Sustainability Advisory Board
Town of Nederland, CO

An Electric Vehicle Action Plan for Town of Nederland

January 2023

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 Electric Vehicle (EV) Action Plan.

The content of this plan is derived from a series of planning workshops hosted by Xcel Energy's Partners in Energy. Xcel Energy is the main electric utility serving the Town of Nederland. Partners in Energy is a two-year collaboration to develop and implement a community's energy goals. In 2019, Partners in Energy launched an EV-specific planning process to help communities develop plans to meet their EV goals.

Town of Nederland EV Team

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This EV 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 Town of Nederland has made modifications to the plan.

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Town of Nederland Electric Vehicle Plan

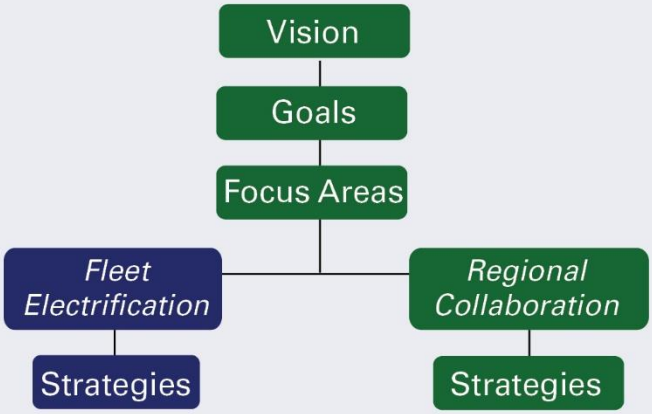
About this Plan

Over the course of 6 months in 2022 and 2023, the Town of Nederland came together with key staff members, stakeholders, and Xcel Energy to develop a strategic Electric Vehicle Action Plan with two key focus areas. Together these two focus areas aim to promote innovative electrification solutions that reduce greenhouse gas emissions.

Relationship to Regional Transportation Electrification Plan (Regional Plan)

The Electric Vehicle (EV) plan supports and builds on the Regional Plan, which Nederland participated in as a stakeholder, to maximize impact and strengthen related regional efforts. The relationship between the Regional Plan and this plan is shown in the diagram to the right. Note, fleet electrification is not addressed in the Regional Plan, as local municipal fleet electrification is unique to each community, and therefore is a separate focus area in the Town of Nederland's EV plan.

Green boxes align with the regional plan.



Our Electric Vehicle Vision and Goals

Vision: The Town of Nederland supports the work of regional partners to implement solutions that encourage the large-scale and equitable transition to zero-emission vehicles.

Goals: To support the Regional Plan and the GoEV Cities and Counties resolution, this plan's goals mirror those outlined in the Regional Plan. Specifically:

Transition 30% of all vehicles registered in Boulder County to zero-emission vehicles by 2030.

By 2030, install a combined 2,380 public level 2 and DC fast charging stations equitably distributed across Boulder County.

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Our Roadmap for Achieving this Vision & Goal

To achieve this vision and ambitious goals, the Electric Vehicle Action Team identified the following focus areas to prioritize strategies and resources:

Fleet Electrification

Strategies to transition the town fleet to EVs or other zero-emissions vehicles.

Strategy 1: Develop Fleet Replacement Plans

Strategy 2: Electric Vehicle Driver Training

Strategy 3: Electric Vehicle Maintenance Training

Regional Collaboration

Strategies to build on the regional effort through the lens of the Town of Nederland and integrate the Regional Plan into Nederland's goals and policies.

Town Strategies	Related Regional Plan Strategies
Strategy 1: Local and Community Outreach and Incentives	• CA – 1 Regional Community Outreach • CA – 2 Residential EV Purchasing Incentives
Strategy 2: Equitable EV Carshare Program	• CA – 3 Equitable EV Carshare Program
Strategy 3: Multifamily Charging Outreach and Incentives	• HW – 1 Multifamily Charging Outreach • HW – 2 Multifamily Charging Incentives
Strategy 4: Mapping and Development of Public Charging Station Locations	• PU – 1 Mapping Public Charging Station Locations
Strategy 5: Regional Public DC Fast Charging Installations	• PU – 2 Regional Public DC Fast Charging Installations
Strategy 6: Explore New EV Pricing Structure	• PC – 2 Pricing Structure Best Practices
Strategy 7: EV- Ready Codes and Policies	• N/A

2030 Impact

Two cross-cutting themes informed the prioritization of strategies in this plan and will guide implementation:

Fleet Electrification

2 Fleet Vehicle Replacement Plans

2 New Electric Vehicles for Public Works

3 EV Charging Stations

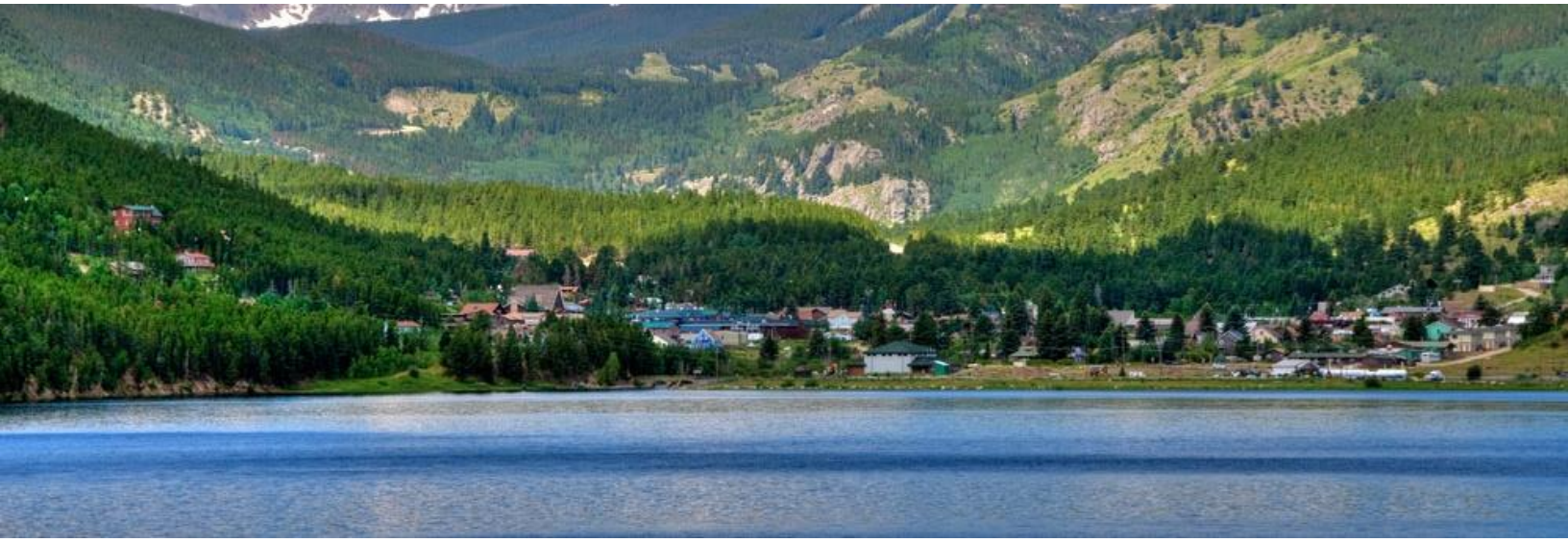
Regional Collaboration

2 New DC Fast Chargers

1,025 EVs Registered

1 EV CarShare Program

INTRODUCTION



The Town of Nederland (Ned) has a robust sustainability program that is driven by the Sustainability Advisory Board (SAB). The SAB has developed the following sustainability definition to guide the group's actions:

> *Sustainability is the conscious lens through which to view all issues…It incorporates a holistic approach to community planning and policy making that enables residents to meet their needs and maintain a high quality of life, without compromising the ability of future residents to do the same…With proper planning and forethought, sustainable practices actively support opportunities for a localized economy, an independent and self-reliant community, and small-town resiliency while demonstrating how people can voluntarily work together within the mountain community to obtain a more harmonious existence with our ecosystem.*

This plan applies Ned's approach to sustainability to help improve transportation sustainability of the Town fleet through vehicle electrification and support of regional electric vehicle (EV) efforts.

What Is an EV Action Plan?

This EV Action Plan is a roadmap to strategically guide Ned's actions in a manner that supports equitable adoption of zero-emissions vehicles for town residents and visitors.

The EV goals and strategies outlined in this plan build on the Regional Transportation Electrification Plan for Boulder County Communities and were developed collaboratively with a stakeholder team, through a planning workshop conducted in August 2022 and a series of meetings with Town staff in the fall and winter of 2022. Since successful deployment of many EV strategies relies on collaboration between Ned, Boulder

County, and Xcel Energy, representatives from all organizations were included. Team members coordinated throughout the process to share information and identify potential opportunities for partnership during implementation.

The Town is one of more than 35 other Colorado communities that have developed EV and Energy Action Plans through Xcel Energy's Partners in Energy, an offering that provides resources for community energy planning - including support for short-term implementation.

The components of Town of Nederland's EV Plan are detailed below:

Where We Are Now Outlines the relevant characteristics of Ned's electric vehicle landscape.

Where We Are Going Describes Ned's EV vision and goals through a planning horizon of 2030.

How We Are Going To Get There Identifies focus areas and strategies to achieve the defined goals, along with targets and metrics that quantify success in each focus area.

How We Stay On Course Outlines how Ned will track progress toward targets, goals, and vision, and how it will adapt to a changing landscape during the coming 8-year implementation period.

Appendices Provide additional information about EV basics, current Xcel Energy Programs, the Executive Summary for the Regional Transportation Electrification Plan for Boulder County Communities, and EV-Ready Code Amendments.

Why an EV Action Plan?

This EV plan is one of several initiatives developed by Town staff, the Sustainability Advisory Board, and residents to promote sustainability throughout the community. Some of the main motivations for promoting EVs in the community are shown below. Since the majority of transportation impacts for Nederland are from visitor traffic or regional commuting (instead of travel within the community), the drivers in this EV plan are shown at a county scale.

Greenhouse Gas Emissions

On December 12, 2015, at the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement was reached to "combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future" (UNFCCC, 2019). In support of this effort, the Intergovernmental Panel on Climate Change (IPCC) published a report in 2018 identifying potential solutions to keep global temperature change below 1.5°C as well as the vital role that cities have in the urban transition. Among other strategies, the IPCC states that "the transport sector must reduce its final energy use by 30% and must supply the majority of energy with low carbon fuels like electricity, hydrogen, and biofuel by 2050 in order to limit global

warming to less than 1.5°C and mitigate the worst impacts of climate change" (IPCC, 2018). In 2016, transportation emissions accounted for 31% of total Scope 1 & 2 emissions for Boulder County, so transportation electrification is a key strategy for regional GHG emissions reduction (Figure 1). EV adoption should be paired with other transportation strategies such as convenient and reliable public transportation, safe active transportation options, and smart development patterns for a holistic low carbon transportation future.

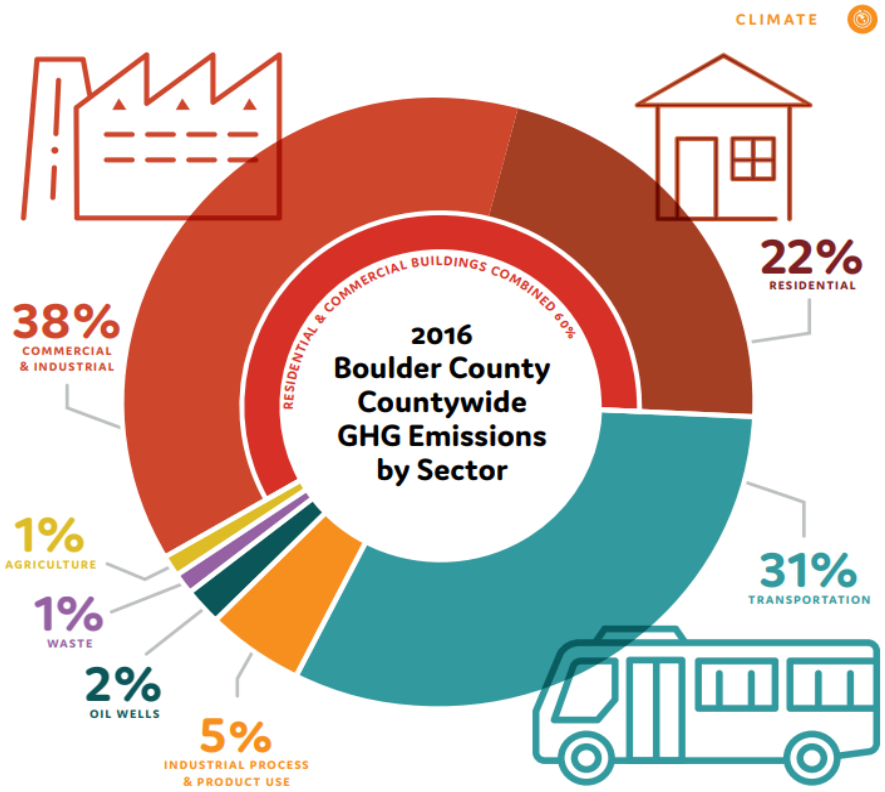


Figure 1: Boulder County 2016 GHG Emissions by Sector (Boulder County Office of Sustainability, Climate Action & Resilience, 2018)

Air Quality

In addition to contributing a significant portion of greenhouse gas emissions, the transportation sector also produces pollutants such as particulate matter (PM), nitrogen oxides (NO_x), carbon monoxide (CO), and VOCs. Pollutants like NO_x and volatile organic compounds (VOCs) contribute to ground-level ozone, which in addition to PM and CO, are harmful to respiratory health. Overall, EVs produce fewer pollutants as compared to their internal combustion engines (ICE) counterparts (Office of Energy Efficiency & Renewable Energy, 2020). As the fuel mix for electricity continues to decarbonize, the magnitude of air quality benefits associated with electrifying transportation will increase. Boulder County is part of the Denver-Metro region that is rated by the EPA as moderate to severe for ozone non-attainment. Ozone and particulate matter smaller than 2.5

Boulder County Air Quality

21

Days with Air Quality Index (AQI) Exceeding 100 in 2020[1]
(Earth Lab, 2021)

[1] Any air quality ranking over 100 means the air is unhealthy for sensitive groups including children, active adults, and people with respiratory disease; values over 150 are considered unhealthy for all groups.

microns (PM2.5) contribute a substantial number of days where the air is unhealthy for at least a portion of the population.

