



**GHG Emissions
Reduction Progress
Report to the
Colorado Legislature**



COLORADO
Department of Public
Health & Environment

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Introduction

The Colorado Air Quality Control Commission (Commission or AQCC) is a Governor-appointed, 9-member citizen body, confirmed by the Senate, and authorized by the Colorado General Assembly to oversee Colorado's air quality program according to the Colorado Air Pollution Prevention and Control Act. The Commission, among other responsibilities, develops and adopts a regulatory program to protect and improve air quality in Colorado. The Air Pollution Control Division (Division) is responsible for implementing the air quality management programs adopted by the Commission and serves as staff to the Commission in the regulatory development process. The Division is housed within the Colorado Department of Public Health and Environment (CDPHE).

In the 2019 legislative session Colorado passed House Bill 19-1261, the Climate Action Plan to Reduce Pollution ("Climate Action Plan"), which includes science-based targets of reducing statewide greenhouse gas (GHG) pollution 26% by 2025, 50% by 2030, and 90% by 2050 from 2005 levels and directs the Commission to develop cost-effective regulations to meet these goals.¹ The Division, at the direction of the Commission is tasked with tracking progress toward the GHG reduction goals, as well as providing any updated cost-benefit analysis developed for rules adopted to attain the goals, and then also making any recommendations on future legislative action to address climate change. The report is due to the General Assembly every odd-numbered year.² Based on the analytical work done to date, considering both current emissions and future reduction opportunities there is a technically feasible, cost-effective path to achieving the GHG reduction goals set forth in HB19-1261. Since 2019 the Commission and Division have taken significant administrative and regulatory steps toward addressing GHG emissions, with additional regulatory initiatives currently underway, and other state agencies having also taken important actions. In addition, the legislature has adopted numerous additional pieces of legislation that contribute to emissions reductions.³ As a result of these actions Colorado is achieving significant and cost effective reductions of GHG emissions that will go a long way toward meeting the goals set forth in HB19-1261. But additional work will be necessary during the next few years and throughout the decade to achieve the 2025 and 2030 goals. While an ongoing commitment of resources will be necessary, this work can be successfully completed within existing statutory authorities granted to the Commission and Division. The Division is pleased to submit the first report as required by the act.

Progress Toward Meeting Colorado's Emissions Reduction Goals

As part of the 2019 legislative session's suite of requirements on GHGs, the Division is required to undertake a statewide GHG inventory no less frequently than every two years.⁴ The inventory is also to include a forecast of GHG emissions for the state in the years 2025, 2030, 2035, 2040, and 2045, along with, in the initial inventory, a recalculation of the 2005 baseline emissions. In addition to these requirements, the Division also intends to include multiple Global Warming Potentials (GWPs) per pollutant (e.g. shorter time horizons for short-lived climate pollutants such as methane) for comparative purposes in the inventory. The Division published a draft inventory in line with these new criteria for initial release in January 2021, soliciting public comments through March 31, 2021. The final 2021 Colorado GHG Inventory including projections to 2050 was published in September 2021 and

¹ C.R.S. 25-7-102(2)(g).

² Cost-benefit analyses are included in Appendix B.

³ 2019-2021 legislative summaries are included in Appendix A.

⁴ SB19-096; CRS 25-7-140(2)(a)(II).

is available on the Division’s [Colorado GHG Inventory website](#).

Table 1: Colorado Emissions in Million Metric Tons of CO₂e by Sector: 2005-2019

Sector	2005	2010	2015	2019
Electric Power	40.291	39.535	36.283	29.759
Transportation	30.433	29.563	28.380	27.436
Residential, Commercial & Industrial Fuel Use	24.645	26.305	25.791	27.176
Natural Gas and Oil Systems	19.945	27.849	18.572	20.260
Agriculture	11.266	11.753	12.171	10.661
Coal Mining & Abandoned Mines	6.839	8.154	1.865	1.823
Industrial Processes	3.291	3.800	4.442	4.656
Waste Management	2.623	3.236	3.434	4.403
Totals	139.333	150.195	130.938	126.174

Table 2: Projected Colorado GHG Emissions by Sector: 2020-2050

Sector	2020	2025	2030	2035	2040	2045	2050
Electric Power	24.039	21.000	8.000	6.177	4.295	3.243	2.192
Transportation	25.483	23.000	18.000	9.287	5.246	2.406	0.206
Residential, Commercial & Industrial Fuel Use	27.582	26.000	20.000	13.886	8.492	4.934	2.597
Natural Gas and Oil Systems	20.767	11.600	7.100	7.109	5.259	3.409	1.559
Agriculture	10.661	10.641	9.673	8.588	7.639	6.690	5.741
Coal Mining & Abandoned Mines	1.819	1.786	0.536	0.197	0.188	0.180	0.173
Industrial Processes	4.694	3.500	2.900	2.602	2.206	1.695	1.057
Waste Management	4.459	3.072	2.031	2.412	2.436	2.454	2.463
Negative Emissions Technologies	0.000	0.000	0.000	-1.056	-1.744	-2.431	-3.119
Totals	119.504	100.598	68.241	49.200	34.015	22.579	12.869

Table 1 includes a summary of GHG emissions by sector and total GHGs from 2005 through 2019. The largest sources of GHG emissions from human activities in Colorado are electric generation, transportation, and fuel combustion to heat buildings and provide heat for industrial processes shown in the inventory as residential, commercial and industrial fuel use. The inventory shows that Colorado’s GHG emissions have decreased 9% between 2005 and 2019, and 16% since 2010. Table 2 includes GHG emission projections by sector from 2020 through 2050, in compliance with the reduction goals established in HB12-1261. The projections in Table 2 include decreased GHG emissions from 2005 levels of 27.8% by 2025, 51% by 2030, and 90.7% by 2050. Emissions are projected to continue to decrease significantly in coming years as a result of current and anticipated emission reduction efforts including legislation, regulations, and policy initiatives.

Figure 1: Colorado GHG Emissions by Gas Projected to Occur Based on Past and Scheduled Regulatory Action

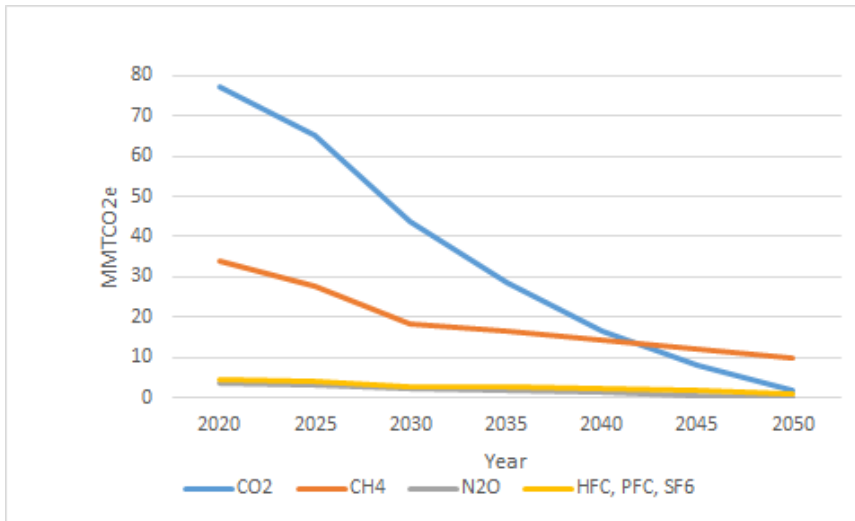


Figure 1 shows projected emissions trends by gas from 2020 to 2050. Carbon dioxide (CO2) is the largest contributor, constituting 70% of Colorado GHG emissions historically and remains the largest quantity in million metric tons of carbon dioxide equivalent (MMTCO2e) through 2040. Emissions of CO2 from fossil fuel combustion in Colorado began decreasing around 2010 and are projected to continue to decrease through 2050. The projections included in the GHG Inventory showcase the new approach

adopted by Colorado for creating forward-looking emissions estimates to guide legislative, regulatory, and policy conversations and planning. These projections describe a general trajectory necessary to achieve compliance with the economy-wide emission reduction goals established by HB19-1261. As described in this report, Colorado is moving forward with a comprehensive, economy-wide set of strategies to achieve the statutory requirements.

It is important to note that four of the five largest sources of emissions now have statutory requirements for emissions reductions that are aligned with the sectoral targets in the GHG Roadmap. Electric utilities are required to submit plans to the Public Utilities Commission (PUC) to achieve at least an 80% reduction below 2005 levels by 2030; if they do not, they are then subject to AQCC regulation requiring these reductions. The AQCC is required to adopt regulations that will achieve at least a 60% reduction in emissions from the oil and gas industry and 20% from other industries. And gas distribution utilities are required to submit Clean Heat Plans, submitted to the PUC, that will achieve at least a 22% reduction below 2015 levels by 2030. The other major sector, transportation, is being addressed by programmatic and regulatory strategies in multiple agencies.

