American Petroleum Institute
Colorado

November 12, 2020

Will Toor
Executive Director
Colorado Energy Office
1600 Broadway
Suite 1960
Denver, CO 80202

Re: API Colorado Comments on the Colorado Greenhouse Gas Pollution Reduction Roadmap

Dear Director Toor,

The American Petroleum Institute Colorado (API CO) respectfully submits the following comments on the September 30, 2020 Public Review Draft of the Colorado Greenhouse Gas Pollution Reduction Roadmap (GHG Roadmap). API CO appreciates the work put into this draft by the Colorado Energy Office (CEO) and the Air Pollution Control Division (APCD) and looks forward to working with staff to support the achievement of the state's Greenhouse Gas (GHG) reduction targets.

API CO and its members are committed to delivering solutions that reduce the risks of climate change while meeting society's growing energy needs. API CO supports the State of Colorado's efforts to reduce GHG emissions, which need to be measured statewide against the GHG emission reduction targets established by House Bill (HB) 19-1261. Properly designed policies can take advantage of Colorado's industrial and academic experience to position the state to maintain economic growth, meet its growing energy needs, and be a leader in greenhouse gas emission reductions. Maintaining energy affordability for Colorado's citizens, and minimizing job losses, are also real concerns that must be addressed in policy design. In seeking to achieve these multiple goals, policymakers should keep in mind that these actions and policies need not be prescriptive or overly burdensome – policies should be supportive and flexible.

API CO encourages the state to explore market-based policies as a long term solution to drive innovation that will facilitate effective GHG emission reductions for society and that will achieve the lowest cost of GHG emissions abatement (measured on the basis of a lifecycle dollar per ton of GHG emissions abated). To that end, API CO urges the State of Colorado to consider how it can achieve its climate ambitions while maintaining the State's economic competitiveness and doing so without undue harm to Its consumers, workers, and businesses. We encourage more analysis of the potential costs and economic feasibility associated with various proposed GHG emission mitigation strategies. Achieving the 2050 goals likely requires innovation to help decrease costs and enable large scale deployment of technologies that are less mature. The GHG Roadmap should also consider opportunities and incentives for investment in the piloting of newly developed technologies across all economy sectors to evaluate their performance and potential for deployment.

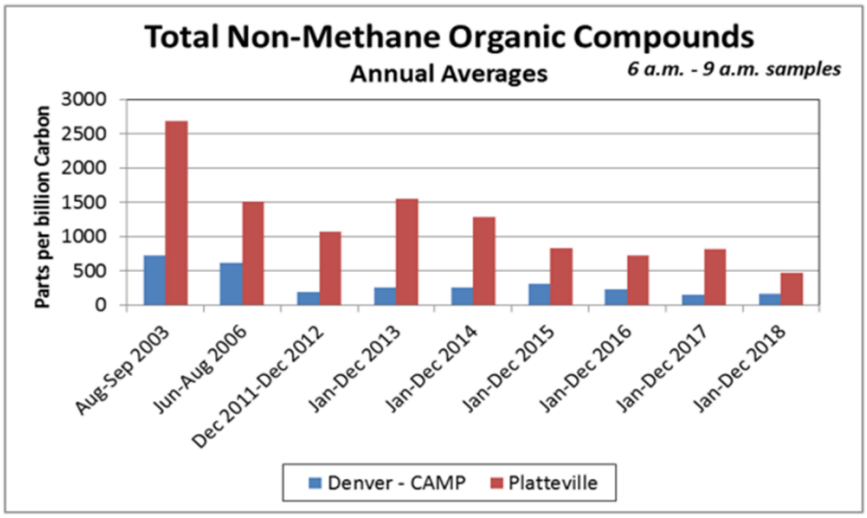
1. The Allocation of Sector GHG Reduction Targets Must Be Impartial

API CO supports meaningful GHG emissions reductions and conservation from all sectors of the economy and promotes economy-wide innovation and the development and implementation of cost-effective technologies to meaningfully reduce GHG emissions. GHG emission reduction targets relative to the 2005 GHG emission baseline should be identified for all sectors in proportion to their relative share. The GHG Roadmap states that this scenario analysis has elected to apply deeper emission reduction targets to the oil and gas sector because there are challenges in achieving the required levels of reductions in other sectors (page 80). One sector should not be targeted for GHG emissions reductions without further analysis.