Energy Independence and Cost Stability

Over 70% of the petroleum imported to the US in 2020 was used by the transportation sector (DOE, 2022). Transitioning to EVs shifts the fuel options to more domestically available sources such as coal, nuclear, natural gas, and renewable energy. Integration of EVs is an important strategy for reducing dependence on fuel imports and isolates transportation costs from the volatile petroleum market (Office of Energy Efficiency and Renewable Energy, 2018). Figure 2 illustrates the fluctuations in gasoline and diesel prices compared to electricity prices from 2012 to 2022. Since a high percentage of residents' costs are due to transportation needs (see Transportation and Housing Costs), transitioning to EVs may allow residents to have lower and more predictable transportation costs.

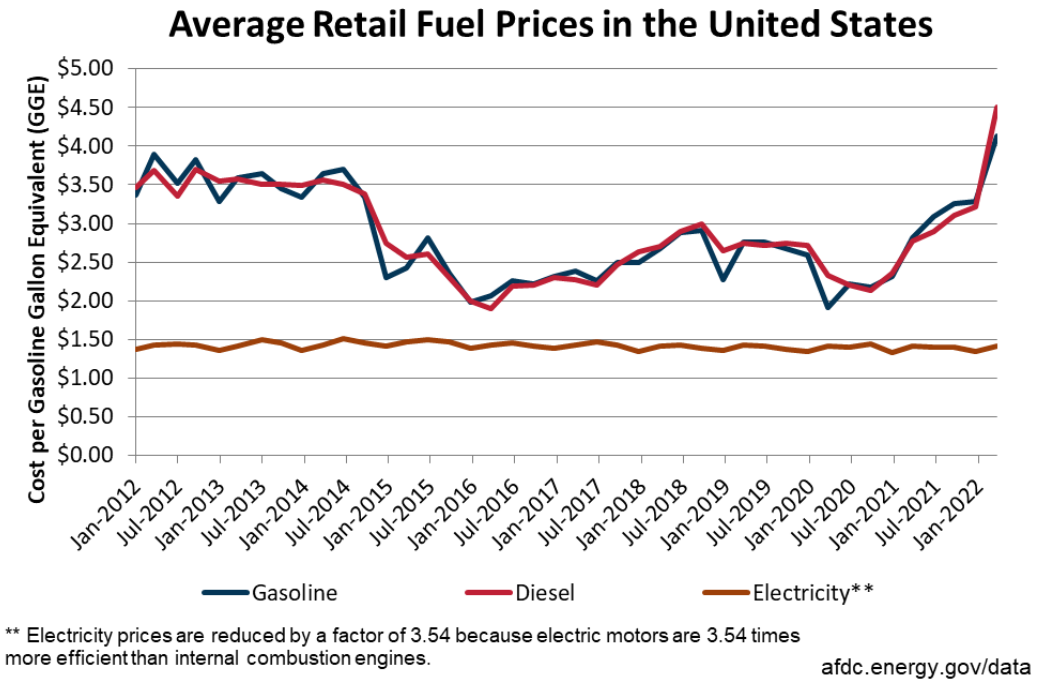


Figure 2. US Average Retail Fuel Prices. Adapted from: Alternative Fuels Data Center (Office of Energy Efficiency and Renewable Energy, 2019)

Lower Fuel & Maintenance Costs

While cost savings vary based on vehicle type, driving patterns, and geographic region, the average driver spends about half as much money in fuel and maintenance costs by driving an EV compared to driving a traditional internal combustion engine vehicle (Office of Energy Efficiency and Renewable Energy, 2019). Though upfront costs of EVs are still greater, this gap is expected to decrease as batteries become more efficient.

WHERE WE ARE NOW

To better understand the opportunities for EV adoption in the Town of Nederland, basic community characteristics are outlined below. Factors such as population growth, resident demographics, and housing statistics help contextualize current and future opportunities for targeted outreach and partnerships. EV-specific baseline data, such as EV ownership and infrastructure, is presented in the focus areas.

Geography and Population

The Town of Nederland is a small mountain community that encompasses 1.6 square miles along the shores of Barker Reservoir and is surrounded by National Forest land (Figure 3).

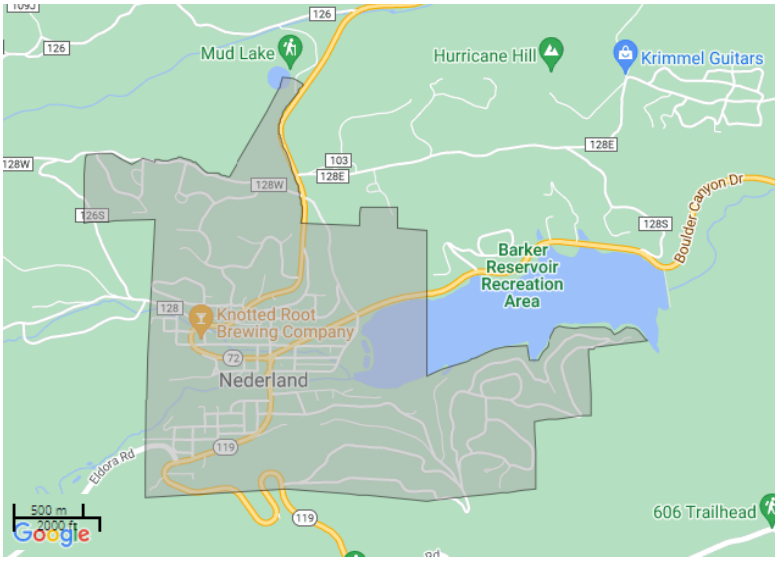


Figure 3. Clipped map of Town of Nederland (taken from data.colorado.gov website).

The town's growth is mainly limited to infill projects, which can make installing EV infrastructure more challenging and expensive. The current population is just over 1,500 people. While this is roughly the same population as Ned's population in 2016, it is a 2% increase compared to 2019 and potentially reflects a new trend as more people move to mountain communities due to the increasing number of opportunities to work from home and/or have flexible work environments.

The proximity to the mountains and Front Range communities also means that many visitors pass through Ned. In 2020, over 6,600 vehicles passed through the town each day (this number includes residents). This is over 2 million cars passing through the town each year (Figure 4). The number of cars passing through Ned is expected to increase to over 8,300 per day or over 3 million per year by 2042 (CDOT, n.d.). With the state of Colorado's population continuing to grow, Ned will most likely continue to serve as a stopping place for visitors to charge, increasing the need for EV infrastructure.

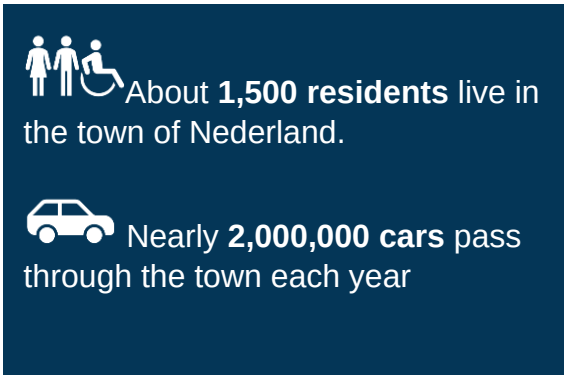


Figure 4. Town of Nederland annual population compared to annual number of vehicles that pass through the town each year. The number of cars that pass through the town each year is over 1,000 times more than the number of residents who live in the town.

Equitable Access

Historically, access to EVs has not been equitably distributed. Many factors, including housing, commuting, and transportation characteristics - covered below - can impact individual and community access to EVs. While many vehicle manufacturers are beginning to release lower-cost electric models, EVs still typically have a high price tag compared to gas- and diesel-powered equivalents. Paired with additional up-front costs associated with electrical upgrades to support home charging and a limited used EV market, this means that for many people cost is still a significant barrier to purchasing an EV. Early adoption has thus predominantly been associated with more affluent demographics. With 50% of Ned's residents renting and 25% of residents living below the State median income level (US Census Bureau, 2021), creating solutions that address these barriers will be critical to creating equitable EV adoption.

Housing Characteristics

There are two major housing factors that facilitate a resident's ability to convert their personal vehicle to an EV: home ownership and single-family residence. Homeowners can more easily install EV charging because they do not need to seek permission from the homeowner to do so, and the investment in infrastructure will likely increase the value of their property. Alternatively, renters may not have permission from the homeowner to install charging infrastructure and may be reluctant to invest in improving property they do not own. Single-family residences are also more likely to have personal garage space or carports to facilitate installation of charging stations rather than having

to rely on street parking or shared parking facilities. While over 90% of households in the Town of Nederland are single-family detached, only 50% of homes are owner-occupied (US Census Bureau, 2020). This combination creates both opportunities and barriers for EV adoption and infrastructure. Capitalizing on the high percentage of single-family detached homes while also finding ways to support renters will be key for the success of Ned's EV adoption.

Commuting Characteristics

Within Ned, 60% of residents drive to work and 48% of people drive alone. Commute times align with the state average of 30 minutes; however, a small percentage (4%) of drivers commute 90 minutes or more (US Census Bureau, 2021). While approximately 80% of EV owners do most of their charging at home, public charging stations ensure access for longer-distance commuters, visitors, those without access to home charging, and transportation services (e.g., ride hailing, delivery fleets). Additionally, 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, 2015). Supporting the adoption of EV charging at commercial facilities is an important strategy to bolster EV adoption overall; and public charging for visitor use will be especially important to Ned.

Transportation and Housing Costs

Typically, homes are considered affordable when household costs -, including mortgage and rental payments, property insurance, and utilities and fuels - total less than 30% of a household's income. As with many other communities along the Colorado Front Range, home prices have increased dramatically in Ned. Town residents spend an average of 24% of their income on housing costs and 21% on transportation costs (Figure 5) (Center for Neighborhood Technology, 2017). Transitioning to electric vehicles can be one opportunity to reduce these monthly expenses, since EVs typically cost about 50% as much to operate as similar ICE vehicles.

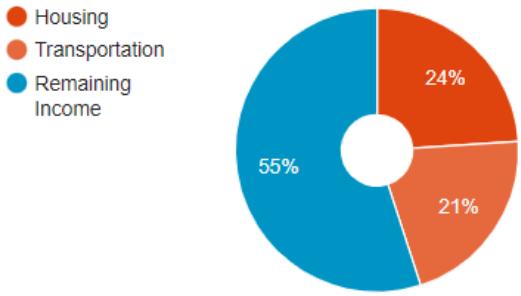


Figure 5. Average Housing and Transportation Costs Percent of Income for the Town of Nederland (Center for Neighborhood Technology, 2017).

Electric Vehicle Baseline

In 2021 there were 3,409 total vehicles registered in Nederland. Of these 41 were EVs (~1%) and 116 were plug-in and hybrid electric vehicles (~3%). At the county level, there were 262,721 total vehicles registered in Boulder County in 2021. Of these just under 5,500 were EVs (~2%) and approximately 12,800 were plug-in and hybrid electric vehicles (~5%). While slightly lower than Boulder County's average, Ned is above the State's average; 0.65% of all vehicle registrations are EVs or plug-in hybrid in Colorado

(Atlas Public Policy, 2022). Tracking progress and regional EV adoption will also be key to addressing visitor travel within the community.

Current Public EV Charging

There are two main types of public charging stations: Level 2 stations and DC Fast Charging (DCFC) stations. Level 2 stations typically have two charging ports, provide a slower charge, and are often suitable for installation at locations where drivers stay for a period of time - such as parking lots, libraries, or recreation centers. DCFC stations typically have one charging port, can provide a full charge in 20-30 minutes, and allow EV drivers to quickly fill up while they're on the go. More information on Level 2 and DCFC charging is provided in Appendix B: Electric Vehicles 101.

Currently Ned has four Level 2 public charging stations - located at the Elementary School, High School, Bus Terminal, and Town Hall/Visitors Center lot (Figure 6). While not depicted in Figure 6, Eldora Mountain also has one Level 2 charging station, with plans to add more.