Administrative Actions within the Division and Commission

Climate Change Unit

At the end of 2019 the Division created a dedicated [Climate Change Unit](#) to lead an ambitious effort to reduce GHG emissions in Colorado. The Climate Change Unit is responsible for conducting the statewide GHG Inventory, developing regulations to reduce GHG emissions, and engaging with stakeholders and communities. Health equity and environmental justice are top initiatives for the state, and the Unit is keenly focused on

engaging with communities disproportionately impacted by climate change and transitioning economies. The Climate Change Unit’s activities are discussed in the Policy and Guidance, Regulatory Actions, and Upcoming Rulemakings sections of this report.

Air Quality Enterprise

On June 30, 2020, Governor Polis signed into law SB20-204, enhancing the Division’s ability to improve air quality and protect public health

and the environment. The law creates a new Air Quality Enterprise to fund air quality research, including monitoring, modeling, and other assessments. This groundbreaking endeavor will provide stable and long-term funding for Colorado’s world-class air quality researchers to help the state tackle our most difficult air quality issues. The stakeholder process for the Air Quality Enterprise’s fee rule began in the fall of 2020 and the Governor appointed Enterprise Board members in December 2020. The Board convened in January 2021 and a research community stakeholder process was initiated in the summer of 2021. The Air Quality Enterprise fee rule was adopted in June 2021. Criteria for fund usage is currently being developed, and the board is soliciting input from division staff, fee payers, disproportionately impacted community members, local public health agencies, non-governmental organizations, and the research community. The Board of Directors anticipates funding projects beginning in the fall of 2022.

Commission Subcommittee on GHG Strategies

The Commission formed a GHG Strategy Subcommittee to identify, prioritize, and make recommendations to the full commission on sector-based strategies to meet GHG emission-reduction goals, as well as to develop contingency plans to ensure Colorado remains on track to meet those goals. The subcommittee held public meetings in the summer and fall of 2020 to:

- Discuss sector-based mitigation

- strategies;
- Estimate emissions reductions;
- Develop a contingency process, and;
- Prioritize the Commission’s long-term calendar.

Office of Innovation in Planning

In January 2021, the Division created the Office of Innovation in Planning (OIP) to support the Division’s response to emerging issues. OIP will provide support for the Division’s strategic plan, legislative actions, and other projects as needed. Currently, OIP is leading the effort to create a GHG reduction program for the oil and gas industry, as required by HB19-1261 and HB21-1266, as well as the Commission’s GHG resolution. In the future, OIP will provide technical and policy support and project management for innovative new programs within the Division.

Clean Fleet Enterprise

SB 19-260, described in more depth in the section on actions of the department of transportation, created a new Clean Fleet Enterprise housed within CDPHE. This Enterprise will develop grants, incentives and financing programs to support fleet adoption of zero emission vehicles including school buses, medium- and heavy-duty vehicles, public fleets, and transportation network company fleets. The Enterprise is required to develop a 10-year investment plan by June of 2022.

Policy and Programs

GHG Roadmap

In response to the climate change goals of the Governor and legislature, Colorado agencies, including CDPHE, the Colorado Energy Office (CEO), and the Departments of Agriculture, Natural Resources, and Transportation, began the process of developing an overall Colorado GHG Roadmap for planning strategies to reduce GHGs. State agencies along with the consulting firm E3 have developed scenarios to model projected GHG emissions and meet reduction targets as part of the GHG Roadmap. These scenarios were developed with engagement of the public as well as other agency boards and commissions. On January 14, 2021, Colorado released its final GHG Roadmap. The Roadmap includes sectoral emissions reduction targets for 2025 and 2030, and a suite of near term actions to achieve these targets. Additional information is available on the [GHG Pollution Reduction Roadmap website](#).

Table 3: Near Term Actions Identified in Greenhouse Gas Pollution Reduction Roadmap: Completed or underway actions in Green.

	Fall/Winter 2020	Spring 2021	Summer 2021	Fall 2021	Winter 2021	2022
Public Utility Commission	Tri-State electric resource plan	Xcel Energy electric resource plan & clean energy plan	Xcel renewable energy plan			
	Xcel Energy transportation electrification plan	Black Hills transportation electrification plan	Black Hills Energy efficiency plan			
			Black Hills Energy renewable energy plan			
Air Quality Control Commission	Regional haze rules phase 1		Transportation emission rules (GHG standards for transportation plans, moved to Transportation Commission for adoption)	Greenhouse gas emission reduction progress evaluation Regional haze rules phase 2	Oil and gas emission reduction rules	Next round, transportation emission rules (Advanced Clean Trucks)
	Ozone Plan	Stakeholder processes for transportation, industrial, oil and gas rules		Greenhouse Gas Emissions and Energy Management for Manufacturing Rule I	Structures/building emission reduction rules	Greenhouse Gas Emissions and Energy Management for Manufacturing Rule II
	Oil and gas well monitoring rules					
	Outreach on 2021 oil and gas rules					
Colorado Oil and Gas Conservation Commission	200 Series - general and record keeping			Greenhouse gas emission reduction progress evaluation in coordination with CDPHE		
	300 Series - permitting process					
	400 Series - operational practices					
	500 Series - hearing process					
	600 Series - safety (and residential setbacks)					
	800 Series - underground injection control wells					
	900 Series - environmental & E&P waste management					
	1200 Series - wildlife (and riparian setbacks)					
		Financial assurance rulemaking (bonding)				Financial assurance rulemaking (bonding) completed
						Imposing permit fee; and requiring

	Fall/Winter 2020	Spring 2021	Summer 2021	Fall 2021	Winter 2021	2022
						worker certification (these three topics complete mandatory SB 19-181 rulemakings)
Other State Agency Actions	Clean trucking strategy initiated	Electric vehicle equity plan initiated	Clean trucking technical analysis completed	Natural and working lands task force pathways analysis completed	Draft natural and working lands strategic plan completed	Administrative and legislative action items from land use study
	Just transition plan finalized	Convene taskforce on Carbon Capture, Utilization and Storage (CCUS)	Begin smart land use stakeholder process and study	CDOT Transportation Commission GHG Pollution Reduction for Transportation Planning Rulemaking		
	Draft Climate equity framework completed				Climate equity framework completed	
Legislation		<ul style="list-style-type: none"> • Fund infrastructure and incentives to transition to low and zero emissions cars, trucks and buses • Buildings & Gas Utilities <ul style="list-style-type: none"> • Set carbon reduction targets for gas utilities • Set Biogas requirements for gas utilities • Require existing large commercial buildings to track energy use and make progress toward energy and pollution performance standards • Require regulated electric utilities to create programs that support beneficial electrification • Expand energy efficiency investments from gas utilities • Governor’s Proposed FY 21-22 Budget <ul style="list-style-type: none"> • Fund Clean Energy Finance - \$40 M • Fund wildfire relief, mitigation and prevention - \$78 M • Support local government investment in renewables and Efficiency - \$5 M • Create Climate Resilience Office at the CO Department of Agriculture • Build capacity of Colorado’s Office of Just Transition • Governor’s Proposed FY 21-22 Budget <ul style="list-style-type: none"> • Fund Clean Energy Finance - 40 M • Fund wildfire relief, mitigation and prevention - \$78 M • Support local government investments in renewables and efficiency - \$5 M • Create Climate Resilience Office at the CO Department of Agriculture • Build capacity of Colorado’s Office of Just Transition 				

Clean Energy Plan Guidance

In 2019, utilities that operate more than 99% of the fossil generation in Colorado committed to meet at least an 80% GHG emissions reduction by 2030. During the 2019 legislative session, Colorado adopted Senate Bill 19-236 which directs Qualifying Retail Utilities (QRU) to submit a Clean Energy Plan (CEP) as part of their next Electric Resource Plan (ERP) filing with the Colorado Public Utilities Commission (PUC).⁵ The legislation also allows for voluntary CEP filings by electric cooperatives, municipalities, and small investor-owned utilities that do not meet the customer size threshold of a QRU. As part of the CEP process, the Division, in consultation with the Commission, is required to participate in the PUC proceeding and provide a verification of the CO2 emissions reductions projected by the CEP in calendar year 2030, as compared to the 2005 baseline. The requirement for the other utilities to create a CEP was codified in HB 21-1266. Right now, Xcel Energy's CEP is before the Colorado Public Utilities Commission. While Xcel filed a plan that achieves an 84% reduction in GHGs, parties in the proceeding, including CEO, are advocating for plans that would reach a 92% reduction. Looking forward, the PUC is just beginning the process of evaluating Tri-State's Responsible Energy Plan, which proposes to reach an 80% GHG reduction. Black Hills Electric will file its CEP in the spring of 2022.

