Responses to Community Engagement Feedback

Updated January 2021

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Introduction

In 2019, the Colorado General Assembly passed 14 pieces of climate legislation, including House Bill-1261, the *Climate Action Plan to Reduce Pollution*, which established science-based targets of reducing statewide greenhouse gas pollution 26% by 2025, 50% by 2030, and 90% by 2050 from 2005 levels. To ensure that Colorado continues to reduce emissions to meet greenhouse gas targets, reduce local air pollution, and realize the full economic benefits of the transition to a clean energy economy, Governor Polis directed state agencies to develop this comprehensive Roadmap.

The Roadmap represents the most action oriented, ambitious and substantive planning process that Colorado has ever undertaken on climate leadership, pollution reduction, and a clean energy transition.

The Roadmap lays out an achievable pathway to meet our climate targets and we are moving faster and more comprehensively than ever before. We are already on a trajectory to realize most of the emissions reductions needed to meet the 2025 and 2030 goals, and the Roadmap is our plan to eliminate the remaining gap for the benefit of our climate, the health of our communities and our economy.

Roadmap Purpose, Goals, and Process

Q. What is the goal of the Roadmap?

A. The Roadmap has several goals. The analytic work ensures that Colorado has an updated 2005 baseline for greenhouse gas pollution inventories. The analysis also shows the results of the early actions the state took in 2019 to reduce GHG pollution. Finally, the Roadmap evaluates v pathways to ensure timely progress toward the state's 2025, 2030, and 2050 greenhouse gas reduction goals as established in statute during the 2019 legislative session, and sets out near term action items that the administration will pursue in 2021 and 2022 to make progress towards the 2025 and 2030 goals.

Q. When will the Roadmap be complete?

A. The Roadmap began in December 2019. A public comment draft was released for review in September, 2020 and a final version of the Roadmap was released in January, 2021.

Q. What agencies were involved in building the Roadmap?

A. Several state agencies, including the Colorado Energy Office and the Departments of Public Health and Environment, Agriculture, Natural Resources, and Transportation worked together to develop the Roadmap. The Office of Just Transition, Department of Local Affairs, and Colorado Resiliency Office provided support. Colorado hired Energy + Environmental Economics (E3), a leading national consulting firm, to provide modeling behind the GHG Roadmap. E3 used the PATHWAYS modeling tool, which looks at economy-wide scenarios for emissions based on technologies and energy use, to explore options to meet Colorado pollution reduction targets. In addition, E3 used the RESOLVE model to model cost-effective low carbon electricity generation portfolios for the state.

Q. What was the process Colorado used to construct the Roadmap?

A. The development of the Roadmap started with gathering data to assess the state's 2005 greenhouse gas emissions and help update the baseline emissions inventory for Colorado. In the second phase Colorado worked with E3 to develop three scenarios of economy wide GHG pollution. The **Reference Case** showed Colorado's GHG emissions trajectory assuming only actions taken prior to 2019. The **2019 Action Scenario** evaluated the impacts of utility commitments, legislation, and administrative actions during the first 14 months of the Polis administration (since 2019). This evaluation showed that Colorado is on a path to meeting nearly half of the 2025 and 2030 reduction targets. The analysis also showed that Colorado will need to take additional actions to meet its goals. E3 also developed a **1261 Targets Scenario** that demonstrates one possible pathway that Colorado could take to meet both its near

term and long-term targets. The third phase of the project developed additional administrative, regulatory, legislative, procurement, incentive-based, and other measures to achieve the 2025 and 2030 GHG reduction goals in an equitable and cost-effective way, as well as a framework for achieving the 2050 goals.

Q. What was the community engagement process for developing the Roadmap?

A. Colorado committed to an open, transparent process open to all Colorado communities and sought input from those most impacted by the effects of climate change. Throughout the year-long process, the state received more than 2,000 email messages and held more than 50 group meetings. Input was specifically sought from local governments, environmental groups, organizations that serve communities of color and lower-income residents, as well as leadership and environmental staff from the Ute Mountain Ute and Southern Ute Tribes,The state also held two public listening sessions in English and Spanish, that were attended by roughly 600 Coloradans. Additional comments were received at public Air Quality Control Commission meetings where updates on the Roadmap were presented to the Commission. A more complete description of the process is available from the Roadmap webpage.

Q. Can I comment on the Roadmap?

A. Yes. There are several ways to provide feedback. First, there is a public comment form on the Energy Office website. That form allows you to include attachments. You can also submit comments via email to *climatechange@state.co.us*.