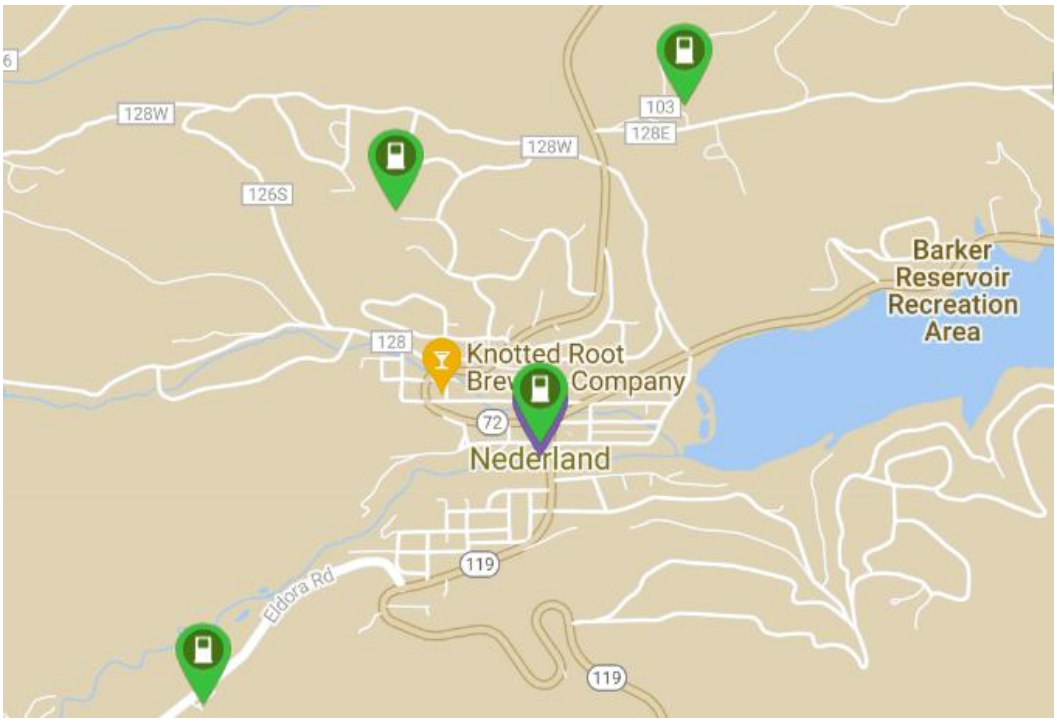


Figure 6. Town of Nederland charger locations **(PlugShare, 2022)**.

There are currently not any DC fast charging ports; however, there are plans to install two DC fast chargers near the Town Hall/Visitors Center by Spring of 2023. The Town exceeds the State's average for the number of Level 2 ports per capita. (Atlas Public Policy, 2022).

Related Planning Efforts

This plan can interact with existing community plans that address climate, mobility, affordability, and equity issues. More directly, this plan reinforces the following plans that directly support transportation electrification:

- **Town of Nederland Sustainability Action Plan (2014):** This plan, developed by the town Sustainability Advisory Board to coordinate local sustainability action, includes electric vehicle charging stations as a priority action.
- **Town of Nederland Energy Action Plan (2018):** This plan, developed by Ned, supports the Town's 2017 100% renewable energy resolution. The Energy Action Plan will be updated in 2023 through Partners in Energy graduate support.
- **Energy Futures Collaboration (2018):** This memorandum of understanding between Ned and Xcel Energy outlines a strategy for collaboration and shared goals to decrease greenhouse gas emissions through increased clean energy, energy efficiency, and other solutions.
- **Town of Nederland Transportation Multimodal Plan (planned for 2023 – 2024):** This plan aims to increase town connectivity with upgrades to streets, bike paths, access to bus stops, and sidewalks. Planned to be completed in 2023 and 2024, projects aim to increase non-motorized access throughout Ned.
- **Boulder County Environmental Sustainability Plan (2018):** This plan provides a blueprint for achieving the community's environmental sustainability goals, including strategies related to fleet electrification and communitywide EV adoption. The plan was initially developed in 2012 and was updated in 2018. A second update is underway in 2022.
- **Boulder County Transportation Master Plan (2020):** This plan provides a framework to help meet and manage the demands placed on the county's multimodal transportation system in a way that supports sustainable ways of living. It includes goals and actions related to reducing GHG emissions and electrification of the county vehicle fleet.
- **Colorado Electric Vehicle Plan (2020):** This is the State's plan to support Colorado's transition to 100% of light-duty vehicles being electric and 100% of medium/heavy-duty vehicles being zero emission.
- **Regional Transportation Electrification Plan for Boulder County Communities (2022):** This plan provides a strategic roadmap to guide Boulder County communities, the Town of Nederland included, toward a future with reduced greenhouse gas emissions through equitable transportation electrification solutions. Strategies in Ned's plan align and build on this regional plan and are described in greater detail in later sections of this document.

Xcel Energy Vision: Net-Zero Energy Provider

Xcel Energy has made commitments to transition to become a net-zero energy provider by 2050, which supports Ned's sustainability goals and strategies. For more information on these commitments, visit Xcel Energy's website. Commitments that will support this EV plan are:

Carbon Free Electricity by 2050

Commitment: By 2050, all electricity production will be carbon free because of new renewable energy capacity and energy storage capacity.

Reducing electricity emissions is a key factor in maximizing the impact of electric vehicle conversion. In Xcel Energy territory, emissions related to electricity consumption and generation are projected to continue to decrease in the future. Through increasing its renewable electricity generation resources, Xcel Energy has a goal of 80 percent lower carbon emissions from electricity by 2030, 85 percent renewable energy by 2030, and a vision of 100 percent carbon-free electricity emissions by 2050 from a baseline of 2005 (Figure 7).

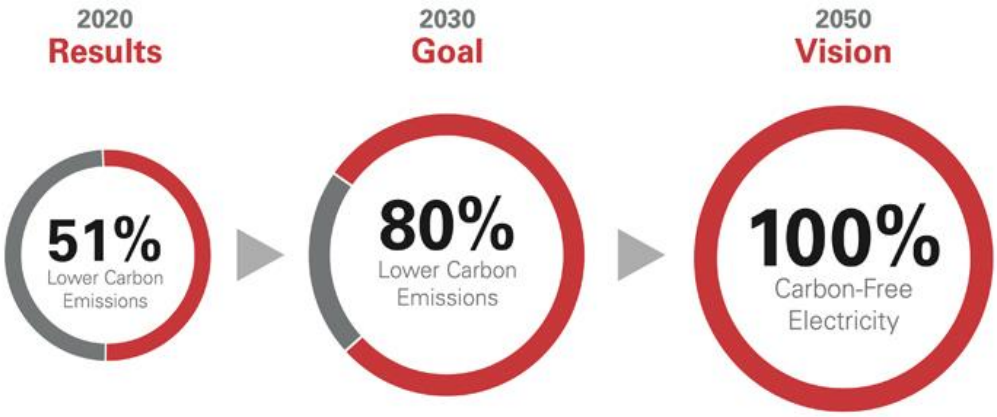


Figure 7: Xcel Energy's 2050 Carbon-Free Electricity Vision

In Colorado, Xcel Energy's Clean Energy Plan outlines a path to reduce carbon emissions by 85% by 2030 - exceeding the companywide goal outlined in Figure 7. Key highlights of this plan are shown in Figure 8. The full plan can be found online.

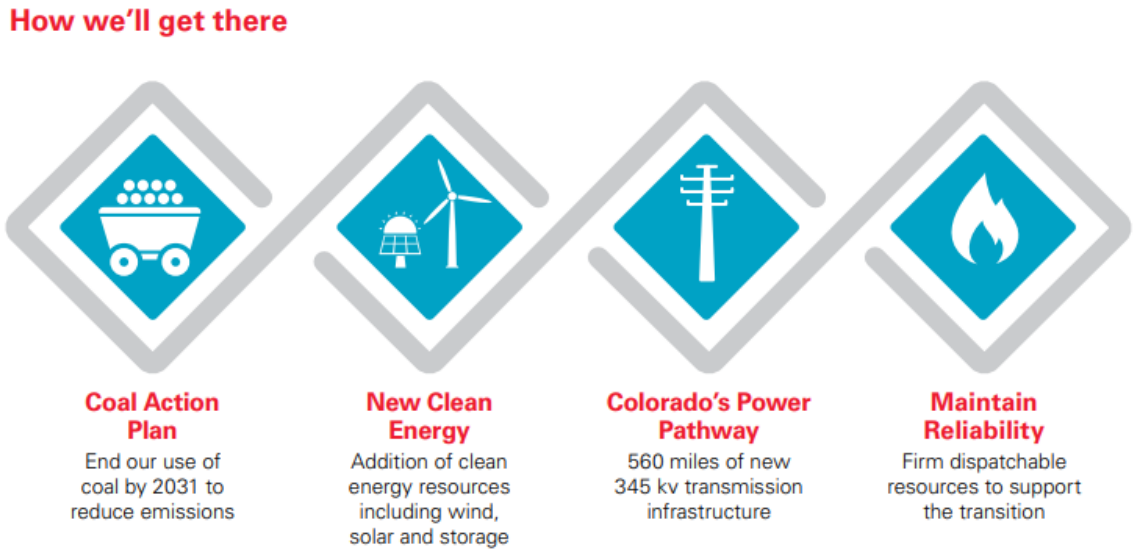


Figure 8: Xcel Energy Colorado's Clean Energy Plan highlights.

Powering EVs

Commitment: Enable one out of five vehicles to be electric by 2030, helping customers save $1 billion annually on fuel by that year and delivering cleaner air for everyone.

Xcel Energy is rolling out innovative programs with the goal of raising awareness, reducing up-front costs, and making it easier for customers to charge EVs on low-cost, low-carbon energy with programs to support residential, commercial, and public EVs. An outline of Xcel Energy's zero-carbon transportation goals is shown in Figure 9. More information on these programs can be found at xcelenergy.com/EV and in Appendix A: Xcel Energy EV Programs.

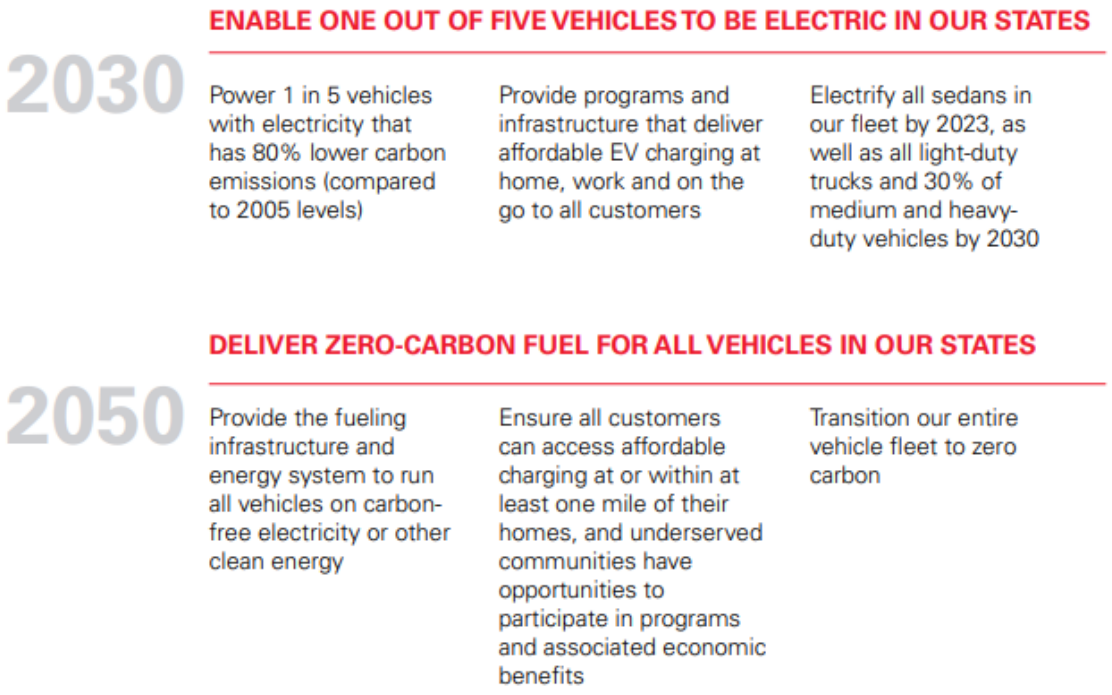


Figure 9: Xcel Energy Zero-Carbon Transportation Goals

WHERE WE ARE GOING

Our Vision Statement

During the planning process, the EV Action Team agreed to leverage this plan to support the regional EV efforts led by Boulder County. This statement guided the planning process and reflects the intention of Ned to create an EV Action Plan.

> The Town of Nederland supports the work of regional partners to implement solutions that encourage the large-scale and equitable transition to zero-emission vehicles.

The following goals from the Regional Transportation Electrification Plan for Boulder County Communities are supported by this plan. These goals are in alignment with the GoEV Cities and Counties resolution, which is under consideration by Town leadership.

1. Transition 30% of all vehicles registered in Boulder County to zero-emission vehicles by 2030.
2. By 2030, install a combined 2,380 public level 2 and DC fast charging stations equitably distributed across Boulder County.

Focus Areas

To achieve a community-wide commitment to transportation electrification, the EV Action Team identified the following focus areas to prioritize strategies and resources.

- **Fleet Electrification:** Transition of the Town fleet to zero emissions vehicles.
- **Regional Collaboration**: Increase community EV literacy and access to EV resources and infrastructure through alignment and support of the Regional Transportation Electrification Plan for Boulder County Communities.

These focus areas were chosen to provide a roadmap for Ned's support of an equitable, regional zero-emissions vehicle transition.

HOW WE ARE GOING TO GET THERE

For each focus area, a thorough analysis of baseline conditions was completed. Based on this analysis, the EV Action Team identified targets and metrics to help evaluate success within the focus area. The EV Action Team then identified potential barriers to success and developed strategies to overcome those barriers.