In 2019 and 2020 the Division's Climate Change Unit led a stakeholder process with utilities and non-governmental organizations to develop guidance on the criteria by which it will evaluate CEPs. In January 2021, the Commission adopted a resolution to support the Division's Clean Energy Plan guidance. The CEP guidance document and associated emissions verification workbook were published in March 2021.

Commission Resolution to Ensure GHG Reduction Goals Are Met

In October 2020 the Commission adopted a [resolution](#) including sector-specific emission reduction targets to ensure GHG reduction goals are met. The resolution sets forth a trajectory for the Commission and Division to assess whether GHG reduction strategies for the sector-based emissions targets are on track to meet the overall statewide GHG goals and whether the reduction strategies adequately minimize burdens to and direct benefits towards disproportionately impacted communities. If not, the Commission will evaluate the rulemaking hearings on its calendar and determine how to modify the strategies planned for those hearings, add hearings, make legislative recommendations, or take other actions to ensure they are on track to meet or exceed the GHG goals and the sector-based emissions targets.

Climate Equity Framework

The Climate Change Unit began identifying and engaging Colorado communities that are disproportionately impacted by climate change and/or the regulatory actions of the Commission to reduce GHGs. The Climate Change Unit, with assistance from the Climate Equity Advisory Committee, developed a [Climate Equity Framework](#) for identifying and engaging these disproportionately impacted Colorado communities. The Climate Equity Framework:

Provides key principles to help ensure the state's response to climate change considers equity every step of the way;

- Shares best practices in outreach and engagement with marginalized communities;
- Outlines a plan for stakeholder engagement for GHG reduction rulemakings;
- Provides a set of questions to help consider potential equity impacts of implementing rules,

⁵ 40-2-125.5 C.R.S

and;

- Features a [Climate Equity Data Viewer](#) component that will help focus and prioritize outreach and engagement efforts, as well as consider potential impacts by ranking and mapping layers of data sets that represent the criteria for disproportionately impacted communities defined by HB21-1266 (discussed below).

The Climate Equity Community Advisory Group is composed of members of the public from communities who have an interest in climate change and equity issues. The Advisory Group convened its first meeting in the fall of 2021 and they will meet regularly to discuss upcoming GHG reduction rule concepts, outreach and engagement plans, and other relevant climate equity-related items. These efforts have been strengthened by Colorado’s Environmental Justice Act (HB21-1266), and the creation of CDPHE’s Environmental Justice Unit, EJ Action Task Force, EJ Advisory Board, and EJ Ombudsperson, as described below.

Environmental Justice Act

On July 2, 2021, Governor Polis signed the Environmental Justice Act (HB21-1266) into law. The Environmental Justice Act commits to strengthening environmental justice and prioritizes reducing environmental health disparities in disproportionately impacted communities. It also includes climate-related provisions that are discussed elsewhere in this document. CDPHE has created a new Environmental Justice Unit to support implementation of the Environmental Justice Act. As of November 15, 2021, it consists of four full-time employees, including a full-time Environmental Justice Air Quality Liaison, and will continue to expand over the coming months.

Specific components of the Environmental Justice Act that CDPHE is now implementing include:

- **Identifying and Mapping Disproportionately Impacted Communities.**
 - The Environmental Justice Act defines Disproportionately Impacted Communities to include:
 - Census Block Groups with one of 3 demographic factors:
 - More than 40% low income households;
 - More than 40% people of color households;
 - More than 40% housing cost-burdened households;
 - CDPHE has created a [Data Viewer for Disproportionately Impacted Communities](#), which shows census block groups that meet the demographic components of the definition. There is also a clickable layer in the [Climate Equity Data Viewer](#) that similarly shows census block groups that meet the demographic components of the definition.
 - CDPHE is working on a new interactive mapping tool, [Colorado EnviroScreen](#), that will identify communities meeting all three components of the definition. Colorado EnviroScreen will be open for beta-testing during early 2022, and will be finalized by June 2022.
- **Enhanced Outreach for Disproportionately Impacted Communities.** The Environmental Justice Act requires the Air Quality Control Commission to conduct enhanced outreach to Disproportionately Impacted Communities before taking specific actions, including rulemakings, holding public hearings on permits, and certain adjudicatory actions.
 - The Environmental Justice Unit is working with Commission and Division staff to host community sessions prior to each rulemaking, including one meeting on a weekend, one during the business day on a weekday, and one on a weekday evening.
 - All materials for enhanced outreach sessions are provided in English and Spanish, and

- Spanish interpretation is provided at the community meetings.
- Plain language fact sheets are available in both English and Spanish for each of the community meetings, providing simple, easy-to-understand information about the complex rulemaking processes.
- Communities are invited to share their ideas and ask questions directly of subject matter experts during the enhanced outreach sessions.
- Notice of all meetings is provided at least 30 days in advance. CDPHE is using innovative techniques to spread the word about the community meetings, including social media ads in both English and Spanish geotargeted to people living in disproportionately impacted communities across the state.
- **Environmental Justice Advisory Board**
 - Governor Polis and CDPHE Executive Director Jill Hunsaker Ryan appointed 11 talented, diverse, and qualified Coloradans to serve on the Environmental Justice Advisory Board in early November 2021. The Environmental Justice Advisory Board will meet quarterly starting in early 2022.
 - The Advisory Board will:
 - Advise the Environmental Justice Ombudsperson, and work with the Ombudsperson to facilitate public meetings and develop a complaint process.
 - Respond to environmental justice policy questions referred by the Governor's Office or CDPHE.
 - Advise CDPHE on best practices for engagement with disproportionately impacted communities.
 - Implement a new environmental justice grants program to fund projects to avoid, minimize, or mitigate adverse environmental impacts in disproportionately impacted communities, including projects that reduce environmental health disparities, reduce environmental impacts, and promote participation in agency actions by disproportionately impacted community members.
- **Environmental Justice Action Task Force**
 - Governor Polis, the General Assembly Leadership, the Southern Ute Indian Tribe, and Ute Mountain Ute Tribe are charged with appointing 27 Coloradans with a diverse range of experiences and backgrounds to the Task Force.
 - The first Task Force meeting will be held in late 2021. The Task Force will hold six public meetings prior to November 2022.
 - By November 14, 2022, the Task Force will create a statewide environmental justice plan and implementation strategy that addresses many topics, including:
 - Whether to incorporate equity analyses into certain types of state agency environmental decisions, which may include identifying cumulative impacts in disproportionately impacted communities, and requiring permits in disproportionately impacted communities to include measures to avoid, minimize, or mitigate adverse impacts.
 - Setting measurable goals to reduce environmental health disparities.
 - Addressing data gaps and lack of data sharing on environmental justice topics.
 - Best practices for community engagement in disproportionately impacted communities.
 - Potential revisions to the definition of disproportionately impacted communities, and recommending whether the same definition should apply to other agencies besides the Air Quality Control Commission.

▪ **Environmental Justice Ombudsperson:**

- The Governor’s Office [has launched the recruitment process](#) for the Environmental Justice Ombudsperson.
- The Governor will appoint the Ombudsperson. The Ombudsperson will report directly to the Executive Director of CDPHE and receive administrative support from the Environmental Justice Unit, but is otherwise independent.
- The Environmental Justice Ombudsperson will:
 - Serve as an advocate for and liaison to disproportionately impacted communities;
 - Advocate for improved relationships with disproportionately impacted communities;
 - Oversee response to complaints and inquiries about environmental justice matters; and
 - Coordinate environmental justice work across state government.

Employee Traffic Reduction Program

Building from the work of the Regional Air Quality Council, the Denver Regional Council of Governments, and local transportation management associations, the Division continued exploring an Employee Traffic Reduction Program (ETRP) as a GHG reduction and air quality improvement strategy in 2020 and 2021. ETRP was adapted from transportation demand management (TDM) strategies that have been implemented to decrease single occupancy vehicle trips to and from worksites for decades in various cities, counties, and states throughout the U.S. After an extensive stakeholder process, it was decided that a voluntary program would be more successful to meet the state’s GHG reduction goals. The Division is currently developing a voluntary TDM program that is anticipated to be launched in late 2021 or early 2022.

Regulatory Actions

This section includes a summary of regulations recently adopted by the Commission. Commission regulations, meeting materials, and additional information are available at the [Commission’s website](#).

