solutions (SRS).
    - Finance 100% of eligible soft and hard costs.
    - Loans up to 25 years.
    - Repayment through property taxes and if property changes ownership, loan stays with property.
    - Can finance renewable energy, battery storage, space heating/cooling, water heating, EV charging, and insulation/air sealing.
- Clean Conversion Loan: Commercial loan program through Colorado Clean Energy Fund designed as an alternative to C-PACE
    - Loans up to $1M, up to 15 years.
    - Repayment through monthly payments.
    - Can finance renewable energy, battery storage, space heating/cooling, water heating, EV charging, and insulation/air sealing.
- Energy Project Accelerator Loan (Energy PAL): Commercial loan for small businesses through Colorado Clean Energy Fund
    - Loans up to $500,000, up to 10 years.
    - Repayment through monthly payments.
    - Can finance renewable energy, battery storage, space heating/cooling, water heating, EV charging, and insulation/air sealing.
- National Energy Improvement Fund: Company partnered with Xcel Energy to provide businesses with financing options through Xcel approved lenders.
    - Loans for projects $2,000+, up to 7 years.
    - Repayment through monthly payments.
    - Can finance renewable energy, battery storage, space heating/cooling, water heating, and EV charging.

APPENDIX A: BENEFICIAL ELECTRIFICATION BASICS

(Appendix updated January 2025)

Since beneficial electrification and electric vehicles (EVs) are newer concepts and emerging technology is rapidly changing, it is important to ensure that everyone has a common understanding of the technology and terminology involved. This section explains what beneficial electrification is, typically building electrification and EVs.

Beneficial Electrification

Beneficial electrification is the replacement of direct fossil fuel use that results in either lower costs, reduced emissions, or more effective use of the power grid. It encompasses building electrification and transportation electrification.

Building electrification seeks to reduce direct fossil-fueled appliances, such as HVAC or water heating systems, at the same time the electric grid is decarbonizing with wind, solar, and other cleaner forms of power.

Transportation electrification refers to transitioning fossil-fueled vehicles to ones powered by electricity, such as passenger vehicles or transit.

Building Electrification

Fossil fuel-burning appliances in buildings account for one-tenth of greenhouse gas emissions in the United States (RMI, 2019). Swapping fossil fuels like natural gas and propane with electricity from an increasingly cleaner electric grid will result in significant climate benefits.

Electric options for building equipment are becoming increasingly available. Air source heat pumps offer the most promise to displace gas-fueled forced air furnaces. Heat

pump systems are ready and available for new construction and some retrofits. Cold climate heat pumps have been successful, with hundreds of thousands of units installed in cold climate regions in the U.S.

Electrification and Space Heating

The powerhouse of beneficial building electrification is the heat pump for space heating. Two types of heat pumps are most common for electrifying space heating: air source heat pumps (ASHP) and ground source heat pumps (GSHP). Both provide heating and cooling to buildings, using highly efficient heating technology that can effectively reduce greenhouse gas emissions. Both ASHPs and GSHPs use the same technology that can be found in a refrigerator.

Air Source Heat Pumps (ASHP) / Cold Climate Heat Pumps

In the winter, an ASHP extracts heat from outside cold air using a colder refrigerant and then compresses the refrigerant to heat it up. In the summer, the process is reversed, the compressed hot refrigerant rejects its heat to the outside air.

Cold climate ASHPs can heat homes to as low as -13°F in addition to cooling homes during the summer. They can also be used in non-ducted and ducted formats. A back-up system fueled by either electricity or natural gas is recommended to supplement systems when the temperature drops below -13°F (Center for Energy and Environment., 2023). Altitude can also potentially impact heat pump performance. Air Conditioning Contractors of America (ACCA) recommends allowing up to 10% reduction in performance for homes at higher elevations.

Mini-split Heat Pumps

For homes and buildings that do not have air ducts, property owners often install ductless ASHPs (also known as a mini-split heat pump), which can supply hot and cold air directly to rooms via refrigerant lines that run outside the home.

Ground Source Heat Pumps (GSHP)

A GSHP takes advantage of the relatively cool underground temperatures in the summer and the warm temperatures in the winter to manage a home’s internal temperature. The ground acts as a natural insulator, keeping ground temperatures at a relatively constant temperature. GSHPs take advantage of this constant temperature to regulate and enhance indoor temperatures.

