Colorado Greenhouse Gas Pollution Reduction Roadmap

January 2021

Climate Change Impacts in Colorado

Reduced snowpack & warmer streams

Drier soil & thirsty crops

Poorer air quality

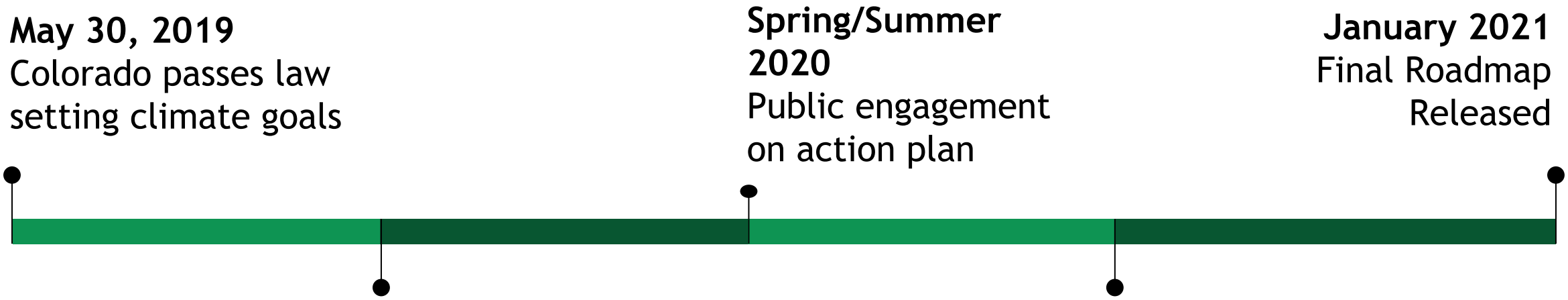
Increased wildfire risk

More intense and frequent floods

Major Components of Colorado's Climate Legislation

- Establish greenhouse gas inventory with 2005 baseline
- GHG emissions reductions targets: 26% by 2025, 50% by 2030, and 90% by 2050
- Develop rules and policies to reduce GHG emissions
- Regulatory path for electric utilities to meet 80% GHG reduction by 2030 through PUC
- Track and report annually through CO Department of Public Health and Environment

Colorado GHG Roadmap Timeline



Public Engagement

2

Public Listening Sessions

600

Approximate community members

+2,200

Letters and Emails

+50

Small group meetings held

Colorado's Climate Equity Framework

- Identify most-impacted communities
- Provide meaningful engagement opportunities for impacted communities on greenhouse gas (GHG) reduction policies
- Shape climate policies to reduce burdens to and increase benefits for most impacted communities
- Make it easier to participate in the policy process