Zero Emission Vehicle Program

In August 2019 the Commission adopted revisions to Regulation Number 20, Colorado Low Emission Automobile Regulation (CLEAR), requiring vehicle manufacturers to meet minimum zero emission vehicle (ZEV) sales requirements for light-duty vehicles in Colorado, beginning with the 2023 model year. The Division is currently engaged with automakers to track early implementation of ZEV sales for the purposes of the credit system implemented through a proposal adopted in August 2019. The Commission adopted updates to CLEAR in August 2021 to maintain alignment with California rules, as required under the

Clean Air Act, Section 177.

Emissions Reductions from Oil and Gas Sources

Since the passage of HB19-1261 the Division and Commission have completed several rulemakings to significantly reduce emissions from the oil and gas sector. In December 2019 the Commission adopted revisions to Regulations Number 3 and 7 to minimize emissions from oil and gas operations statewide through a number of monitoring, reporting, and control measures. This rulemaking also revamped the requirements for permitting and tracking emissions from oil and gas sites in

Colorado. In September 2020, the Commission adopted changes to Regulation Number 7, addressing NOx emissions from engines greater than or equal to 1,000 horsepower, disposal wells, and pre-production operations, including a first of its kind regulatory program requiring air quality monitoring at pre- and early-production operations. In February 2021, the Commission adopted changes to Regulation Number 7, addressing emissions from pneumatic controllers at well production facilities and natural gas compressor stations. Next steps on additional oil and gas regulations are discussed in the section below on upcoming rulemakings.

GHG Reporting and Emission Reduction Requirements

In May 2020 the Commission adopted Regulation Number 22, Colorado GHG Reporting and Emission Reduction Requirements. Part A of the regulation establishes an economy-wide GHG reporting rule for Colorado. Part B contains GHG mitigation measures, such as phase-out dates for hydrofluorocarbon (HFCs), and includes subsequently adopted mitigation requirements such as the GEMM rule discussed below. The Part A reporting rule fills gaps in the current federal GHG reporting rules and provides the state with better data for its GHG inventory. Higher-quality data will improve the state's climate projections and inform policy recommendations for reducing emissions. The rule will also make more granular data available to assist local communities with climate action planning and implementation. Under Colorado's rule, any Colorado facility or fuel supplier that is required to report its GHGs to the U.S. EPA must also report its GHGs directly to the State of Colorado. Additionally, certain categories of emitters – including electric utilities, natural gas distribution companies, industrial waste landfills, industrial wastewater treatment operations, and underground coal mines – are required to report their GHGs directly to the state regardless of the amount emitted and even if they are not required to report their GHGs to EPA.

Colorado's adoption of the HFC phase-out rules in Regulation Number 22 made it the first member of the Climate Alliance states to adopt the model framework developed by these states for the phasing out of HFCs. While HFC emissions currently do not make up a significant portion of Colorado's overall GHG emissions, HFCs are the world's fastest growing source of GHGs and the Commission's action prevents significant future emissions of these chemical compounds often called "super pollutants" due to their high global warming potential (GWP). The rule will phase out their use in aerosol propellants, chillers, foams and stationary refrigerants. Phasing out HFCs will result in a cumulative reduction of 6.3 million metric tons of carbon dioxide equivalent by 2030.

Motor Vehicle Emissions Inspection Program

In August 2021, the Commission adopted revisions to Regulation Number 11, Motor Vehicle Emissions Inspection Program. The revisions tighten the emissions standards or "cutpoints" used to test vehicle emissions as they undergo emissions testing Front Range Automobile Inspection and Readjustment (AIR) Program area. Updating vehicle emissions standards will improve the effectiveness of the current vehicle emissions inspection program by increasing the program's ability to detect and have repaired high emitting vehicles that contribute to the area's air quality.

GHG Emissions and Energy Management and Audit Program for Manufacturing

The Division developed a regulation for GHG Emissions and Energy Management for Manufacturers in Colorado (GEMM) under the authority of HB19-1261 and HB21-1266. The rule requires that energy intensive trade exposed facilities utilize a third party to conduct an audit every five years (starting in 2022) to ensure that the best technology to save energy and control GHG emissions is in use. All facilities subject to the rule are required to reduce their GHG emissions by 5% in addition to any reductions achieved by employment of best

available emissions control technology and energy best management practices at the facility.

Regional Haze

The federal Regional Haze Rule directs states and federal agencies to work together to improve air quality in national parks and class 1 wilderness areas. Over the past 2 years Colorado updated its Regional Haze State Implementation Plan (SIP) for the second round of 10-year planning. The SIP updates include

the closure and fuel switching of coal-fired generating units in Colorado. If adopted in December 2021, the Commission’s actions would make voluntary closures federally enforceable by incorporating them in the SIP, upon EPA approval. As a result of these revolutionary changes in how we generate electricity in Colorado the state will achieve massive reductions in GHG emissions from this critical sector over the next decade and beyond. Additional information is available on the Division’s [Regional Haze website](#).

Table 4: Emissions Reduction Estimates by Sector and Regulation (MMT CO2e) from Regulations Proposed/Adopted to date

Sector	Air Quality Control Commission Regulation	2030 Annual Reductions	2030 Cumulative Reduction
Electricity	Regional Haze, 2020 & 2021 Revisions	19 ¹	78 ²
Oil and Gas	Number 7, 2019, 2020, & 2021 Revisions, Number 22 2021 Revision	* ₃	* ₃
Transportation	Number 20, ZEV, & Number 11, Motor Vehicle Inspection Program	.47	3.25
Industrial/Manufacturing	Number 22, GEMM Rule	.12 ⁴	.72 ⁴
Other	Number 22, HFC Rule	1.15	5.07
Total		20.74	87.04

1. An additional 2.9 MMT of CO2e reductions is expected through the PUC process. Note that this is the incremental reductions due to recent actions - the anticipated reduction in 2030 annual emissions from 2005 levels is at least 32 million tons. In addition, there are related emissions reductions due to lower levels of methane emissions from coalmines as the mines retire. The projected 2030 emissions reduction from reduced methane emissions from mines is over 6 million tons.
2. An additional 8.5 MMT of CO2e reductions is expected through the PUC process.
3. The AQCC is currently considering oil and gas regulations that will be decided upon in December of 2021 for achieving the statutory obligation established in HB21-1266 to meet the emission targets for that sector.
4. This estimate assumes a 5% reduction from each facility is achieved by 2025. If a facility is found through the energy and emissions control audit to not be employing GHG best available emissions control technology or energy best management practices, additional reductions may be achieved by 2030.

Upcoming Rulemakings

Emissions Reductions from Oil and Gas Sources:

The Division is has proposed regulations to reduce GHG emissions from oil and gas operations, with the goals to help achieve the

reductions required under HB19-1261 and HB21-1266. HB 21-1266 took the emissions reductions targets established for the oil and gas sector in the Roadmap and placed them into statute, requiring Commission action to adopt rules that

will achieve these targets. The Division kicked off its [oil and gas GHG Roadmap stakeholder process](#) in November 2020 and has since held a series of public stakeholder meetings and listening sessions to inform the process.

The Division has proposed additional direct regulations including control requirements or emissions standards for certain equipment and/or processes, with a particular focus on eliminating leaks and dramatically reducing emissions from various venting activities and practices currently utilized by the industry, an upstream intensity program designed to ensure that overall methane and CO₂ emissions from the sector will meet the targets established by HB21-1266 and the Commission, and a midstream GHG program focused on electrification of fuel combustion equipment. The Commission will consider these strategies and alternative proposals during a December 2021 rulemaking hearing.

Advanced Clean Truck Rule

The California Advanced Clean Truck (ACT) regulation includes ZEV sales requirements for manufacturers and a one-time reporting requirement for large entities and fleets. ACT presents an opportunity for Colorado to accelerate medium- and heavy-duty electric vehicle adoption and reduce air pollution in the state. The Commission is expected to consider a notice of rulemaking in May 2022 and a vote on adoption of the ACT rule in August 2022.

GHG Reporting and Permitting Requirements

The Environmental Justice Act, HB21-1266, requires the inclusion of GHGs in the list of air pollutants required to be reported in an air pollutant emissions notice (APEN) and the setting of fees for GHG emissions. In August 2022 the Commission will consider revisions to Regulation Number 3 to establish GHG emissions reporting, set emission fees, and clarify permitting requirements, in response to the act.

Recovered Methane Protocol

Senate Bill 21-264 requires investor-owned electric utilities to file plans with the Public Utilities Commission (PUC) to provide rebates and incentives to help customers shift from fossil gas appliances to high efficiency electric appliances. Senate Bill 21-264 also requires that gas distribution utilities submit a comprehensive clean heat plan before the PUC. Each clean heat plan must outline the utility's proposal to reduce carbon dioxide and methane emission levels by 4% in 2025 and 22% in 2030 below 2015 levels. The Division believes that the transmission & storage performance program adopted by the Commission in 2019 and the clean heat plans required by SB 21-264 are going to achieve reductions of emissions necessary from these segments to achieve the goals of § 25-7-105(1)(e)(XII), C.R.S., from the Oil & Gas Sector as a whole.