House Bill 19-1261 requires "the use of all available practical methods which are technologically feasible and economically reasonable" to achieve its purpose. The GHG Roadmap does not consider the consequences of shifting the responsibility of achieving emission reductions excessively onto one sector. Furthermore, as discussed in Sections 2 and 3 below, there is no meaningful assessment of the amount of potential emission reductions that exist to be further realized in the oil and gas sector, if the proposed reductions are technologically feasible, or if the reductions asked of the oil and gas industry are economically reasonable, or achievable within the proposed timeline.

2. GHG Reductions Achieved by the Oil and Gas Industry Need to be Recognized

In recent years, the oil and gas sector has achieved extraordinary emission reductions. Since the early 2000s, a series of rulemakings in conjunction with technological advances in design and operations have combined to decrease emissions from this sector. Evidence of these reductions has been provided by APCD staff in their analysis of air quality monitoring data from APCD's monitoring station in Platteville, CO, located amongst the oil and gas fields in Weld County. Below is a graph of averaged annual values of non-methane organic compounds (NMOC) measured at the Platteville station compared to the CAMP station located in downtown Denver. Although the NMOC values do not include methane, NMOC and methane are emitted together at oil and gas sources and the emission controls used to reduce NMOC have the co-benefit of reducing methane emissions.



It is important to note that over the same time that these emissions decreased approximately 80% from 2003 to 2018, Weld County gas production and oil production increased approximately 290% and 1400%, respectively.

Additionally, the emissions inventory prepared by the Regional Air Quality Council (RAQC) for the Denver Metro/North Front Range ozone nonattainment area shows that emissions of volatile organic compounds (VOCs) from oil and gas operations fell more than 41% between 2011 and 2017. That same inventory projects that between 2017 and 2020, VOC emissions are estimated to fall another 27% while nitrogen oxides (NO_x) emissions fall by 5%. Again, because VOCs are co-emitted with methane, similar actual reductions in methane emissions are represented over the same time period.

The GHG Roadmap states that the impacts from regulations since 2018 have not been incorporated into the modeled emissions for the oil and gas sector (page 17, Table 3), but recent rulemakings since 2018 have added even further emission reductions from this sector by:

- Extending storage tank emission control requirements to more and smaller tanks
- Reducing emissions during tank gauging and quality checks
- Adding emission control requirements for hydrocarbon liquid loadouts
- Expanding AIMM and AVO inspections to increase the inspection frequencies
- Requiring best management practices to minimize emissions from well plugging events
- Establishing and expanding pneumatic controller inspection and enhanced response requirements statewide
- Creating a novel performance-based regulatory program to reduce emissions from the natural gas transmission and storage segment
- Including Class II disposal well facilities in the storage tank and hydrocarbon liquid loadout emission control requirements
- Requiring air quality monitoring during pre-production operations and into production operations
- Extending storage tank emission control and tank measurement requirements to flowback vessels
- Lowering the emission standards for natural gas fired engines greater than or equal to 1,000 horsepower

With these new emission reductions from rulemakings since 2018 combined with the previous emission reductions demonstrated up to 2018, the oil and gas industry has contributed a great deal of GHG emission reductions since the baseline year of 2005. Since emission reductions resulting from these regulatory requirements since 2018 have not been quantified and included in the modeling, it is impossible at this time to estimate accurately what emission reductions have already been achieved versus what additional emission reductions may still be needed.

HB 19-1261 recognized "that a current and accurate inventory of actual emissions of air pollutants from all sources is essential for the proper identification and designation of attainment and nonattainment areas, the determination of the most cost-effective regulatory strategy to reduce pollution, the targeting of regulatory efforts to achieve the greatest health and environmental benefits,…" In 2019, Colorado rulemaking incorporated new requirements for a comprehensive and detailed annual emission inventory from the oil and gas sector. API CO supports using the data compiled from the annual emission inventory report to identify specific emission sources and evaluate potential mitigation strategies to achieve cost-effective and feasible GHG reductions from the oil and gas sector.