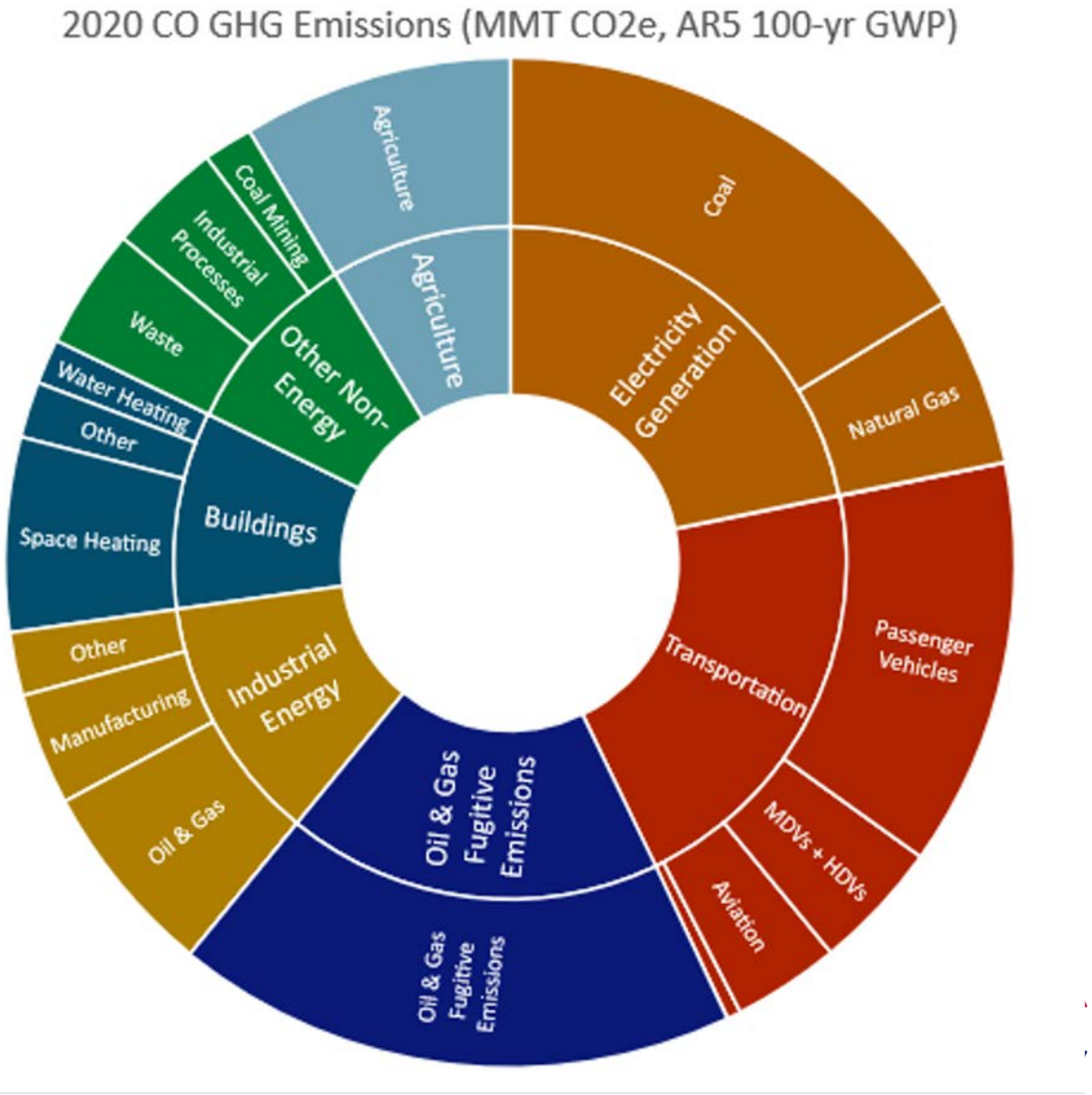
Largest GHG Emissions Sources

2005 Largest Emission Source:

1. Electric power
2. Transportation
3. Oil & Gas
4. Buildings

2020 Largest Emissions Sources

1. Transportation
2. Electric power
3. Oil & Gas
4. Buildings

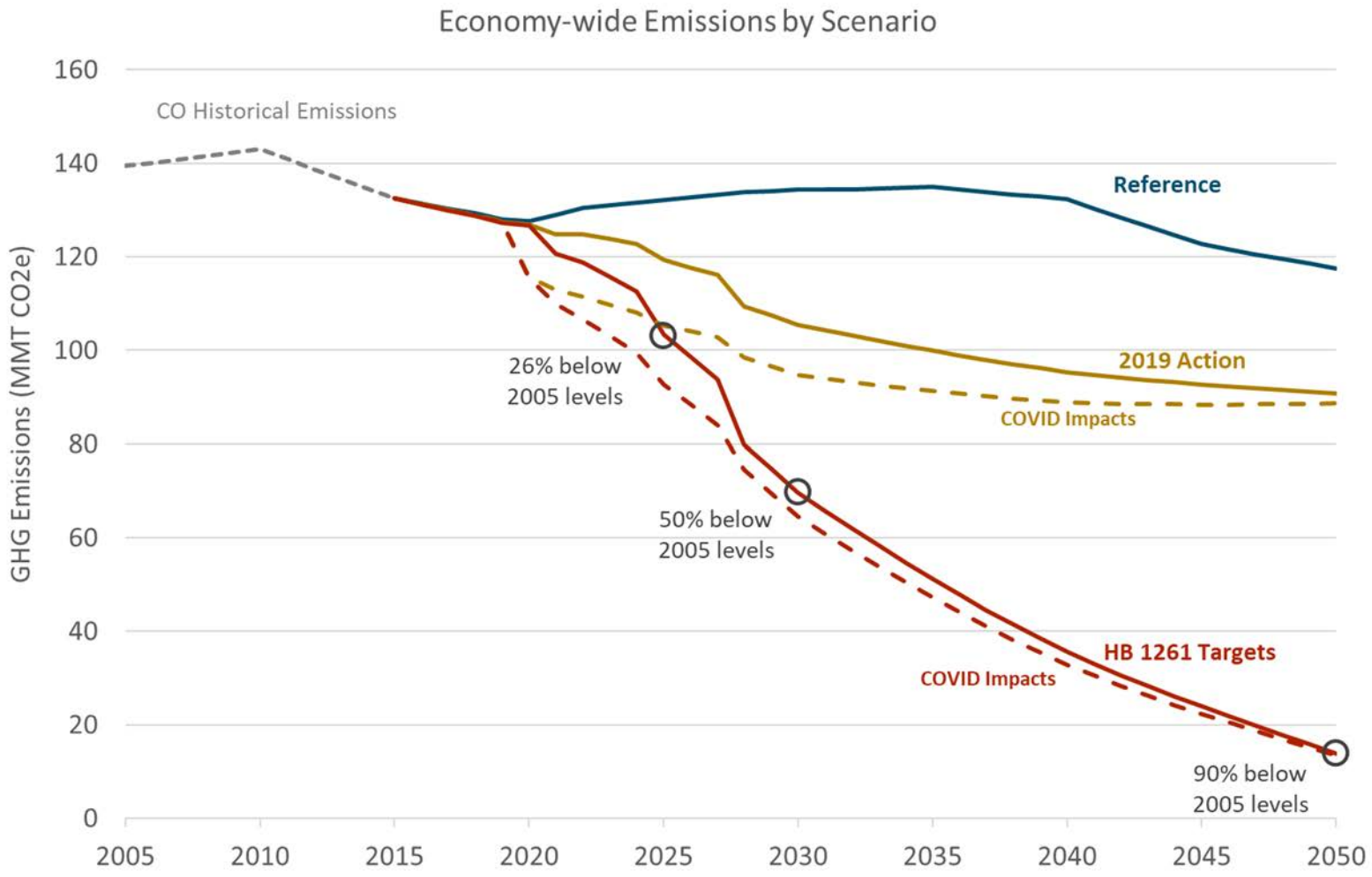


Colorado GHG Pollution Over Time

SIGNIFICANT PROGRESS UNDERWAY & MORE ACTION NECESSARY

