2023 COLORADO EV PLAN

March 2023

COLORADO
Energy Office

COLORADO
Department of Transportation

COLORADO
Air Pollution Control Division
Department of Public Health & Environment

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Executive Summary

Overview

Building on momentum from the implementation of the 2018 and 2020 Colorado Electric Vehicle (EV) Plans, the 2023 Colorado EV Plan continues to accelerate adoption of electric vehicles of all types in Colorado. The EV Plan is a guiding document intended to help state agencies and stakeholders collaborate on shared strategies to accelerate EV adoption by documenting recent progress, establishing a near-term vision, and committing to goals and actions. Transportation is the largest source of greenhouse gas (GHG) emissions in the state, and electrifying the transportation sector is a key strategy for the Polis Administration to reduce GHG and air pollution emissions in Colorado and improve our quality of life by making our neighborhoods quieter. The transition to EVs will also help Colorado residents and businesses save money on fuel and maintenance costs.

Electric vehicle adoption continues to accelerate in Colorado, and the state appears to be on track to reach its ambitious goal set in the 2018 EV Plan of 940,000 EVs on the road by 2030. In 2022, EV sales made up 10.5% of all new passenger vehicle sales,[1] making Colorado fifth in the nation for EV market share. This progress continues despite setbacks from the COVID-19 pandemic and associated supply chain disruptions, which have created challenges and delays for both charging infrastructure and electric vehicle access.

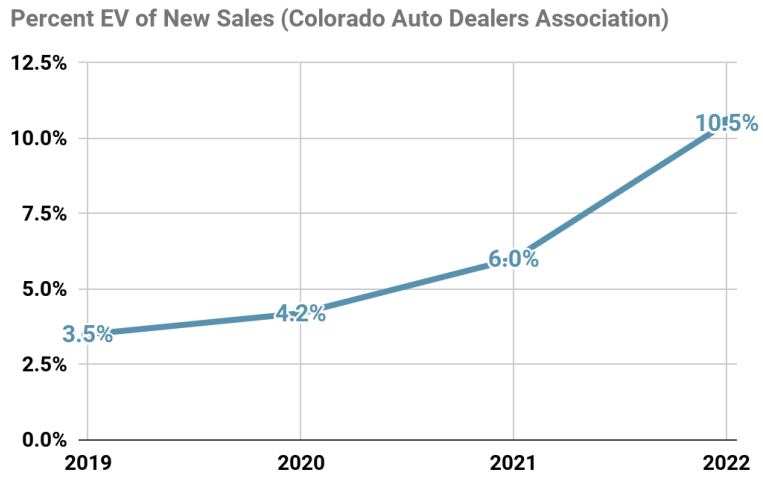


Image description

[1] CADA quarterly bulletin.

Since the 2020 EV Plan, important developments at the federal, state, utility, and local levels have significantly accelerated progress. The historic federal Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) expand incentives and investments for EV charging infrastructure, and for new and used electric vehicle purchases. Additionally, Colorado's "Sustainability Of The Transportation System" bill (SB21-260) created three new transportation electrification enterprises, establishing dedicated funding sources to invest over $730 million in state transportation programs over the next 10 years, as well as over $100 million over the next decade in the Colorado Electric Vehicle Grant Fund. The Public Utilities Commission also approved the first-ever Transportation Electrification Plans from Colorado's investor-owned utilities, with Xcel Energy's plan totaling more than $110 million over three years.

Since the 2018 Colorado EV Plan, the focus of the state's EV Plan has expanded beyond light-duty passenger EVs to include medium- and heavy-duty zero emission vehicles, electric bicycles (eBikes), and other shared electric transportation options. The availability of electric vehicles of various types and sizes, including pickup trucks and buses, has increased considerably over the last five years, enabling the state to include medium- and heavy-duty vehicles in its EV strategy going forward. Equity and benefits for disproportionately impacted communities[2] have also become a central focus for both stakeholder engagement and program and policy design. The EV Equity Study and ongoing community stakeholder engagement offer guidance for state agencies to incorporate equity best practices into their electric vehicle initiatives and plans.

Additionally, supporting electric mobility options, such as eBikes, scooters, and carshare options, provides Coloradans with more choices that can reduce GHG emissions from the transportation sector. These efforts can complement state level land use reform efforts to encourage more compact, walkable, and transit-oriented communities.

State agencies are leveraging new state and federal funding to develop and implement programs focused on equity and additional market sectors such as medium- and heavy-duty vehicles and eBikes. This EV Plan updates the progress made since 2020, and provides a near-term roadmap outlining incentives, policy, research

[2] Agencies are seeking to increase program benefits and participation for residents of disproportionately impacted communities and low- and moderate-income Coloradans. 'Disproportionately impacted communities,' as used in this plan, is defined by several state and federal sources. This includes the definition in the "Sustainability Of The Transportation System" bill, census block groups with a Colorado Enviroscreen percentile greater than 90, and disadvantaged communities defined by the National Electric Vehicle Infrastructure formula program. More detail on these definitions can be found in the full EV Plan.

and analysis, education and outreach, and workforce development initiatives to reduce transportation emissions.

This plan summarizes the Polis Administration's continued commitment and actions to accelerate electric vehicle adoption, including seeking legislative approval to expand EV tax credits for light-, medium-, and heavy-duty vehicles; creating a new tax credit for eBikes; and proposing regulatory action to extend and expand Colorado's zero-emission vehicle standards. To inform the development of this plan, the state sought stakeholder input via written comments and public meetings held in December 2022.

2023 EV Plan Vision

The state envisions the large-scale transition of Colorado's transportation system to zero emission vehicles. This includes increasing the market share of light duty electric vehicles to nearly 100% by 2050, transitioning 100% of medium- and heavy-duty vehicles to zero emissions vehicles, and expanding adoption of electric micromobility and shared options. This vision also focuses on expanding access to, and benefits of, this transition to all Coloradans and businesses, especially those in disproportionately impacted and rural communities.

Summary of 2023 EV Plan Goals

This plan includes goals from past EV Plans and other existing plans (noted in parentheses), as well as the state's new goals.

Light-duty Vehicles and Infrastructure

Increase adoption of EVs in the light-duty sector to approximately 940,000 vehicles by 2030, and pave the way for reaching nearly 100% EVs by 2050. *(from 2018 EV Plan)*

- Increase the number of annual light-duty EV sales to 65,000 by 2025, which is over 25% of new vehicle sales.[3]
- Increase EV sales to at least 70% of new vehicle sales by 2030.
- Increase adoption of EVs in the light-duty sector to approximately 2.1 million vehicles by 2035.

Work with utilities, private companies, site hosts, local governments, and others to increase the EV infrastructure needed to support the state's 2030 light-duty vehicle goals and enable travel statewide in an EV.

- Increase the number of charging ports awarded or installed to 1,700 DCFC and

[3] Unless otherwise noted, years refer to the calendar year.

5,800 public Level 2 by 2025, including awarding grants for at least 1,000 ports each year through 2025.

- Complete the implementation of the state's National Electric Vehicle Infrastructure (NEVI) plan, fully expending Colorado's $56.5 million allocation to construct DC fast-charging sites along federally designated EV corridors.
- Increase the number of Colorado Scenic & Historic Byways classified as electrified byways from three in Fiscal Year 2020 to 23 by the end of Fiscal Year 2025.

Medium- and Heavy-duty Vehicles and Infrastructure

Increase adoption of medium- and heavy-duty (M/HD) zero emission vehicles (ZEVs) to at least 30% of new sales by 2030, and 100% of new sales by 2050. *(from Clean Truck Strategy)*

- Increase adoption of zero-emission M/HD vehicles to 35,000 vehicles on the road by 2030. *(from Clean Truck Strategy)*
- For M/HD vehicles that do not have viable near-term ZEV product offerings, work with partners to facilitate the disposal and replacement of old, high-emitting vehicles with newer, lower emissions vehicles. This includes aiming for new trucks to produce 90% less NOx emissions than current standards starting in 2027. *(from Clean Truck Strategy)*
- Convert public transit fleets across the state to 100% zero-emission vehicles no later than 2050, with an interim target of at least 1,000 zero-emission transit vehicles by 2030. *(from Clean Truck Strategy)*
- Support the adoption of 2,000 electric school buses by 2027 and achieve 100% zero-emission buses on the road by 2035, with a focus on adoption in school districts in disproportionately impacted communities. *(from Clean Truck Strategy)*
- Plan for and support public, utility, public-private partnership and private sector funding for M/HD charging and hydrogen fueling infrastructure to help meet clean truck and bus adoption goals. *(from Clean Truck Strategy)*

Electric Mobility (electric micromobility and shared electric modes)

Replace car trips with electric mobility options (electric micromobility and shared electric modes) where feasible.

- Increase access to eBikes for low- and moderate -income Coloradans by providing grants, rebates, and tax credits for at least 10,000 new eBikes by 2025.

- Support 10 community-driven electric mobility projects by 2025, either by providing grant funding or supporting community applications to other funding sources.

Cross-cutting Initiatives

Meet EV directives from the 2022 Greening of State Government Executive Order.

- Reduce greenhouse gas emissions from State vehicles at least 15% by June 2025 over a fiscal year 2014-15 baseline. For State vehicles categorized as special use, reduce emissions at least 7.5% by 2025 over a 2015 baseline. *(in 2022 Greening of State Government Executive Order)*
- Establish a goal and transition plan for state agency fleets to achieve 100% zero-emission M/HD fleet vehicle purchases by 2040, where technically feasible and able to meet safety and mission critical operations needs. *(from Clean Truck Strategy)*

Develop equity-centered programming by engaging community-based organizations and disproportionately impacted community members in program design and implementation, and increasing investment in these communities.

- Ensure that on an annual basis, starting in Fiscal Year 2024, at least 40% of funding for transportation electrification programs is invested in grants and rebates for disproportionately impacted communities and low- and moderate-income Coloradans.
- Prioritize clean truck and bus deployment in ways that provide direct benefits to disproportionately impacted communities and support a just transition for workers in the M/HD vehicle sector.

Work proactively to support a broad and resilient ZEV workforce that ensures transportation system safety and reliability, while offering job opportunities to all Coloradans.

- Establish targets based on the upcoming ZEV workforce needs analysis, such as goals for the number of community colleges/technical schools offering ZEV training or the number of workers trained.

Summary of New 2023 Actions in Support of Goals

The following table highlights actions state agencies will take to achieve the 2023 EV Plan goals. Additional details for new actions, as well as actions that are continuing or being expanded, are included in the main body of the plan.

Light-Duty Vehicles and Infrastructure

- Complete a rulemaking for post model-year 2025 light-duty vehicle standards at the AQCC in 2023 to extend and expand Colorado's clean car standard through 2032 (**CDPHE,** CEO, CDOT).[4]
- Take actions to ensure that residents of multifamily housing have access to at home EV charging (CEO).
- Pursue significant expansion and extension of the state ZEV tax credit through at least 2027 (CEO).
- Adjust program requirements and explore other solutions to improve public EV charger reliability (CEO).
- Launch Vehicle Exchange Colorado program to incentivize low- and moderate-income Coloradans to retire and replace high-emitting vehicles with electric vehicles (CEO).
- Launch a new Residential Charging Infrastructure incentive program to help Coloradans install EV charging at home (CEO).
- Launch a new Clean Fleet transportation network company (TNC) incentive program to help electrify high mileage vehicles used for ride-sharing (CDPHE).

Medium- and Heavy-duty Vehicles and Infrastructure

- Implement key near-term actions in the Clean Truck Strategy (CDOT, CDPHE, CEO), including pursuing adoption of the Advanced Clean Truck and Low NOx Omnibus rules at the Air Quality Control Commission, introducing legislation that modifies the specific ownership tax and sales and use tax to make tax payments for M/HD ZEVs equal to those for conventional M/HD vehicles, and launching new M/HD vehicle and charging infrastructure incentive programs supported by federal and state funding. These programs will include using $65 million in funding from Senate Bill 22-193 to launch a school bus grant program in spring 2023 and support applications to EPA's Clean School Bus program.

Electric Mobility (electric micromobility and shared electric modes)

- Launch the Community-Accelerated Mobility Project (CAMP) program to support community-driven electric mobility projects (CEO).
- Launch a statewide eBike rebate program that provides incentives to low- and moderate-income Coloradans to purchase eBikes and eligible equipment (CEO).
- Launch a statewide eBike grant program for income-qualified eBike programs run by local governments and community-based organizations by Spring 2023 (CEO).

[4] Note: responsible agencies are listed by each action. Where multiple agencies are involved, the lead agency is indicated by bold text where applicable.

- Launch an e-cargo bike pilot program (CEO).
- Introduce legislation to create an eBike tax credit (CEO).

Cross-cutting Initiatives

Programming, Funding, and Government Leading by Example

- Leverage new federal funds from the IIJA and IRA to expand the impact of state investments and accelerate transportation electrification (CEO, CDOT, CDPHE).
- Update and strengthen the EV-related goals and directives in the most recent Greening Government Executive Order by 2025 (CEO, CDOT, CDPHE, Governor's Office).
- Increase the number of EVs on order or in agency fleets to 825 by the end of fiscal year 2024-2025 (DPA, CEO).

Equity and Engagement

- Deepen equity-centered engagement to shape programs and policies, and support program participation from disproportionately impacted communities and low- and moderate-income Coloradans (CEO, CDOT, CDPHE).
- Integrate equity components into relevant programs to improve access to electric vehicles and mobility for all Coloradans (CEO, CDOT, CDPHE).

Policy, Planning, and Data

- Support expanded investments in M/HD vehicles and charging, light-duty EV charging, and other key programs in the next utility transportation electrification plans due in May 2023 (CEO).
- Partner with utilities to evaluate grid planning barriers and needs among cooperative and municipal utilities to support light-, medium-, and heavy-duty EV adoption (CEO).
- Evaluate permitting and approval processes for EV charging to identify barriers and develop potential solutions (CEO).
- Pursue federal funding for a regional hydrogen hub, the Western Interstate Hydrogen Hub (CEO).
- Launch all Enterprise dashboards to track and report program spending and other metrics (CEO, CDOT, CDPHE).

Workforce Development

- Conduct a workforce needs analysis to determine the scale and type of jobs needed to meet the state's ZEV goals and identify gaps in the workforce training system (CDOT, CDLE, CWDC, CEO, CDPHE).

- Support community colleges in launching the first EV automotive technology programs, and take steps to ensure EV automotive training is available at every community college (CDOT, CDLE, CCCS).
- Begin investment in ZEV workforce development through the Clean Fleet Enterprise (CDPHE).
- Increase engagement with Colorado auto dealerships to support program implementation and partnerships, such as working with dealers to enable access to state and federal tax credits and the Vehicle Exchange Colorado program rebates at the point-of-sale (CEO).