Regulated gas utilities will develop clean heat plans that will be subject to PUC approval, and may use enhanced demand side management, beneficial electrification of end uses, leak reduction, blending of green hydrogen, and the use of recovered methane to achieve these goals. Municipal utilities will submit their plan to the AQCC. The bill directs the Commission to propose rules concerning recovered methane protocols no later than September 1, 2022, and to adopt the rules no later than February 1, 2023. Based on the deadlines established in the bill, the Commission will consider revisions to Regulation 22, establishing a recovered methane protocol and a GHG crediting and tracking system. This protocol will be used by the PUC in their approval of Clean Heat Plans submitted by gas distribution utilities

Ozone Planning

In December 2022 the Commission will consider revisions addressing the Clean Air Act Ozone Nonattainment requirements for the 2008 and/or 2015 Ozone National Ambient Air Quality Standards (NAAQS). This will include proposed elements to Colorado's State Implementation Plan (SIP) and revisions to

associated regulations. Implementation of the measures included in the SIP will deliver broad environmental and public health benefits, including GHG emission reduction benefits.

Post Model Year 2025 Light Duty Vehicle Standards

The current LEV and ZEV standards ramp up each year through model year (MY) 2025. Under the Clean Air Act, the state of California has the legal authority to develop standards, and other states then have the legal ability to adopt these standards. The California Air Resources Board (CARB) is currently engaged in a rulemaking to adopt standards for MY 2026-2035, known as Advanced Clean Cars 2, (ACC2) which are expected to require all new light duty vehicles to be zero emission by MY 2035. CARB is expected to adopt these rules in late 2022. It is possible that the US EPA will adopt similar requirements, but if they do not Colorado will have the opportunity to consider adopting ACC2 in 2023.

Greenhouse Gas Emissions and Energy Management for Manufacturers Phase II

In May 2021 the legislature passed HB 21-1266, which set the GHG roadmap sectoral target for the industrial sector into statute, requiring the Commission to adopt rules that will achieve a 20% reduction across the industrial sector as a whole by 2030. In order to achieve this, other industrial and manufacturing facilities will be subject to additional reduction requirements in a second phase of rulemaking, which will be developed in 2022 and 2023.

Commercial Building Benchmarking and Performance Standards

HB 21-1286 requires benchmarking of the energy use of large commercial buildings, and the development of performance standards that will achieve a sector-wide 7% emissions reduction by 2026 and 20% emissions reduction by 2030, below a 2021 baseline. The Colorado Energy Office (CEO) is developing a statewide benchmarking program that covers commercial, multifamily, and public buildings 50,000 square feet or more. Building owners report annually with the first reporting deadline on December 1, 2022. The goal of the benchmarking program is for building owners and tenants to better understand how their building's energy performance compares to similar buildings and identify opportunities to cut energy waste. CEO is coordinating with municipalities that already have benchmarking ordinances and those that want to enact new benchmarking requirements in order to streamline reporting and communications. The Building Performance Standards (BPS) Task Force members were selected and began meeting in late September 2021. The Task Force will meet for 11 months to develop recommendations for BPS that achieve a sector-wide 7% reduction in GHG emissions by 2026 and a 20% reduction by 2030. The meetings are open to the public for listening and we will incorporate opportunities for stakeholder engagement and input. The BPS recommendations are due to the CEO Executive Director by October 1, 2022; the AQCC will conduct a rulemaking in the first half of 2023.

Other Activities

As part of directing the Commission's adoption of rules toward achieving the state climate goals, consideration of the laws and actions of other state agencies, commissions, local communities and the private sector is also recognized.⁶ Related to this, climate change planning is integrated into the performance plans and strategic goals of several state agencies. As discussed in the section, state agencies and commissions are working with a diverse group of stakeholders and communities to address

⁶ C.R.S. 25-7-105(e)(II)

the challenges of climate change.

Carbon Capture, Utilization, and Storage Task Force

As part of the near-term actions in the GHG Pollution Reduction Roadmap, Colorado identified the development and utilization of a Task Force as an important step to better understand the role that carbon capture, utilization, and storage (CCUS) can play in meeting the state's emissions targets. The evaluation will include an inventory of existing initiatives and recent publications that analyze or identify CCUS opportunities in Colorado. The task force convened in March 2021 and is on track to provide a final report and recommendations to the Governor in early 2022. Members of the task force represent government, industry, academic and nonprofit groups in Colorado.

Colorado Department of Agriculture

The Advancing Colorado's Renewable Energy and Energy Efficiency Program (ACRE3) provides funding and technical assistance to producers and agricultural businesses to implement renewable energy and increase efficiency in their agricultural operations. The program helps producers reduce energy costs, install better and cleaner equipment, and become more resilient and profitable. From 2015 through 2021, the ACRE3 program has provided assistance for 133 projects in 24 counties, representing total project costs of \$5 million. In 2022, \$3 million from SB21-235 is allowing the ACRE3 program to provide cost share for more than 60 new projects this year and expand its scope to include larger projects and new project types. Stimulus funds allow the ACRE3 program to increase its funding cap from \$50,000 per producer up to \$500,000 for very large projects. For the first time, stimulus funds are enabling the ACRE3 program to evaluate demonstration projects for agrivoltaics on farms and ranches, solar hot water in dairies and greenhouses, transpired solar at poultry houses, and manure management systems at dairies to support more efficient production of renewable natural gas several new biodigesters. The stimulus funds are also allowing ACRE3 to fund a larger number of projects in energy efficiency, energy-recovery hydropower in irrigation systems, and conventional solar projects in agricultural operations.

The Colorado Department of Agriculture's (CDA's) soil health work assists agricultural producers in improving the productivity and resilience of their land. In partnership with the USDA Natural Resources Conservation Service (NRCS), state Conservation Districts, Colorado State Conservation Board, and others, we are awarding new healthy soils matching grants to Colorado ag producers. Soil Specialists are helping foster farmer to farmer learning, host workshops, and help producers connect with new market opportunities. \$2 million from SB 235 is enabling CDA to expand on the work we have been doing, primarily with federal and grant funding.

Because many conservation districts are eager to offer more soil health solutions to help their landowners improve their soil function and resilience, CDA is using stimulus funds to leverage federal funding to broaden local engagement in soil health work across the state. Through the assistance of 17 conservation districts and producer organizations, 140 producers will receive technical assistance and incentives to try new practices for three or more years. Additionally, stimulus funds are helping conservation districts build their local capacity to play a stronger role in delivering soil health planning and implementation. With new market opportunities emerging for ecosystem services (like soil health improvements), CDA wants to assist conservation districts in preparing producers to be able to profit from new market platforms that reward conservation activities.

Colorado Department of Natural Resources

The Colorado Department of Natural Resources has taken multiple steps to make progress on state GHG reduction goals established in HB21-1261 since 2019. In addition to Division-specific regulatory

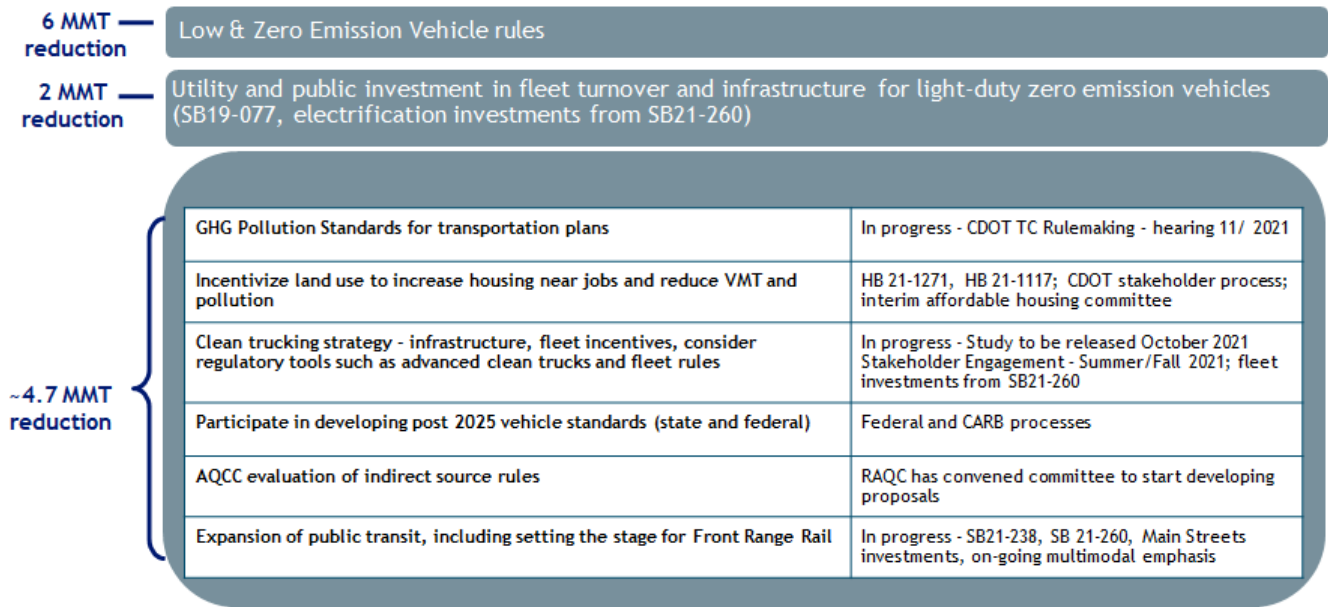
and policy efforts, DNR is broadly supporting the transition to renewable energy. The State Land Board currently has approximately 60,000 acres of land leased for renewable energy development, and these leases generate enough energy to power over 60,000 homes. Beginning in 2021, Colorado Parks and Wildlife is installing electric vehicle charging stations at state parks.