- As a result of the state's actions to date, ***we are on a trajectory to achieving approximately half*** the level of emission reductions to meet the 2025 and 2030 goals.

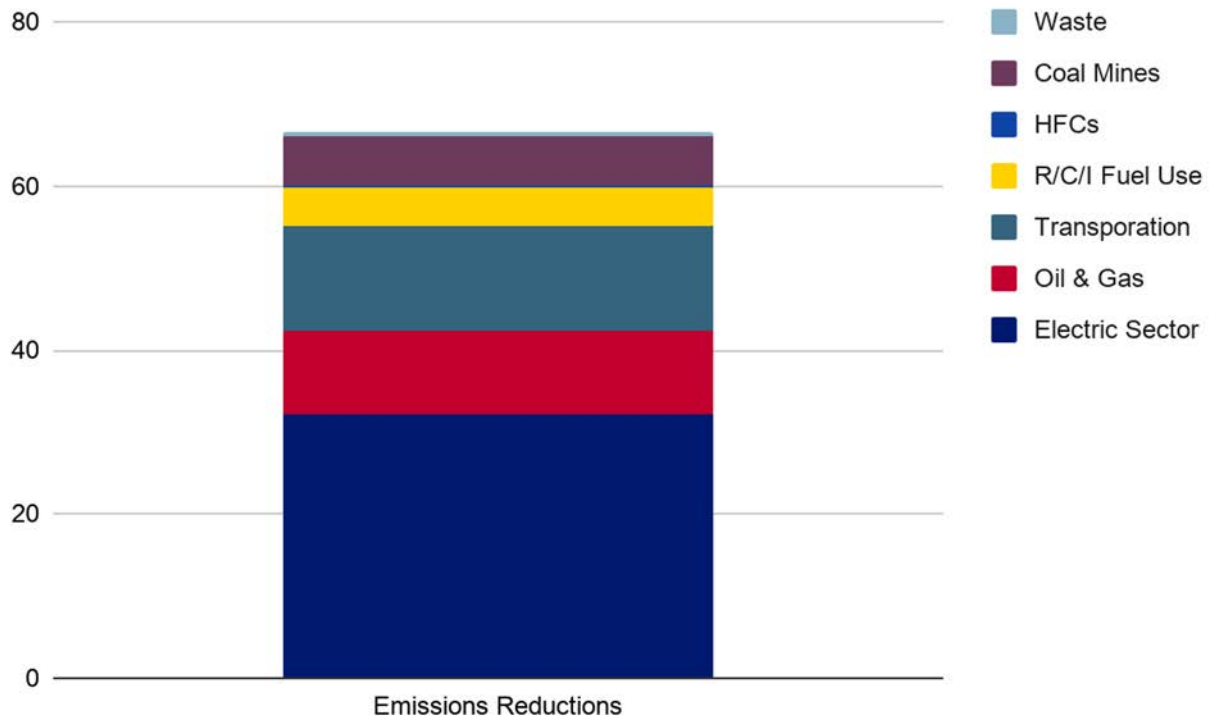
- ***Additional strategies can advance co-benefits*** such as reducing local air pollution, generating economic growth, advancing environmental justice and equity.