Introduction

Previous EV Plans Overview

Following the 2018 Electric Vehicle (EV) Plan and 2020 EV Plan, the 2023 Colorado EV Plan is the third iteration of the state's strategy to address Greenhouse Gas (GHG) and air pollution emissions from the transportation sector. The transportation sector now represents the largest source of GHG emissions in the state, and is a major contributor to air pollution emissions that negatively impact our health, including ozone precursors.[5]

Previous EV Plans outlined goals, actions, and strategies for the state to make progress on goals, visions, and actions to electrify the transportation sector. Prior to the 2018 EV Plan, 11,238 electric vehicles were registered in Colorado. The initial 2018 EV Plan had two main focus areas: building out EV fast-charging along Colorado's major transportation corridors and accelerating EV adoption to reach the state's target of 940,000 light-duty EVs on the road by 2030. The plan also included actions such as the developing public/private partnerships and establishing a goal for the electrification of the transportation sector.

By the time the state started work on the 2020 EV plan, EV registrations in Colorado had doubled to more than 25,000. The state released the 2020 plan during the Polis Administration, which supported a transition to zero emission vehicles in its first Executive Order. This plan envisioned the "*large-scale transition of Colorado's transportation system to zero emission vehicles, with a long-term goal of 100% of light-duty vehicles being electric and 100% of medium- and heavy-duty vehicles being zero emissions (including electric, hydrogen and other zero emissions technologies)*." The goals and actions in the 2020 Plan continued to support the target of 940,000 EVs on the road by 2030, while focusing on electric medium- and heavy-duty vehicles, electric transit vehicles, electric mobility, and EV charging infrastructure. It also included approaches to communicating and educating the people of Colorado on the benefits of vehicle electrification and how they can access those benefits as well as ensuring equitable access to electric transportation and its benefits. Less than a year later, the state released the first Greenhouse Gas Pollution Reduction Roadmap, which provided further guidance on accelerating the shift to electric cars, trucks, and buses.

[5] Colorado Energy Office, "Colorado Greenhouse Gas Pollution Reduction Roadmap" (Denver: 2022), available at https://energyoffice.colorado.gov/climate-energy/ghg-pollution-reduction-roadmap.

Colorado 2023 EV Plan Overview

There are now over 78,000 EVs on the road in Colorado, almost triple the number at the release of the 2020 plan. This 2023 Colorado Electric Vehicle Plan builds on the two previous plans with an updated vision and a greater emphasis on medium- and heavy-duty vehicles, electric mobility, and light-duty vehicle standards. A key initiative in 2023 will be extending and expanding Colorado's existing clean car standards to bring more EV options to the Colorado market and make progress toward achieving the goal of 940,000 EVs on the road by 2030. Equity is increasingly a central focus, both in stakeholder engagement to guide implementation and in program and policy design to prioritize participation by, and benefits for, disproportionately impacted communities and low- and moderate-income Coloradans.

While this plan focuses primarily on state actions, it recognizes that partners at the federal government, local governments, utilities, vehicle manufacturers, charging providers, and research institutions each play a critical role in this work. An important component of this plan is leveraging new vehicle electrification investments from the federal government, state legislature, state enterprises, and utilities. Since the 2020 EV Plan, the federal Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) have expanded incentives and investments available for EV charging infrastructure, and new and used electric vehicle purchases. The Colorado Legislature passed the "Sustainability of The Transportation System" bill (SB21-260), which created three new transportation electrification enterprises anticipated to expend more than $730 million over 10 years on incentives for electric vehicles, infrastructure, electric mobility, and an equitable transition for all Coloradans. Finally, the Public Utilities Commission approved the first-ever Transportation Electrification Plans from Colorado's investor-owned utilities, which include investments in education and awareness, EV charging infrastructure, and EV rebates for income-qualified customers.

The state received stakeholder input at public meetings in December 2022 and via written public comment to inform the development of the 2023 Colorado EV Plan. This included input from environmental justice and community organizations, the Community Access Enterprise Board, and the Colorado Electric Vehicle Coalition (CEVC).

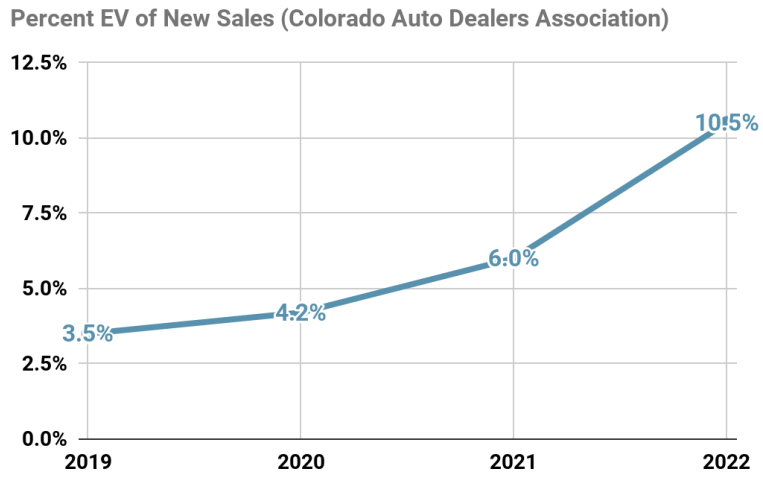
The goals and actions in the 2020 EV Plan were ambitious, yet new state legislation and funding from the federal government has enabled even more state transportation electrification initiatives. State agencies are now in the process of developing new programs, outreach efforts, policies, and planning. Given this level of activity, the 2023 plan provides not only a roadmap for the future, but also an overview of current

state efforts (see *Introduction* section and *Appendix B*) and existing programs, incentives, and policies that the state plans to continue and/or expand (see *2023 Colorado EV Plan* section).

Status of the EV Market and Infrastructure in Colorado

Growth of the EV Market

Colorado's electric vehicle market has seen steady growth since the release of the 2020 Colorado Electric Vehicle Plan, despite pandemic disruptions. EV sales have grown from just 3% of new vehicles sold in 2019 to 10.5%[6] in 2022. With more than 78,000 EVs[7] on the road, Colorado ranks fifth in the country for EV market share.[8] Since the state released the 2020 EV Plan, the number of EV models available to Coloradans has grown to include vehicles at a range of price points, and of various types and sizes, including SUVs and pickups — which Coloradans are increasingly purchasing.



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Automakers continue to announce new investments in electric vehicle manufacturing. By 2030, vehicle manufacturers and battery makers plan to invest $860 billion in electric vehicles, with the largest investment of $210 billion anticipated in the United States.[9] Several automakers plan to phase out the manufacturing of internal combustion engine vehicles by 2035 or earlier.[10]

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[6] CADA quarterly bulletin.
[7] EValuate CO Dashboard, Colorado Energy Office, 2023.
[8] Auto Innovators Electric Vehicle Sales Dashboard
[9] $210 Billion of Announced Investments in Electric Vehicle Manufacturing Headed for the US, EV Hub, Jan. 12, 2023
[10] Automaker Zero Emissions Sales Pledges Side by Side.

Original Electric Vehicle Registrations in Colorado

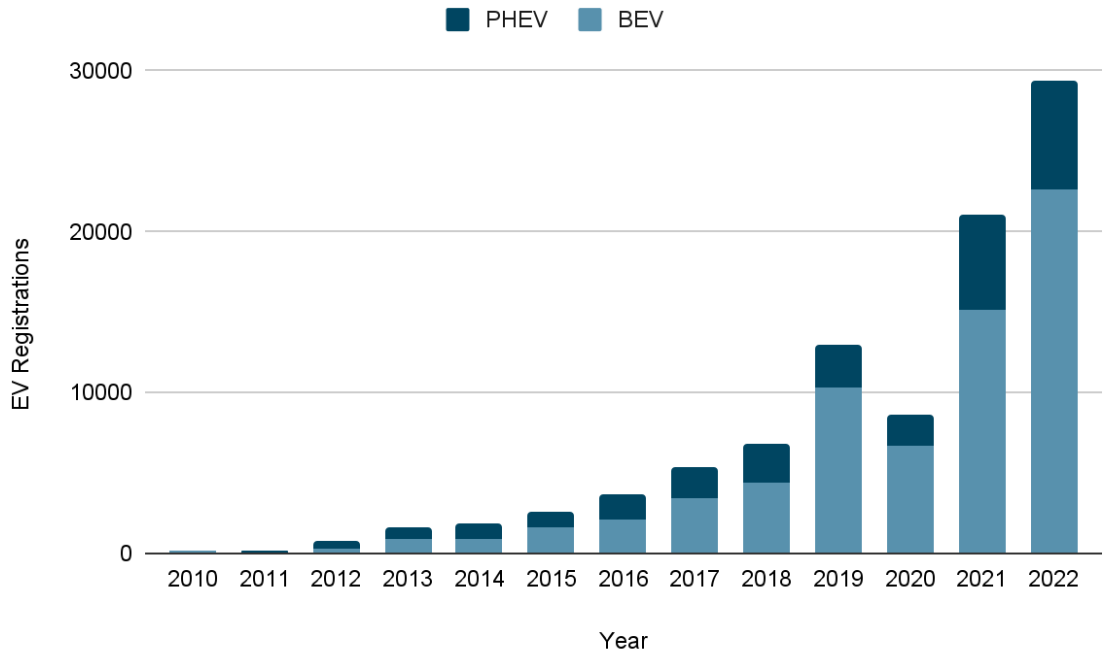


Image description; Source: Atlas Public Policy based upon Colorado Department of Motor Vehicles data, December 2022

Existing and Planned EV Charging Infrastructure

Cumulative EV Charging Ports

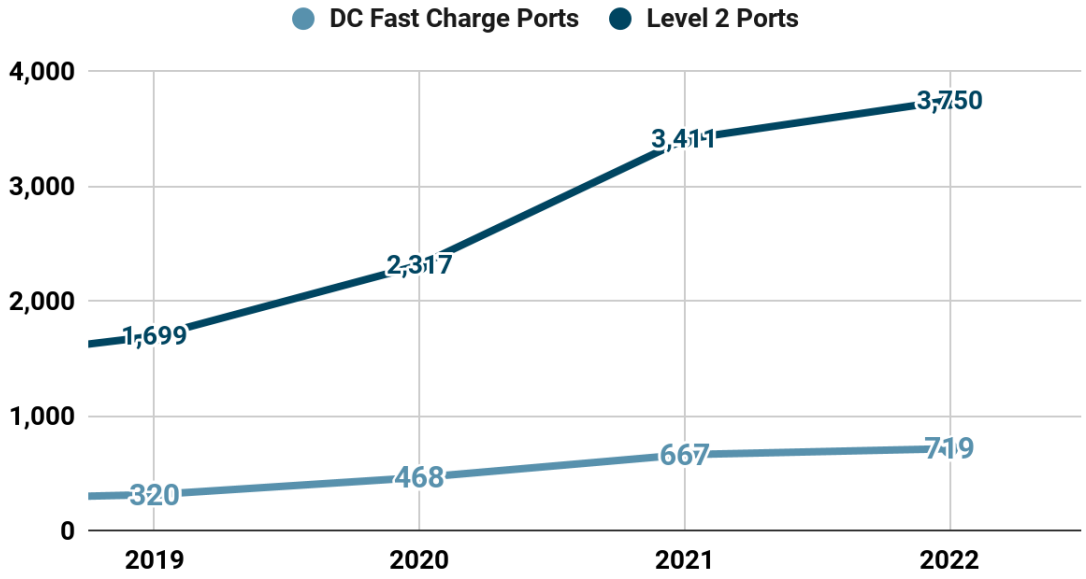


Image description; Source: Atlas Public Policy, December 2022

In addition to the growth in electric vehicles on the road, the number of charging stations across the state has grown to nearly 3,900 Level 2 charging ports and more than 750 DC fast-charging ports, making it easier than ever to drive an EV in Colorado.

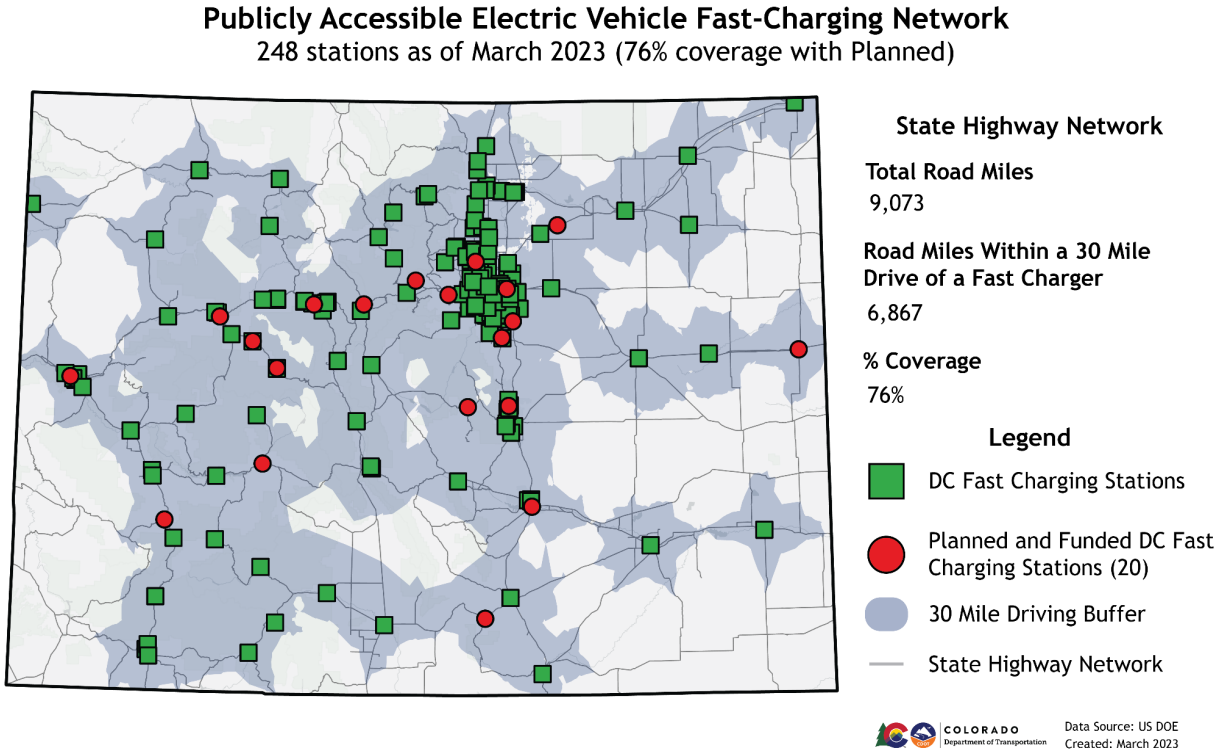


Image description; Source: Colorado Department of Transportation based upon United States Department of Energy data, March 2023

Challenges

The state released the 2020 EV plan in April 2020, at the outset of the COVID-19 pandemic. By that point, auto sales, including EV sales, had started to decline, foreshadowing a volatile market for auto manufacturing and sales that continues today. In addition to vehicle market disruptions, supply chain disruptions in EV charging equipment, transformers and switchgear, and other vital components have slowed manufacturing and installation of necessary utility infrastructure and charging stations. The impact of this disruption is still not fully known, though sales and growth numbers reflect these market forces.