Water Heating

There are a couple different options for converting these units.

Heat Pump Water Heater

A heat pump water heater uses electricity to move existing heat from one place to another instead of generating heat directly. They can also be used either as a stand-alone water heating system or as a combination system for both hot water and space conditioning.

Tankless or On-Demand Water Heater
A tankless or on-demand water heater forgoes a traditional tank in favor of heating water on demand. This increases energy efficiency and saves money and space at the same time.

Cooking
There are several different options for converting these units including:

Electric Stove
An electric stove is a stove with an integrated electrical heating device to cook and bake.

Induction Electric Stove
An induction electric stove works by using electricity to generate an electromagnetic field below the glass cooktop surface, which causes magnetic cookware sitting on top to heat up. Induction stoves are 90% efficient, while traditional electric stoves are only 74% efficient and gas stoves only 40% efficient at transferring heat to the cookware (Rewiring America, 2025).

Electric Vehicle Basics
EVs refer to any vehicle that uses an electric motor. An EV can have a fully electric motor or can contain an internal combustion engine that supports the electric motor. A plug-in electric vehicle (PEV) utilizes an external source of electricity to store electrical energy within its onboard rechargeable battery packs. The travel range of the two types of plug-in electric vehicles are outlined in Table 2 and are described in more detail in the following sections.

Table 2. Comparison of Types of Electric Vehicles

Electric Vehicle Type	Power Source	Travel Range
Battery Electric Vehicle (BEV)	Electric Motor	200 – 520 miles
Plug-in Hybrid Electric Vehicle (PHEV)	Electric Motor + Gasoline Engine	315 – 660 miles

Battery Electric Vehicle (BEV)
A BEV is an all-electric vehicle that does not require gasoline and, thus, has no tailpipe emissions. BEVs are fueled by plugging into charging stations. Energy is stored in the battery to be used when the car is running. Distances that a BEV can travel on a single charge range from 200 to 520 miles with longer distances continued in the future through continual advancements in battery technology. Recharging can take anywhere between 30 minutes to 24+ hours depending on the type of charger, size of the battery, and level of depletion in the battery (Drive Change. Drive Electric., 2023).

Plug-In Hybrid Electric Vehicle (PHEV)
A PHEV provides a combination of both an electric motor and a gasoline engine and produces less tailpipe emissions than an internal combustion engine. PHEVs use energy from the electric motor until the battery charge is fully depleted, which can occur

between 15 to 60 miles, at which point, the gasoline engine takes over. The distance that a PHEV can travel on a single charge and full tank of gasoline ranges between 315 and 660 miles. The battery is charged similarly to the BEV through a plug, and the fuel tank is filled by traditional gas station (Drive Change. Drive Electric., 2023).

Charging Stations

EV charging stations are separated into three categories based on the speed at which the vehicle is charged: Levels 1, 2, and 3 or DC fast chargers. The sections below detail the appropriate application for each charger type.

Residential Charging Stations

Residents have two options for charging at home. Level 1 chargers use standard 120-volt AC outlets and can take 8 to 36 hours to fully charge a depleted battery. Level 2 chargers require a 240-volt AC outlet and can fully charge a depleted battery in 4 to 10 hours. Residents can charge during off-peak hours to reduce the impact on the grid. Table 3 provides a brief explanation along with the pros and cons of both types. All currently available EVs can use either charger type.

Table 3. Residential Electric Vehicle Charging Types

	LEVEL 1	LEVEL 2
		
Electric Current (AC)	120 volts; 20 amps	208/240 volt; 30 amps
Charging Rate (miles range per hour of charging)	2 to 5	20 to 45
Benefits	• Uses standard residential wall outlet • Little to no investment in infrastructure required	• Quicker charging • Some models have available Wi-Fi controls to allow residents to take advantage of time-of-day electric rates • In the case of multifamily housing, the controls

	LEVEL 1	LEVEL 2
		could be managed by a property manager.
Drawbacks	• Slower charging rate, but usually sufficient for residents who charge overnight	• Requires 240 Volt outlet or hardwired charger • Electrician likely required to install • Higher infrastructure cost investment
Estimated Costs	Low to no cost	$200 to $2,000

Commercial Charging Stations

Commercial Level 2 and 3/DC fast chargers are most appropriate for commercial applications since EVs are generally parked for shorter periods of time at commercial buildings compared to homes. Level 2 chargers are the same as the residential chargers and often have the option to include two charging ports at one station. Level 3 or DC fast chargers require an industrial DC outlet of 480 volts and can charge batteries in 20 to 45 minutes. Many commercial chargers also come equipped with software that allows the user to control when vehicles are charging and may facilitate payment in public applications. Table 4 shows the advantages and disadvantages of Level 2 and 3/ DC fast chargers.