Q. Are Colorado GHG pollution reduction targets in line with the reductions necessary to meet a 1.5^{C} warming target?

A. Colorado's GHG goals were set in HB 19-1261, as reductions below 2005 levels of 26% by 2025, 50% by 2030 and 90% by 2050. The legislative declaration declared that "(c) *we must work together to reduce greenhouse gas pollution in orde to limit the increase in the global average temperature to one and half degrees celsius, which scientists agree would provide a more stable and hospitable climate for current and future generations and mitigate the catastrophic climate impacts in Colorado.*" The trajectory of emissions reductions required to achieve a 1.5C target is highly path dependent, with faster reductions required if initial reductions are delayed. While the Roadmap shows that Colorado's emissions have been declining, emissions at the global level have continued to increase, which means that deeper reductions in global emissions will be required to achieve a 1.5 C trajectory.

Q. How do E3's scenarios compare to GHG reductions from specific policies proposed by the state agencies?

A. E3's analysis takes an economy-wide, sector-based approach to estimating pollution reductions. While that analysis shows what savings may be achieved, it does not include a detailed policy design or assessment of savings based on the implementation of a particular policy design. The state agencies have developed and are discussing with AQCC ranges of emissions reductions from potential policies and actions that may be implemented and integrating this analysis into the Roadmap.

Q. What is assumed about the impacts of COVID-19?

A. This process began prior to the COVID-19 outbreak. Therefore, E3's initial modeling was developed based on pre-COVID assumptions. Based on feedback from stakeholder groups, the state asked E3 to run sensitivities of the 2019 Action Scenario and HB 1261 Target Scenario that evaluate potential impacts of changes resulting from the COVID-19 pandemic on population growth, vehicle-miles traveled, and oil and gas emissions, which are three significant drivers of GHG emissions in the model. This showed further reduction in GHG pollution in Colorado over the short term. The Roadmap does not assume or rely on the effects of the COVID-19 economic crisis in 2025 or 2030 for policy planning, but will continue to evaluate the impacts on actual emission trajectories over time.

Q. How is the State thinking about COVID recovery in the context of clean energy and GHG emissions reductions?

A. In May, Governor Polis sent a letter to the Colorado congressional delegation that advocated for federal recovery investments that focus on growing the clean energy and clean transportation economy as a strategy to ensure economic recovery and reduced pollution. The letter called for extending tax credits for renewable energy; increasing tax credits for geothermal energy in order to both expand zero clean energy and provide job opportunities; significant investments in energy efficiency and low income weatherization,and significant investments to support the transition to electric vehicles and to low and zero emissions trucks and buses. Because the clean energy economy was one of the fastest growing sectors in the state pre-COVID and will be a key driver in the State's economic recovery and growth moving forward, the State is planning to target economic recovery efforts towards clean energy development and GHG mitigation activities where possible.

Q. What is the state assuming about reductions in methane from oil and gas activities? And/or how will the state achieve reductions in leak rates in oil and gas activities?

A: E3 modeled a very conservative representation of SB 181 to reflect significant reductions in leak rates from both upstream and downstream oil and gas activities within the state. However, APCD believes that deeper reductions are possible and necessary to achieve HB 19-1261 targets and ozone standards. The administration is pursuing a

rulemaking to reduce emissions by over 50% below 2005 levels by 2030, which is projected to result in a 12 million ton reduction in annual emissions of CO2e.

Colorado's Climate Equity Framework and the Roadmap

Q: **What is the state doing to ensure that climate policies and programs do not worsen disparities already experienced by many Black, Indigenous, and communities of color, as well as lower-income residents?**

A: Climate action has the potential to perpetuate inequities or to actively promote racial and economic justice. In order to promote justice and equity, policies and programs must not only rapidly address the climate crisis, they also need to be developed with equity in mind and with robust community input throughout the process. Solutions that reduce greenhouse gas emissions are rarely one-size-fits-all. In order to be equitable and effective, they must be shaped by the diverse needs and priorities of community members. The Climate Equity Principles included in the Roadmap, along with best practices provided in the Climate Equity Framework will help ensure that state climate action is not only boldinput and effective but that it is equitable.