In 2020 the Colorado Oil and Gas Conservation Commission completed rulemakings directed by SB19-181, several of which will reduce GHG emissions. The completed rulemaking hearings addressed Mission Change, Alternative Location Analysis, Cumulative Impacts, and Compensatory Mitigation for Wildlife, as required by SB 19-181. The rulemakings were required to implement the change to the COGCC’s mission from “fostering” to “regulating” oil and gas development in a manner that protects public health, safety, welfare, the environment, and wildlife resources. The rulemaking established a cumulative impacts data collection program in collaboration with the CDPHE, which includes collection of GHG data, incentivized underground injection of waste fluids as a best practice for managing exploration and production waste and associated emissions, and enacted a prohibition on routine flaring or venting. The resulting reductions in emissions from these regulations are expected to be reflected in data collected by CDPHE.

In 2020, the Department of Natural Resources and Department of Agriculture established a Natural and Working Lands interagency Task Force to promote emissions reductions and protect, stabilize, and enhance carbon sequestration within natural and agricultural areas, covering both rural and urban areas. Task Force members updated the state’s GHG Inventory for forest carbon flux with the latest data from the U.S. Forest Service, which indicates that Colorado’s forests are now a net source of GHG pollution, due to ongoing drought, disease, wildfire and insect impacts on forest health. The Task Force is currently conducting a study with The Nature Conservancy to identify policy priorities and drafting a Natural and Working Lands Strategic Plan with stakeholder input, which will be completed in 2022.

Colorado Department of Transportation

The chart below shows the expected emissions reductions due from each of the major categories of action on transportation emissions.



Climate change planning is integrated in the Colorado Department of Transportation's (CDOT's) performance plan and strategic goals, including goals to reduce air pollution and congestion by reducing vehicle miles traveled (VMT) and GHG emissions from the transportation sector through multimodal options, and by supporting electrification of vehicles. SB21-260 further established the importance of GHG reduction in the transportation planning process. SB 21-260 directed CDOT and metropolitan planning organizations to make achieving state GHG targets a goal of the planning process, and to implement relevant regulations adopted by the AQCC. SB21-260 also requires CDOT to use the social cost of GHG emissions in relevant cost benefit analyses.

Strategies include increasing the number of Colorado Scenic and Historic Byways classified as electrified byways, development and construction of comprehensive Mobility Hubs, increasing the percentage of state highway miles within a 30-mile travel buffer of DC fast-charging stations, launching an air quality monitoring research program focus on construction projects, and increasing electric vehicles purchased by individuals and transit agencies in the state. The state's Colorado Electric Vehicle Plan 2020 focuses on a large-scale transition of Colorado's transportation system to zero emission vehicles, with a goal of 940,000 electric vehicles on the road by 2030, and a long-term goal of 100% of light-duty vehicles being electric and 100% of medium- and heavy-duty vehicles being zero emissions. By achieving this 2030 goal, the state could see an annual reduction of up to 3 million tons of GHGs.⁷

One major element of SB21-260 was the creation of three new enterprises, funded by new fees on residential deliveries and transportation network companies, to support transportation electrification. Collectively, these enterprises and the existing Colorado Electric Vehicle Infrastructure Fund are projected to invest approximately \$850 million over the next decade. One of these enterprises, the Clean Transit Enterprise, is housed in CDOT, and will focus on supporting adoption of battery electric and hydrogen vehicles. CDOT is also developing a Colorado Transit Zero-Emission Vehicle (ZEV) Roadmap to identify the strategies, policies, and funding levels necessary to achieve the state's goal of 1,000 transit ZEVs on the road by 2030 and a 100% ZEV transit fleet by 2050. Over the course of the year, CDOT staff engaged with transit agencies, local governments, utilities, and industry stakeholders to conduct an inventory of the current state fleet make-up, identify the challenges and opportunities presented by transit electrification, and recommend future actions necessary to achieve the numerical targets established in the 2020 Colorado EV Plan. The final Roadmap will be released in January 2022 and implementation will begin in 2022.

CDOT has proposed a new GHG Pollution Reduction Planning Standard to reduce GHG emissions from the transportation sector, improve air quality and reduce smog, and provide more travel options.⁸ The draft standard would require CDOT and the state's five Metropolitan Planning Organizations to determine the total pollution and GHG emissions expected from future transportation projects and take steps to ensure that GHG emission levels do not exceed set amounts. As proposed, the rule would achieve an additional 1.5 million tons of GHG reductions from transportation by 2030. As proposed, the Division will verify technical data contained in CDOT and MPO planning documents. The Transportation Commission is expected to consider the proposal for adoption before the end of the calendar year.

CDOT is also working with CDPHE and the Colorado Energy Office (CEO) to develop a comprehensive

⁷ CEO, Colorado EV Plan 2020, <https://energyoffice.colorado.gov/zero-emission-vehicles/colorado-ev-plan-2020>

⁸ CDOT, Greenhouse Gas Emissions Reductions Opportunities, <https://www.codot.gov/programs/environmental/greenhousegas>

clean trucking strategy. The agencies contracted with MJ Bradley for a [technical analysis](#) of the potential for conversion of the medium- and heavy-duty vehicles in Colorado to zero emission vehicles. The study found significant potential for deep emissions reductions with net lifetime cost savings (netting higher upfront costs against long-term fuel and maintenance savings), but also highlighted the need for infrastructure investment, and the fact that certain vehicle categories (such as medium-duty delivery trucks and vans, school buses, and transit buses) are better poised for near term adoption of ZEVs than other categories. This analysis is informing a public stakeholder process during the fall and early winter that will provide input for the completion of the clean trucking strategy in spring 2022.

Colorado Energy Office

The Colorado Energy Office (CEO) has played a key role in the state’s comprehensive strategic planning process to achieve an equitable and just decarbonization of the state’s electric sector and position Colorado as a leader in the clean energy economy. Decarbonizing Colorado’s economy is creating opportunities to reduce emissions while cutting costs and creating jobs in transportation and buildings. The Energy Office also represents the Governor in dockets at the Public Utilities Commission, and is playing a role in advocating for exceeding the minimum 80% reduction required in electricity sector emissions by supporting all cost effective emissions reductions that are consistent with affordability and reliability.

Transitioning to zero emission vehicles (ZEVs) including electrifying cars, buses and trucks will reduce pollution from one of our top emitting sectors — transportation. To meet the state’s goal of 940,000 EVs on the road by 2030, CEO is working to remove market barriers to EV adoption, including increasing the number of publicly accessible charging stations. Convenient access to charging will help reduce Coloradans’ concerns about driving distances from one station to another and increase the likelihood of EV purchases. CEO complements these efforts by working with utilities and intervening at the Public Utility Commission to increase utility investment in EV charging and providing education and technical assistance to fleets and the public that highlight the benefits associated with ZEVs and increase adoption rates. CEO will also be working with state stimulus funds to invest in the State of Colorado’s own transition to EVs by supporting charging infrastructure through state agencies.

CEO has begun the process of creating an equity-focused electrification Community Access Enterprise authorized by SB 21-260. The Enterprise Board is required to develop a 10-year investment plan by June of 2022 for investing approximately \$310 million in EV charging and hydrogen fueling infrastructure, as well as in supporting low and moderate income adoption of EVs and electric bicycles. This will be in addition to a projected \$115 million of investment in charging infrastructure through the Colorado Electric Vehicle Infrastructure Fund. A study conducted for the state by the International Council for Clean Transportation found a need for approximately \$1.2 billion investment in infrastructure by all parties collectively (local, state and federal government, utilities, and the private sector) over the next decade in order to achieve state EV goals. Based on anticipated utility investments and private sector leverage, we expect to meet this need.