Background: Highlights Since the 2020 EV Plan

This section summarizes highlights and key programs and actions the state of Colorado has taken to bring the benefits of vehicle electrification to all Coloradans since the 2020 Colorado Electric Vehicle Plan, including some developments beyond the scope

of the previous plan. Find a summary of progress and outputs for all goals, targets, and actions from the 2020 Colorado Electric Vehicle Plan in *Appendix B*.

Infrastructure

EV CHARGING STATION GRANT PROGRAMS

Thanks to increased state funding, Volkswagen settlement funding and private investments, the number of charging stations in Colorado has increased significantly over the last three years. The number of public Level 2 ports has grown from 1,534 at the beginning of 2020 to 3,845 today, while the number of DCFC ports has grown from 208 to 755 respectively.[11] CEO's Charge Ahead Colorado program, which provides grants for community-based Level 2 and DCFC stations across the state, made awards for more than 575 charging stations since 2020. CEO made awards for a variety of project types, including workplaces, multi-family housing, parking garages, hotels, retail, and government locations. CEO's DCFC Plazas program, which was launched in spring 2020, made awards for 53 charging stations at convenience stores, grocery stores and gas stations, as well as at Denver International Airport. Through CEO's DCFC Corridors program, ChargePoint has installed 84 charging stations at 30 locations across Colorado's major transportation corridors, with the remaining four locations to be completed by the end of 2023.

In fall 2022, CEO made several changes to its Charge Ahead Colorado program to increase access to EV charging in disproportionately impacted communities and income-qualified multi-family housing. This includes enhanced incentives to install EV charging stations for applicants that provide community services, such as recreation centers and libraries, or low-income multi-family housing in these communities. CEO has also modified Charge Ahead's evaluation criteria to prioritize these types of projects. CEO has made similar changes to its DCFC Plazas program.

Agency: CEO

STATE PARKS EV CHARGING

In 2020, Colorado Parks and Wildlife in the Department of Natural Resources (DNR), signed an agreement with Rivian, an electric vehicle manufacturer, to install at least two public chargers at more than 40 Colorado Parks and Wildlife (CPW) state park and office locations at no cost to the state. The first station opened at Cheyenne Mountain State Park in March 2022. Rivian has installed stations at seven additional state parks since this agreement. These easily accessible charging stations will allow

[11] EValuate CO Dashboard, Colorado Energy Office, 2023: https://energyoffice.colorado.gov/zero-emission-vehicles/evs-in-colorado-dashboard

Coloradans and out-of-state visitors to drive to remote outdoor destinations in an EV, while preventing pollution and protecting the public lands they plan to enjoy.

Agency: DNR

COLORADO ELECTRIC BYWAYS

In 2019, the Colorado Scenic & Historic Byways Commission established standards for "Colorado Electric Byways." To be designated as an electric byway, drivers must have access to dual-port DC fast charging stations located at least every 100 miles between the start and terminus of the byway. For byways that are less than 100 miles, drivers must have access to a dual-port DC fast charging station within 15 miles of the start or terminus. In addition, the state encourages communities along byways to install level 2 charging stations at lodging, restaurants, attractions, and trailheads. As of February 2023, the Colorado Tourism office has designated 13 of the 26 byways in Colorado as electric byways.

Colorado Electric Byways

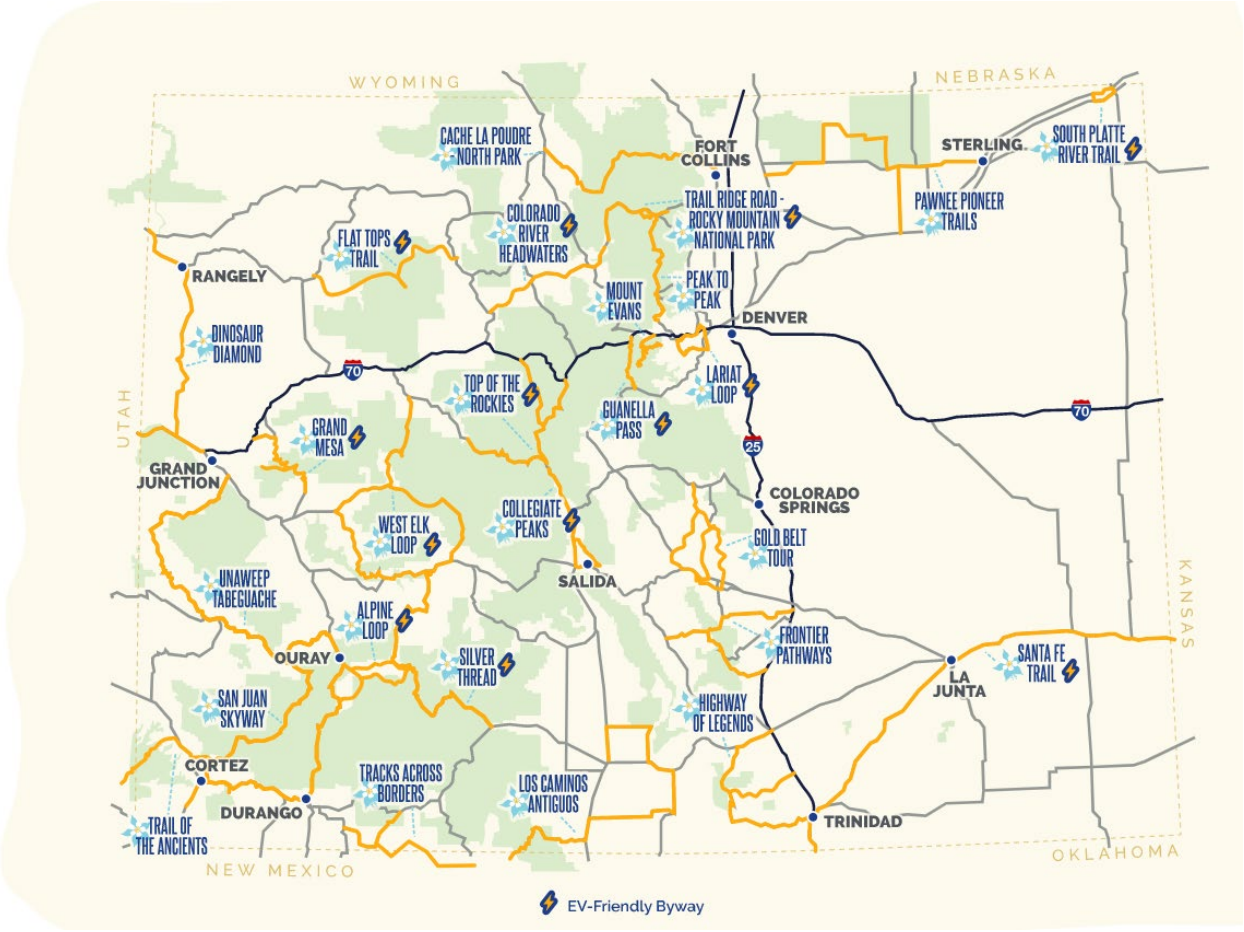


Image description

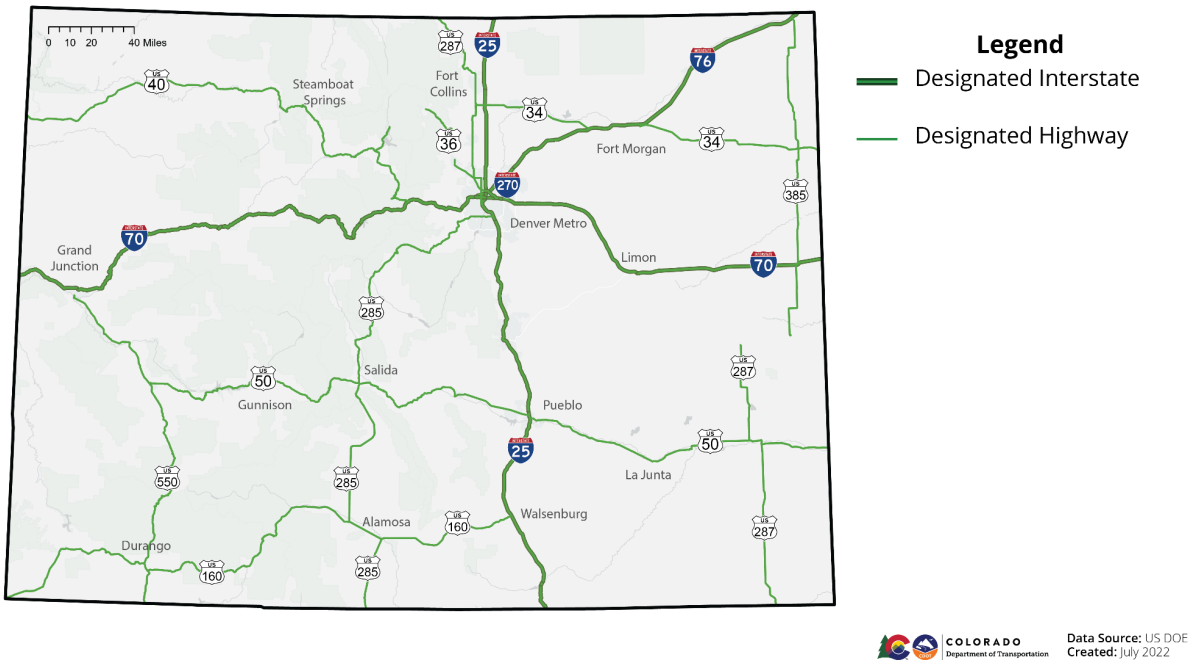
Agency: Colorado Tourism Office, OEDIT

NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE PROGRAM (NEVI)

As part of the Infrastructure Investment and Jobs Act (IIJA), Colorado will receive approximately $56.5 million in federal formula funding over the next five years from the National Electric Vehicle Infrastructure (NEVI) Program. The state must spend all NEVI formula funding on EV infrastructure along federally designated Alternative Fuel Corridors. In 2022, CDOT and partner state agencies successfully nominated six additional highway corridors as Alternative Fuel Corridors, for a total of 13 in Colorado. CDOT and its partners worked with stakeholders across Colorado to develop the Colorado NEVI Plan. As identified in Colorado's NEVI Plan, the state will prioritize filling charging gaps in rural areas and disproportionately impacted communities. Additional competitive grants from the Federal NEVI program are forthcoming.

Agency: CDOT

Federally Designated Electric Vehicle Corridors in Colorado
Existing Designated Corridors



Electric Mobility

CAN DO COLORADO EBIKE PILOTS

In June 2020, the Polis Administration launched the Can Do Colorado Community Challenge, which provided resources for local communities and businesses to reopen safely following initial COVID-19 restrictions and opportunities to sustain the resulting

air quality benefits of reduced transportation emissions. In support of the Challenge, CEO launched two pilot programs to increase access to eBikes for low-income essential workers. In the summer 2020 pilot, CEO partnered with Bicycle Colorado, Northeast Transportation Connections, and the National Renewable Energy Laboratory to demonstrate that eBikes are a safe, healthy, and convenient way to travel around town. CEO provided an eBike and equipment, including a helmet, pump, and lock, at no cost to 13 participants. The following year, CEO partnered with the Regional Air Quality Council and Denver's Office of Climate Action, Sustainability, and Resiliency to launch an expanded pilot. CEO made awards for projects in the Denver metro area, Boulder, Fort Collins, Pueblo County, and Durango, distributing eBikes and equipment to 181 Coloradans across the state.

Agency: CEO

Engaging People

EQUITY

COLORADO ELECTRIC VEHICLE EQUITY STUDY

Increasing equitable access to electric vehicles and their benefits is a priority for Colorado. In 2022, CEO completed the Colorado Electric Vehicle Equity Study, fulfilling an action from the 2020 EV Plan. The study and its appendices, as well as the EV equity dashboard, provide tools to help users develop and implement policies and programs that enable equitable access to vehicle electrification and its benefits for all Coloradans. The Colorado Energy Office is utilizing the recommended best practices and tools from this study to modify its programs, incentives, and stakeholder outreach to increase participation and provide greater benefits to Colorado communities who need the most support to achieve vehicle electrification. Equity is also a core theme in the Community Access Enterprise's 10 Year Plan, and is a guiding principle in the design of programs funded by the enterprise.

Agency: CEO

EDUCATION AND OUTREACH

EV CO

In fall 2022, CEO partnered with CDOT to launch the multiyear EV CO education and awareness campaign. The campaign is designed to raise awareness about EVs among all Coloradans, focusing on the financial and environmental benefits of EVs and how EVs can fit into Coloradans' everyday routines. The campaign website includes Colorado EV news and stories and answers to common questions about purchase incentives, long-term savings, charging, performance, and environmental benefits. It also provides a partner toolkit that EV stakeholders can use to share resources with

their audiences and communities, and links to connect interested EV consumers with EV shopper tools and dealerships. The campaign is based on CEO's 2020 EV Education and Awareness Roadmap.

Agency: CEO

WORKFORCE TRAINING

ZERO-EMISSION VEHICLE (ZEV) WORKFORCE DEVELOPMENT GROUP
CDOT created the Zero Emission Vehicle (ZEV) Workforce Development group to meet the training and skill set needs of an electrified transportation sector. Since 2021, CDOT has collaborated with staff from CDPHE, CEO, the Colorado Department of Labor & Employment (CDLE), and other relevant stakeholders, such as automotive dealerships, automotive repair shops, fleet managers, and academia, to host the ZEV Workforce Development group and determine what kind of programmatic and financial support is needed to develop a robust electric vehicle workforce in Colorado. In October of 2022, CDOT released the first round of Zero Emission Vehicle Workforce Development Grant Opportunities as part of the new Office of Innovative Mobility Grant program.

Agency: CDOT

HYBRID AND ELECTRIC VEHICLE SAFETY COURSE FOR COLORADO COMMUNITY COLLEGE SYSTEM
One early success of the ZEV Workforce Development group was convening automotive technology instructors from across Colorado to discuss the need for new hybrid and battery EV curricula to develop a pipeline of EV-ready mechanics and technicians. The Rocky Mountain Auto Teachers Society (RMATS) worked with representatives from the Colorado Community College System (CCCS), CDOT, and other partner agencies over several months to develop the new Hybrid Vehicle/Electric Vehicle Safety and Operation course, which CCCS approved and the National Institute for Automotive Service Excellence (ASE) certified in fall 2022. Multiple community colleges in Colorado are hoping to offer this course for the first time in 2023.