Q: **What kinds of disproportionate impacts does climate change have on many communities of color and lower-income individuals?**

A: Climate change is a threat multiplier, meaning it can worsen circumstances for people who are already burdened by health, social, economic, or environmental harms. Potential health threats from climate change, such as extremely hot days and poor air quality from wildfire smoke affects communities of color, lower-income populations, and those with fewer economic resources more than other Coloradans. Economic impacts from climate change, such as rising food and other household costs, higher unemployment rates, costs from restoring property after natural disasters, or the loss of revenue from things like agriculture or tourism can spell catastrophe for families already struggling to pay the bills. Finally, people impacted by systemic racism and classism have historically been denied the power to influence the systems and policies that affect their own communities. Any policies and programs created without consideration for these and other disproportionate impacts may exacerbate these disparities. This is why racial equity and economic justice must be central to the state's response to climate change.

Modeling Assumption and Data Availability

Q. What assumptions did the state make about coal plant retirement?

A. For regulated utilities, the Roadmap uses coal plant retirement dates that have been approved by the Public Utilities Commission. For other utilities, including Tri-State, municipal utilities or rural cooperatives, the Roadmap uses publicly announced retirement dates. Throughout the process we have updated the assumed retirement dates to reflect the most recent information.

Q. What assumptions did the state make about oil and gas emissions for 2005?

A. To assess emissions from the oil and gas sector in 2005 the state used a combination of state-level inventory data, production data, engineering design analyses, oil sampling analyses, and methane fluxes derived from top-down flyover studies conducted in Colorado and elsewhere.

Q. Is the Roadmap using AR-4 or AR-5 global warming potential and what value will the state use to track and report emissions?

A. The state of Colorado is committed to using the latest science to inform statewide GHG planning and policy development. The global warming potentials (GWP) for GHGs set forth in the United Nations Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report, the most current available, are being used for the GHG Pollution Roadmap and are included for reference in the Draft 2021 Colorado GHG Inventory report. The draft inventory report can be accessed at: https://cdphe.colorado.gov/public-information/air-pollution-control-division-public-comment

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Colorado's GHG reporting rule uses the EPA electronic Greenhouse Gas Reporting tool, known as e-GGRT, for most reporting. This approach allows those currently reporting to EPA through e-GGRT to easily report to APCD in the same format. Sources not required to report to the EPA will also be able to use the tool for reporting directly to the state. While e-GGRT is based upon the GWP values in the IPCC Fourth Assessment Report, the tons of each specific GHG pollutant are also reported and will be available. This allows the application of GWPs from different assessments and time horizons. The data will be shared through a publically available portal, allowing local governments, environmental organizations, and the public the ability to apply and compare the most up-to-date GWP and different time-horizons that may be appropriate for different policy evaluations.

It is necessary to continue using the AR-4, 100-year time horizon GWP values for the Colorado GHG Inventory to be consistent with historical inventories as well as current Federal and International protocols . The 20-year time horizon may be applied to certain policy scenarios, where deemed appropriate.

Q. **Will the data used to develop the Roadmap be accessible to the public?**

A. Yes. E3 will provide model input data to the state in spreadsheets and also will provide the PATHWAYS and RESOLVE models. The state has made preliminary economy-wide and electricity model inputs and assumptions available for download from the Roadmap webpage and will make the final data spreadsheets available to the public after the final report is completed. The PATHWAYS model will require free download of

the LEAP software to view the model. RESOLVE as an E3 tool will not require any license and has an Excel scenario tool and results viewer.

Transportation

Q. What assumption is Colorado making about the adoption of electric vehicles through 2030?

A. The 2019 action scenario assumes that the state achieves goals set in the Colorado Electric Vehicle Plan of 940,000 light duty electric vehicles on the road by 2030. This is broadly consistent with EV adoption modeling that was conducted for the Colorado Energy Office during the rulemaking proceedings for adoption of the Zero Emission Vehicle standard in 2019. For the near term policy evaluation, the state has also considered a scenario in which EV adoption by 2030 would be lower than these projections, at the minimum level required by the state zero emissions vehicle rule, and additional policies required to achieve the 940,000 target.

Q. What is the state doing to get people out of their cars and to support and encourage microbility including bikes and scooters?

A. The state of Colorado works closely with local transportation management associations to promote active transportation, including micromobility. CDOT currently provides a significant amount of funding for multimodal transportation, including transit, bike and pedestrian infrastructure. CDOT is also developing a micromobility guide to help inform local governments for best practices to promote safe use of micromobility options. CEO has begun a pilot eBike program, in cooperation with Bicycle Colorado, to support eBike adoption by low income workers.