In the buildings sector, CEO develops programs to help residential, commercial and industrial customers access energy efficiency and renewable energy improvements to reduce energy use and associated costs. CEO is also exploring ways to increase building and industrial beneficial electrification. These programs include services such as energy audits for agricultural producers, technical and engineering assistance for public jurisdictions, financing products for commercial building owners, low-income home weatherization, and strategic energy management programs for

industrial entities. The legislature passed legislation in 2021 that creates new ongoing funding to expand the Weatherization Assistance Program (WAP) to help Colorado families that qualify to reduce energy use. In addition, the legislature passed SB 21-230 which invests \$35 million in expanded clean energy finance programs, including \$30 million to capitalize a new green bank. Lastly, CEO will convene a task force of building and efficiency experts, industry stakeholders, conservation and labor groups, and local government representatives to develop and provide recommendations on building performance standards that achieve a 7 percent reduction in GHG emissions by 2025 and a 20 percent reduction by 2030 from a 2021 baseline in preparation for a statewide benchmarking and energy performance program.

Colorado Department of Local Affairs

The Colorado Department of Local Affairs (DOLA) supports Colorado communities with developing economic recovery roadmaps, hosting webinar series, and by providing resiliency planning resources through the Energy/Mineral Impact Assistance Fund, Rural Economic Development Initiative and other state and federal funding sources. Housed in DOLA, the Colorado Resiliency Office (CRO) published the updated 2020 Colorado Resiliency Framework to lay out the state's resiliency vision and goals while exploring risks and vulnerabilities including, adapting to our changing climate, understanding risks from natural and other hazards, addressing social inequities and unique community needs, and pursuing economic diversity and vibrancy.⁹ The framework provides 29 strategies that the state will implement to reduce risk and vulnerabilities and be adaptive to changing environmental, social, and economic conditions. The CRO and Colorado Resiliency Working Group serve as stewards of the framework and actively seek opportunities for collaboration, partnership, and capacity-building to enhance resilience across Colorado. By spearheading the implementation of the 29 Resiliency Framework strategies, the CRO is coordinating multi-agency efforts that support the statewide GHG reduction goals.

In 2020 and 2021, the CRO engaged in the following efforts to support climate action progress in Colorado.

- The CRO hosted a climate Adaptations and Futures webinar series that included 10 webinars covering topics including climate smart land use, transportation electrification, energy efficient building codes, and climate action planning. These webinars attracted over 500 attendees from 80 local communities.
- The CRO relaunched its website, [coresiliency.com](https://www.coresiliency.com), and included the following tools to help communities make climate action progress: 1) A Resilience Toolkit focuses on the process of building resilience at a community scale, 2) A case study library includes many examples of resiliency in action from communities across the state, and 3) An extensive, curated resource collection includes key resources for climate adaptation and mitigation.
- The CRO received a technical assistance award from the U.S. Climate Alliance to explore expanding resiliency funding opportunities in Colorado, including the development of a potential Community Resiliency Partnership Fund.

In addition, since October 2019, DOLA has awarded grants to local governments totaling \$15,385,963 for renewable and clean energy planning and implementation projects.

Office of Just Transition

Housed in the Colorado Department of Labor and Employment, the Office of Just Transition (OJT)

⁹CRO, Colorado Resiliency Framework, <https://www.coresiliency.com/colorado-resiliency-framework>

published the [Colorado Just Transition Action Plan in 2020](#), outlining first steps to help transition rural economies and displaced workers as Colorado moves away from coal as a fuel for generating electricity. The plan includes strategies recommended by the Just Transition Advisory Committee aimed to help workers who are laid off from the coal industry or related businesses secure good new jobs with family-sustaining incomes, including achieving secure retirements for older workers who may not wish to stay in the workforce. The plan also includes strategies to help communities replace the jobs and property taxes lost when power plants or coal mines close, and to further diversify their economies as they move away from coal. In 2021, the OJT received \$15 million in state stimulus funds (State General Fund) to be used over the next two fiscal years. This includes \$8 million to implement the Action Plan and \$7 million to design and implement a Coal Transition Workforce Assistance Program for displaced workers.

Public Utility Commission

In an effort to support the Governor’s goal of 100 percent renewable energy resources by 2040, the Public Utilities Commission (PUC), within the Department of Regulatory Agencies, created a PUC Modernization Plan that identifies operational strategies with targeted implementation by 2021, and full implementation by 2023.¹⁰ The plan includes strategies to enhance policy and internal affairs processes, fixed utilities processes, and hearing processes, and public access and technology upgrades.

Legal and regulatory framework in Colorado creates a pathway for the state’s electric utilities to reach a minimum 80% reduction in carbon emissions from 2005 levels by 2030 by filing a Clean Energy Plan (CEP) with the PUC. Xcel Energy, Colorado’s largest investor-owned utility, filed its CEP with PUC in March 2021. The plan includes a proposal for 85% reduction in GHGs and 80% renewable energy generation by 2030. In addition to its CEP, Xcel Energy has requested approval for a substantial Transmission project called the Colorado Power Pathway (CPP). The Company maintains that the CPP would substantially expand the Company’s transmission “backbone”, increasing interconnection capability and allowing substantial development of Colorado’s renewable resource-rich Eastern plains. The costs, benefits and scope of this \$1.7 Billion transmission upgrade is also being considered by the PUC.

As required by § 40-2-134, C.R.S., the PUC opened a rulemaking in July 2019 (19R-0408E) and after a nine month process of stakeholder engagement and public comments established Electric Resource Planning (ERP) rules applicable to Cooperative Electric Generation and Transmission Associations (Rule 3605). As required by this rule, Tri-State submitted their ERP in December 2020 (Proceeding No. 20A-0528E) and presented a preferred plan that by 2030 would achieve an 80% reduction from 2005 levels of CO2 emissions attributable to wholesale sales in Colorado. This plan is currently under review by the PUC, including appropriate consideration of Tri-State’s emissions baseline; the administration, through the Colorado Energy Office, is recommending adoption of a plan that will achieve larger reductions of 90% or more by 2030.

Platte River Power Authority has adopted a resource plan that will achieve a 90% emissions reduction by 2030 and submitted their CEP to the Division for verification on October 26, 2021. Colorado Springs Utilities has adopted a resource plan that will achieve an 80% reduction and will submit their CEP to the Division for verification by December 31, 2021. Holy Cross Energy has committed to 100% carbon free power by 2030 and will submit their plan to the Division for verification by December 31, 2021. These plans will be submitted to the PUC by July 1, 2022. Black Hills announced an 80% reduction by

¹⁰ PUC, Modernization Plan, <https://puc.colorado.gov/puc-modernization-plan>

2030 and will file an ERP and CEP in March 2022. This plan will be verified by the Division during the PUC proceeding. CORE Electric Cooperative (formerly IREA) requested the extension allowed under HB 21-1266 and will submit their plan to the PUC by December 31, 2023 after verification by the Division. Additional ERPs will be filed with the PUC prior to 2030. While the initial plans are still under consideration by the PUC, it is anticipated that actual 2030 reductions will achieve greater than the 80% reduction required by statute through the initial and subsequent resource planning processes.

The PUC also plays an important role in helping to achieve the state's transportation electrification targets, a key strategy for achieving transportation sector emission reductions. In 2019, the legislature adopted SB 19-077, which requires investor owned electric utilities to file transportation electrification plans (TEPs) every three years, designed to support widespread electrification of transportation. In 2021 the PUC approved the first plans of Xcel Energy and Black Hills Energy. Notably, the Xcel TEP includes over a \$100 million investment over three years in EV infrastructure and programs; the next plans would be expected to be adopted in 2024.

The Colorado Transmission Coordination Act, part of Senate Bill 19-236, also directed the Commission to investigate the costs and benefits of Colorado utilities participating in an organized wholesale market in the form of an energy imbalance market, joint tariff, power pool, or regional transmission organization. The Commission opened its investigation, Proceeding No. 19M-0495E, in September of 2019. The Commission has received multiple rounds of stakeholder comments, conducted a comparative study quantifying the costs and benefits of participation in different market constructs, held a public comment hearing in July of 2021, and will be deliberating on the implication of market participation in November of 2021. The Commission has been weighing the benefits of markets for enhancing renewable integration, reducing curtailment of wind and solar generation, and reducing the operating cost of the generation system while maintaining resource adequacy, efficiently allocating scarce transmission interconnection capacity, accounting for GHG emission "leakage" when trading energy, and maintaining appropriate Commission authority over planning processes.