Agency: CDOT and CCCS

Legislation and Regulation

LEGISLATION

Senate Bill 21-260 Transportation Electrification Enterprises
NOTE: See Programs, Funding, and Incentives Section for more information.

In June 2021, Governor Polis signed the "Sustainability of The Transportation System" bill (SB21-260), which included new sources of transportation funding and established three new state enterprises focused on transportation electrification. The law aims to reduce emissions while improving local air quality.

- The Community Access Enterprise (CAE), within the Colorado Energy Office, will raise an estimated $310 million over 10 years to support charging infrastructure and equity programs, including funding for eBikes and eCargo bikes, community defined electric mobility projects, a vehicle exchange program (EVs for high emitting vehicles), and a medium- and heavy-duty zero emission vehicle infrastructure program. The CAE board approved the CAE 10 Year Plan in May 2022.
- The Clean Fleet Enterprise (CFE), within the Colorado Department of Public Health and the Environment, will invest an estimated $289 million over 10 years to support public and commercial fleet vehicle electrification. The CFE board approved the CFE 10 year plan in May 2022.
- The Clean Transit Enterprise (CTE), within the Colorado Department of Transportation (CDOT), will fund an estimated $134 million in transit vehicle electrification, charging, planning, and facility modification projects over the coming decade. The CTE board approved the CTE 10 Year Plan in May 2022.

Each of the enterprises has established its respective fees (including fees on retail deliveries and transportation network company rides) to fund the programs outlined above. The Department of Revenue began collecting these fees on July 1, 2022.

Agencies: CDOT, CEO, CDPHE

House Bill 22-1362 Building Greenhouse Gas Emissions

This legislation creates requirements to adopt the most recent International Energy Conservation Code in new buildings; prewire for EVs, solar, and heat pumps; and locally adopt a low carbon code starting in 2026 toward near zero building energy codes by 2030. The bill also provides funding to support adoption and enforcement; contractor training; grants for public building electrification; and clean air building investments.

Senate Bill 21-230 Transfer to Colorado Energy Office Energy Fund

This legislation allocates $40 million to the Colorado Energy Office to invest in clean energy and energy efficiency. This includes up to $30 million for the Colorado Clean Energy Fund (CCEF), up to $3 million for the New Energy Improvement District, up to $2 million for Residential Energy Upgrade loans, and up to $5 million for Charge Ahead Colorado to build EV charging for state fleet vehicles.

Senate Bill 22-193 Air Quality Improvement Investments

This legislation creates the Electric School Bus Grant Program within CDPHE and allocates $65 million in grant funding to support electric bus and associated charging infrastructure purchases. This grant program will significantly reduce the cost difference between new diesel school buses and new electric school buses, supporting the adoption of electric school buses across the state. Funding will also be available to install charging infrastructure. The state will also leverage $5 billion in funding from the U.S. Environmental Protection Agency's (EPA) Clean School Bus Program.

REGULATION

ADVANCED CLEAN TRUCK RULE AND LOW NOX OMNIBUS RULE

CDPHE's Air Pollution Control Division (APCD) proposed the following rules to the Colorado Air Quality Control Commission (AQCC) in December of 2022, with a rulemaking hearing scheduled for April 2023. The state committed to pursue these rules as part of the Clean Truck Strategy (see below).

- **The Advanced Clean Trucks (ACT) rule** would require manufacturers of medium- and heavy-duty on-road vehicles to sell an increasing percentage of zero-emission vehicles from model year 2027 and beyond. This would reduce greenhouse gas emissions and other air pollutants.
- **The Low NOx Truck rule** would require heavy-duty vehicle manufacturers to make cleaner vehicles, improve vehicle engine testing, and extend engine warranties. This rule would reduce NOx emissions from new vehicles 90% below current standards starting in model year 2027, providing significant public health benefits.

Agencies: CDPHE, CDOT, CEO

Planning, Data, and Government Leading by Example

PLANNING

CLEAN TRUCK STRATEGY

The Colorado Clean Truck Strategy, published in May of 2022, presents a comprehensive set of goals and strategies for state agencies and partners to implement, such as incentives, infrastructure investments, workforce development, and regulatory actions, which state agencies will update over time as the market evolves. The final strategy leverages nearly $1 billion in potential funding for clean trucks and buses coming from Senate Bill 21-260 (see below), federal infrastructure funds, the Governor's annual budget, and other sources. The *Colorado Medium-and Heavy Duty Vehicle Study* found that, if the State of Colorado pursues strategies to support an accelerated transition to M/HD Zero-Emission Vehicles (ZEVs), it could

reduce M/HD GHG emissions 45-59%, nitrogen oxides (NOx) emissions 54-93%, and particulate matter (PM) emissions 53-68% annually by 2050 from a baseline scenario.

Agencies: CDPHE, CDOT, CEO

TRANSIT ZEV ROADMAP
In 2021, CDOT worked with local transit agencies, stakeholders, and other state agencies to develop a statewide plan to transition 1,000 of Colorado's transit vehicles to zero-emissions vehicles by 2030, and 100% of the fleet to ZEVs by 2050. The Colorado Transit Zero-Emission Vehicle Roadmap describes the current state and national landscape for transit ZEVs and identifies the technical, institutional, and financial barriers to rapid implementation. The Roadmap lays out 38 implementation strategies to overcome these barriers and establishes a foundation for future ZEV investments via the Clean Transit Enterprise and other state and federal funding sources.

Agency: CDOT

HYDROGEN
In February 2022, Colorado, New Mexico, Utah, and Wyoming signed a Memorandum of Understanding (MOU) to coordinate, develop, and manage a regional clean hydrogen hub known as the Western Interstate Hydrogen Hub (WISHH). WISHH submitted a concept paper in November of 2022 for funding from the U.S. Department of Energy (DOE) Regional Clean Hydrogen Hub Program. Based on this concept paper, the DOE encouraged WISHH to move forward with the full application due April 2023. The DOE expects to make award notifications in summer 2023. This hub, if awarded, will provide opportunities to use hydrogen-fueled vehicles in the M/HD vehicles sector.

Agency: CEO

ZEV TRANSITION PLANNING GRANT PROGRAM
Since 2021, the CDOT Division of Transit & Rail has managed the ZEV Transition Planning Grant Program to support transit fleet transition planning projects for agencies across Colorado. These grants are designed to establish an agency-wide framework for the ZEV transition and lay the groundwork for competitive capital and equipment applications to federal, state, and other funding sources.

Agency: CDOT

STUDIES, ROADMAPS, AND ANALYSES
Colorado completed a number of studies and analyses to support the transition to zero emission vehicles. They can be found in *Appendix D*.

DATA

EVALUATECO DASHBOARD

Developed in partnership with Atlas Public Policy, CEO launched the EValuateCO dashboard in fall 2020. The dashboard includes information on EVs in Colorado, such as monthly updates on new EV registrations and the total number EVs on the road. It also provides quarterly updates on charging stations around the state, including locations and usage. Users can filter data in a variety of ways, such as by automaker, utility, or geography. The Department of Motor Vehicles provides EV registration data, while Charge Ahead Colorado and the U.S. DOE's Alternative Fuels Data Center provide charging station data. EValuateCO is an important public resource for public, private, and nonprofit entities.

Agency: CEO

GOVERNMENT LEADING BY EXAMPLE

COLORADO STATE FLEET

As part of Governor Polis's focus on greening government and positioning Colorado as a leader in transportation electrification, state agencies have accelerated their procurement of electric vehicles. The Greening Government Executive Order D 2022 016 requires that agencies "ensure that EVs (BEVs and PHEVs) are the default vehicle type for all light-duty vehicles for future vehicle purchases." At the end of 2022, state agency fleets included 328 EVs, with another 227 on order, many of which are electric pickups and SUVs. State agencies have experienced firsthand the volatility of the auto market, automakers canceled or delayed a number of EV orders the state made in early FY2022/2023. To prepare for these new EVs, agencies are installing charging infrastructure at facilities across the state. Through SB21-230, the legislature allocated $5 million to install charging infrastructure for electric state fleet vehicles. State agencies will use a portion of this funding to support implementation of the state's EV Take Home Policy, which allows employees to charge state-owned EVs at home and reimburses them for the electricity.

Agency: DPA

2023 Colorado EV Plan

A collaboration of state agencies, including CEO, CDPHE, and CDOT, developed the 2023 Colorado EV Plan with input that stakeholders provided at public meetings and via written public comments. CEO, CDOT, and CDPHE will review and update the Colorado EV Plan every two to three years, or as needed, in response to changing market dynamics and planning requirements.

Vision

The state envisions the large-scale transition of Colorado's transportation system to zero emission vehicles. This includes increasing the market share of light duty electric vehicles to nearly 100% by 2050, transitioning 100% of medium- and heavy-duty vehicles to zero emissions vehicles, and expanding adoption of electric micromobility and shared options. This vision also focuses on expanding access to, and benefits of, this transition to all Coloradans and businesses, especially those in disproportionately impacted and rural communities.

Goals and Actions

Light-duty vehicles and infrastructure

This section focuses on accelerating adoption of light-duty electric vehicles and installation of charging infrastructure needed to support those vehicles. Light-duty vehicles refer to vehicles 8,500 pounds and under, and primarily include privately-owned passenger cars, SUVs, and lighter pickup trucks, as well as fleet vehicles, such as rental cars and ride-hailing fleets. This section includes some of the goals and actions from the Clean Fleet and Community Access Enterprise's 10 Year Plans, as well as Colorado's NEVI Plan.

GOALS

Increase adoption of EVs in the light-duty sector to approximately 940,000 vehicles by 2030, and pave the way for reaching nearly 100% EVs by 2050. *(from 2018 EV Plan)*

- Increase the number of annual light-duty EV sales to 65,000 by 2025, which is over 25% of new vehicle sales.[12]
- Increase EV sales to at least 70% of new vehicle sales by 2030.
- Increase adoption of EVs in the light-duty sector to approximately 2.1 million vehicles by 2035.

[12] Unless otherwise noted, years refer to the calendar year.

Work with utilities, private companies, site hosts, local governments, and others to increase the EV infrastructure needed to support the state's 2030 light-duty vehicle goals and enable travel statewide in an EV.

- Increase the number of charging ports awarded or installed to 1,700 DCFC and 5,800 public Level 2 by 2025, including awarding grants for at least 1,000 ports each year through 2025.[13]
- Complete the implementation of the state's National Electric Vehicle Infrastructure (NEVI) plan, fully expending Colorado's $56.5 million allocation to construct DC fast-charging sites along federally designated EV corridors.
- Increase the number of Colorado Scenic & Historic Byways classified as electrified byways from three in Fiscal Year 2020 to 23 by the end of Fiscal Year 2025.

NEW ACTIONS

- **Complete a rulemaking for post model-year 2025 light-duty vehicle standards at the AQCC in 2023 to extend and expand Colorado's clean car standard through 2032 (CDPHE,** CEO, CDOT**).**[14]

  CDPHE, with support from CEO and CDOT, will propose adoption of the Advanced Clean Cars II standard through model year 2032 to the Colorado Air Quality Control Commission (AQCC). CDPHE will file the notice of proposed rulemaking in 2023, with the expectation that the rules, if adopted by the AQCC, would go into effect for Model Year (MY) 2027 vehicles. By 2029, state agencies will conduct a review and consider what standards will work best for Colorado after 2032.

  Colorado's recent growth in EV market share, and the complementary programs and policies in this EV Plan make it possible to consider this approach and continue progressing on the existing ZEV standard. This extension of Colorado's existing ZEV standard maximizes choices for consumers by ensuring manufacturers will make their EV models available in Colorado. This approach is also in line with what many manufacturers, including Ford and GM, have committed to, as well as with Colorado's 940,000 EVs on the road by 2030 goal.[15] Pursuing flexibility, such as early action credits, can help make the standard workable for Colorado and encourage automakers to increase EV availability before the new standards take

[13] These goals are informed by the ICCT Colorado Charging Study for public charging station ports; public charging ports will be tracked using EValuateCO, while other types of charging such as workplace and multi-family charging may or may not be listed publicly. While difficult to track progress for these types of charging stations, state programs will nevertheless seek to fund these types of stations.
[14] Note: responsible agencies are listed by each action, with agencies in bold taking the lead.
[15] GM Plans to Phase Out Gas and Diesel Cars By 2035 - Forbes. Six Major Automakers Agree to End Gas Car Sales Globally by 2040 - Car and Driver.

effect. This also includes new environmental justice credits which can help the state further leverage incentive funds for equity-focused programs.

- **Take actions to ensure that residents of multifamily housing have access to at home EV charging (CEO).**

  Introduce legislation that ensures that the Colorado Electrical Board adopts and implements the Energy Code Board's EV charging requirements for multi-family housing construction and renovations by fall 2023. According to the U.S. Department of Energy, more than 80% of charging takes place at home. Providing access to home charging for those living in multi-family housing is an important strategy in increasing EV adoption and accessibility.

- **Pursue significant expansion and extension of the state ZEV tax credit through at least 2027 (CEO).**

  Introduce legislation that increases and extends the light-duty ZEV tax credit through 2027 to bridge a possible incentive gap over the next few years as new federal tax credit requirements go into effect. New eligibility requirements for the federal EV tax credit have the potential to significantly limit the number of EVs eligible for that incentive in the near-term. This state initiative can help maintain momentum in EV adoption by ensuring the continued availability of robust EV incentives for Coloradans. The state also plans to expand and extend the medium- and heavy-duty vehicle tax credit to complement the commercial vehicle tax credit in the IRA.

- **Adjust program requirements and explore other solutions to improve public EV charger reliability (CEO).**

  While reliability of public charging stations in Colorado is higher than many parts of the country, non-functioning stations in the state's charging network create poor driver experiences and reduce driver confidence in the network. A safe and seamless charging experience that ensures drivers can charge when and where they need is essential to accelerate EV adoption. CEO will modify program designs to more clearly define and strengthen uptime requirements, and will partner with station operators and other key stakeholders to explore additional solutions to ensure a reliable network for EV drivers.

- **Launch Vehicle Exchange Colorado program to incentivize low- and moderate-income Coloradoans to retire and replace high-emitting vehicles with electric vehicles (CEO).**

  Using funding from the Community Access Enterprise, Colorado will launch a

statewide program that provides point-of-sale rebates to low- and moderate-income Coloradans who replace their high-emitting vehicles with electric vehicles and other low-emitting mobility options. The cost of both new and used EVs remains out of reach for many drivers in Colorado. This program will help to increase the number of low- and moderate-income Coloradans who are able to purchase an EV, while also improving air quality by removing older, high-emitting vehicles from Colorado's roads. CEO anticipates that the rebate will be available starting in summer 2023.