The following sections detail the baseline data, potential barriers, identified targets, and strategies selected to achieve those targets for each focus area. Collectively, each focus area serves as a work plan of actionable steps to achieve Ned's EV Action Plan overarching vision.

2030 Impact

Fleet Electrification

- 2 Fleet Vehicle Replacement Plans
- 2 New Electric Vehicles for Public Works
- 3 EV Charging Stations

Regional Collaboration

- 2 New DC Fast Chargers
- 1,025 EVs Registered
- 1 EV CarShare Program

Focus Area: Fleet Electrification

The Regional Transportation Electrification Plan for Boulder County Communities does not address local municipal fleet electrification, as the targets and strategies would be unique to each community. This focus area develops a plan to transition the town fleet to EVs or other zero emissions vehicles.

Background Data

The Town has two vehicle fleets (public works and police department) that will be addressed separately in this plan.

Public Works Fleet

The public works (PW) fleet is comprised of 7 vehicles as shown in Table 1. All but one of the vehicles are parked at the public works shop when not in use (typically overnight). Charging stations at the wastewater treatment plant, shopping center, and community center may also be needed to support vehicles serving these sites.

Table 1: Public Works Fleet Vehicles

Year	Make	Model
2011	CHEVROLET	Silverado
2018	FORD	F-150
2015	FORD	F-350
2011	CHEVROLET	Silverado
2019	FORD	F-150
2021	FORD	F-150
1998	GMC	Sierra

An Xcel Energy Fleet Electrification Analysis was performed in 2020 to understand which vehicles might be a good fit for electrification. This analysis identified 4 vehicles that might have been a good fit for electrification. Since this study, though, vehicle use patterns have changed - reducing miles traveled on two of the vehicles identified. This change in use patterns may increase the payback period for electrification of these vehicles.

Through discussions with the fleet managers, the following fleet use characteristics and needs were identified to inform replacement.

1. **Very Low Mileage:** Most vehicles drive a few miles to a job site and park for most of the day. This means that most vehicles could be replaced with EVs without range anxiety, but fuel savings will be minimal, increasing payback.
2. **Rough Mountain Driving:** All vehicles must be able to drive on dirt or off-road terrain in snowy or icy conditions.
3. **Cold Weather Compatible:** Vehicles are often used and charged in cold weather, so the impact on vehicle range should be considered.
4. **Occasional Long Hauling Needs:** At least one vehicle needs to be capable of towing a trailer to Denver (or further) to pick up supplies.

Police Department Fleet

The police department fleet is comprised mostly of patrol vehicles that are parked at the police station when not in use. The Town Police Department has been struggling to retain staff with the current budget; however, the Board of Trustees (BOT) committed to rebuilding the police department and increasing salaries to be more competitive. While this increase does impact the general fund, a ballot initiative, which increased sales taxes to further fund the Police Department, passed in November 2022. Department vehicle electrification planning will need to be coordinated with the new Town Marshal when that person is hired.

Targets

1. Transition at least 30% of all fleet vehicles to zero-emissions vehicles by 2030.
2. Install two Level 2 chargers, one at the public works shop and one at the wastewater treatment plant, by 2025.
3. Install necessary chargers to support patrol vehicle electrification.

Strategies

The strategies in the fleet focus area are listed in Table 2 below, along with the anticipated timing for implementation. For more information, see individual strategy workplans in this section or the overall implementation timeline in the How We Stay On Course section.

Table 2. Feel strategies implementation timeline.

Strategy	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Strategy 1: Develop Fleet Replacement Plans						
Strategy 2: Electric Vehicle Driver Training						
Strategy 3: Electric Vehicle Maintenance Training						

Strategy 1: Develop Fleet Replacement Plans

Create a plan for both Town fleets to help fleet managers and Town staff plan for and budget for vehicle replacement needs. These plans will include the necessary charging infrastructure to support EV adoption, which will likely include charging stations at the PW shop, wastewater treatment plant, and police station.

TARGET AUDIENCE	PW Department Head Town Marshal Town Board of Trustees
DESIRED OUTCOMES	For all vehicles in the fleet: • Create a replacement schedule or criteria under which a vehicle will be replaced • Determine vehicle performance requirements

	• Identify at least 2 potential replacement models (e.g., battery electric vehicle (BEV), Plug-in hybrid electric vehicle (PHEV)) with:
	  ○ Estimated replacement cost
	  ○ Estimated total cost of ownership
	  ○ Estimated GHG emissions
	  ○ Infrastructure needs as applicable
	  ○ Available resources

RESOURCES	• State Programs
	  ○ Charge Ahead Colorado
	  ○ Community Access Enterprise Fleet Infrastructure Resources eligible to support fleets with medium- and heavy-duty vehicles (*coming soon)*: proposed funding identified in enterprise 10-year plan
	• Xcel Energy EV Supply Infrastructure Program

ROLES AND RESPONSIBILITIES	Partners in Energy Implementation Team 1. Write the replacement plan with Town staff input 2. Calculate costs and impacts of replacement options Town Fleet Manager 1. Identify replacement schedule or criteria for replacement 2. Determine performance requirements for each vehicle 3. Review draft plan and provide feedback

TIMELINE	<u>Public Works Replacement Plan</u>
	Q1 2023
	• Meet with fleet managers to:
	  ○ Develop draft replacement schedule or criteria
	  ○ Identify performance needs for each vehicle
	  ○ Collect average miles traveled and/or fuel use
	Q2 2023
	• Create replacement plan outline
	Q3 - Q4 2023
	• Identify potential replacement vehicles
	• Calculate costs and impact of each replacement option
	Q1 2024
	• Complete plan draft
	• Review plan draft with fleet managers and finalize
	<u>Police Department Replacement Plan</u>
	Coordinate planning with Town Marshal and/or Police department (PD) designee when hired.

Strategy 2: Electric Vehicle Driver Training

Provide equipment operators with basic training on the safe operation of new electric vehicles in the Town fleet.

TARGET AUDIENCE	Fleet vehicle drivers
DESIRED OUTCOMES	Drivers will understand: • How EVs are different than traditional vehicles • What precautions must be taken to drive the vehicles safely, especially in winter conditions • How to appropriately charge the vehicles
RESOURCES	• Standard winter driving course provided by Colorado Intergovernmental Risk Sharing Agency (CIRSA). • Drive Clean Colorado (e.g., orientation training program)
ROLES AND RESPONSIBILITIES	Partners in Energy Implementation Team 1. Develop training materials for use by fleet managers. 2. If applicable, connect outcomes to the Regional Plan "Workforce Pipeline and Training" strategy. For more information on the Regional Plan, see Focus Area: Regional Collaboration. Fleet Managers 1. Determine training needs 2. Review and implement training materials 3. Provide hands-on instruction as needed
TIMELINE	Q1 2024 • Identify training materials needs • Develop draft training materials Q2 2024 • Finalize training materials based on first EVs in the Town fleet Ongoing • Hands-on training, as needed by fleet managers as new vehicles are added to the fleet

Strategy 3: Electric Vehicle Maintenance Training

Work with Public Works shop staff to provide basic training on the maintenance of electric vehicles, including special safety considerations.

TARGET AUDIENCE	Fleet vehicle maintenance staff
DESIRED OUTCOMES	Maintenance staff will: • Understand how EV maintenance is different than standard vehicle maintenance • Be comfortable working safely on EVs to provide basic maintenance

RESOURCES	Manufacturer-provided training as applicable
ROLES AND RESPONSIBILITIES	Partners in Energy Implementation Team 1. Work with Town staff to identify training needs 2. Connect staff to resources available to support training needs Fleet Managers 1. Determine training needs 2. Identify staff for training opportunities
TIMELINE	Q1 2024 • Identify training material needs • Determine what local resources are available for training, including manufacturer offerings as applicable Q2 2024 • Create a plan to ensure identified Town staff receive the training needed Ongoing • Complete training with new staff as needed • Update training for other zero-emissions vehicles as needed

Focus Area: Regional Collaboration

Over the course of 11 months (during 2021 and 2022), representatives from local governments within Boulder County gathered with key stakeholders, including business associations, state agencies, nonprofit organizations, and Xcel Energy to develop a strategic plan to reduce greenhouse gas emissions in Boulder County through equitable transportation electrification solutions. The Town was one of 18 partners that developed the plan. This focus area builds on the regional effort, through the lens of Ned, to leverage and integrate the Regional Plan into Ned goals and policies.

Background Data

The Regional Plan was finalized in 2022 and outlines goals and strategies for Boulder County communities to achieve:

1. By 2030, transition 30% of all vehicles registered in Boulder County to zero-emissions vehicles.
2. By 2030, install a combined 2,380 public Level 2 and DC fast charging ports equitably distributed across Boulder County.

To achieve the goals listed above, four focus areas and 15 supporting strategies were identified. Specifically, the focus areas are:

- **Community EV Adoption:** Supporting the purchase, lease, or shared use of EVs for all Boulder County residents and commuters.
- **Home & Work Charging:** Removing barriers for charging at home; providing workplace charging for those who need it most.
- **Public (On-Route) Charging:** Ensuring that public charging is convenient and accessible for those who need it most.
- **Plans, Codes, & Policies:** Aligning regional and local plans, codes, and policies, to support the transition to an EV future.

Rather than develop separate focus areas and strategies, the Regional Plan's focus areas and strategies were reviewed in the context of Ned's goals. By supporting and adapting the Regional Plan goals, Ned aims to align with and ensure a unified approach to transitioning to a zero-emission vehicle future (as shown in Figure 10).

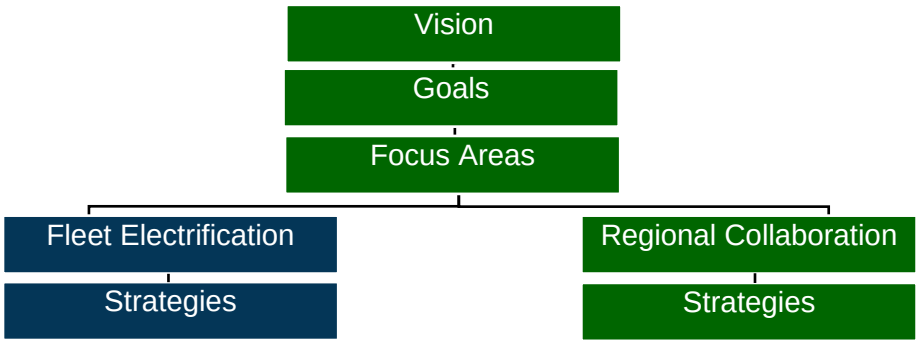


Figure 10: The relationship between the Regional Transportation Electrification Plan developed by Boulder County and Nederland's EV Action Plan. Green boxes are related to the Regional Plan.

A total of eight strategies were identified, with at least one strategy in each Focus Area from the Regional Plan (Table 3). In some cases, Regional Plan strategies were combined into one Town strategy. Below is a summary of the Focus Areas in the Regional Plan, how Ned's aligns to each, and the strategies identified as areas of focus for Ned's EV plan.

Table 3. Anticipated regional collaboration strategy alignment and timeline (preliminary and subject to change).

Regional Plan Strategies	Town Strategy	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Community EV Adoption							
• CA – 1 Regional Community Outreach • CA – 2 Residential EV Purchasing Incentives	Strategy 1: Local and Community Outreach and Incentives		■	■			
• CA – 3 Equitable EV Car Sharing Pilot Program	Strategy 2: Equitable EV Car Sharing Pilot Program		■	■	■	■	■
Home & Work Charging							
• HW – 1 Multifamily Charging Outreach • HW – 2 Multifamily Charging Incentives	Strategy 3: Multifamily Charging Outreach and Incentives		■	■	■		
Public (On Route) Charging							
• PU – 1 Mapping Public Charging Station Locations	Strategy 4: Mapping and Development of Public Charging Station Locations	■	■	■		■	
• PU – 2 Regional Public DC Fast Charging Installations	Strategy 5: Regional Public DC Fast Charging Installations	■	■	■	■	■	■
Plans, Code, and Policies							
• PC – 2 Pricing Structure Best Practices	Strategy 6: Explore New EV Pricing Structure	■	■	■	■		
• N/A	Strategy 7: EV-Ready Codes and Policies	■					

Targets

The Town will support the Regional Plan by:

1. Sharing outreach materials and incentive information with 100 residents and 5 multifamily properties in 2023.
2. Develop an EV CarShare program with a central town location by 2025.
3. Map all Town chargers in WayFinder App in 2023.
4. Promote DC fast charger installations to support visitor charging by 2025.

Community EV Adoption

Regional Plan Description: This focus area supports the purchase, lease, or shared use of EVs for all Boulder County residents and commuters. Strategies aim to encourage Boulder County residents to purchase, lease, or otherwise choose to drive an EV instead of a gas-powered vehicle. While other focus areas support community EV adoption through infrastructure and policies, this focus area directly addresses barriers that prevent residents from considering an EV in the first place.

Selected Regional Plan Strategies:

- CA – 1 Regional Community Outreach
- CA – 2 Residential EV Purchasing Incentives
- CA – 3 Equitable EV CarShare Program

Town of Nederland Context: Within Boulder County, 38% of homes are renter-occupied and 67% are single-family residences. In comparison, Ned is 50% renter occupied and 90% single-family residences (Figure 11). Additionally, 25% of Ned residents live below the State median income level. This combination of factors presents interesting opportunities and challenges for equitable EV adoption in Ned. Regional Plan strategies should be adapted to Ned's unique housing characteristics, with emphasis placed on carshare programs or other opportunities to engage renters and low-income residents, along with summaries of funding opportunities and incentives that can decrease the high up-front cost of EVs. These include equity offerings from Xcel energy and other State and Federal funding sources outlined in the strategy tables below.