Table 4. Level 2 and DC Fast Charging Infrastructure

	LEVEL 2	Level 3/DC Fast Charger
		
Electric Current	208/240 volt; 30 amps (AC)	480 volts DC

	LEVEL 2	Level 3/DC Fast Charger
Charging Rate (miles range per hour of charging)	20 to 45	200 to 400+
Benefits	• More economical than DC fast charging • Safe for long-term use	• Fastest charging option available
Drawbacks	• Slower charging	• Very expensive to purchase and install • Can cause degradation to EV batteries with frequent use
Estimated Equipment Costs	$2,500 to $6,000 (ICF, 2022)	$20,000 to $150,000 (ICF, 2022)

APPENDIX B: GLOSSARY OF TERMS

15 x 15: Xcel Energy's privacy rule, which requires all data summary statistics to contain at least 15 premises, with no single premise responsible for more than 15% of the total. Following these rules, if a premise(s) is responsible for more than 15% of the total for that data set, it is/they are removed from the summary.

Alternating Current (AC): The most common form of electricity used in homes and businesses uses alternating current where the current periodically changes direction. Batteries require DC electricity to charge, so EV chargers must convert the supplied AC electricity to DC power.

Amps: The measurement of the amount of electrical energy "flowing" through a charger. This is determined by the electrical load required by the equipment and can vary over time.

Battery Electric Vehicle (BEV): An all-electric vehicle, fueled by plugging into an external charger, that has no tailpipe emissions. Requires low maintenance costs.

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

Beneficial Electrification: The replacement of direct fossil fuel use that results in either lower costs, reduced emissions, or more effective use of the power grid.

Building Electrification: Transitioning fossil-fueled appliances to ones powered by electricity, such as HVAC or water heating systems.

Carbon-free: Sources of energy that will not emit additional carbon dioxide into the air. Wind, solar, and nuclear energy are all carbon free sources, but only wind and solar are renewable.

Carbon-neutral: Also described as “net zero”; could include carbon-free sources but is broader and refers to energy that removes or avoids as much carbon dioxide as is released over a set period of time. It is sometimes used to describe a site that produces an excess amount of electricity from a renewable energy source, such as solar, compared to what it consumes. That excess energy is put back into the electric grid, in an amount that offsets the carbon dioxide produced from the electricity it draws from the grid, when it is not producing renewable energy.

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

Demand Side Management (DSM): Modification of consumer demand for energy through various methods, including education and financial incentives. Aims to encourage consumers to decrease energy consumption, especially during peak hours, or to shift time-of-energy use to off-peak periods such as nighttime and weekend.

Direct Current (DC): The form of electricity where the current only flows in one direction. This is the type of electricity that batteries supply and require in order to charge. EV chargers must convert the supplied AC electricity to DC power.

Electric vehicle (EV): A vehicle that uses an electric engine for all or part of its propulsion.

Electric vehicle supply equipment (EVSE): Infrastructure required to support EVs such as chargers, electrical supplies, etc.

Energy Burden: Percentage of gross household income spent on energy costs.

Energy Conservation: The result of behavior changes that cause less energy to be used. For example, setting the thermostat to a lower temperature *reduces* the energy used in your home during the winter. Since energy reductions can be easily reversed, they are not accounted for when calculating changes in energy usage.

Energy Savings: Comes from a permanent change that results in using less energy to achieve the same results. A new furnace uses X% less energy to keep your home at the same temperature (all things being equal), resulting in energy *savings* of X%. For accounting purposes, energy savings are only counted in the year the new equipment is installed.

EV-Ready Codes: Local government codes that require installation of a 40-amp, 208/240-volt, dedicated branch circuit (similar to that of an electric dryer or oven), along with a circuit terminating in a receptacle, junction box, or EV charging station at certain parking facilities (Southwest Energy Efficiency Project, 2023).