- **Launch a new Residential Charging Infrastructure program to help Coloradans install EV charging at home (CEO).**

  Using funding from the Community Access Enterprise, Colorado will launch a new program to support upgrades to electrical service and installation of at-home EV charging infrastructure in single family homes and small multi-family housing. Many homes in Colorado currently lack sufficient electrical capacity and will require expensive electrical upgrades to accommodate home charging stations. This program will help expand access to home charging for all Coloradans. CEO anticipates launching this program in FY 2023-2024.

- **Launch new Clean Fleet Transportation Network Company (TNC) incentive program to help electrify high mileage ride-hailing vehicles (CDPHE).**

  Using funding from the Clean Fleet Enterprise, CDPHE will launch a new Clean Fleet TNC program to accelerate the adoption of clean TNC or ride-hailing fleet vehicles and increase the percentage of prearranged rides completed using ZEVs. Initial program offerings may include a per-ride incentive for TNC rides in ZEVs to offset the higher incremental costs of renting or owning a ZEV, as well as purchase and/or lease rebates to reduce the incremental cost of owning or leasing ZEVs.

- **Continue and expand existing efforts in the light-duty vehicle sector.**

  Several charging infrastructure grant programs already exist in Colorado, including Charge Ahead Colorado, which provides funding for community-based Level 2 and DCFC stations, and the DCFC Plazas Program, which provides funding for DCFC stations in urban areas and along highway corridors (CEO in partnership with CDOT). Currently, the number of requests for funding from these programs exceeds the amount of funding available. In the coming years, these programs will have additional funding to make more awards for EV charging stations. Recent and upcoming changes will prioritize funding and provide enhanced incentives for projects in disproportionately impacted communities, and will provide support for those that have not traditionally participated in these

programs.

Medium- and heavy-duty vehicles and infrastructure

This section focuses on medium- and heavy-duty (M/HD) electric vehicles, and the charging and fueling infrastructure needed to support these vehicles. Medium- and heavy-duty vehicles are vehicles over 8,500 pounds, and include everything from large pickup trucks and vans to school buses and semi-trucks. In 2022, Colorado completed its first Clean Truck Strategy, which focuses on transitioning medium- and heavy-duty vehicles to cleaner technologies and fuels. Many of these vehicles are commercial fleet vehicles, although a substantial proportion of medium-duty vehicles are privately-owned. This section includes the goals and actions from the Clean Truck Strategy and related documents, such as the Transit Zero Emission Vehicle Roadmap.

GOALS

Increase adoption of medium- and heavy-duty (M/HD) zero emission vehicles (ZEVs) to at least 30% of new sales by 2030, and 100% of new sales by 2050. *(from Clean Truck Strategy)*

- Increase adoption of zero-emission M/HD vehicles to 35,000 vehicles on the road by 2030.
- For M/HD vehicles that do not have viable near-term ZEV product offerings, work with partners to facilitate the disposal and replacement of old, high-emitting vehicles with newer, lower emissions vehicles. This includes aiming for new trucks to produce 90% less NOx emissions than current standards starting in 2027.
- Convert public transit fleets across the state to 100% zero-emission vehicles no later than 2050, with an interim target of at least 1,000 zero-emission transit vehicles by 2030. Support the adoption of 2,000 electric school buses by 2027 and achieve 100% zero-emission buses on the road by 2035, with a focus on adoption in school districts in disproportionately impacted communities.
- Plan for and support public, utility, public-private partnership, and private sector funding for M/HD charging and hydrogen fueling infrastructure to help meet clean truck and bus adoption goals.

NEW ACTIONS

- **Implement key near-term actions in the Clean Truck Strategy (CDOT, CDPHE, CEO).**

  Agencies will work collaboratively to implement the near-term actions in the Clean Truck Strategy, with a particular focus on:

- Proposing adoption of the Advanced Clean Truck and Low NOx Omnibus rules to the AQCC in 2022 (complete), with the goal of completing the rulemaking in 2023.
- Introducing legislation that modifies specific ownership and sales and use taxes to ensure tax liability for M/HD ZEVs is equal to that of conventional M/HD vehicles. The specific ownership tax and sales and use taxes are based on the upfront cost of a vehicle, which means that M/HD ZEV fleets currently pay higher taxes for their vehicles. This legislation would make it easier and more cost effective for fleets to purchase ZEVs.
- Using funding from the Clean Fleet Enterprise , CDPHE will launch a new M/HD vehicle incentive program detailed in the Clean Fleet Enterprise 10 Year Plan in spring 2023.
- Using funding from the Community Access Enterprise and NEVI, CEO will launch a fleet charging infrastructure grant program in spring 2023 to reduce the cost of installing public and depot charging stations. CEO will model this program based on existing CEO infrastructure grant programs and recommendations from the M/HD charging infrastructure analysis completed by Atlas Public Policy. This program will reflect the diversity of fleets, site hosts, and charging providers active in this space.
- Using $65 million in funding from the "Air Quality Improvement Investments" bill (SB22-193), CDPHE will launch a school bus grant program in spring 2023, and support applications to the EPA's Clean School Bus program.
- Encouraging Colorado businesses to take advantage of the federal commercial vehicle tax credit and other programs created by the IRA.

- **Continue and expand existing efforts in the M/HD vehicle sector.**
  - Implement key near-term actions and programs from the Transit ZEV Roadmap and Clean Transit Enterprise 10 year Plan (CDOT).
  - Continue and expand existing CDOT funding programs administered by the Division of Transit & Rail (DTR) to support the purchase of zero-emission transit vehicles and charging infrastructure through the Consolidated Call for Projects (see NOFA Announcements) (CDOT).

Electric mobility (electric micromobility and shared electric modes)

Electric mobility refers to the broad and growing range of personal transportation options that are powered fully or in part by an electric motor, beyond just privately-owned electric vehicles. For the purposes of this EV Plan, it includes personally owned

electric micromobility options (e.g., e-bikes and e-scooters), and shared options such as electric bikeshare networks, electric carshare networks, and electric vanpool services. The Greenhouse Gas Pollution Reduction Roadmap recognizes that electrification of our transportation system, as well as reducing the amount we drive to reach our daily needs, are essential to meeting our greenhouse gas goals. Electric mobility options can help address both strategies.

GOALS

Replace car trips with electric mobility options (electric micromobility and shared electric modes) where feasible.

- Increase access to eBikes to low- and moderate -income Coloradans by providing grants, rebates, and tax credits for at least 10,000 new eBikes by 2025.
- Support 10 community-driven electric mobility projects by 2025, either by providing grant funding or supporting community applications to other funding sources.

NEW ACTIONS

- **Launch the Community Accelerated Mobility Project (CAMP) to support community-driven electric mobility projects (CEO).**

  Using funding from the Community Access Enterprise, Colorado will launch the Community Accelerated Mobility Project (CAMP) program to help local communities meet a variety of community-defined mobility needs. The program will provide funding and/or connect communities to resources for community-driven electric-mobility projects, such as electric carshare, electric vanpool, community eBike share, and community charging infrastructure. CEO will launch the technical readiness component of CAMP (grants for technical or planning support) in Summer 2023, and expects to award funding for project implementation starting in 2024.

- **Launch a statewide eBike rebate program that provides incentives to low- and moderate-income Coloradans to purchase eBikes and eligible equipment (CEO).**

  Using funding from the "Air Quality Improvement Investments" bill (SB22-193), CEO will launch a rebate program that provides point-of-sale and after purchase rebates for eBikes, including electric cargo and adapted eBikes and related equipment. The program will be limited to low- and moderate-income Coloradans and will function similarly to Denver's popular eBike program. CEO anticipates that the rebate will become available in Summer 2023. Eligible applicants will be able to redeem rebates at qualified bike shops and online retailers.

- **Launch a statewide eBike grant program for income-qualified eBike programs run by local governments and community-based organizations by Spring 2023 (CEO).**

  CEO will launch a statewide eBike grant program that provides funding to local governments and community-based organizations to provide eBikes and equipment to low- and moderate-income Coloradans. This program, the Community Access to Electric Bicycles grant program, is funded by the "Air Quality Improvement Investments" bill (SB22-193), and builds on the two previous Can Do Colorado eBike pilot programs.

- **Launch e-cargo bike pilot (CEO).**

  Using funding from the Community Access Enterprise, the eCargo Bike Commercial Delivery Pilot Program will provide grants to community-based organizations, local governments, bike shops, delivery fleets, and others for replacing traditional delivery fleet vehicles with eCargo bikes. CEO anticipates that this grant program will open applications for this pilot program in spring 2023.

- **Introduce legislation to create an eBike tax credit**

  CEO will pursue legislation to create a statewide eBike tax credit. EBikes are a rapidly growing mode of local transportation. This tax credit will build on the one-time funding for eBike rebate allocated during the 2022 legislative session.

Cross-cutting Initiatives

This section focuses on initiatives that affect multiple parts of our transportation system, including strategies or considerations that span multiple sectors, rather than just a single type of vehicle or mode of transportation. These include leading by example, equity and engagement, planning, and workforce development.

GOALS

Meet EV directives from the 2022 Greening of State Government Executive Order.

- Reduce greenhouse gas emissions from State vehicles at least 15% by June 2025 over a fiscal year 2014-15 baseline. For State vehicles categorized as special use, reduce emissions at least 7.5% by 2025 over a 2015 baseline. *(in 2022 Greening of State Government Executive Order)*.
- Establish a goal and transition plan for state agency fleets to achieve 100% zero-emission M/HD fleet vehicle purchases by 2040, where technically feasible and

able to meet safety and mission critical operations needs. *(from Clean Truck Strategy)*

Develop equity-centered programming by engaging community-based organizations and disproportionately impacted community members in program design and implementation, and increasing investment in these communities.

- Ensure that on an annual basis, starting in Fiscal Year 2024, at least 40% of funding for transportation electrification programs is invested in grants and rebates for disproportionately impacted communities and low- and moderate-income Coloradans.
- Prioritize clean truck and bus deployment in ways that provide direct benefits to disproportionately impacted communities and support a just transition for workers in the M/HD vehicle sector.

Work proactively to support a broad and resilient ZEV workforce that ensures transportation system safety and reliability, while offering job opportunities to all Coloradans.

- Establish targets based on the upcoming ZEV workforce needs analysis, such as goals for the number of community colleges/technical schools offering ZEV training or the number of workers trained.

NEW ACTIONS

PROGRAMMING, FUNDING, AND GOVERNMENT LEADING BY EXAMPLE

This section focuses on efforts across sectors of the transportation system to improve and expand access to grants and other programs, and accelerate initiatives that lead by example in state government and support local governments.

- **Leverage new federal programs from the IIJA and IRA to expand the impact of state investments and accelerate transportation electrification (CEO, CDOT, CDPHE).**

  State agencies will actively engage with requests for information, public comment periods, and other feedback opportunities from the federal government to weigh-in on the development and implementation of the zero emission vehicle programs in the IRA and BIL. The state will also leverage new federal funds where possible through state programs, and support local governments and other entities in Colorado in pursuing federal funding directly. The state is focused on leveraging new federal programs to accelerate zero emission vehicles including:

  - 30D Clean Vehicle Tax Credit for new light-duty EVs

    - 25E Used Clean Vehicle Tax Credit
    - 45W Commercial Electric Vehicle Tax Credit
    - 30C Alternative Fuel Infrastructure Tax Credit
    - National Electric Vehicle Infrastructure (NEVI) Program
    - Community Alternative Fuel Infrastructure Grants
    - EPA Clean School Bus Program
    - EPA Clean Heavy Duty Vehicle Program

- **Update and strengthen the EV-related goals and directives in the most recent Greening Government Executive Order by 2025 (CEO, CDOT, CDPHE, Governor's Office).**

  State agencies will continue to lead by example by replacing retiring fleet vehicles with electric vehicles, installing EV charging at state facilities, and implementing best practices for charging, such as off-peak charging and home charging for state-issued EVs. State agencies will update the Greening Government Executive Order by 2025 to revise and strengthen its EV-related goals and initiatives.

- **Increase the number of EVs on order or in agency fleets to 825 by the end of FY 2024-2025 (DPA, CEO).**

  State agencies have rapidly increased the number of EVs on order or in their fleets; however, supply chain and manufacturing delays combined with growing demand for EVs have led to delays or cancellations of a number of state agencies' vehicle orders. As new models become available, including pickups and SUVs with AWD and 4WD, agency orders are likely to increase, along with market demand more broadly. The high cost of some electric trucks and SUVs may be a limiting factor as agencies look to replace conventional trucks and SUVs. CEO and DPA will continue to support state agencies as they accelerate EV procurement, ensuring that infrastructure and best practices are in place to facilitate this transition.

- **Continue and expand existing efforts to lead by example and fund local programs.**
    - Ensure buildout of charging infrastructure in state facilities funded through the "Transfer to Colorado Energy Office Energy Fund" bill (SB 21-230) (CEO, state agencies).
    - Provide EV readiness planning grants to local jurisdictions through a competitive grant offering anticipated for spring 2023 (CEO).

EQUITY AND ENGAGEMENT

Since the 2020 EV Plan, CEO completed the EV Equity Study and the legislature passed the "Sustainability of The Transportation System" bill (SB21-260), establishing the Community Access, Clean Fleet, and Clean Transit Enterprises and requiring them to invest in programs that benefit disproportionately impacted communities, largely low-income communities of color. The legislature also passed the "Environmental Justice Disproportionate Impacted Community" bill (HB21-1266), which defines the term "disproportionately impacted community" and creates an environmental justice task force. State agencies are now in the process of incorporating equity best practices into their stakeholder engagement efforts and program design for transportation electrification.

- **Deepen equity-centered engagement to shape programs and policies, and encourage program participation from disproportionately impacted communities and low- and moderate-income Coloradans (CEO, CDOT, CDPHE).**

  State agencies will incorporate the Colorado Environmental Justice Action Task Force's recommended best practices for stakeholder engagement to develop and refine program designs, conduct outreach to increase participation in programs, and shape policies.[16] CEO will hire a stakeholder engagement vendor who will work with community-based organizations and community members from around the state to provide input on program design. CEO will also engage an equity-focused ReCharge coach to support disproportionately impacted communities and entities serving income-qualified Coloradans in applying for CEO programs.

- **Integrate equity components into relevant programs to improve access to electric vehicles and mobility for all Coloradans. (CEO, CDOT, CDPHE).**

  Informed by the EV Equity Study, input from stakeholders, funding sources and requirements, and input from the Enterprise Boards, state agencies will develop people-focused programs to benefit all Colorado communities, especially disproportionately impacted communities, low- and moderate-income Coloradans, and disadvantaged business enterprises. Agencies will work together to ensure consistency across programs where possible, and to incorporate equity components into program design and implementation. Equity program components recommended by the EV Equity Study and stakeholders include:

  - **Increased incentives**: e.g., disproportionately impacted communities, low- and moderate-income participants, and small or disadvantaged business enterprises (equity applicants) are eligible for increased incentives/support,

[16] Colorado Environmental Justice Action Task Force - Final Report of Recommendations

or have lower match requirements.