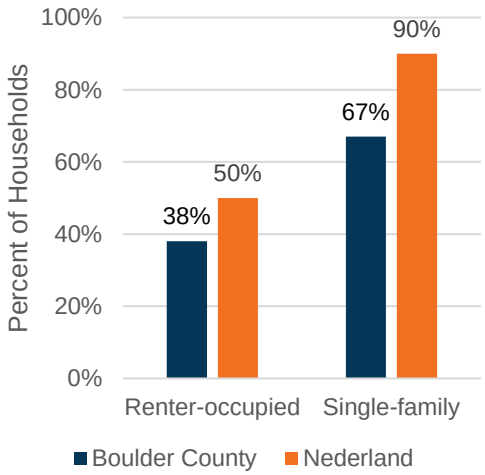


Figure 11: Housing characteristics comparison

Additionally, unlike other Boulder County communities, Ned is a mountain community that sits at 8,236 feet - with an average high temperature of 46ºF and an average low temperature of 25ºF (U.S. Climate Data, 2022). Cold weather impacts all vehicles; however, it can be particularly unfriendly to EVs. Many variables, including battery

variability, play into range loss; but, studies show a 12 – 15% loss at 20ºF temperatures (U.S. Department of Energy; Oreizi, 2020). This means that an EV with an average range of 250 miles will drop to a range of around 220 miles. If temperatures drop below 5ºF, range loss can be 50% or to a range of around125 miles (Argue, 2020). Clearance is another variable to consider for mountain communities, since many EVs on the market are low-clearance.

While none of these factors is insurmountable, and many mountain communities - including Summit County, The Town of Estes Park, and Gunnison County Electric Association - have had success with EV education and adoption, this information should be included in any education and outreach materials developed to promote community EV adoption.

Notably, Ned has already made strides toward increasing community EV adoption. In July of 2022, the Boulder Housing Authority applied for the Electric Vehicle Equitable Car Sharing pilot program through Xcel Energy's Partnerships, Research, and Innovations (PRI) Program - at Tungsten Village, located just a few blocks north of downtown. If awarded, the CarShare will create opportunities for residents and renters to drive EVs without having to make a large financial investment. Additionally, the CarShare will allow people to easily experience what driving an EV in a mountain community is like. Leveraging this work will help advance each of the Community EV adoption strategies described below.

Strategy 1: Local and Community Outreach and Incentives

Leverage and promote education, outreach materials, and incentive options - to inform residents about EV resources that are segmented to address the needs and interests of different demographics.

ALIGNMENT TO REGIONAL PLAN STRATEGIES	CA – 1 Regional Community Outreach CA – 2 Residential EV Purchasing Incentives
TARGET AUDIENCE	Residents, visitors, and business owners
DESIRED OUTCOMES	• Customized education and outreach materials for residents and businesses • Summary of Federal, State, and local incentive opportunities for residents and businesses • Events to increase EV awareness (e.g., Ride and Drives)

RESOURCES	• Regional Plan
	  ○ Customized education and outreach materials
	  ○ Anticipated county-level incentive program
	• Federal and State Programs
	  ○ Federal tax credit for eligible new EVs
	  ○ Federal tax credit for eligible used EVs)
	  ○ State tax credit for new EVs

	○ State EV campaign (https://evco.colorado.gov/) ○ Community Access Enterprise Vehicle Investment for Sustainable Transportation Access (VISTA) (*coming soon)*: proposed funding identified in enterprise 10-year plan, including vehicle replacement programs targeting high-emission vehicles • Xcel Energy ○ Income-qualified customers can receive a rebate for a new or used EV purchased from a Colorado-based car dealership (see Home & Work Charging for infrastructure opportunities) • Event support ○ Drive Clean Colorado
ROLES AND RESPONSIBILITIES	Regional Plan Team 1. Develop customized materials based on Colorado Energy Office education and outreach materials 2. Develop county-level residential EV purchasing incentives Partners in Energy Implementation Team 1. Support further customization of Regional Plan outreach materials to meet Ned's needs 2. Leverage existing summaries to outline Federal, State, and Xcel incentives, opportunities, and requirements for residents and businesses 3. Support outreach and promotion to identified channels and partners 4. Organize events to increase EV awareness Town Staff 1. Identify appropriate community channels and partners to share materials 2. Review content 3. Distribute and promote EV outreach, education, and incentives materials through identified channels 4. Support events to increase EV awareness
TIMELINE	Q3 2022 – Q2 2023 • Regional Plan Team develops outreach materials Q2 2023 • Regional Plan Team begins to develop residential EV purchasing incentives for the County (Q2 2023) • Outreach materials from the Regional Plan team adapted to Ned

	• Summarize Federal, State, and local EV incentive opportunities Q3 2023 • Materials shared through local channels and community partners • Host one EV awareness event (e.g., Ride and Drive); consider alignment with Farmer's Market Day Ongoing • When they become available, integrate any additional regional incentive programs into outreach materials • Update and share new materials as they become available

Strategy 2: Equitable EV CarShare Program

Support, evaluate and, if applicable, expand EV CarShare programs, prioritizing locations that support underserved residents and renters - to ensure that the CarShare service is well utilized.

ALIGNMENT TO REGIONAL PLAN STRATEGY	CA – 3 Equitable EV CarShare Program
TARGET AUDIENCE	Town residents (renters and homeowners) Town staff
DESIRED OUTCOMES	• If awarded, promote Tungsten Village EV CarShare, with a focus on renters and leveraging the CarShare as an option for Town staff. • Build on research and outreach completed for the 2022 Xcel Energy Electric Vehicle Equitable Car Sharing pilot program to identify other potential sites, including assessing barriers and opportunities to make additional CarShare implementation more feasible • Work with Town staff to create a program encouraging staff to use the CarShare vehicle for work trips • Share experience with Regional Plan team

RESOURCES	• Regional Plan
	  ○ Equitable CarShare program recommendations
	• Xcel Energy
	  ○ Xcel Energy EV Equitable Carsharing pilot program
	  ○ Xcel Energy Electric Vehicle Supply Infrastructure (EVSI) Program
	• Commuting Solutions grant programs
	• State
	  ○ Community Accelerated Mobility Project (CAMP) (*coming soon)*: proposed funding identified in the

	enterprise 10-year plan, including flexible funding opportunities for Transportation Network Companies (TNCs), vanpool, CarShare, and other community-identified programs
ROLES AND RESPONSIBILITIES	Regional Plan Team 1. Develop Equitable CarShare program recommendations Partners in Energy Implementation Team 1. If awarded, support evaluation of Tungsten Village CarShare success 2. Develop education materials and/or training to promote use by residents 3. Develop education materials and/or training to promote use by Town staff 4. Support grant writing, or other forms of program development, to expand CarShare program 5. Act as liaison with Regional Plan team to share Ned's experience Town Staff 1. Support Boulder County Housing Authority outreach and education for Tungsten Village EV Equitable Car Sharing pilot program and act as liaison with Partners in Energy Implementation Team 2. Lead grant writing for additional funding to support CarShare programs 3. Distribute and promote materials for CarShare to residents and/or Town staff 4. Support training coordination
TIMELINE	Q2 2022 – Q2 2023 • Regional Plan team develops CarShare recommendations • If awarded, install Tungsten Village CarShare Q4 2023 – Q1 2024 • Develop materials and promote EV CarShare • Build on 2022 Xcel Energy Equitable CarSharing pilot program to understand challenges and other opportunities around CarShares as well as make any future CarShare opportunities more feasible Q2 2024 • Share experience with Regional Plan team Ongoing • Continued outreach and promotion of CarShare opportunities • Continued evaluation of existing CarShares

Home & Work Charging

Regional Plan Description: This focus area aims to remove barriers for charging at home and to provide workplace charging for those who need it most. As shown in Figure 12, charging at home and at the workplace are the primary methods of EV charging which, if unavailable, can deter potential drivers from switching to an EV (Winn, Electric Vehicle Charging at Work, 2019).

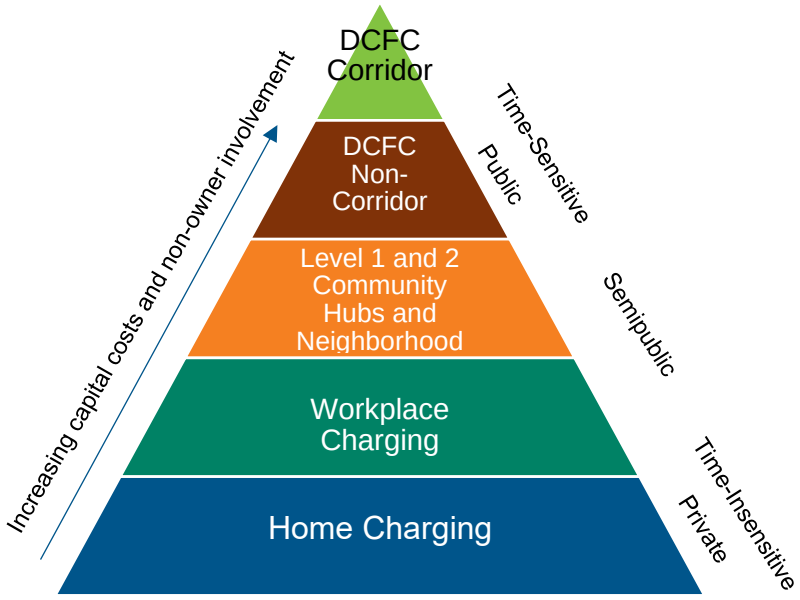


Figure 12. EV Charging Infrastructure Categories (Winn, 2019)

Home charging is easiest for single-family residents and homeowners because most are able to plug their EV directly into their garage without any additional investment. An estimated 80% of EV owners do most of their charging at home. However, nearly 70% of potential Colorado EV drivers believe they can't charge at home unless they have special equipment (E Source, 2020). To encourage more drivers to switch to EVs, these misconceptions and fears must be addressed through education and outreach.

In addition, some residents - such as those living in multifamily housing developments or those without off-street parking - frequently face additional barriers to charging at home, which could dissuade them from purchasing an EV. Beyond access to parking and electrical infrastructure for parking, multifamily settings may be challenging due to the added complexity of shared electrical metering, charger access, and the need for approval from multiple stakeholders, including homeowners, tenants, property managers, and homeowner association (HOAs).

Selected Regional Plan Strategies:

- HW – 1 Multifamily Charging Outreach
- HW – 2 Multifamily Charging Incentives

Town of Nederland Context: Compared to the County, Ned has a relatively small percentage of multifamily housing developments. Approximately 10% of Ned's housing stock is multifamily properties (~42 housing developments). While this is a small percentage, supporting residents and multifamily entities is important, especially considering rising housing prices.

Strategy 3: Multifamily Charging Outreach and Incentives

Leverage and promote education, outreach materials, and incentive options to promote EVs and inform multifamily property owners and managers - to encourage installation of EV charging stations.

ALIGNMENT TO REGIONAL PLAN STRATEGIES	HW – 1 Multifamily Charging Outreach HW – 2 Multifamily Charging Incentives
TARGET AUDIENCE	Multifamily properties and residents
DESIRED OUTCOMES	• Compiled feedback from local property owners and managers to better understand multifamily property owners' and managers' needs and priorities and share them with the Regional Plan team • Customized education and outreach materials for property owners and residents • Summary of Federal, State, and local incentive opportunities for property owners and residents

RESOURCES	• Regional Plan
	  ○ Multifamily education and outreach materials
	  ○ Multifamily incentive program
	• Federal Programs:
	  ○ Alternative Fuel Infrastructure Tax Credit - EV chargers eligible for a tax credit of 30% of the cost, or 6% in the case of property subject to depreciation, not to exceed $100,000 for eligible census tracts.
	  ○ Competitive EV grants (*coming soon*, apply directly)
	• State Programs*:*
	  ○ Service Panel Upgrade + Residential Resources from the Community Access Enterprise (*coming soon*)
	  ○ Charge Ahead Colorado grants
	• Xcel Energy Programs
	  ○ Multifamily EV Solutions
	  ○ Income-Qualified and Higher-Emissions Communities rebates

ROLES AND RESPONSIBILITIES	Regional Plan Team 1. Develop customized outreach materials for multifamily properties 2. Develop county-level multifamily EV charging purchasing incentives Partners in Energy Implementation Team 1. Support further customization of Regional Plan outreach materials to meet Ned's needs. When

	applicable build on materials developed in Strategies 1 and 2 2. Summarize Federal, State, and Xcel Energy incentives, opportunities, and requirements for multifamily properties 3. Support outreach and promotion to identified channels and partners 4. Support and summarize feedback gathered from multifamily properties 5. Act as a liaison with the Regional Plan team to share Ned's experience Town Staff 1. Identify and coordinate with property managers to gather feedback and understand needs 2. Identify and distribute materials to multifamily properties
TIMELINE	Q3 2022 – Q2 2023 • Regional Plan team develops outreach materials • Regional Plan team develops multifamily EV charging incentives for the county Q2 2023 • Adapt Regional Plan materials for Ned. When applicable, build on materials developed in Strategies 1 and 2 • Summarize Federal, State, and local EV incentive opportunities Q3 2023 • Share materials through local channels and community partners Q4 2023 • Identify and conduct outreach to property managers - to understand multifamily charging needs Ongoing • When it becomes available, integrate regional incentive program into outreach materials • Update and share new materials as they become available

Public (On-Route) Charging

This focus area aims to ensure that public charging is convenient and accessible for those who need it most. Public charging stations are critical to ensuring charging access for longer-distance commuters, visitors, those without access to home charging, and

transportation services (e.g., ride hailing, delivery fleets). Like gas stations, they provide convenient options for those who need to recharge on their route. They are a visible indicator of a community's EV commitment and may reduce range anxiety by assuring those interested in purchasing an EV that charging is easily available.