Fleet Electrification: Replacing internal combustion engine vehicles with equivalent electric vehicles in a public or business fleet.

Greenhouse Gases (GHG): Gases in the atmosphere that absorb and emit radiation and significantly contribute to climate change. The primary greenhouse gases in the earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

Grid Decarbonization: Current planned reduction in the carbon intensity of electricity provided by electric utilities through the addition of low-or no-carbon energy sources to the electricity grid.

Heat Pump: Heat pumps offer an energy-efficient alternative to furnaces and air conditioners for all climates. Like your refrigerator, heat pumps use electricity to transfer heat from a cool space to a warm space, making the cool space cooler and the warm space warmer.

Heavy-duty vehicles: Commercial vehicles over a minimum Gross Vehicle Weight Rating (GVRW) of 8,500 lbs.

HVAC: Heating, ventilation, and air conditioning

Hybrid Electric Vehicle (HEV): Contains both an electric motor and a gasoline engine. The gasoline engine powers a generator that charges the electric motor. No external battery charger is used. Runs at a constant speed, which increases fuel efficiency.

Internal combustion engine (ICE): Traditional vehicle engine that uses the direct combustion of gasoline, diesel, or other fuels.

Kilowatt-hour (kWh): The amount of electricity being sent to the EV battery from the charger in one hour. This is calculated by volts times amps and divided by 1,000.

Level 1 Charging Station: Uses a standard 120-volt AC outlet and can take 8 to 24+ hours to fully charge a depleted battery; intended for residential use only.

Level 2 Charging Station: Uses a 220-volt or 240-volt AC outlet and can fully charge a depleted battery in four to ten hours; can be used in both residential and commercial settings.

Level 3/DC Fast Charging Station: Uses an industrial 480-volt DC outlet and can charge a battery to 80% in 20 to 45 minutes; used in commercial settings where the anticipated charge time is limited (e.g., supermarket, gas station, etc.); will be used on Alternative Fuel Corridors – a national network of major thoroughfares supporting EVs and other alternative fuels.

Light-Duty Vehicles: Passenger cars with a maximum Gross Vehicle Weight Rating (GVRW) of 8,500 lbs.

Million British Thermal Units (MMBtu): Unit of energy consumption that allows electricity and natural gas consumption to be combined.

Metric Tons of Carbon Dioxide Equivalent (MTCO2e): A unit of measure for greenhouse gas emissions. The unit "CO2e" represents an amount of a greenhouse gas whose atmospheric impact has been standardized to that of one unit mass of carbon dioxide (CO2), based on the global warming potential (GWP) of the gas.

Megawatt (MW): A unit of electric power equal to 1 million watts.

Plug-in Electric Vehicle (PEV): A vehicle that uses an electric motor and utilizes an external source of electricity to store electrical energy within its onboard rechargeable battery packs.

Plug-in Hybrid Electric Vehicle (PHEV): Contains both an electric motor and a gasoline engine. An external plug is used to fuel the electric motor. The electric motor is used until the battery is depleted; at this point the gasoline engine takes over. Lower tailpipe emissions than traditional internal combustion engine and longer ranges than most BEVs.

Premise: A unique combination of service address and meter. For residential customers, this is the equivalent of an individual house or dwelling unit in a multi-tenant building. For business customers, it is an individual business, or for a larger business, a separately metered portion of the business's load at that address.

Range Anxiety: Fear of running out of power in an EV before reaching a charging station or desired destination.

Range per hour (RPH): A measurement of the miles an EV can travel on one hour of charge. This is generally applied to EV charging stations and expressed in terms of typical EV efficiency.

Resilience: The ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents.

Subscription: Agreement to purchase a certain amount of something at regular intervals.

Therm (thm): Unit of natural gas consumption.

Transportation Electrification: Transitioning fossil-fueled vehicles to ones powered by electricity, such as passenger vehicles or transit.

Vehicle miles traveled (VMT): A way of measuring integration of EVs and associated reduction in GHG emissions by considering electric miles that replace traditional vehicle miles.

Volts: A measurement of the force pushing the flow of energy through a charger. This measurement is determined by electricity supply. Standard household outlets provide 120 volts; outlets for dryers or other high-powered household equipment supply 240 volts.

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