Q. How can the state encourage cities to reduce Vehicle Miles Travelled (VMT) and transportation emissions by allowing compact neighborhoods and efficient land use?

A. Land-use planning decisions made at a local and regional level have a direct impact on VMT. Designing and building communities that allow for and encourage the use of biking, walking, transit, and other low-carbon modes of transportation will decrease VMT and emissions and avoid situations where limited state transportation dollars are used to address the problems that arise from sprawl. The state can incentivize cities to make climate-informed land use decisions by factoring VMT and emissions impacts into selection criteria for transportation projects and by directing limited state transportation dollars to projects that are in alignment with state GHG goals.

Q. Is there a plan to adopt zero-emission school buses?

A. The 2020 Colorado EV Plan directs state agencies to work with the Regional Air Quality Council to develop strategies to support adoption of

zero emission school buses. In addition, the state has allocated funding from the VW settlement to support transition to zero emission transit buses and school buses. Approximately $30 million is allocated for transit buses and $21.5 million for trucks, shuttles and school buses. The Public Utility Commission recently approved Xcel Energy's first Transportation Electrification Plan, which includes investment to support electric school buses.

Q. How does the passage of HB 1261 impact how CDOT is thinking about multimodal transportation, and trains, in particular?

A. Reducing VMT is a critical element of addressing greenhouse gas pollution from the transportation sector. CDOT is committed to provide multimodal options that reduce congestion, improve air quality, and reduce greenhouse pollution. This includes regular commuter Bustang service along I-25 and I-70 (as well as rural routes on Bustang Outrider), and a significant investment in mobility hubs along both major corridors. These mobility hubs will provide transit connections between Bustang and local services, as well as parking, bike, and pedestrian options, dependent on local context. CDOT is also working with the Southwest Chief and Front Range Rail Commission on developing a plan for Front Range Passenger Rail, which could help alleviate traffic and make some progress on the goals laid out in HB 1261, should funding be identified.

Q. How can telecommuting play a role in transportation GHG pollution reduction goals?

A. In response to the COVID-19 pandemic, many Coloradans were able to successfully shift to much higher levels of telecommuting, which has contributed to reductions in vehicle miles traveled (VMT). A specialized focus on making teleworking more permanent will be essential in promoting a longer-term shift towards alternatives to driving. This must be a concerted effort to support and encourage employees, employers, and local communities in reshaping the work commute. One strategy the state will pursue is a trip reduction requirement for large employers, which would require employers over a size threshold to develop transportation demand management (TDM) programs for their employees, which could encompass a range of driving alternatives including strategies like telecommuting.

Public Utilities and Coal-Plant Retirements

Q. What role can gas utilities (LDCs) play in meeting the state's GHG pollution reduction goals?

A. Reaching the long-term GHG targets will require significant reductions across all sectors of Colorado's economy. In the near term, the state is working with utilities and other stakeholders to develop policies that will reduce the carbon intensity of gas, including exploring the potential for

developing requirements for the use of biomethane that is derived from non-fossil sources and can be combined with traditional natural gas to reduce the overall GHG content; expanding the role of gas utilities in supporting energy efficiency improvements for homes, businesses and industry; and supporting electrification of buildings, such as the use of electric heat pump water heaters. The administration will pursue carbon reduction targets for gas utilities, analogous to the structure that was established for electric utilities by SB 19-236.

Q. Will Clean Energy Plans lay out a trajectory that leads to carbon free energy?

A. Yes. Clean Energy Plans play a key role in helping Colorado meet its GHG targets. Under Senate Bill 19-236, Xcel Energy is required to file a Clean Energy Plan that meets a carbon emissions reduction target of 80% below 2005 levels by 2030. Under the same law, other utilities in the state can file a Clean Energy Plan that, if approved, would provide a safe harbor from additional regulation of pre 2030 GHG emissions by the Air Quality Control Commission. These plans will jump-start the effort toward a carbon free electricity sector and provide an opportunity to reduce GHG emissions in the transportation and building sectors by shifting from carbon-based energy to lower and eventually zero-carbon electricity. Prior to the release of the Roadmap, six utilities that operate 99% of the state fossil generation committed to plans that meet or exceed the 80% emissions reduction by 2030. In addition to Xcel these include: Colorado Spring Utility (80% reduction by 2030), Platte River Power Authority (90% reduction by 2030), Tri-State Generation and Transmission (80% reduction by 2030), Black Hills Electric (80% reduction by 2030), and Holy Cross Energy (100% clean energy by 2030).