The PUC also has a very important role to play in reducing emissions from the buildings sector. In 2021, the legislature adopted three bills focused on the role of both electric and gas utilities: SB 21-246, which requires electric utilities to develop beneficial electrification plans which include all cost effective electrification, including the social cost of carbon and methane emissions in the cost test; HB 21-1238 requires gas distribution utilities to expand demand side management programs to include all cost effective measures, including the social cost of methane and carbon in the costs tests, and SB21-264 requires gas distribution utilities to develop Clean Heat Plans, which will achieve emissions reductions of 4 percent below 2015 levels by 2025 and 22 percent by 2030. For all covered gas utilities except the Colorado Springs municipal utility, the PUC will be responsible for both the rulemaking to implement this legislation and the evaluation of individual utility filings, and has begun the process of developing the initial rules.

In support of these gas utility regulatory efforts, the PUC opened Proceeding No. 21M-0395G, to begin the rulemaking process by collecting comments from utilities and interested stakeholders regarding gas utility short and long-term planning. The proceeding also requires "that Colorado gas utilities develop and submit in this Proceeding several projections related to system expenditures, rates, GHG emissions, and data gaps so that the Commission and participating stakeholders can more fully comprehend the potential impact of the Commission's rulemaking efforts."

In addition to these efforts, the PUC has pursued a number of other initiatives to support the state's carbon reduction goals. These efforts include rolling out Time-of-Use rates for all residential customers to reduce renewable energy curtailment and increase the efficiency of the electric grid, implementing distribution system planning rules to support distributed generation and non-wires alternatives, investigating the potential for alternative and more aggressive demand side management and demand response programs, and evaluating various Performance Incentive Mechanisms for TEPs and ERPs, among other things, to reward the utilities for proactive, early, or deeper emission reduction activities.

Legislative Recommendations

As reflected in the 2021 Colorado GHG Inventory Report and the GHG Roadmap, which are based on Colorado specific data, the state is making great strides in reducing emissions and there is a technically feasible and cost effective path to meet the GHG reduction goals set forth in HB19-1261. The vast majority of items in the near term action plan have been addressed by regulation or legislation, or are currently in regulatory or PUC processes. While more work needs to be done at the Commission, the Division and other state agencies over the next few years and the remainder of the decade in order to meet the 2025 and 2030 goals, with the passage of legislation in 2019, 2020, and 2021 the Commission and Division have been given additional authorities in order to accomplish these goals. There are two areas that we have identified as needing additional statutory authority at this time.

One important area that needs action is the ability to adopt minimum requirements for advanced energy codes, to ensure that the energy elements of local building codes are aligned with the state's GHG emission reduction goals. This was highlighted in the near term action plan of the GHG Roadmap. Current legislation only requires that, when a local government updates its building codes it must incorporate an energy code that is at least as strong as one of the last three versions of the International Energy Conservation Code. We recommend legislation that will both set immediate stronger standards and that will create a rulemaking process at the Commission to set future requirements aligned with our emission goals. We recommend that this be informed by an inclusive taskforce process managed by the Colorado Energy Office, modeled after the building performance taskforce established by HB 21-1286.

Another area highlighted in the GHG Roadmap is the importance of action on land use. Local land use decisions have a significant impact on transportation choices, including a very significant impact on the level of vehicle miles travelled and associated emissions. The Roadmap recommends state action to incentivize local land use decisions. As one important step in this direction, we support the creation of a new Strong Communities Program, designed to invest state funds in infrastructure improvements to support infill housing development, with grant criteria that encourage cities to take action to remove barriers to infill housing, such as relaxing or removing occupancy limits, encouraging accessory dwelling units, removing minimum parking requirements, upzoning near transit and near job centers, and allowing duplexes, triplexes and fourplexes in residential zoning districts. The Governor's budget proposal includes \$128 million for this purpose, and we recommend that this move forward. This would build on initial efforts established by HB 21-1271.

Another important arena is state investment to accelerate both air quality improvements and reduction in GHG pollution. Governor Polis has proposed \$424 million in an air quality improvement package, as well as the funding for the housing investments described above. The largest proposed investments are in transportation, reflecting the fact that vehicles are the largest source of nitrogen oxides in the Front

Range (a key contributor to our ozone pollution problem) and the largest single source of GHG pollution in the state. The proposed investments are:

- **\$150 million for electric school buses:** This would be spent over six years to get halfway to an all electric school bus fleet.
- **\$28 million to partner with transit agencies in the Front Range to offer free transit service during the high ozone season:** Free fares will encourage more people to reduce driving and switch to public transit, reducing both criteria pollutants and GHG emissions.
- **\$15 million for cleaner trucks:** While the state is largely focused on moving to zero emissions trucks, fueled by electric batteries or hydrogen fuel cells, the dirtiest trucks on the road today are decades old diesel trucks built before current EPA standards. This money will be used to help get 500 of the dirtiest trucks off the highways and replaced with vehicles that meet current pollution standards, which will have significant benefits for NOx, particulates and GHG emissions.
- **\$12 million for electric bicycle rebates and programs:** eBikes are an important option for many types of daily travel- getting to work, taking the kids to school, doing the grocery shopping—for many people they can replace almost all local car trips. This program will help get 12,000 more eBikes on our roads and paths—eliminating millions of unnecessary car trips and the associated pollution.
- **\$40 million for multimodal streets and transit:** CDOT’s [Safer Main Streets](#) and [Revitalizing Main Streets](#) programs have revolutionized the department’s partnerships with cities and towns across Colorado with respect to the use of urban roadway space for active transportation, economic activity, community and recreation. This funding will build on the success of the Main Street programs to jumpstart a comprehensive focus on establishing better multimodal access along state highways in urban areas and will aim to augment transit service as quickly as practicable. The idea is to have a near term impact rather than the typically very long timelines it can take to expand service.

The budget includes four elements focused on reducing air pollution and GHG emissions from industry. Industrial emissions in general, and oil and gas emissions in particular, are each in the top five sources of GHG pollution in the state. The proposed investment builds on regulatory programs to achieve additional cuts in pollution.

- **\$50 million for clean air grants:** These grants will focus on spurring near-term investment by industrial sources of pollution to make improvements that will reduce emissions of harmful air pollutants including air toxics, particulates, ozone precursors and GHGs. These will complement the new regulatory requirements for industry that were created by HB 21-1266 and spur early action and deeper emissions reductions. Funds will be available to cover a portion of the cost of energy efficiency, renewable energy, electrification, transportation electrification, hydrogen and carbon capture projects at industrial facilities as well as sustainable aviation fuel and methane capture projects.
- **\$52.1 million for air quality transformation at CDPHE:** This will be a large investment in expanding staffing to significantly increase capacity for regulation and enforcement actions, both on criteria pollutants and GHG emissions.
- **\$4.4 million for greening the cannabis industry:** While the cannabis industry has been an economic boon to Colorado, indoor cannabis cultivation is very energy intensive. The proposed program would focus on carbon emission, energy and water reductions for the industry through a robust program of assessments, program support, tools and financing, providing eligible cannabis cultivation businesses with technical resource use and renewable energy assessments,

resource management consulting and project implementation support, access to resource benchmarking tools and guidance on tool use, and access to project grant funding and financing.

- **\$7 million for aerial and ground based monitoring of oil and gas pollution:** Better monitoring data will be important for effectively achieving the pollution reductions required by statute.

There are three proposals in the budget to address building emissions.

- **\$200,000 for moving forward on advanced energy codes:** As part of the proposal to move towards advanced energy codes across the state, this funding would go to support an inclusive task force process to develop the framework for future codes.
- **\$25 million for energy improvements in affordable housing:** As the state makes historic investments to expand affordable housing, it is critical that this housing is built to high energy standards that align with the need to reduce pollution, support healthy indoor air quality and reduce long term costs for residential energy bills. This investment will support energy efficiency, efficient electric heat pumps, and renewable energy like rooftop solar for new and existing affordable housing.
- **\$25 million for clean air equity building investments:** This will be done through incentives added to existing finance programs, incentives for schools and local governments to incorporate heat pumps in energy performance contracts, and support for local government/utility partnerships for neighborhood scale electrification pilots. The idea is to develop the experience with incorporating high efficiency electric heat pumps into construction projects, and to develop the most cost effective approaches to building electrification.

The Colorado Air Quality Control Commission discussed a draft of this report at its November 18, 2021 meeting. Commissioners support the use of additional investments in tandem with regulatory programs. Some commissioners indicated that in addition to supporting the investments proposed, if additional funding becomes available, those commissioners would encourage additional investments in transportation, specifically free transit fares during the ozone season, as well as land use, specifically the Strong Communities program.