3. GHG Reduction Policy Must Be Technically Feasible and Economically Reasonable

In HB 19-1261, the legislative declaration indicates that its purpose is "to require the use of all available practical methods which are technologically feasible and economically reasonable so as to reduce, prevent, and control air pollution throughout the state of Colorado." It is not clear to API CO what methods and criteria will be used to determine technical feasibility and economic reasonability.

And, in fact, the GHG Roadmap does not evaluate whether the proposed reductions for the oil and gas sector are technically feasible or economically reasonable. It will be critical that during the oil and gas stakeholder processes and

future evaluation of potential regulations or methods to achieve reductions, that the technical feasibility and economic reasonability of proposed methodologies are taken into account. While the GHG Roadmap asserts that oil and gas measures are estimated to be low cost, approximately $4/tonne CO_2e relative to the Reference scenario (page 53), no reference or basis is provided for this statement. As GHG mitigation policies and strategies are being considered for adoption and implementation, these strategies must be subject to a robust cost-benefit analysis that evaluates the full impact to the sector, its employees, and to the residents of Colorado including disproportionately impacted communities. API CO supports making the costs and associated climate benefits of any policy fully transparent to the public, as such transparency is inherent to maintaining energy affordability for Colorado citizens.

4. The Oil and Gas Industry Must Be Able to Measure Progress Against Sector GHG Reduction Targets

The GHG Roadmap recommends the near-term action of achieving 33% reduction in total emissions from the "oil and gas industry" by 2025 and 50% by 2030. The Air Quality Control Commission recently adopted a resolution that seeks GHG emission targets for the oil and gas industry of 13 million metric tons of carbon dioxide equivalent (MMT CO_2e) by 2025 and 8 MMT CO_2e by 2030, which represent a 35.5% reduction for 2025 and a 60.3% reduction for 2030 in comparison to the 2005 GHG emission baseline inventory.

The GHG Roadmap does not clearly define those industry segments that are included in the definition of the "oil and gas industry" sector. We understand from the inventory compiled by APCD and used in support of the Roadmap, that it includes sources in the: upstream operations, midstream operations, transmission and storage, and certain emissions (leaks) from the natural gas distribution segment. However, the GHG Roadmap uses unclear terms that should be corrected to specify the segments which are included in the oil and gas sector.

1. The GHG Roadmap states (page 53) that minimizing the release of methane from the oil and gas industry is essential and that emission reductions will come from reducing methane emissions leaks in upstream operations and the downstream distribution system. We believe that this should refer not to the downstream distribution system but to the specific sectors that are included in the baseline (e.g., gathering, boosting, processing, etc., as appropriate)

2. The representation of oil and gas emissions in the Public Comment Draft CO GHG Roadmap Assumptions & Results spreadsheet includes emissions from "Upstream" and "Distribution System Downstream". This same terminology should be corrected.

API CO looks forward to working with the Division through the oil and gas stakeholder process to better understand the inventory, the specific segments within the inventory and evaluate the current emissions from those segments.

It is also not clear in all instances which specific sources or emitting equipment are included in the oil and gas sector. It appears that sources of fugitive emissions and other releases of methane and carbon dioxide are represented in the oil and gas sector, yet it appears that GHG emissions from the combustion of hydrocarbon fuels (e.g., natural gas, diesel, propane, etc.) in production equipment (e.g., engines, heaters, etc.) may be captured under the Industrial sector. API CO believes it will be important to understand at the outset of policy making how the full breadth of GHG emissions from the oil and gas sector have been accounted for and categorized in the inventory.

Industry also notes that as these processes are implemented, the APCD will need to determine how to compare current emissions inventories to the baseline. There must be consistency in categorizing the segments of the oil and gas sector and the emissions sources in each segment that are identified for the 2005 baseline, and for future inventories.