Key Findings through 2030

ACHIEVING THE GOALS WILL RELY ON:

- Continuing the swift transition away from coal and towards renewables
- Achieving deep reductions in methane emissions from the oil and gas industry
- Accelerating the transition to electric cars, trucks and buses
- Changing transportation planning and infrastructure to reduce driving
- Increasing building efficiency and electrification
- Reducing methane emissions from landfills,waste water, and agriculture



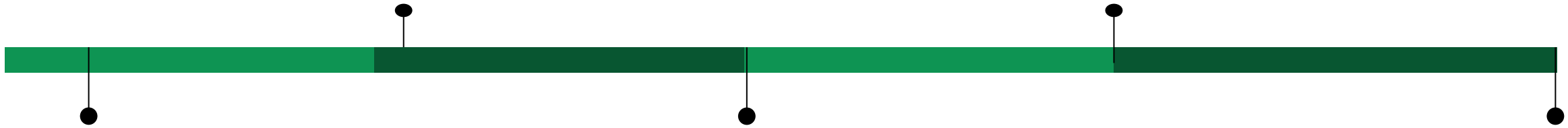
Near Term Action Highlights

Spring 2021

- Legislation: transportation, buildings, gas utilities, clean energy finance
- Xcel Clean Energy Plan & Electric Resource Plan
- Black Hills Transportation Electrification Plan
- CCUS task force convened

Fall 2021

- CDPHE emission reduction progress evaluation
- Natural and Working Lands Pathways analysis complete
- Electric Vehicle Equity Plan complete



Fall/Winter 2020

- Tri-State Electric Resource Plan
- Xcel Transportation Electrification Plan
- Regional Haze Rules/Ozone Plan
- CO Oil and Gas Commission Mission Change Rules finalized
- Just Transition Plan Completed
- Climate Equity Framework Completed

Summer 2021

- Xcel Renewable Energy Plan
- Black Hills Renewable Energy & Energy Efficiency Plan
- GHG standards for transportation plans & trip reduction plans
- Industrial emissions audit rules
- Clean trucking technical analysis complete
- Stakeholder process/study on how to incentivize improved land use decisions

Winter 2021

- Oil and gas emissions reduction rules
- AQCC structure and buildings rules
- Draft Natural and Working Lands Strategic Plan complete

Colorado Sector Based Emissions Targets

Sector	Revised 2005 Baseline (MMT CO2e)	2025 Target (MMT CO2e)	2030 Target (MMT CO2e)
Electricity	40.28	21	8
Oil and Gas	20.17	13	8
Transportation	30.71	23	18
Residential, Commercial, Industrial Energy Use	24.65	26	20
Other	23.42	19.9	15.6
Total	139.22	102.9	69.6
Percent Reduction	--	26%	50%

Near Term Actions: Electric Sector

Reduces pollution by ~32+ million tons by 2030

- Adopt Clean Energy Plans and Electric Resources Plans, including modeling plans using the full social cost of carbon emissions and evaluating additional tools e.g. securitization
- Incorporate coal plant retirements from utility commitments and adopted utility plans into AQCC Regional Haze rulemakings
- Evaluate mechanisms such as performance based regulation and other tools to create incentives for deeper emissions reductions and serving beneficial electrification loads with zero carbon generation
- Reduce methane emissions from coal mines through continued reductions in coal extraction and utility biogas incentives.