Selected Regional Plan Strategies:

- PU 1 – Mapping Public Charging Stations
- PU 2 – Regional Public DC Fast Charging Stations

Town of Nederland Context: Public charging is particularly important for Ned. Its location on the Peak-to-Peak Scenic Byway and as a major access point to outdoor recreation mean that thousands of visitors pass through Ned each year. In 2020, over 6,600 vehicles passed through the town each day. The number of annual visitors is expected to increase to over 8,300 by the year 2042 (CDOT, n.d.). As Colorado's population continues to grow, along with the associated need/interest in EVs, Ned will have many opportunities to be a leader in providing public charging infrastructure for both residents and visitors.

The Town already owns two DC Fast Chargers that will be installed by Spring 2023 at the Visitor Center. Other related existing efforts include the Nederland Downtown Development Authority's (NDDA) WayFinder App, which will display the locations of all existing EV chargers in the context of Ned's other main attractions. Additionally, as part of the EVSI Xcel Grant, Ned has already begun to map out possible locations to site additional EV infrastructure. These two efforts lay the groundwork for both informing residents and visitors about public charging opportunities and identifying feasible options for additional future charging station locations.

Strategy 4: Mapping and Development of Public Charging Station Locations

Building on existing mapping efforts (e.g., WayFinder App, Regional Plan mapping effort) to review community demographics, travel corridors, equity factors, and current best practices to identify locations where additional public charging would be most used and most critical for driving adoption. The produced maps can be used in outreach to potential host sites for public charging and/or mobility hubs.

ALIGNMENT TO REGIONAL PLAN STRATEGY	PU – 1 Mapping Public Charging Station Locations
TARGET AUDIENCE	Town Administration, NDDA, visitors, residents, businesses
DESIRED OUTCOMES	• WayFinder App with current charging locations and process to update if additional charging locations are added in the future • Build on existing efforts (e.g., CarShare analysis, Regional Plan Map) to map and identify locations of potential future charging locations. Effort should

	leverage site selection criteria developed by the Regional Plan and consider: ○ Current and future electricity connection capacity-related opportunities and constraints ○ Current and future land use opportunities and constraints • Work with identified and interested property owners to apply for funding and install charging to support Strategy 5: Regional Public DC Fast Charging Installations • Promote new charging infrastructure with outreach methods listed in Strategy 1: Local and Community Outreach and Incentives
RESOURCES	• Regional Plan ○ Countywide map of ideal public charging locations
ROLES AND RESPONSIBILITIES	Regional Plan Team 1. Develop site selection criteria 2. Develop creation of map of possible charging locations for the future Partners in Energy Implementation Team 1. Coordinate with Xcel Energy to complete capacity assessment and/or identify future electricity connection capacity-related opportunities and constraints 2. Support WayFinder App effort to map existing charging locations and process for updating in the future 3. Support Regional Plan Team creation of map of possible charging locations for the future 4. Using the map, support outreach to identified and interested property owners, including outlining funding opportunities to support installation NDDA 1. Lead WayFinder App effort Town Staff 1. Support creation of possible charging locations for the future, providing context of related efforts that have already been completed as well as providing feedback on current and future land use opportunities 2. Identify, coordinate, and oversee outreach efforts to identified property owners
TIMELINE	Note that timeline may be adjusted to align with any adjustments related to the WayFinder App effort

	Q3 – Q4 2022 • Regional Plan team develops site selection criteria Q2 – Q3 2023 • Use Regional Plan site selection criteria to create map of potential future charging locations Q4 2024 • Complete WayFinder App effort to map current charging location and identify a process for updating to incorporate any future charging locations Q1 2024 • Conduct outreach to identified property managers, to support Strategy 5 while leveraging communication strategies outlined in Strategies 1 and 3 Ongoing: • Update and maintain all maps

Strategy 5: Regional Public DC Fast Charging Installations

Support Ned with installation and monitoring of the two DC fast charging stations planned for installation in Spring of 2023. These charging stations will serve visitors, commuters, and residents. Use results to determine, and if applicable support, installation of additional DC fast charging stations.

ALIGNMENT TO REGIONAL PLAN STRATEGY	PU – 2 Regional Public DC Fast Charging Installations
TARGET AUDIENCE	Residents, visitors, and businesses.
DESIRED OUTCOMES	• Support installation of two DC fast chargers along regional corridor to support visitor and town charging that aligns with Regional Plan • Monitor and track success of two DC fast chargers to evaluate need for any future stations. Align outcomes with Strategy 4: Mapping and Development of Public Charging Station Locations • Promote new station through tourism, commuting, and other regional channels

RESOURCES	• Regional Plan
	  ○ Outreach materials and funding options to support outreach to potential sites
	  ○ Promotion of new sites
	• Federal Programs
	  ○ *Coming soon* – National EV Charging Formula program (through State)

	○ *Coming soon* - Competitive EV grants (apply directly) • State Programs ○ DC Fast-Charging Plaza grants ○ Charge Ahead Colorado grants ○ *Coming soon* – Community Access Enterprise • Xcel Energy Programs ○ EV Supply Infrastructure program ○ Community Charging hub program ○ Higher Emissions Communities rebate
ROLES AND RESPONSIBILITIES	Regional Plan Team ○ Identify additional regional locations for DC Fast Charging Stations ○ Promote Ned's two DC fast charging stations. Partners in Energy Implementation Team ○ If applicable, support installation of two DC fast charging stations ○ Monitor use and impact of DC fast charging stations through built in tracking software. Use outcomes to maximize existing DC fast charging station use and identify if additional DC fast charging stations would be needed to support town needs Town Staff ○ Lead installation of two existing DC fast charging stations
TIMELINE	Q1 – Q2 2023 • Regional Plan team identifies locations for other DC Fast Charging • Installation of two DC fast charging stations Q3 2023 – Q1 2024 • Regional Plan team promotes Ned's installation of two DC fast charging stations • After installation, monitor use and impact of installed DC fast charging stations Q2 2024 • Determine if additional DC fast charging station would be needed to support town needs Ongoing • Promotion of DC Fast Charging Stations

Plans, Codes, and Policies

This focus area aims to support the creation of plans, codes, and policies that accelerate equitable EV adoption throughout Boulder County. Strategies in this focus

area include opportunities for regional alignment for policy advocacy as well as consistent local policy action around accessibility, pricing, and design of EV charging stations. This focus area also supports the work of several Boulder County communities that are participating in a code cohort funded in part by the Colorado Department of Local Affairs (DOLA) (see Appendix D: Regional Plan EV-Ready Code Amendment).

Selected Regional Plan Strategies:

- PC – 2: Pricing Structure Best Practices

Town of Nederland Context:

The Town currently has four level-2 EV chargers. Two of these are located at the Town Hall/Visitors Center lot. Anecdotally, use varies; however, there are times when cars are waiting to charge. This creates challenges, as parking is already limited in the area. Additionally, Ned owns two DC fast charging stations that will be installed by Spring 2023.

With the installation of the DC fast charging stations, and as the need for visitor EV charging increases, finding ways to manage charging stations will be key. Exploring pricing structures that include considerations for electricity costs, maintenance, equity, charger level, facility type, and dwell time is one strategy that could help manage charging while also increasing the longevity of Ned's EV infrastructure.

Additionally, as recommended in Appendix D: Regional Plan EV-Ready Code Amendment, "smart from the start" developments are one of the easiest and most cost-effective strategies for increasing EV infrastructure by ensuring that new developments are EV-ready from the start of the project. In January of 2022, Ned adopted the 2018 Building Code. As part of the update, EV-ready code amendments were considered but not adopted. Revisiting these EV-ready code amendments may be one the best strategies to increase EV charging infrastructure for Ned in the future, with the opportunity to partner with the related code cohort funded in part by DOLA.

The State of Colorado also recently passed HB-22 1362 mandating that the Colorado Energy Code Board must develop a model EV-ready building code for counties, municipalities, and state agencies by June 1, 2023. The act requires that any codes adopted beyond this date must achieve equivalent or better energy performance than the codes adopted by the board. As Ned evaluates code updates based on the code cohort results, it should compare these codes against this future model mode to ensure they achieve the same level of performance.

Accompanying EV-Ready Code adoption, the GoEV Cities and Counties Resolution is a pledge that Colorado cities and counties can make to develop an EV Action Plan with the goal of transitioning the transportation sector to zero-emission vehicles. As of September 2022, seven Colorado counties and communities have committed to the GoEV pledge, including Boulder County and mountain communities like Town of Avon and Summit County. To make the GoEV pledge, communities commit to:

- Adopt an EV Action Plan that establishes priorities for the next 5 years and a pathway with goals for 2025, 2030, and 2050.
- Transition its own fleet to zero emissions vehicles.
- Work with local transit agencies to transition to zero-emissions buses.
- Work with taxis, Uber/Lyft, and similar services to transition to zero emissions vehicles.
- Commit to a goal to transition all community vehicles to zero emission.

Combined, these two strategies and plans/policies could accelerate Ned's EV adoption.

Strategy 6: Explore New EV Pricing Structure

Evaluate, and implement if applicable, a new pricing structure option for public charging stations that consider variables like electricity costs, maintenance costs, equity, charger level, facility type, dwell time, and other relevant factors that build on Regional Plan resources, including guidance documents and tools.

ALIGNMENT TO REGIONAL PLAN STRATEGY	PC – 2 Pricing Structure Best Practices
TARGET AUDIENCE	Town Staff
DESIRED OUTCOMES	• Pricing structure recommendation for public charging stations in Ned
RESOURCES	• Regional Plan guidance documents and tools
ROLES AND RESPONSIBILITIES	Regional Plan Team 1. Develop guidance document and tools Partners in Energy Implementation Team 1. Review and adapt Regional Plan guidance documents and tools to create recommendation for Ned, including assessing impacts to visitors and residents Town Staff 1. Share current information, including how prices were established, with the Regional Plan team - to support development of guidance document and tools 2. Share adapted guidance within relevant Town departments for establishing pricing 3. Share adapted guidance with local businesses and other entities around installing charging stations - through local sustainable business programs, economic development partners, and other local partners
TIMELINE	Q3 2022 – Q1 2023 • Regional Plan Team develop pricing structure recommendations and guidelines • Town share current practices with County

	Q2 – Q3 2023 • Build on Regional Plan guidance documents and tools to create a recommendation for Ned Q4 2023 • Share findings with Town staff and businesses Ongoing • Apply and revaluate findings

Strategy 7: EV-Ready Codes and Policies

Adopt EV-Ready codes and commitments that support Ned through EV-ready development, as well as pledges that support accelerated EV adoption. In alignment with the Regional Plan, this strategy supports a code cohort funded in part by the Colorado Department of Local Affairs (DOLA) to adopt EV-readiness codes in single family, multifamily, and commercial developments (see Appendix D: Regional Plan EV-Ready Code Amendment).

ALIGNMENT TO REGIONAL PLAN STRATEGY	N/A
TARGET AUDIENCE	Town Staff
DESIRED OUTCOMES	• Adopt EV-ready code as an amendment to the 2018 building code update • Consider and adopt, as appropriate, GoEV Resolution
RESOURCES	• Appendix D: Regional Plan EV-Ready Code Amendment
ROLES AND RESPONSIBILITIES	Partners in Energy Implementation Team 1. Support Ned in adopting EV-ready code amendment to 2018 building codes. Town Staff 1. Adopt EV-ready code amendment to 2018 building codes 2. Adopt GoEV Resolution
TIMELINE	Q1 2023 • Start adoption process

HOW WE STAY ON COURSE

This section provides an overview of the implementation period timeline supported through Partners in Energy. Over the next 18 months this Table 4 will serve as a work plan for the EV Action Team and Partners in Energy.

Table 4. Strategy implementation timeline.

Strategy	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Develop Fleet Replacement Plans (PW Fleet)	• Fleet managers meeting • Replacement plan outline	• Replacement plan outline	• Identify vehicles • Calculate costs		• Complete draft plan • Review and finalize plan	
Electric Vehicle Driver Training					• Identify materials needed • Develop draft materials	• Finalize draft materials
Electric Vehicle					• Identify materials needed	• Develop a training plan

Strategy	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Maintenance Training					• Identify local resources	
Local and Community Outreach and Incentives		• Adapt regional materials • Summarize incentives	• Share materials • Host an event			
EV Equitable Car Sharing Program		• Install CarShare if awarded		• Develop promotional materials		• Share lessons learned
Multifamily Outreach and Incentives		• Adapt regional materials • Summarize incentives	• Share materials	• Understand charging needs		
Mapping and Development of Public Charging Station Locations		• Create a map of future charging priorities		• Map charging stations in WayFinder App	• Conduct outreach to property owners	
Regional Public DC Fast Charging Installations	• Regional Plan team identifies locations for other DC Fast Charging • Installation of two DC fast charging stations		• Regional Plan team promotes Ned's installation of two DC fast charging stations • Monitor use and impact of installed DC fast charging stations			• Determine if additional DC fast charging station would be applicable to support town needs.
EV-Ready Code and Policies	• Start adoption process					
Explore New EV Pricing Structure	• Share current practices with county	• Adapt regional recommendations to Ned		• Share materials with community		

Tracking Progress

To ensure that this plan remains on track, the EV Team will track metrics by the focus areas outlined in Table 5. The team will review progress toward stated focus area targets and plan goals on an annual basis to assess whether the efforts appear to be making an impact. This tracking will be in conjunction with tracking of regional EV efforts as outlined in the Regional Transportation Electrification Plan for Boulder County Communities. The Town's Sustainability Coordinator and at least one member of the Sustainability Advisory Board will act as Town liaisons to the Regional Plan implementation subgroups.