- **Evaluation criteria in competitive programs:** e.g., equity applicants are weighted more highly in competitive grant programs.
- **Proactive outreach and application support:** e.g., focused outreach to equity applicants, and/or support/technical assistance to help equity applicants apply.
- **Streamline access:** e.g., enable incentive at point-of-sale, rather than a post-sale rebate or tax credit, or encourage charging station operators or other service providers to offer multiple payment methods.
- **Accessibility:** e.g., ADA accessibility requirements for charging station design and equipment.

- **Continue and expand existing equity and engagement efforts.**
  - EV CO awareness campaign, including expanding targeted audiences beyond early adopters (CEO, CDOT).
  - Recharge EV Coaches program to support EV education and access to grant programs (CEO).
  - Colorado Electric Vehicle Coalition and subcommittees (CEO).
  - Expanding translated content and access to interpretation at meetings (CEO, CDOT, CDPHE).
  - Electric mobility education and awareness grants (CDOT).
  - Hosting EV Equity Dashboard and Prioritization Tools (CEO).

POLICY, PLANNING, AND DATA

This section highlights initiatives to collect and report data and key metrics, conduct planning and analysis, and shape policy.

- **Support expanded investments in M/HD zero emission vehicles and charging, light-duty EV charging, and other key programs in the next utility transportation electrification plans (CEO).**

  CEO will work with regulated utilities and market stakeholders to ensure that the next round of transportation electrification plans (TEPs) continue progress on the initial plans, and expand investment in M/HD zero emission vehicles and charging, light-duty EV charging, and other priorities. A key focus of the next TEPs will be ensuring grid upgrade planning and investments are sufficient to meet the scale and pace of anticipated light-duty and M/HD EV adoption in the coming years.

- **Partner with utilities to evaluate grid planning barriers and needs among cooperative and municipal utilities to support light-, medium-, and heavy-duty EV adoption (CEO).**

  Starting with a workshop in March 2023, state agencies will work with cooperative and municipal utilities to identify their needs to plan for increased EV adoption in their service territories. Understanding their needs and barriers, and exploring potential solutions, is essential to ensure grid reliability and resilience as EV adoption increases rapidly in the coming years.

- **Evaluate permitting and approval processes for EV charging to identify barriers and develop potential solutions (CEO).**

  Permitting and approval processes for EV charging installations, especially DCFC, vary across the state, leading to long permitting processes in some locations. CEO will work with key stakeholders to evaluate current processes, identify barriers, and develop potential solutions. These solutions could include developing a guidebook or model ordinances or providing support to local permitting and approval entities to streamline their processes.

- **Pursue federal funding for a regional hydrogen hub, the Western Interstate Hydrogen Hub (CEO).**

  After submitting a concept paper in response to the Clean Hydrogen Hub Funding Opportunity in November 2022, the US DOE encouraged WISHH to move forward with a full application for a portion of the $8 billion allocated in the 2021 Infrastructure Investment and Jobs Act (IIJA). The full proposal is due in April 2023. WISHH will provide opportunities and catalyze the development of a hydrogen fuel cell market in the four-state region, particularly in the medium- and heavy-duty vehicle sector.

- **Launch all Enterprise dashboards to track and report program spending and other metrics (CEO, CDOT, CDPHE).**

  The Community Access, Clean Fleet, and Clean Transit Enterprises are all required by statute to create, maintain, and regularly update publicly available dashboards that provide an accessible and transparent summary of progress on their 10 Year Plans, funding statuses of each enterprise-funded project or program, and per project and total funding expenditures.

- **Continue and expand existing efforts.**
  - Continue partnering with utilities on program implementation as they

expand offerings to their customers or members, including new rebate offerings, EV charging rates, and education and awareness (CEO).

- Host the EValuateCO Dashboard to track EV registrations, EV charging stations, and other key market data (CEO).

WORKFORCE DEVELOPMENT

Investing in workforce development is essential to ensure a successful transition to zero emission vehicles. The next few years will build on earlier actions to collaborate with workforce partners by investing in training and education, as well as analyzing and preparing for the growing demand and changing needs for electricians, electric vehicle technicians, and other related occupations over the coming years.

- **Conduct a workforce needs analysis study to understand the scale and type of jobs necessary to meet the state's ZEV goals and address gaps in the workforce training system (CDOT, CDLE, CWDC CEO, CDPHE).**

  The Colorado Department of Labor & Environment (CDLE) and Colorado Workforce Development Council (CWDC) will develop a statewide ZEV Workforce Needs Study in partnership with CDOT, CEO, and CDPHE. This study will analyze the capacity of the current and future ZEV workforce in Colorado as it relates to the state's ZEV goals. This will include forecasting the workforce supply and demand in Colorado's ZEV market, as well as identifying gaps in workforce capacity, skills, education, geographic distribution, age, diversity, and wages. Based on a data-driven approach for upskilling, reskilling, and enhancing the talent pipeline in Colorado, this study will recommend talent development and funding strategies to address these gaps and ensure an equitable workforce transition.

- **Support community colleges in launching the first EV automotive technology programs, and take steps to ensure EV automotive training is available at every community college in Colorado (CDOT, CDLE, CCCS).**

  An accelerated transition to zero emission vehicles is anticipated to significantly increase demand for technicians who can service these vehicles. Colorado is preparing for the workforce challenges and opportunities this transition is creating. The Colorado Community College System (CCCS), in partnership with the Rocky Mountain Auto Teachers Society (RMATS), has adopted a new HEV/BEV Safety and Operation course to train automotive technicians in servicing EVs and hybrids. Training topics include safety, operation, and diagnosis of electric vehicles. State agencies will collaborate to support an EV and Hybrid Automotive Technician certificate program through CCCS.

- **Begin investment in ZEV workforce development through the Clean Fleet**

Enterprise (CDPHE).

Through the Clean Fleet Enterprise's Clean Fleet Vehicle Workforce Development Portfolio, CDPHE plans to support workforce training for participants from disproportionately impacted communities, just transition communities, diesel mechanics, and others whose field of work may shift along with the transition to ZEVs.

- **Increase engagement with Colorado auto dealerships to support program implementation and partnerships, such as state and federal tax credits and the Vehicle Exchange Colorado program (CEO).**

  Dealerships will play an important role in the success of state EV programming by accepting point-of-sale rebates from the Vehicle Exchange Colorado (VXC) program and deducting EV tax credit amounts from the purchase price of vehicles. Beginning in 2024, the federal government will allow for the assignability of EV tax credits, which permits EV buyers to transfer the value of a federal EV tax credit to a dealer to reduce the upfront cost of a vehicle. CEO is exploring the possibility of dealer assignability for the state EV tax credit as well. CEO will work with dealers and other stakeholders to maximize EV buyers' ability to take advantage of state and federal incentives when purchasing a new or used EV.

- **Continue and expand existing workforce development efforts.**
  - Continue hosting ZEV Workforce Development working group; expand workforce topics beyond vehicle and charging infrastructure to include BEVs for first responders, battery recycling, etc.; partner with Colorado's higher education institutions to develop new ZEV curriculum for a broad range of ZEV topics; and continue to leverage partnerships with industry and academia to upskill, reskill, and retrain workers for ZEV jobs (CDOT).
  - Continue to provide Zero Emission Vehicle (ZEV) Workforce Development Grants for projects that provide ZEV workforce training and development to support ZEVs, ZEV infrastructure, and ZEV-related technologies in the state (CDOT).

Topics for Future Action

The state recognizes that addressing the following issues is essential to ensure a successful transition to zero emission vehicles, but has not yet identified how it will address them as the market continues to develop. State agencies will continue to monitor these topics and will consider a strategy to undertake them in the next EV Plan.

BATTERY RECYCLING

EV battery reuse and recycling is important to ensure continued access to materials for EVs, and to reduce waste and avoid environmental impacts. A 2021 Colorado State University Study completed for CDPHE concluded that small-scale, non-commercial operations in other states are already disposing, remanufacturing, recycling, and recovering materials from electric vehicle batteries.[17] The study identifies future policy changes that may be necessary to streamline and enable battery recycling and support investments in this area. In the next few years, the state will continue to monitor the development of the policy environment, technologies, investments, and business models associated with EV battery recycling. Some key areas to monitor include:

- **Federal investments in battery recycling:** The IIJA and IRA will provide new federal investments in this area, including a recent $74million investment in efforts to scale up battery recycling and repurposing.
- **New standards:** New battery labeling provisions in the Advanced Clean Cars II rule are designed to make it easier to recover and recycle batteries. Stakeholders are also working to develop industry standards for EV battery recycling.
- **Automaker efforts**: Automakers are pursuing an approach to ensure they are the "backstop" for recovering and recycling or remanufacturing vehicle batteries, while also enabling space for local battery recycling efforts to grow.[18]

VEHICLE-GRID INTEGRATION

Vehicle-grid integration (VGI) refers to technologies, policies, and strategies for electric vehicle charging that adjust the time, power level, or location of charging or discharging to maximize grid capacity while also meeting drivers' needs. Examples include managed charging (e.g., shifting the time of charging to off-peak hours, when costs are lower and more renewable energy is available) and bidirectional charging (e.g., enabling vehicles to send electricity back to homes or buildings). VGI can support resilience by providing back-up power sources in the case of emergencies, and is critical for managing increased demand on the electric grid from EV charging. While managed charging is possible for any electric vehicle today, bidirectional charging capability is newer and currently only available in a few electric vehicle models. However, as electric vehicles advance, bidirectional charging capability will likely become more common. State agencies will continue to monitor VGI pilot

[17] (PDF) Final report: Colorado EV battery recycling study
[18] Lithium-Ion EV Battery Recycling Framework

projects in Colorado and around the country, and will support utility and program investments in VGI. Existing VGI efforts in Colorado include:

- Xcel's Optimize Your Charge program, which offers bill credits to incentivize EV drivers to charge during off-peak times.
- Fermata Energy's partnership with the City of Boulder and the Alliance Center in Denver to test vehicle-to-building charging in order to reduce building electrical loads and reduce costs.

Appendix A - Definitions and Acronyms

Battery Electric Vehicle (BEV) - A Battery Electric Vehicle, also known as a pure electric vehicle or an all electric vehicle, contains a rechargeable battery that can be charged using an external electricity source, and uses regenerative braking to recover energy from braking. It uses an electric motor, as opposed to an internal combustion engine.

CDLE - Colorado Department of Labor and Employment

CDPHE - Colorado Department of Health and Environment

CDOT - Colorado Department of Transportation

CEO - Colorado Energy Office

CEVC - Colorado Electric Vehicle Coalition

Direct-Current Fast Charging (DCFC) - Direct-current fast-charging stations enable rapid EV charging along heavy traffic corridors at installed stations.

Disproportionately Impacted Community[19] - a community that is in a census block group that meets the criteria in section a or b below, as determined in accordance with the most recent 5-year United States American Community Survey:

- Meets one or more of the following demographic criteria:
    - the proportion of the population that lives in households that are below 200% of the federal poverty level is greater than 40%,
    - the proportion of the population that identify as people of color is greater than 40%, or
    - the proportion of households that spend more than 30% of household income on housing is greater than 40%; or
- Any other community as identified or approved by a state agency, if:
    - The community has a history of environmental racism perpetuated through redlining, anti-Indigenous, anti-immigrant, anti-Hispanic, or anti-Black laws; or
    - The community is one where multiple factors, including socioeconomic stressors, vulnerable populations, disproportionate environmental burdens, vulnerability to environmental degradation and/or climate

[19] *Colorado Environmental Justice Action Task Force, Final Report of Recommendations,* November 14, 2022: https://drive.google.com/drive/folders/1mOt94sVmWZVj3GKo8CXCndvc7JfODuk2

change, and lack of public participation, may act cumulatively to affect health and the environment and contribute to persistent disparities.

DPA - Department of Personnel and Administration

DNR - Department of Natural Resources

Electric mobility - Electric mobility refers to the broad and growing range of personal transportation options that are powered fully or in part by an electric motor, beyond just privately-owned electric vehicles. For the purposes of this EV Plan, it includes personally owned electric micromobility options (e.g., e-bikes and e-scooters), and shared options, such as electric bikeshare networks, electric carshare networks, and electric vanpool services.

Electric Vehicle (EV) - An electric vehicle uses a battery to store energy that powers the motor. Types of electric vehicles include Battery Electric Vehicles (BEVs), Plug-in Hybrid Electric Vehicles (PHEVs), and Hydrogen Fuel Cell Electric Vehicles (FCEVs).

Electric Vehicle Supply Equipment (EVSE) - Electric Vehicle Supply Equipment supplies electric energy to recharge electric and hybrid vehicles. These chargers come as Level 1 AC Chargers (120V), Level 2 AC Chargers (240V), or DC Fast Chargers. EV charging stations are sites with one or more EVSE ports at the same address. Ports provide power to charge only one vehicle at a time even though it may have multiple connectors.[20]

Heavy Duty Vehicle (HDV) - any class 4 and above motor vehicle having a Gross Vehicle Weight Rating (GVWR) over 14,000 pounds.

Hydrogen Fuel Cell Electric Vehicle (FCEV) - a motor vehicle that is powered by electricity produced from a fuel cell that uses hydrogen gas as a fuel.

IIJA or BIL - Infrastructure Investment and Jobs Act (aka the Bipartisan Infrastructure Law), signed by President Biden on November 15, 2021.

IRA - The Inflation Reduction Act, signed by President Biden on August 16, 2022.

Level 1 charging - Most EVs come with a charging adapter that plugs into a standard, 3-pronged electrical outlet. This type of charging will add 3-5 miles of charge per hour.

Level 2 charging - Level 2 charging uses the same amount of electricity as your clothes dryer (240V) and can add 20-45 miles of charge per hour, depending on the

[20] Alternative Fuels Data Center, US DOE, Energy Efficiency & Renewable Energy, January 2023.

vehicle. This type of charging is common for workplace, home, or public applications, and can typically recharge an EV fully in 6-8 hours.

Light-Duty Vehicle (LDV) - Any Class One or Two motor vehicle designed primarily for transportation of persons and having a design capacity of 12 persons or less with a Gross Vehicle Weight Rating of 8,500 pounds or less. This includes full-size pickups and minivans.

Medium- and Heavy-Duty Vehicle (M/HD) - Any motor vehicle having a Gross Vehicle Weight Rating greater than 8,500 pounds.

Medium Duty Vehicle (MDV) - Any Class 2b to 3 motor vehicles having a Gross Vehicle Weight Rating between 8,501 and 14,000 pounds.

Micromobility - Refers to any small, low-speed, human- or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles, electric scooters (e-scooters), and other small, lightweight, wheeled conveyances.

OEDIT - Office of Economic Development & International Trade

Plug-In Hybrid Electric Vehicle (PHEV) - A motor vehicle that is powered by both a rechargeable battery pack that can be recharged using an external source of electricity and a secondary source of propulsion such as an internal combustion engine.