Oil and Gas

Q. What kind of enforceable measures will the state put on the oil and gas industry to monitor and reduce emissions from oil and gas extraction? Especially in regards to orphaned wells?

A. The Air Quality Control Commission approved rules this September to require monitoring at all new wells, which are the first step to more comprehensive monitoring of existing wells. CDPHE and AQCC are also working on further rulemakings to minimize emissions from the oil and gas sector, including a major rulemaking scheduled for late 2021 to achieve a greater than 50 percent reduction in greenhouse gas emissions. Earlier this year, the Legislature and Governor approved additional funding for the Air Pollution Control Division and a new Colorado Air Quality Enterprise to conduct their own monitoring and long range sensing efforts to detect and address emissions from existing wells, pipelines\, abandoned wells and other sources. This includes ground, aerial and satellite tools. Complimentary to the AQCC's actions,

the Colorado Oil and Gas Conservation Commission adopted rules that require operators to prevent venting and that will eliminate routine flaring by 2022. Further, the Colorado Oil and Gas Conservation Commission has stepped up efforts to plug and abandon orphaned wells, with leaks as a priority for capping activity.

Q. Why is the state allowing so many fracking sites to continue their production of oil and gas with the knowledge (scientific and medical) that it is injurious to citizens health and welfare and destructive to our environment (including excessive use of our water supplies)?

A. The State is implementing SB 19-181 to prioritize protection of the environment, public health and safety, wildlife and public welfare. The Colorado Oil and Gas Conservation Commission is in the process of passing more protective rules, including provisions to increase setbacks from residential, schools, hospitals, and other buildings and outdoor areas where people spend their time. In the Rulemaking, the Commission is also considering numerous technical standards to better track and reduce emissions of hazardous air pollutants that may be harmful to public health. In the meantime, it has used objective criteria to further review or delay permits for proposed sites in close proximity to residences, that request to flare, or that are otherwise not sufficiently protective of public health. The number of permits approved has decreased. At the same time, the Air Quality Control Commission is in the midst of rulemakings to minimize air emissions from this sector, with two rulemakings planned in 2021 to continue to minimize emissions.

In the same rulemaking to implement Senate Bill 19-181's changes to the Colorado Oil and Gas Conservation Commission's mission and statutory authority, the Commission is also considering adopting rules that will both facilitate better data gathering and transparency about the total amount of water used in oil and gas operations, and numerous rules that incentivize oil and gas companies to reuse and recycle produced water, rather than using fresh water supplies in their operations.

Q. Will the state consider developing a plan to phase out new oil and gas permitting in the next decade to help meet our climate goals?

A. The state has proposed a plan and trajectory to greatly reduce emissions from oil and gas operations over the next decade to help meet the state's greenhouse gas reduction targets. It has also proposed a robust plan to reduce consumption of oil and gas in the state through efforts such as extending the benefit of cleaner, cheaper sources of electricity across the economy, particularly through electrification of cars, trucks and buses. Because greenhouse gases are global pollutants, efforts to reduce demand for gasoline, diesel and natural gas are essential to meeting climate goals.

Natural and Working Lands

Q. Q: How are you integrating with Colorado's and local Natural Resources Management Plans?

A. Colorado's natural and working lands - including our forests, grasslands, croplands, rangelands, wetlands, riparian areas and urban greenspace - are both sources of GHG pollution (e.g. fires) and can serve as critical carbon sinks. The State has established an interagency Task Force to advance natural climate solutions that aim to reduce emissions from natural and working lands and protect their ability to sequester carbon.

Recently, State staff became aware of inadequacies in the federal tools we historically used to quantify emissions in this sector. Therefore, the State Task Force is currently focused on improving inventory methods for land-based carbon emissions and identifying opportunities to reduce GHG pollution. This work will allow us to monitor and verify emissions reductions from improved natural resource management.

Natural climate solutions are a critical tool for achieving our statewide climate goals, and this work presents a unique opportunity to not only reduce emissions but also generate ecosystem benefits and sustain working farms, forests and ranches.

Q. Why are forests, grasslands, and wetlands currently not quantified in Colorado's Greenhouse Gas Emissions Roadmap analysis?