Table 5. Focus Area Tracking Summary

Focus Area	Target	Data Source	Impact through Implementation Period
Fleet Electrification	Transition at least 30% of fleet vehicles to zero-emissions vehicles by 2030.	• Public Works department head • Town Marshal	• Public Works vehicle replacement plan • Police Department vehicle replacement plan
	Install two Level 2 chargers, one at the public works shop and one at the wastewater treatment plant, by 2025.	• Public Works department head	• One charger installed at the Public Works shop
Regional Collaboration	Share outreach materials and incentive information with 100 residents and 5 multifamily properties in 2023.	• Xcel Energy program data	• At least 5 residents or multifamily properties participate in EV programs
	Develop an EV CarShare program with a central town location by 2025.	• Town Sustainability Coordinator	• An implementation plan and timeline to roll out a CarShare program
	Map all town chargers in WayFinder App in 2023.	• WayFinder App	• Accurate map integrated into the WayFinder App
	Promote DC fast charger installations, to support visitor charging, by 2025.	• Town Sustainability Coordinator	• Complete installation of DC fast chargers • Collateral sharing the charger information available to outreach channels

It will be important to let the wider community know how things are progressing and to recognize the collaborative efforts of those involved in hitting the plan targets. At critical milestones, the Town will publish updates on progress, share successes, and congratulate participants and partners through various local and regional communication channels.

Adapting to a Changing Landscape

Even though this plan outlines strategies to promote EV adoption over the next 18 months, an effective plan is cyclical in nature (see Figure 13). In addition, the nature of implementation requires staging, flexibility, and course adjustment, when necessary, to be successful and to sustain progress.

Figure 13: Actions and Tracking

Furthermore, the focus area work plans reflect the current situation for rapidly evolving technology. It will be important that strategies are evaluated and updated throughout implementation to reflect advancements and new offerings from the automotive and transportation industry and Xcel Energy. Throughout the planning process, we worked to build relationships between Town staff and Xcel Energy staff that will foster the collaboration and cooperation required to successfully navigate the changing EV landscape.

The Xcel Energy EV Toolkit can be a valuable resource for identifying new strategies to address unexpected barriers that may come up. Any adjustments will be documented and shared with the broader group and the community as they occur.

APPENDIX A: XCEL ENERGY EV PROGRAMS

In 2021, Xcel Energy's Transportation Electrification Plan (TEP) was approved by the Colorado Public Utilities Commission (PUC). The 2021 – 2023 TEP is intended to support the State's EV goals and help position Colorado as a national leader in vehicle electrification. It includes a portfolio of programs, services, and rebates designed to benefit all drivers, all customers, and the state, by helping reduce greenhouse gas emissions and air pollution while keeping electric bills low and benefiting the grid (Public Service Company of Colorado, 2021). Moving forward it will be updated regularly. Coordination with Partners in Energy can ensure that work is aligned in the future.

Residential Programs

Home Wiring Rebate

Xcel Energy electric service customers in Colorado who enroll in the Optimize Your Charge program and purchase an eligible level 2 charger and/or install wiring to support an eligible level 2 charger may apply for a rebate of up to $500 to help cover the cost of wiring. Income-qualified customers are eligible for a $1,300 rebate.

Optimize Your Charge

The Optimize Your Charge program rewards EV drivers who agree to charge during off-peak hours, with an annual $50 bill credit.

EV Accelerate at Home

Through the EV Accelerate at Home program, Xcel Energy electric service customers can rent a level 2 home charger, select an off-peak charging schedule, and have the charging station installed and maintained by Xcel Energy. EV Accelerate at Home participants pay a $13.29 per month rental fee through their Xcel Energy electricity bill and are also eligible for the Wiring Rebate and the Optimize Your Charge bill credit described above.

EV Purchase / Lease Rebate for Vehicles

In addition to helping customers overcome cost barriers related to EV charging, Xcel Energy offers income-qualified electric service customers up to $3,000 off the cost of a used EV, or $5,500 off the cost of a new EV. The rebates are instant and non-taxable when income-qualified customers buy or lease from a Colorado-based car dealer included in Xcel Energy's EV Dealer Network,

Residential Income Qualification Requirements

To be eligible for income-qualified programs, customers must demonstrate a household income below:

- 60% of the state of Colorado's median income
- 200% of the relevant federal poverty level
- 80% of the area median income

OR be currently enrolled in any of the following programs:

- State of Colorado Low-Income-Energy Assistance Program (LEAP)
- Energy Outreach Colorado's Colorado Affordable Residential Energy program (CARE)
- Colorado's Weather Assistance Program (WAP)
- Xcel Energy income-qualified demand side management program
- Xcel Energy income-qualified Community Solar Gardens program
- Supplemental Nutrition Assistance Program (SNAP)
- Temporary Assistance for Needy Families program (TANF)

Multifamily Programs

Xcel Energy supports home charging for those who live in multifamily housing such as apartments or condominiums and will install, own, and maintain a dedicated service connection for EV charging, including the necessary transformer upgrades, service conductors, and a new meter. Additionally, Xcel Energy will install, own, and maintain the EV Supply Infrastructure, including new service panels, conduit, and wiring between the new meter and the charger. For more information on all Multifamily Charging programs, visit the Xcel Energy website.

Assigned Parking

Xcel Energy will own, install, and maintain EV supply infrastructure and charging equipment for a monthly fee when residents have dedicated parking spaces with charges tied to their utility bills.

Multifamily properties meeting income-qualified criteria or located in a Higher Emissions Community (HEC) are eligible for an enhanced incentive of $800 per charging station under the Assigned Parking program.

Shared Parking

Xcel Energy will own, install, and maintain EV supply infrastructure and charging equipment for a monthly fee, with a new meter installed for shared charging equipment.

Alternatively, multifamily housing property owners may install, own, and maintain their own charging equipment from an Xcel Energy approved list. Xcel Energy will install, own, and maintain the EV supply infrastructure and install a new meter for the shared chargers.

Multifamily properties meeting income-qualified criteria or located in an HEC are eligible for an enhanced incentive of $2,200 per charging station under the Shared Parking program.

New Construction

New multifamily construction properties may earn a rebate for every parking spot with EV charging enabled. Xcel Energy will provide up to $2,000 for EV-Ready, EV Capable, or EV Installed ports that are in addition to the number required by applicable building codes.

Commercial Programs

EV Advisors

Xcel Energy's EV Advisors are available to guide businesses through a customized EV charging plan and support identification of applicable resources and incentives.

EV Support Infrastructure (EVSI)

Xcel Energy will provide no- to low-cost turn-key construction services for infrastructure at public charging sites receiving Xcel Energy commercial electric service in Colorado.

Critical Peak Pricing Program

The Critical Peak Pricing program is designed to incentivize charging during off-peak hours, at times of day when cleaner generation allows for more sustainable charging. This program is available to customers receiving Xcel Energy commercial electric service in Colorado, with EV charging on a secondary voltage service where the electric power and energy is used solely for EV charging and is metered separately from other loads.

Income Qualified and Higher Emissions Communities Enhanced Incentives

Commercial customers that meet income-qualified criteria or are in an HEC are eligible for enhanced rebates. Please visit the Xcel Energy website to learn more about income qualification criteria, HEC eligibility, and benefits.

Fleet Electrification Advisory Program (FEAP)

Xcel Energy's Fleet Electrification Advisory Program begins with an analysis to help determine the best course of action for fleet electrification. In partnership with Sawatch Labs, participating in FEAP allows fleet operators to assess individual vehicles - to determine if the vehicle owner's driving needs could be met with an EV. Additionally, FEAP assesses charging site suitability and estimates the cost of infrastructure

installation. Finally, FEAP helps advise on rate plans and pilot programs to lower costs. For more information visit Xcel Energy's FEAP webpage.

To learn more about available residential and commercial EV programs, visit Xcel Energy's website or contact your community's account representative.

APPENDIX B: ELECTRIC VEHICLES 101

Note, this document was last updated July 2022 and may not reflect the latest technologies and information.

Since electric vehicles (EVs) are an emerging technology that is rapidly changing, it is important to ensure that everyone has a common understanding of the technology and terminology involved. This section explains the basics of currently available types of vehicles and charging stations and the associated uses, barriers, and benefits. Note, while electric options are available for medium- and heavy-duty vehicles, the descriptions provided in this section apply primarily to light-duty vehicles, which make up most of the electric vehicle market today.

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. Level 3 chargers are also known as DC fast chargers (DCFC). 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 12 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 6 hours. Residents can charge during off-peak hours to reduce the impact on the grid. Table 6 provides a brief explanation along with the pros and cons of both types. All currently available EVs can use either charger type.

Table 6. Residential Electric Vehicle Charging Types

	LEVEL 1	LEVEL 2
		
Electric Current (AC) Charging Rate (miles range per hour of charging)	120 volts; 20 amps 4 to 6	208/240 volt; 30 amps 25 to 40
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 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 Installation Costs	Low to no cost	$500 to $2,000 (US DOE, 2019)

Commercial Charging Stations

Commercial Level 2 and Level 3 chargers are most appropriate for commercial applications since the EVs are generally parked for shorter periods of time than residential applications. Level 2 chargers are the same as the residential chargers, providing a full charge in 4-6 hours, 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 30 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 7 shows the advantages and disadvantages of Level 2 and Level 3 chargers.

Table 7. Levels 2 and 3 Charging Infrastructure

	LEVEL 2	LEVEL 3 (DC Fast Charger)
Electric Current	208/240 volt; 30 amps (AC)	480 volts DC
Charging Rate (miles range per hour of charging)	25 to 40	Up to 240
Benefits	• More economical than Level 3 • Safe for long-term use	• Fastest charging option available
Drawbacks	• Slower charging	• Expensive to purchase and install • Can cause degradation to EV batteries with frequent use
Use Case	Example locations include workplaces, recreation centers, libraries, movie theatres, transit centers, and parking lots.	Example locations include grocery stores, rest stops, gas stations, and urban parking lots.
Estimated Costs	$2,500 to $5,000	$50,000 to over $150,000

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 (ICE) that supports the electric motor. The travel range of each type are outlined in Table 8and are described in more detail in the following sections.

Table 8. Comparison of Types of Electric Vehicles

Electric Vehicle Type	Power Source	Travel Range
Battery Electric Vehicle (BEV)	Electric Motor	80 – 345 miles
Plug-in Hybrid Electric Vehicle (PHEV)	Electric Motor + Gasoline Engine	350 – 600 miles
Hybrid Electric Vehicle (HEV)	Electric Motor + Gasoline Engine	350 – 600 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 80 to 345 miles with longer distances promised in the future through continual advancements in battery technology. Recharging can take anywhere between 30 minutes to 12 hours depending on the type of charger, size of the battery, and level of depletion in the battery (Drive Change. Drive Electric., 2019).

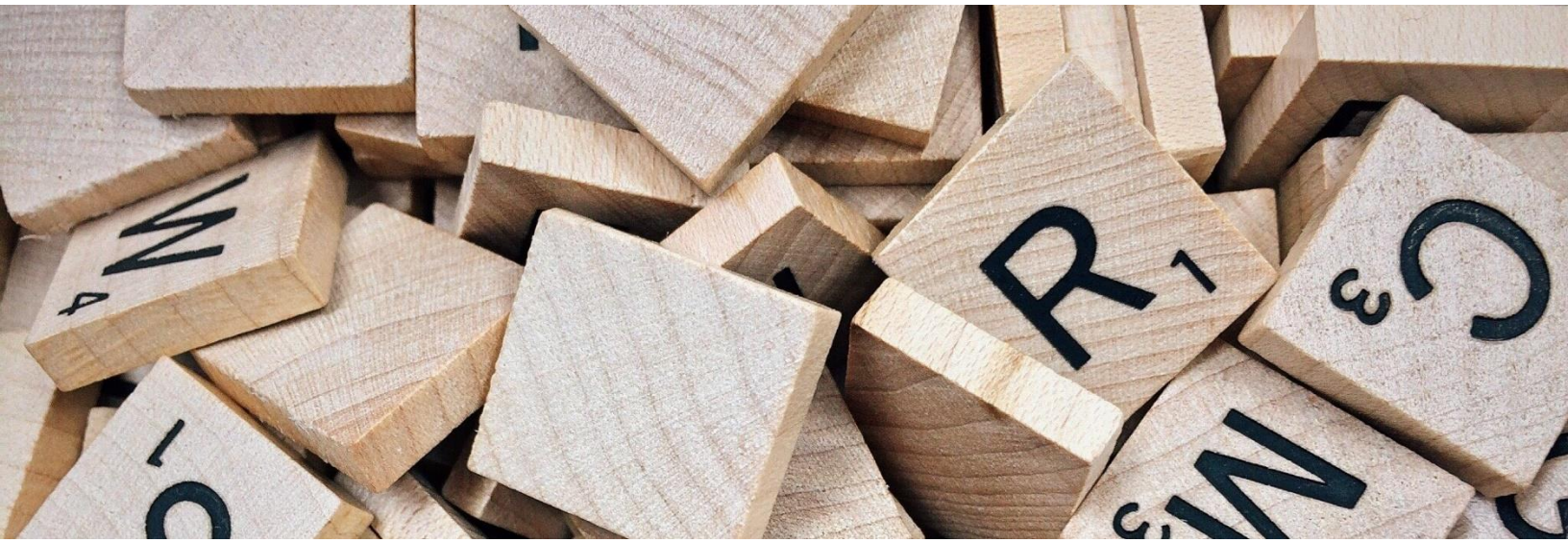
Plug-In Hybrid Electric Vehicle (PHEV)

A PHEV provides a combination of both an electric motor and a gasoline engine and produces less tailpipe emissions than an internal combustion engine (ICE). PHEVs use energy from the electric motor until the battery charge is fully depleted, which can occur between 15 to 50 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 350 and 600 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., 2019).