RAQC - Regional Air Quality Council

Transit Vehicles - Vehicles operated by transit agencies that carry passengers or public riders. It does not include school, charter, or intercity bus transportation or intercity passenger rail transportation.

Transportation Network Company (TNC) - on demand transportation service such as Uber and Lyft, also known as ride-hailing companies.

Zero Emission Vehicle (ZEV) - A vehicle that produces zero exhaust emission of any criteria pollutant (or precursor pollutant) or greenhouse gas under any possible operational modes or conditions, including battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs).

VEHICLE WEIGHT CLASSES AND CATEGORIES

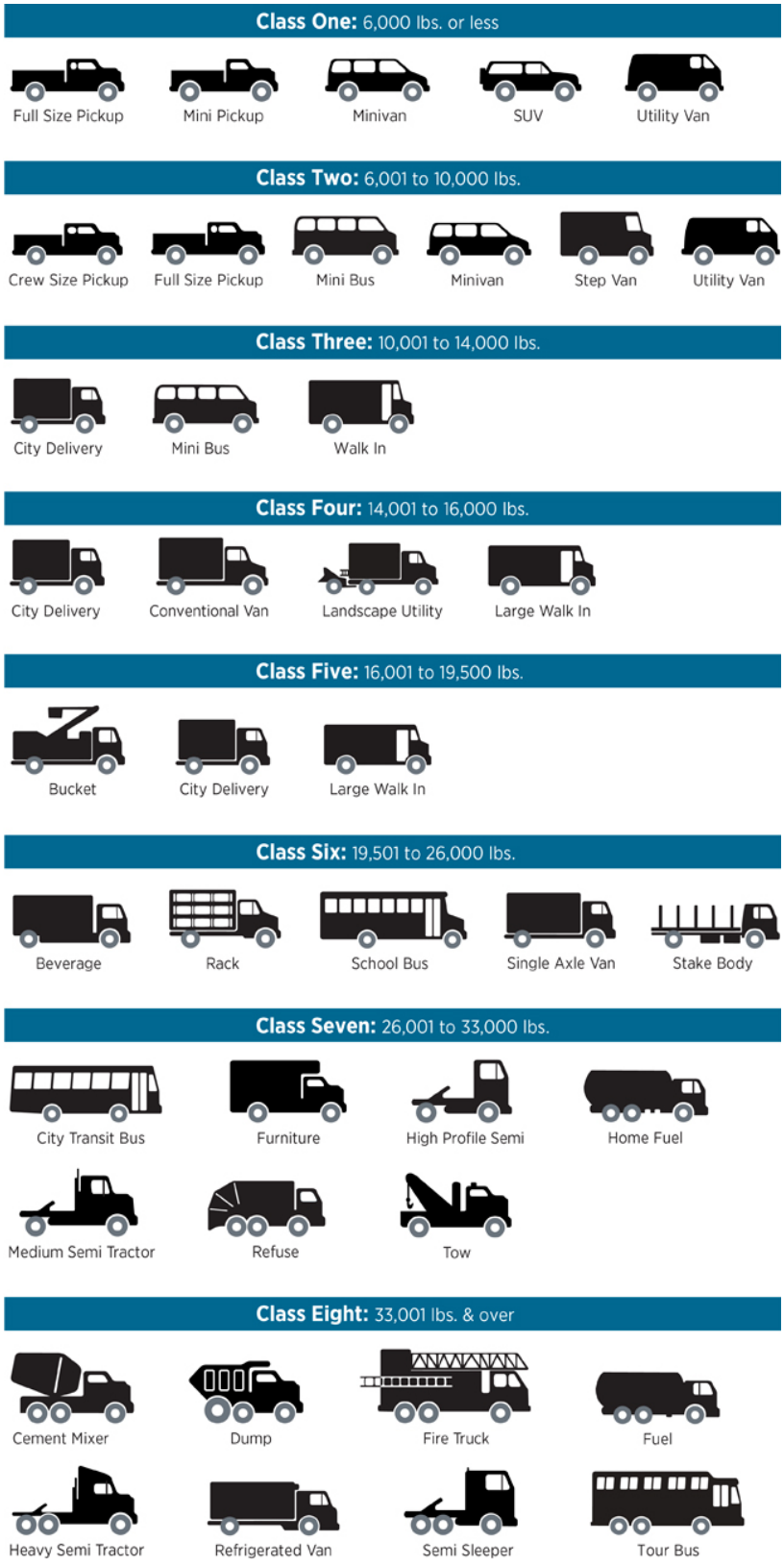


Image description; Source: U.S. DOE Alternative Fuels Data Center

Appendix B - Summary of 2020 EV Plan Progress

Goals and Objectives

Goal #1: Increase Adoption of EVs in the light duty sector to approximately 940,000 vehicles by 2030

Objectives / interim targets	Target Date	Status
10,500 EVs sold annually (50% annual growth rate per year)	6/30/2020	According to EValuateCO, there were 9,128 EVs sold in FY 2019-2020.
23,500 EVs sold annually (50% annual growth rate per year)	6/30/2022	According to EValuateCO, there were 23,582 EVs sold in FY 2021-2022.

Goal #2: Develop plans for transition to ZEV for medium-duty, heavy-duty and transit vehicles

Objectives / interim targets	Target Date	Status
Medium- and Heavy-Duty vehicles: Work with industry, electric utilities, and other stakeholders to establish timelines, identify strategies, and dedicate sufficient resources to develop a plan for the medium- and heavy-duty sector	7/1/2021	The Colorado Clean Truck Strategy was finalized in May 2022.
Transit Vehicles: Work with stakeholders to establish timelines, identify strategies, and dedicate sufficient resources for the conversion of the state transit fleet to 100% zero emission vehicles no later than 2050.	7/1/2021	The Transit Zero Emission Vehicle Roadmap was finalized in February 2022.
Transit Vehicles: Interim target of at least 1000 ZEV transit vehicles by 2030.	1/1/2030	As of December 2022, Colorado's transit fleet has 110 battery-electric buses (BEBs), with 67 currently operational, and the other 43 on order.

Goal #3: Develop an EV infrastructure goal by undertaking a gap analysis

Objectives / interim targets	Target Date	Status
CEO, working with state partners, will develop an EV infrastructure goal by undertaking a gap analysis to identify the type and number of charging stations needed across the state to meet the 2030 LDV, MDV, and HDV goals.	1/1/2022	ICCT completed a study on behalf of CEO, "Colorado charging infrastructure needs to reach electric vehicle goals," primarily focused on light-duty infrastructure. This informed infrastructure goals that the state is proposing as part of the 2023 EV Plan. CEO is currently conducting an M/HD charging infrastructure study.

Goal #4: State government agencies will meet their directives from EO D 2019 016 Amending and Replacing EO D 2018 026 Concerning the Greening of State Government related to EVs

Objectives / interim targets	Target Date	Status
The state will increase the number of state agencies that offer workplace charging from five in January 2020 to 10.	6/30/2022	This has become a lower priority following the COVID-19 pandemic, as many state employees continue to work from home.
State agencies will prioritize purchase of ZEVs for light-duty applications, increasing the number of ZEVs in operation or on order from at least 200 by the end of 2020 to 375 by January 2022.	1/1/2022	As of the end of 2022, state agency fleets had328 EVs, with another 227 on order—many of which are electric pickups and SUVs.
The state will electrify all vehicles that have appropriate use cases by 2030.	1/1/2030	As the number of available models that meet the operational needs of state agencies grows, the state continues to increase the

		number of EVs in the fleet each year, including some vehicles that are assigned as take home vehicles.

Goal #5: Develop a roadmap to full electrification of the light-duty vehicle fleet.

Objectives / interim targets	Target Date	Status
As part of the development of the GHG Pollution Reduction Roadmap, the state will evaluate the necessary timeline for light-duty electrification to achieve the target of 90% emissions reductions by 2050.	1/1/2022	CEO completed and published the Colorado Light-Duty Vehicle Electrification Roadmap in 2022.
The state will conduct an analysis of policy, programs, and strategies to achieve this transition and will develop recommendations for administrative and legislative action.	1/1/2022	CEO completed and published the Colorado Light-Duty Vehicle Electrification Roadmap in 2022.
The state will participate in the development of emission and ZEV standards for model years 2026 and after to support the changes needed to achieve the full electrification of light-duty vehicles.	1/1/2022	State agencies submitted comments to the California Air Resources Board on Advanced Clean Cars II.

Actions/Strategies

Policy, Planning, and Guidance

Light Duty Sector

Action Description	Partners	Status
Develop a roadmap for a transition to 100% electrification of the light-duty transportation sector. The analysis will consider short-, mid-, and long-term strategies including public investment, administrative activity, regulatory activity, and potential legislation, as well as the opportunity to inform and participate in the development of a future Low Emission Vehicle (LEV) standards, Zero Emission Vehicle (ZEV) standards, and light-duty vehicle GHG standards.	**CEO,** CDOT, CDPHE,	CEO completed and published the Colorado Light-Duty Vehicle Electrification Roadmap in 2022.
Take action on the outcomes of the SB19-239 Emerging Mobility Impact Study depending on direction from the Colorado legislature. This includes working with transportation network companies, e-commerce, and other emerging mobility providers to promote electrification of their fleets. The intent is to accelerate the electrification of these high mileage fleets compared to the overall light-duty fleet.	**CDOT,** CEO	CDOT completed and published the 2019 Emerging Mobility Impact Study. This study informed the development of SB21-260, which levies new fees on retail deliveries and transportation network company rides to fund three new transportation electrification enterprises.

Medium/Heavy-Duty Sector

Action Description	Partners	Status
Develop an electrification strategy for the medium- and heavy-duty sector by July 2021 including investigating the adoption of a Clean Truck Rule that is analogous to the ZEV rule for light-duty vehicles and engaging industry to develop	CEO, **CDOT,** CDPHE,	Finalized in May 2022, the Colorado Clean Truck Strategy includes a recommendation to initiate a rulemaking at the AQCC on the Advanced Clean Truck rule by the end of 2022.

future strategies and goals for medium- and heavy-duty vehicle adoption beyond VW settlement funding		The Colorado Medium- and Heavy-Duty Vehicle Study, which assessed the existing medium- and heavy-duty fleet in Colorado opportunities and challenges associated with a zero emission vehicle transition, informed this strategy.
In collaboration with other interested agencies and stakeholders, develop strategies to support adoption of zero emission school buses.	CEO, CDOT, CDPHE,	CDPHE is developing the Colorado Electric School Bus Grant Program to utilize the $65M in funding from SB 22-193 to support adoption of battery electric school buses.

Transit Sector

Action Description	Partners	Status
Work with stakeholders to investigate adoption of a Clean Transit Rule that requires a long-term transition to zero emission buses.	CEO, **CDOT,** CDPHE	The Clean Truck Strategy has an action item to "establish a working group to collaborate with statewide transit stakeholders regarding potential future adoption of a clean transit rule." CDOT will establish a working group consisting of members from the Transit and Rail Advisory Committee (TRAC), CEVC Transit Subgroup, and other key stakeholders by early 2023.
Explore equity and rural-focused transit options and provide a recommendation for action in the next iteration of the EV Plan.	CEO, **CDOT,** CDPHE, CEVC	CDOT is currently working on a Transit Agency Equity Approach Literature Review.
Develop a state-approved master purchasing contract for zero emission vans, cutaways, and large buses to	**CDOT**	The CDOT Division of Transit & Rail (DTR) is updating its state master purchasing agreement

streamline transit agency procurement of EVs.		for transit vans, cutaways, and buses, and will require the new version to include zero-emission options in all three categories moving forward. Anticipated completion by the end of 2023.
Continue and expand transit electrification planning in order to attain 2020 ZEV Plan Transit Goals.	**CDOT**	CDOT established the Transit ZEV Transition Grant program to support local agency plan development. The new Clean Transit Enterprise will also offer planning grants to accomplish the same. CDOT and CASTA provided technical support to Colorado agencies in applying for federal 5339(b) and 5339(c) grants to help them meet updated FTA planning requirements. CDOT staff also developed and shared a Transit ZEV Roadmap Financial Analysis Tool and ZEV Transition Plan template to help agencies in their own plan development.
Examine strategies for third-party financing on the incremental capital costs of electric buses through mechanisms including battery leases, utility on bill financing and other mechanisms.	CEO, CDOT	In Progress

eBike Sector

Action Description	Partners	Status
Incorporate e-bike considerations as part of mobility planning	**CDOT**	While the recently updated 10 Year Plan does not specifically take eBikes into account, it includes several projects that improve bicycle mobility. CDOT's Multimodal Planning Branch (MPB) is currently discussing ways to better highlight bicycle and pedestrian projects in future statewide and regional plan updates, and will be sure to include eBike considerations in all bicycle planning going forward. CDOT's MPB is currently reviewing state eBike policies to determine next steps.
Support policies providing e-bike incentives for low-income individuals.	**CEO**	After launching two successful Can Do Colorado eBike pilots, CEO is developing an eBike rebate program that will be available to low- and moderate-income Coloradoans beginning in mid-2023. CEO is also launching an expanded eBike grant program available to nonprofits, tribal governments, and local governments to develop eBike programs for low-income participants.

Supporting Consumer Choice

Action Description	Partners	Status
Work with state partners to develop an EV infrastructure goal by undertaking a gap analysis to identify the types, locations, and number of charging stations needed across the state to meet the 2030 LDV, MDV, and HDV goals.	**CEO**	CEO completed and published a study, "Colorado charging infrastructure needs to reach electric vehicle goals,". This informed infrastructure goals that are being proposed as part of the 2023 EV Plan.
State agencies will support HOV/express lane incentives that encourage adoption of zero emission vehicles.	State agencies	No action taken.
The administration will support direct EV sales legislation to allow manufacturers to sell EVs without requiring sales through dealerships in order to allow more EV models access to the state and reduce barriers to EV sales.	State agencies	The legislature passed SB 20-167 "Electric Motor Vehicle Manufacturer and Dealer" and the governor signed it into law during the 2020 legislative session.
Work with the legislature to remove HOA barriers to EV charging.	**CEO**	No action taken.

Near-term State Government Lead by Example Planning

Action Description	Partners	Status
Work with state agencies to identify the charging infrastructure needed for the state's growing fleet of EVs.	**CEO,** DPA	CEO worked with state agencies to allocate nearly $5 million to install charging stations at multiple state facilities.
Explore alternative vehicle procurement strategies that improve the state's ability to purchase ZEVs and allow the state to take advantage of tax credits and other incentives.	CEO, **DPA**	The market is still emerging, and supply chain constraints continue to create problems with alternative funding options that enable the state to take advantage of tax credits.
Develop an Electric Vehicle Take Home Policy for state employees that includes	**CEO,** DPA	The state finalized the State of Colorado Employee Take-Home

considerations for matching electric models with staff activities, installation of home charging equipment and electricity reimbursement schedule by January 2021.		Vehicle Program Guidelines in February 2022.