A. Colorado's existing Greenhouse Gas Emissions Inventory relies on the U.S. Environmental Protection Agency's State Inventory Tool (SIT). Components of the SIT's Land Use, Land Use Change, and Forestry (LULUCF) tool rely on older data that does not align with the annual metrics summarized for other sectors . The current SIT tool also provides an incomplete estimate of the annual carbon sequestration potential of Colorado's forests, grasslands, and wetlands, and therefore was not included in Colorado's Greenhouse Gas Reduction Roadmap.

Q. Are there plans to improve state-level data on the carbon sequestration potential of Colorado's croplands, forests, grasslands and wetlands?

A. In August 2018 Colorado signed onto the U.S. Climate Alliance's Natural and Working Lands Challenge, which represents a commitment to enhancing greenhouse gas inventories for NWLs at the state level and developing programs and policies to protect and enhance resilient carbon sequestration. As a result, the Colorado Department of Natural Resources and Colorado Department of Agriculture formed an interagency Natural and Working Lands Climate Taskforce, partnering with The Nature Conservancy to provide technical expertise. In March 2020 The Nature Conservancy and state partners successfully secured a Technical Assistance Grant from the U.S. Climate Alliance to quantify

and map terrestrial carbon on NWLs in Colorado and New Mexico. By late 2021, this assessment aims to provide detailed information on NWL carbon sequestration as well as potential policies to protect and enhance our carbon sinks.

Q. What does the Colorado Department of Agriculture (CDA) offer to farmers and ranchers in the form of incentives or technical assistance for reducing and or mitigating carbon emissions?

A. ACRE3 Program (Advancing Colorado's Renewable Energy and Energy Efficiency) The ACRE3 program promotes the development and implementation of renewable energy and energy efficiency projects for Colorado's agricultural producers and processors. As Colorado's principal source of state-level support for agricultural energy management, the ACRE3 program provides financial and technical assistance and education to help agricultural producers and processors cut energy costs, develop their own energy resources, and create markets for agriculturally-derived energy and fuels.

CDA is currently developing a Colorado Soil Health Program (CSHP), a voluntary, incentive-based program to help farmers and ranchers build drought resilience, reduce GHG emissions, improve water and air quality, sequester carbon, and reduce erosion through cost-effective and sensible soil management practices. CDA will support producers in farmer and rancher-led soil health practices.

Policy Implementation and Next Steps

Q. What approach is the state taking to reduce GHG emissions?

A. The Roadmap analysis shows that there are four leading sectors of emissions**: transportation, electricity generation, buildings, and oil and gas development,** and that reducing pollution from these sectors will be key to achieving the 2025 and 2030 targets. The state has been actively working in these areas, through steps such as adoption of zero emission vehicle standards, new regulations on oil and gas emissions pursuant to SB 181, and actively working with utilities to support retirement of coal plants and replacement with wind, solar and storage. The state is taking a sector-by sector approach to reducing pollution. For example, Roadmap near term action plan includes approaches to reduce emissions from the transportation sector including GHG pollution standards for transportation plans, vehicle electrification, a clean trucking strategy, policies to reduce vehicle miles travelled, incentivizing smart land use decisions focused on minimizing GHG pollution, and investment to fund climate friendly transportation; a suite of policies on building efficiency, beneficial electrification and reducing the carbon intensity of natural gas; additional rulemakings to significantly reduce methane pollution from oil and gas drilling; and

policies to reduce methane pollution from landfills, sewage treatment plants and other sources.

While the primary focus of the Roadmap is on achieving the 2025 and 2030 goals, the E3 modeling also finds that achieving the 2050 goals will require deep emissions reductions from virtually every sector. Developing the policies and strategies to achieve these will be an iterative process, building upon the near term action items.

Q. Do you anticipate additional Legislation will be required to meet the 2025 goal?

A. The state is looking at legislative and regulatory approaches to meeting the 2025 and 2030 pollution reduction goals. In the near-term, the agencies are looking at legislation to address key sectors responsible for the overall emissions profile, with a focus on the built environment and the transportation sector. .

Q. Will the Roadmap include an assessment of an economy-wide price on carbon?

A. The Roadmap focuses on a sector-based approach to meeting the state GHG pollution reduction goals with an emphasis on the near-term actions that can help the state meet the 2025 goals and get on a pathway to meeting the 2030 and 2050 goals. We believe that sector based policies, based on standards and investment, are the fastest pathways towards near and mid term emissions reductions.

As part of the Roadmap process, the state has begun to evaluate the merits of shifting tax burden from income to GHG pollution. However, the work to develop the sophisticated tax and economic modeling that would be necessary to further explore this policy approach are outside the scope of this report, and we anticipate that this will require a separate work stream and analysis after the development of the Roadmap, for future consideration.