Clean Energy Progress in Colorado

Xcel Energy

- Reduce GHG 80% by 2030 from 2005 levels
- Retire Hayden 1 by 2027 and Hayden 2 by 2028 without layoffs
- Filing a Clean Energy Plan

Holy Cross Energy

- 100% carbon free electricity by 2030
- Filing a Clean Energy Plan
- 100 MW new wind
- 35 MW new solar
- 25 Mw solar + storage
- 5 MW additional hydro

Black Hills Electric

- Reduce GHG 80% by 2030 from 2005 levels
- 70% emission reduction by 2023 with 200 MW solar project.
- Filing a Clean Energy Plan

Colorado Springs Utilities

- Reduce GHG 80% by 2030 from 2005 levels
- 32% renewable energy by 2030
- Close Drake coal plant by 2023 and close Ray Nixon coal plant by 2030.
- 200 MW new wind
- 175 MW new solar
- 167 MW battery storage.
- Filing a Clean Energy Plan

Platte River Power Authority

- Reduce GHG 90% by 2030 levels
- Close Rawhide coal plant by 2030
- Add 400 MW of renewable generation.
- Filing a Clean Energy Plan

Tri-State G&T

- Reduce GHG emissions associated with wholesale sales 80% by 2030 from 2005 levels; reduce in-state emissions 90% by 2030.
- Close all coal-fired power plants and coal mines in Colorado by 2030.
- Preferred plan adds 900 MW of wind, 900 MW of solar, 200 MW of battery storage

The 6 utilities that operate 99% of the fossil power plants in Colorado have committed to reduce emissions by at least 80% by 2030.

State will advocate for deepest reductions consistent with reliable, affordable power.

Near Term Actions: Oil & Gas

Reduces pollution by ~12 million tons by 2030

Policies:

- Broad O&G rulemaking on the AQCC long-term calendar for December 2021; stakeholder process has begun
- Emission limits based on reducing leak rates and other regulatory measures to achieve a 33% reduction in emissions for the sector by 2025 and over 50% (12 million tons) by 2030
- Emissions data/metric tracking to assure the sector remains on track
- COGCC implementation of new rules that eliminate routing flaring, requiring minimizing emissions, and track pre-production and production air emissions

Near Term Actions: Res, Comm, Ind Fuel Use

Reduces pollution by ~5 million tons by 2030

Policies:

- Set carbon reduction targets and biogas requirements for gas utilities
- Modernize and expand gas utility energy efficiency programs
- Improve building efficiency through benchmarking, codes and standards
- Require regulated electric utilities to create programs that will support beneficial electrification.
- Expand access to financing programs for building retrofits
- AQCC action on industrial emission audits requirements and Best Available Control Technology requirements, setting the stage for future performance requirements.

Near Term Actions: Transportation

Reduce pollution ~13 million tons by 2030

Policies

- Low and Zero emissions rules - 6 million ton reduction
- Public investment in fleet turnover and infrastructure for zero emission vehicles
- GHG Pollution Standards for transportation plans and large employer trip reduction programs Summer 2021 AQCC rulemaking to set
- Incentivize land use to increase housing near jobs and reduce VMT and pollution
- Clean trucking strategy - infrastructure, fleet incentives, consider regulatory tools such as advanced clean trucks
- Participate in developing post 2025 vehicle standards
- 2022 AQCC evaluation of indirect source rules

Near Term Actions: Natural and Working Lands

*Reduce pollution ~1 million ton by 2030 **

- Develop a comprehensive emissions inventory and NWL strategic plan in concert w/ stakeholders
- Increase producer utilization of Agricultural Energy Efficiency program
- Expand Advancing Colorado's Renewable Energy and Energy Efficiency (ACRE3) program
- Improve soil function and carbon sequestration through regenerative farming practices
- Support voluntary participation in such efforts as Field to Mark, Soil Health Partnership and Precision Agriculture programs

Questions ?