EV Building Code and Parking Guidance

Action Description	Partners	Status
Develop an Advanced Building Code Adoption toolkit that includes EV infrastructure requirements for new construction. The toolkit will make it easier for local jurisdictions to adopt EV-ready building codes, building on the new EV charging language in the 2021 International Energy Conservation Code (IECC).	CEO	The Energy Code Adoption Toolkit includes information on EV Ready building codes.
Work with the CEVC Policy Subgroup to develop and provide guidance on HB19-1298 "Charging Station Parking Enforcement" including signage recommendations and best practices by July 2020.	**CEO**, CEVC Policy Subgroup	CEO developed this guidance and shares it upon request.

Near-term Electric Utility Engagement

Action Description	Partners	Status
Work through the CEVC Beneficial Electrification Subgroup on a survey to gather data on utility rates with municipal utilities and rural co-ops to develop new rates that encourage EV charging and adoption by individuals, fleets, and transit agencies in spring 2020.	**CEO**, CEVC Beneficial Electrification Subgroup	ESource conducted a workshop and prepared a report for both CEO and Tri-State in 2021. CEO shared the report with utilities through the Beneficial Electrification Subgroup.
Convene an EV rates workshop with investor-owned, municipal, and rural electric cooperative utilities to discuss and develop best practices by January	**CEO**	ESource conducted a workshop and prepared a report for both CEO and Tri-State in 2021.

2021.		
Work with regulated utilities and market stakeholders to ensure that transportation electrification plans (TEPs) meet the requirements of SB 19-077 while also including strategies that make it attractive to own and operate an EV and make investments in charging infrastructure.	CEO	CEO actively participated in this process. The Public Utilities Commission approved TEPs from Xcel Energy and Black Hills Energy, which include numerous programs designed to support EV adoption and charging infrastructure installation.
Work with unregulated utilities to submit TEPs as part of optional Clean Energy Plans submitted to the PUC and work with unregulated utilities to encourage investment in transportation electrification.	CEO	No action taken.

Near-term Programming and Funding

Community-based EV Charging

Action Description	Partners	Status
The Charge Ahead Program will support multi-family and workplace charging by prioritizing grants in or near workplaces and multi-family housing (MFH) in which the facility owner and a high percentage of tenants demonstrate interest in EVs so that at least 15% per year of all awardees are workplaces and MFH.	CEO, RAQC	Charge Ahead Colorado has provided grant funding for 51 multi-family charging projects and 47 workplace charging projects out of 350 total projects since the last EV Plan.
Identify new public and private funding sources for the Charge Ahead Colorado program once Volkswagen funds are expended.	CEO, RAQC	Since the last plan, the Colorado Legislature passed SB 21-260, which created three enterprises that assess fees on rides from transportation network companies and deliveries, then use the revenue to fund programs such as Charge Ahead Colorado. In

		addition, the federal government is providing formula funding for charging infrastructure along designated EV corridors through the NEVI program.
Launch a community-based DC Fast-Charging Plaza grant program that provides funding for buildout of high-speed charging stations for use by the public including EV drivers without access to home charging as well as high-mileage fleets including ride-hailing companies in spring 2020.	CEO, CDOT,	CEO established the EV Fast-Charging Plazas program in 2020 and has made awards for 53 charging stations. Awardees included convenience stores and grocery stores, gas stations, and Denver International Airport.

Community-based ZEV Charging

Action Description	Partners	Status
Continue to administer the DC Fast-Charging Corridors Program with stations anticipated to open mid-2020, while continuing to work with state and local partners to address gaps along Colorado's highway network	CEO	Through CEO's DCFC Corridors program, ChargePoint has installed 84 charging stations at 30 locations across Colorado's major transportation corridors. The remaining four locations will become operational by the end of 2023.
Monitor usage at installed charging stations and, if necessary, add chargers at high-volume locations to ensure that the corridors program remains responsive to customer needs with special attention paid to rural locations to ensure there are no gaps in driver access to charging.	CEO	ChargePoint reports utilization of corridor sites quarterly. As part of the NEVI plan, CEO will consider expanding corridor sites as utilization necessitates.
Continue to participate in the REV West MOU to support alignment of ZEV policies and investments and encourage seamless traveler experience across the eight Intermountain West states of Arizona,	CEO, CDOT	Colorado continues to participate in monthly meetings with REV West, recently focusing on coordinating the development

Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.		and implementation of state NEVI Plans that support seamless EV travel across the Intermountain West.
Electrify tourist routes with a focus on scenic byways, state parks, and other destinations including ski areas and national parks and monuments.	CEO, OEDIT, and CDOT	The Colorado Scenic & Historic Byways Commission has recognized 13 of Colorado's 26 byways as Colorado Electric Byways.

Medium- and Heavy-Duty Electric Vehicles

Action Description	Partners	Status
Continue to utilize remaining VW settlement funds to support the purchase of zero emission transit vehicles.	CDOT	Since 2020, CDOT has continued to award VW Settlement funding to local transit agencies through its annual call for projects. To date, CDOT has awarded a total of $22.6 million for the purchase of 45 vehicles and 35 charging systems. About $8.2 million remain for future funding rounds.
Incorporate EV Plan transit goals into program planning by January 2021.	CDOT	The Transit Zero-Emission Vehicle Roadmap, released in February 2022, identifies the strategies, policies, and funding levels necessary to achieve the state's goals of 1,000 transit ZEVs on the road by 2030 and a 100% ZEV transit fleet by 2050.
Fund medium- and heavy-duty ZEVs for 20-25 fleets statewide through ALT Fuels Colorado Program.	RAQC	The ALT Fuels program awarded grants to 9 fleets state-wide for M/HD EVs.

Supporting Emerging EV Technology/Innovation

Research in Support of EVs and Associated Technologies and Systems

Action Description	Partners	Status
Engage with the Colorado Energy Research Collaboratory ("Collaboratory") and their network of industry, government, and university stakeholders to identify and share information on existing EV-related R&D projects in Colorado with relevant stakeholders including the CEVC and state and local agencies. This communication will be conducted in a way that will inform current research, potential end-users, and business development, and also foster future collaborations and innovation.	CEO, Colorado State University	The Collaboratory organized 3 webinars: Innovating Technologies for Electrified Transportation (Jun. 18, 2020); a presentation on electric vehicle research to the CEVC (Dec. 17, 2020); and a webinar on EV Batteries (May 7, 2021).
Seek to identify state of external funding mechanisms and industry partnerships in support of a research project in Colorado supporting the development of EV related technology such as battery second use cases, Colorado utility business models, IT systems associated with intelligent transportation systems and zero emission vehicles, and smart and heavy-duty vehicle charging.	Colorado State University, Collaboratory	This is ongoing. On March 15, 2021, Colorado State University's Thomas H. Bradley and Tim Coburn completed a battery recycling study for CDPHE called *Colorado EV Battery Recycling Study*.
Engage with the University of Colorado and other research universities on graduate student-led Capstone projects studying new charging technologies, onsite renewable electricity generation, and battery storage.	CEO	CEO is pursuing these opportunities as they become available.

Support and Development of EV Charging Standards

Action Description	Partners	Status
Work with stakeholders to develop public EV charging standards to continue consumer confidence with public EV charging transactions.	CDLE	CDLE chairs the CEVC Weights and Measures subgroup and provides information to the CEVC subgroup, CEO, and other stakeholders on national code development for electric vehicle charging.

Support of Hydrogen as an EV Fuel

Action Description	Partners	Status
Support the development of hydrogen as a transportation fuel by working with industry and other stakeholders to develop a hydrogen roadmap for Colorado.	CEO, CDOT, RAQC, CDLE	CEO completed the Colorado Low-Carbon Hydrogen Roadmap in fall 2021. In February 2022, Colorado signed an MOU with 3 other states, establishing the Western Interstate Hydrogen Hub to prepare and submit an application to the DOE Clean Hydrogen Hub Program in 2023.
Introduce legislation to allow existing petroleum brownfield redevelopment funding to be used to provide grants to stimulate the development of fuel cell electric vehicle fueling infrastructure projects.	CDLE	The state re-allocated this funding for COVID relief.

Development of Public EV Data Resource

Action Description	Partners	Status
Develop and host an EV registration tracking dashboard.	CEO	CEO worked with Atlas Public Policy to launch the EValuateCO Dashboard. The dashboard includes information on EV registration and charging stations in Colorado.

Develop a Performance Data Warehouse consisting of telematics database and analysis tools to monitor the deployment and performance of electric transit vehicles.	CDOT	CDOT staff is working internally and with the new Clean Transit Enterprise board to collect and analyze relevant transit operations data to track zero emission transit project benefits and inform future deployments in the state.

Engaging People

EV Equity

Action Description	Partners	Status
Conduct an EV Equity Study to baseline, define, and map communities (including rural), EV registrations and EV accessibility (including language barriers), HDV and MDV emission impacts, and criteria by which to evaluate and prioritize programming and outreach.	CEO	CEO completed the Colorado EV Equity Study, which provides recommendations for equity-centered programming. The study includes tools and other information in the Colorado EV Equity Study Appendices.
Work to integrate recommendations from CEO's Equity Study into its transit electrification grant programs by January 2023.	CDOT	CDOT is working internally and with the Clean Transit Enterprise board to integrate the best practices and principles from the Colorado EV Equity Study into future application rounds of existing and new transit grant programs.
Ensure that MDV/HDV electrification planning for environmental justice and equity communities, informed by CEO's study, is included in the MDV/HDV strategy.	CEO, CDOT, RAQC, CDPHE	The state included an equity goal in the Clean Truck Strategy: "The state will work with its partners and will leverage CDPHE, CEO, CDOT, and CDLE equity resources to prioritize clean truck and bus deployment in ways that provide direct benefits to

		disproportionately impacted communities and support a just transition for workers in the medium- and heavy-duty vehicle sector.
Interventions in PUC proceedings for transportation electrification plans will include a focus on attainment of 40-5-107(2)(g) C.R.S. which ensures the plans increase access for low-income customers.	CEO	Xcel Energy and Black Hills Energy TEPs include numerous programs designed to increase access to EVs and charging infrastructure for income-qualified customers.

EV Education and Outreach

Action Description	Partners	Status
Administer a market research study starting in early 2020 to inform the development of an education and awareness campaign by January 2021.	CEO	CEO completed the EV Education & Awareness Roadmap in spring 2020. The roadmap includes information about Coloradans' views on EVs, willingness to purchase EVs, and questions and concerns about EVs and charging.
Develop a dealership engagement strategy that complements the marketing campaign.	CEO, CDOT	CEO conducted a pilot that educated dealers about EVs and EV charging infrastructure and connected them to resources, such as grants and rebates, to better understand how original equipment manufacturer requirements influence dealer decisions to invest in charging infrastructure.
Support the development of a public-focused website developed from marketing research study recommendations.	CEO	CEO launched the EV CO campaign in fall 2022. This multi-year campaign focuses on raising general awareness

		about EVs while providing information about incentives and EV charging.
Explore a collaboration with non-profit organizations focused on EV outreach and education, with financial and in-kind support from government, industry, utilities, and philanthropy.	CEO, CDOT, RAQC, CDPHE	The state partially completed this action with the launch of the EV CO website.
ReCharge Colorado Coaches will conduct "Know Before You Go" EV workshops, EV ride-and-drives, and group buys throughout the year aimed at consumers.	CEO	ReCharge Colorado coaches continue to provide information on EVs and charging through various outreach events while providing support for those participating in state charging infrastructure grant programs.

EV Community Readiness

Action Description	Partners	Status
Provide grants in support of local community EV readiness planning.	CEO, CDOT, DOLA	CEO made awards to three local governments to support local EV readiness planning. CEO is developing a new iteration of the program, with the program launch planned for spring 2023.

Appendix C - Studies, Roadmaps, and Analysis Conducted since the 2020 Colorado Electric Vehicle Plan

- **100% Light-Duty Electrification Study** This study, released in Summer 2022, analyzed policies, programs, incentives, and actions the state could adopt or undertake, including analysis of their implications, costs, benefits, and timeframes. Information from this analysis will be used to inform the development of Colorado's 2023 EV Plan.

- **Battery Energy Storage Study** The Colorado Energy Office completed a Battery Energy Storage System (BESS) study in March of 2022 to investigate opportunities for pairing BESS with DCFC charging stations and the potential benefits of deploying such projects.

- **Colorado Charging Infrastructure Needs to Meet Electric Vehicle Goals** CEO worked with the International Council on Clean Transportation (ICCT) to complete a paper, which was released in Feb. of 2021, of the infrastructure needed to meet the state's goal of 940,000 light duty EVs on the road by 2030.

- **Colorado Electric Vehicle Equity Study and Appendices and Dashboard** This study and dashboard, released in June 2022, baselines, defines, and maps marginalized, minority, and frontline Colorado communities ("EV equity communities") that are or may be disproportionately affected by transportation pollution and/or experience barriers preventing them from equitably accessing electric transportation and its benefits. Barriers (e.g., economic access, lack of infrastructure, lack of knowledge/familiarity) to EV adoption and strategies to remove or overcome these barriers were examined. Criteria to evaluate and prioritize potential programming in these communities were also developed.

- **Colorado Medium- and Heavy-Duty Vehicle Study and M/HD ZEV Analysis Methodology Addendum:** This study released in October of 2021 enables a better understanding of the existing medium- and heavy-duty fleet in Colorado as well as the opportunities and challenges associated with a zero emission vehicle transition.

- **EV Education and Awareness Roadmap:** In June 2020, CEO completed an Education and Awareness Roadmap for electric vehicles that identified EV consumer segments, perceptions about electric vehicles, and opportunities for increased awareness and education to help achieve Colorado's goal of 940,000 EVs by 2030. This study informed the design of the EV CO campaign.

- **Opportunities for Low-Carbon Hydrogen in Colorado: A Roadmap:** This Roadmap released in October 2021, evaluates the potential role hydrogen could play in achieving Colorado's climate goals. The roadmap identifies opportunities, barriers, and recommended actions for the deployment of low-carbon hydrogen in the state of Colorado over the next 15 years.
- **Transit Zero-Emission Vehicle Roadmap**: In 2021, CDOT worked with local transit agencies, stakeholders, and other state agencies to develop a statewide plan for transitioning 1,000 of Colorado's transit vehicles to zero-emissions by 2030 and 100% of the fleet to ZEVs by 2050. The Roadmap describes the current state and national landscape for transit ZEVs and identifies the technical, institutional, and financial barriers to rapid implementation. Finally, the Roadmap lays out 38 implementation strategies to overcome these barriers and establishes a foundation for future ZEV investments via the Clean Transit Enterprise and other state and federal funding sources.