Q. Why is the state still investing in roads instead of putting those dollars into transit and other mobility options?

A. CDOT invests in both highways and multimodal options, because both are critical to moving people and goods across our state. The Department's most recent Statewide Plan specifically focused on maintaining and improving existing roads, especially in rural areas, as well as laying out a vision for a multimodal future. This includes a significant downpayment on mobility hubs and Bustang service along our most congested corridors, and CDOT will continue to explore options to support transit, walking, and biking given significant funding shortfalls for transportation.

Q. What can we do at the state and local levels to accelerate adoption of renewable energy, all-electric homes (with heat pumps), electric cars, remote work?

A. The Roadmap process is primarily looking at actions that the state can take to reduce emissions, and while local governments will continue to play a critical role, the Roadmap does not provide details on potential local government actions.

Since 2004, Colorado has had a Renewable Portfolio Standard (RPS) that has created a robust market for renewable energy resources. In addition, in 2019 the legislature enacted SB 19-236, which requires our largest utility, Xcel Energy, to submit a clean energy plan (CEP) to the Public Utility Commission (PUC) that will achieve 80% pollution reduction by 2030; allows and incentivizes other utilities to voluntarily submit CEps; for the first time requires that the PUC consider the full social cost of damages from carbon pollution when evaluating the cost effectiveness of utility plans; and requires the state's second largest utility, Tri-State Generation and Transmission, to submit their electric resource plan to the PUC for approval. As a result of these policies and market forces many of the state electric utilities are closing coal-fired power plants years, even decades ahead of schedule, because they can replace them with renewable energy resources that save money for customers and pollute less. Since SB 236 was adopted, Tri-State has announced plans to retire all of their coal generation in Colorado and New Mexico, to add significant wind and solar, and to achieve 90% reduction in emissions from generation within the state by 2030.They will formally file an electric resource plan at the PUC in December 2020; Xcel Energy will file their CEP in March, 2021.

In some cases, local governments have a strong role in decisions around electricity generation. Some cities in Colorado get their electricity from municipally owned utilities. The largest, Colorado Springs Utilities, voted this June to adopt a new electric resource plan that will retire the Drake coal plant by 2023, the Nixon coal plant by 2030, and achieve an 80% emissions reduction below 2005 levels by 2030. The Platte River Power Authority, which provides power to the municipal utilities of Estes Park, Fort Collins, Longmont and Loveland, also announced plans to retire their Rawhide coal plant by 2030, and are currently considering resource plans that may achieve 90% or greater emission reduction.

This year, the Colorado Energy Office completed a building electrification market potential study that, among other technologies, looked at the potential for electric heat pumps in the state. Based on the results of that study and early indication from the analysis in the Roadmap, we are looking at potential policies to expand electrification. In addition, the state has been actively engaged in the development of the 2021 International Energy Conservation Code (IECC), which serves as the

model energy code for local governments, which for the first time has wiring requirements to support the use of heat pumps. Local governments also have a strong role to play, as they can encourage electrification through local incentive and education programs, and they are the entities that adopt energy codes.

The state has also been active in providing support for electric vehicles including the Governor's first Executive Order (EO B2019-002); Senate Bill 19-077, which requires Xcel Energy and Black Hills Electric to file plans with the Public Utilities Commission to make investment in electrification of transportation; House Bill 19-1159, which extended the tax credit for electric vehicles for an additional 4 years; SB 20-167, which allows new market entrants to sell EVs in Colorado; and the 2019 adoption of the Zero Emission Vehicle standard by the AQCC . Pursuant to SB19-077, Xcel Energy and Black Hills each filed a three-year plan earlier this summer. The PUC is expected to issue decisions on the proposed plans during early 2021. The state is also directly funding EV infrastructure through the Charge Ahead Colorado program, which has supported over 1,000 charging stations; the Fast Charging Corridor Program, which is building 34 fast charging stations along 6 major highway corridors, and programs to support EV charging in state parks and along scenic byways, and to support fast charging plazas in urban areas.There are also many actions local governments can take to support EV adoption.

Q: Are there any plans to tighten the PM2.5 standards as EPA has dropped the ball on this and their own advisory group said public health can continue to improve by moving from 12 down to 8. This is especially timely since a Harvard study linked increased Covid death rates to PM2.5 exposure levels.