Hybrid Electric Vehicle (HEV)

Like the PHEV, an HEV has both an electric motor and a gasoline engine. In an HEV, the gasoline engine is used to power a generator, which powers the electric motor. The benefit of this set up is that the ICE can run at a constant speed and greatly increase the vehicles fuel efficiency compared to ICE vehicles. However, the battery cannot be charged by an external electricity source, which means that the vehicle always relies on the gasoline engine.

APPENDIX C: GLOSSARY OF TERMS



15 x 15: Xcel Energy's privacy rule, which require 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 is responsible for more than 15% of the total for that data set, it is 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 and typically has low maintenance costs.

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. 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 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 to charge. EV chargers must convert the supplied AC electricity to DC power.

Direct Installation: Free energy-saving equipment installed by Xcel Energy or other organization, for program participants, which produces immediate energy savings.

Electricity Consumption: Measured in kilowatt-hours (kWh) and represents the amount of electricity that has been consumed over a certain time.

Electric Demand: Measured in kilowatts (kW) and represents the rate at which electricity is consumed. Most commercial energy rates incorporate a charge for electric demand as well as electric consumption.

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.

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: The 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.

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

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 divided by 1,000.

Level 1 Charging Station: Uses a standard 120-volt AC outlet and can take 8 to 12 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 4 to 6 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 30 minutes; used in commercial settings where the anticipated charge time is limited (e.g., supermarket, gas station); 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): A unit of energy consumption that allows both 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 Hybrid Electric Vehicle (PHEV/PEV): 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 ICE 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.

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

all the environmental attributes of the generation and can be tracked and traded separately from the underlying electricity. Also known as a Renewable Energy Credit.

Resilience: 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.

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

Solar Garden: Shared solar array with grid-connected subscribers who receive bill credits for their subscriptions.

Solar Photovoltaic (PV): Solar cells/panels that convert sunlight into electricity (convert light, or photons, into electricity, or voltage).

Subscription: An agreement to purchase a certain amount of something in regular intervals.

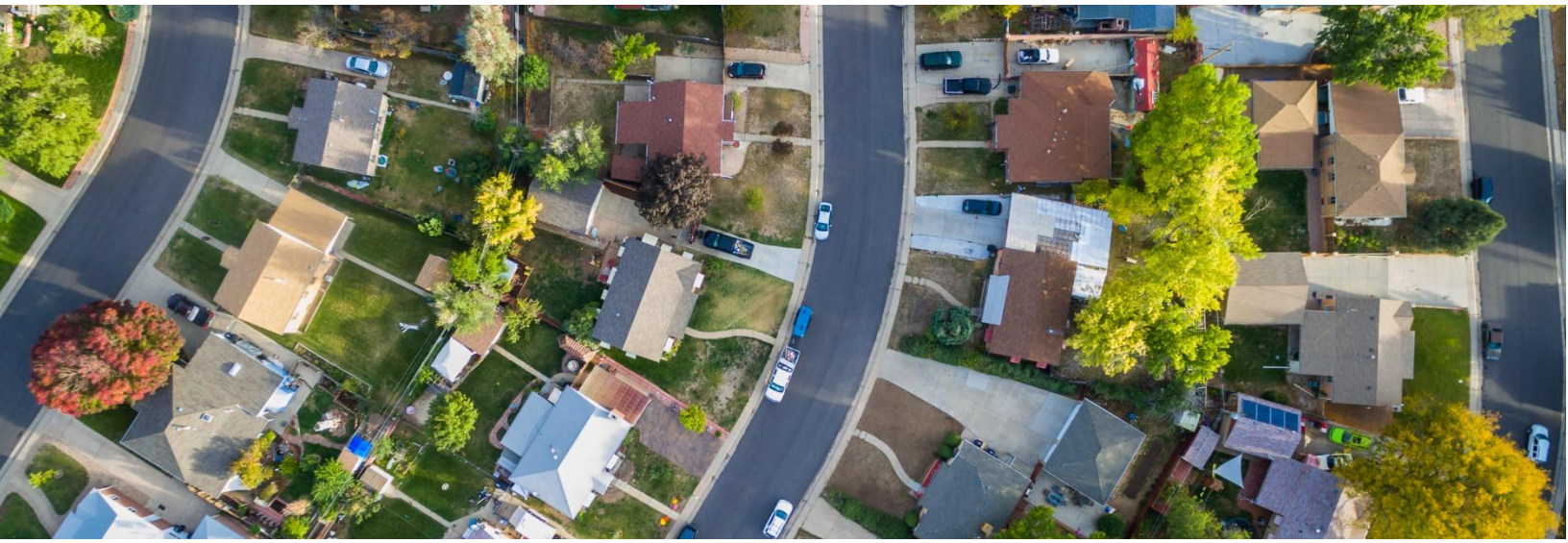
Therm (thm): A unit of natural gas consumption.

Trade Partner: Also known as Trade Allies or Business Trade Partners. Vendors and contractors who work with business and residential customers servicing, installing, and providing consulting services regarding the equipment associated with utility rebate programs. Their support for utility programs can range from providing equipment and assisting with rebate paperwork, to receiving rebates for equipment sold.

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.

APPENDIX D: REGIONAL PLAN EV-READY CODE AMENDMENT



EV-ready codes prepare homes and buildings for the current transition to electric vehicles. Ensuring that a home or business has adequate electrical capacity at the time of construction is most cost effective. Retrofitting a building later to support EV charging costs many times more than including this capability upfront. With most charging occurring at home, EV codes are crucially important for multifamily dwellings where residents may not own the property or have the ability to install charging infrastructure.

In 2022, a separate energy code cohort of communities within Boulder County and beyond collaborated with building department and sustainability staff on consistency and strengthening of energy codes, with support from expert consultants. Therefore, the Regional Transportation Electrification Plan for Boulder County Communities stakeholder group leveraged this separate but parallel energy code cohort for EV-readiness code recommendations and best practices. The primary objective of the energy code cohort work was to reduce energy use and climate emissions in the built environment through community collaboration and consistency on strengthening, updating, and adopting energy codes both now and in future code cycles, aiming for net-zero new construction by the mid-2030s. This project includes two parts:

- Collaboration on reviewing and adopting the 2021 International Energy Conservation Code (IECC), with supporting amendments.
- A plan for each community to reach 100% net-zero new construction by the mid-2030s.

During part one, the energy code cohort deliberated and came to consensus on a set of supporting amendments that will accompany communities' adoption of the 2021

International Energy Conservation Code (IECC) for both residential and commercial construction. These amendments included expanded solar-ready, EV-readiness, electric-preferred standard, and efficiency strengthening requirements. The cohort communities that have not already adopted the 2021 IECC are working toward adopting this consistent set of supporting amendments. Part two is set to begin after the finalization of this document.

The recommended amendment includes various levels of readiness and recognizes that different building types have different charging needs. Figure 14 describes these various levels and Table 9 specifies the requirements by building type and minimum requirements of the different levels of readiness.

Figure 14: EV Readiness Terminology

Building Type	Minimum EV installed Spaces	Minimum EV-Ready Spaces	Minimum EV Capable Spaces
Single-family Duplex, Townhome	N/A	1 space	N/A
Group A, B, E, M	10%	5%	10%
Group F, I, R-3, R-4	2%	0%	5%
Group R-1, R-2	15%	5%	40%
Group S-2 parking garages	10%	5%	N/A

Table 9: EV Infrastructure Requirements

(In I-code terminology, Group A is Assembly; B is Business; E is Education; F is Factory & Industrial; I is Institutional; M is Mercantile; R-1 is transient residential; R-2 is apartments and other non-transient residential; R-3 and R-4 are small group homes including halfway houses, rehab centers, care facilities, etc.; and S is Storage).

APPENDIX E: REGIONAL TRANSPORTATION ELECTRIFICATION PLAN FOR BOULDER COUNTY COMMUNITIES

The executive summary for the Regional Transportation Electrification Plan for Boulder County Communities is shown on the following pages to illustrate the connection between this plan and the larger regional effort. For more details, the full regional plan can be found online: xcelenergycommunities.com/document/boulder-county-communities-regional-transportation-plan.

Regional Transportation Electrification Plan for Boulder County

About This Plan

Over the course of 11 months during 2021 and 2022, representatives from local governments within Boulder County came together with key stakeholders, including business associations, state agencies, nonprofit organizations, and Xcel Energy to develop a strategic plan to reduce greenhouse gas emissions in Boulder County through equitable transportation electrification solutions. This plan builds on existing sustainability initiatives, to show that close collaboration can accelerate a successful transition to an all-electric vehicle future.

Our Regional Vision

Boulder County communities will work with regional partners to implement solutions that support the large-scale and equitable transition to zero emission vehicles.

Our Regional Vision Goals

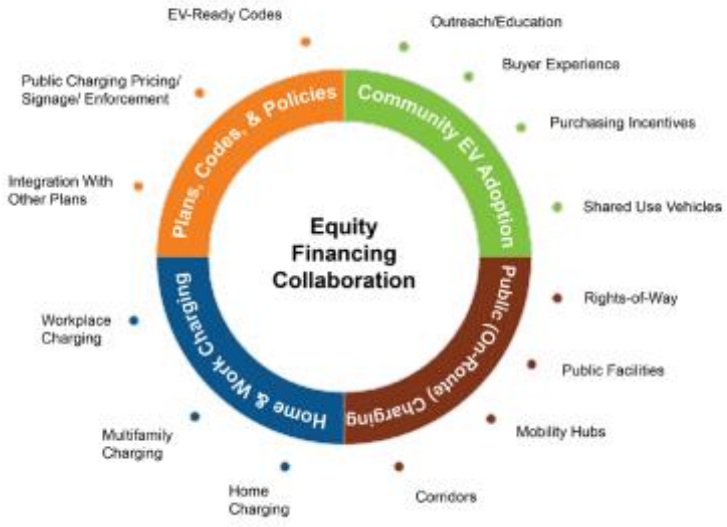
The following goals were set for the Boulder County region, in alignment with the GoEV Cities and Counties resolutions established by several communities in Boulder County:

1) Transition 30% of all vehicles registered in Boulder County to zero-emissions by 2030.
2) By 2030, install a combined 2,380 public level 2 and DC fast charging ports equitably distributed across Boulder County.

Our Roadmap for Achieving Our Vision and Goals

To achieve our vision and goals, this plan is divided into four focus areas : *Community Electric Vehicle Adoption, Public Charging, Home & Work Charging, and Plans, Codes, & Policies.*

Across all focus areas, three key themes were identified – *Equity, Collaboration, and Financing* – as critical considerations for implementation of each plan strategy.



Plan Strategies

In pursuit of this vision, the plan is organized into four focus areas – Community EV Adoption, Home & Work Charging, Public Charging, and Plans, Codes, & Policies. The table below summarizes the strategies within each focus area. The planning team and other regional stakeholders will collaborate to implement these strategies over the next two years and beyond.

FOCUS AREA	STRATEGIES **2022-2024**	STRATEGIES **2024-2030**
Community EV Adoption	• CA-1: Regional Community Outreach • CA-2: Residential EV Purchasing Incentives • CA-3: Equitable EV Carshare Program • CA-4: EV Workforce Pipeline and Training • CA-5: Dealership Outreach	• Coordinated Ride-and-Drive Events • Employee EV Training • Commuter EV Vanpool Programs • Equitable E-bike Programs • Rideshare Fleet Electrification • Equitable Electric Microtransit • Equitable Service Delivery Electrification Grants
Home & Work Charging	• HW-1: Multifamily Charging Outreach • HW-2: Equitable Multifamily Charging Incentives • HW-3: Equitable Single-Family Home Charging Incentives	• Workplace Charging Outreach • Workplace Charging Funding • Workplace Charging Peer Exchanges • Workplace Charging Recognition
Public Charging	• PU-1: Mapping Public Charging Station Locations • PU-2: Regional Public DC Fast Charging Installations • PU-3: Mobility Hubs • PU-4: Shared Mobility/Delivery Fleets Charging	• Vehicle-to-Grid Charging • EV Charging Station Guide • Business Outreach Resources • Funding Incentives for Public Charging on Private Property
Plans, Codes, & Policies	• PC-1: Accessibility Advocacy • PC-2: Pricing Structure Best Practices • PC-3: EV Charging Design Guidelines	

Successful implementation of this plan by 2030 will result in:

84,000 EVs on the road in Boulder County (light, medium, and heavy-duty)

2,380 public charging ports equitably distributed across Boulder County, focused on multifamily and affordable housing locations

Estimated 324,900 metric tons of carbon dioxide equivalent $MTCO_2e$ saved annually

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