A. Colorado supports reducing the federal standard for PM2.5 based on the evidence available to the federal EPA. It does not have a funded program to set its own independent ambient air quality standards, which would take some time and have very limited effect, because unlike areas of the country with much higher fine particulate levels Colorado's annual averages at its monitors are generally below the 12 microgram per cubic meter level. Instead, Colorado is focusing on reducing sources of PM2.5 further,through efforts such as including its clean truck programs, NOx reduction and controls on oil and gas combustion sources.

Q. Does the roadmap include incentive funding to help businesses grow heavy duty, off-road fleets and if so, when might those funds become available?

A. The goal of the Roadmap is to assess different policy options the state can use to meet the GHG pollution reduction goals. While the Roadmap describes those policies, implementation of the policy, and therefore any funding that might be required such as for incentives, would require legislative or regulatory action.

The state, however, has already begun to help support this transition with the passage of Senate Bill 19-077, which requires Xcel Energy and Black Hills Electric to file plans with the Public Utilities Commission to make investment in electrification of transportation, including heavy-duty and off-read fleets. These investments will help lower the cost of infrastructure for businesses that want to invest in electric vehicles.

In addition, the state has recently begun the process of developing a clean trucking strategy. This is a central focus of state leadership, who in July 2020 announced the launch of a Colorado Clean Trucking Strategy aimed at formulating a cohesive and comprehensive plan for reducing the air quality and GHG impacts of the medium and heavy duty vehicles (MHD) sector. This is particularly important because MHD vehicles are major sources of nitrogen oxide pollution contributing to ozone formation, and because the particulate emissions from diesel vehicles have serious health impacts, especially in disproportionately impacted communities. Transitioning to much cleaner and zero emissions trucks is one of the most important strategies to simultaneously address GHG pollution and the disproportionate impacts of local air pollution.

In partnership with the Colorado Motor Carriers Association and other key stakeholders from the worlds of vehicle manufacturing, electric utilities, environmental advocacy groups, environmental justice communities, and local government, the State of Colorado will pursue a wide-ranging strategy that will include evaluating potential adoption of the Advanced Clean Trucks ZEV regulation and of new nitrogen oxide standards, voluntary vehicle efficiency improvements, integration of electrification considerations in highway infrastructure improvements, ZEV workforce development, and state government leadership by example. At the same time that Colorado launched this internal state effort, it also signed on to a Memorandum of Understanding with 14 other states and the District of Columbia committing to work collaboratively to advance and accelerate the market for electric medium- and heavy-duty vehicles, including large pickup trucks and vans, delivery trucks, box trucks, school and transit buses, and long-haul delivery trucks (big-rigs). The goal is to ensure that 100 percent of all new medium- and heavy-duty vehicle sales be zero emission vehicles by 2050 with an interim target of 30 percent zero-emission vehicle sales by 2030.

Q. Will there be a focus on a low-carbon fuel standard?

A. A Low Carbon Fuel Standard or Clean Fuel Standard is designed to decrease the carbon intensity of the state's transportation fuel pool and provide an increasing range of low-carbon and renewable alternatives. It functions by establishing carbon intensity (CI) ratings for different fuel types based on their lifecycle emissions impact and then establishing CI benchmarks that decrease

over time. Fuels that are below the CI benchmark generate credits while those above the benchmark generate deficits, and thereby a market is created that encourages greater investment in low carbon fuels and discourages continued production and use of high-carbon alternatives.CEO is conducting a feasibility study that will be released this fall that examines a range of clean fuel standard scenarios that would achieve reductions in carbon intensity of 10, 15 or 20% over 10 years. While the initial study results found that a LFS was technically feasible, there are a number of unanswered questions. One question- which agencies will explore in more detail- is the level of overlap or double counting between emissions reductions from other light and heavy duty electrification efforts and from the LCFS. A more significant issue is that the modeling indicated that, at least for the first decade, the bulk of emissions reductions would come through replacement of gasoline and diesel fuel with conventional biofuels. The state has not yet conducted a comprehensive analysis or public process examining the environmental tradeoffs involved with large scale use of conventional biofuels. In addition, since the compliance cost for a CFS would likely be passed along to consumers of high carbon fuels such as gasoline and diesel, at this time the state is prioritizing determination of a mechanism for investment to directly support the transition to zero emission vehicles. For all of these reasons, a clean fuels standard will not be part of the near term action plan, while keeping it as a potential longer term strategy pending additional analysis and stakeholder input.