5. Oil and Natural Gas Production in Colorado can be part of the Solution, while delivering Colorado's energy needs

The demand for oil and natural gas may decline over time as alternate forms of energy including fuels become more available, economic, and reliable, but oil and gas production and employment in Colorado should not be forced out earlier than the market would allow, even with policy measures in place. For the foreseeable future, natural gas will be needed at a minimum to enable transportation until fleets can be sustained by alternate fuels or electric vehicles and serve as an essential source for power that enables renewable penetration, given the current limitations of renewable energy generation and storage. As evidence of the value of natural gas, between 2005 and 2017 electric power sector CO_2 emissions fell by more than 14%, even as demand for electricity increased, thanks in part to increased generation from natural gas. In addition to the demand for oil and gas as affordable and reliable sources of energy, including heating of homes, when a winter storm may result in electricity outages, oil and gas serve as essential feedstocks to manufacture a variety of critical products such as fertilizers, chemicals, coatings and plastics, used in agriculture, medicine, food, industrial applications, vehicles, and a multitude of consumer goods.

Historically, as the demand for oil and gas decreases, the production of the supply has also decreased. Any attempt to decrease the production of supply in one locality, such as Colorado, earlier than the decrease in demand warrants, may not affect the overall supply or demand or overall global GHG emissions – other sources may quickly fill the gap in supply, and the demand locally and globally can be met. Such premature attempts to reduce the production of oil and gas in Colorado may do nothing but push that production to other areas outside of Colorado. Many of these other areas (including surrounding states) may produce that same oil and gas with higher emissions– taking Colorado jobs with that production. It has been said before, but it is worth stressing this fact: pushing the production of oil and natural gas to other jurisdictions may only lead to increased GHG emissions and fewer jobs in Colorado.

This "leakage" of oil and gas production to other locales should be a consideration as policies are developed. The experiences of states involved in the Regional Greenhouse Gas Initiative and California's cap and trade program should be informative to Colorado as examples of how these unintended consequences can occur, and how it can be properly accounted for with respect to state emission goals. Exporting industry or power generation is not an acceptable pathway for meeting the state's goals.

6. GHG Policy Decisions Must Consider All Effects on Disproportionately Impacted Communities including Jobs and Affordability

API CO supports the goal of reducing potential inequitable impacts on environmental justice communities and facilitating the involvement of all people. We support increasing the racial and socioeconomic diversity of individuals involved in the policy development process who proportionately represent the economically distressed communities that will be directly affected by the outcome of those decisions. All people should be treated fairly, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

While the GHG Roadmap addresses reducing the environmental impacts of climate change on people of color, Colorado's sovereign Tribes, lower-income individuals, historically underrepresented groups, and those experiencing multiple environmental and social disadvantages, a true accounting of the effects of policy decisions on disproportionately impacted communities must also consider the economic impacts on such communities. This particularly includes the employment, affordability, and social service impacts. The oil and natural gas industry is essential to supporting a modern standard of living for all by helping ensure that communities have access to affordable and reliable energy. Additionally, the oil and gas industry offers higher than average-paying job opportunities for its

employees, pays considerable property taxes and funds community investment. The industry has also driven energy costs down over recent years, which benefits all community members.

7. GHG Reduction Policy Should Be Technologically Neutral

API CO and its members advocate for government policies that ensure the availability and continued development of affordable, reliable, and sustainable energy, including oil and natural gas supplies and products derived from them, to consumers. This is achieved by optimizing solutions to eliminate redundant or contradictory policies and supporting market-based policies to drive innovation.

The transition to renewable sources of energy and the electrification of vehicles, engines, and buildings plays a prominent role in the proposal for meeting short-term GHG emission reduction goals. However, electrification will take enormous investment in power generation, storage, transmission, and distribution in order to meet the energy demands which will increase along with population growth in Colorado. The GHG Roadmap should not promote electrification as the only means to achieve GHG emission reductions and should allow other technologies to be developed, tested, and deployed at appropriate scales where found to be cost-effective. Forcing one path could result in a steeper increase in costs, which may affect disproportionately impacted communities more deeply..

The GHG Roadmap states (Appendix C, page 15) that carbon capture and storage (CCS) equipment is assumed to be installed at all gas processing plants by 2050, with a 90% capture rate. It is not clear what emission sources are included in the Roadmap assumption of those that can take advantage of CCS or if the 90% emission reduction was applied to all gas processing emissions. CCS may be a feasible option for certain high purity vent streams, most notably amine unit vent streams, but not yet for many other emission sources in gas processing, given there is ample storage potential within the state. Areas for further evaluation for CCS deployment in Colorado likely include ethanol production facilities and cement manufacturing. Continued engagement with these industries will be needed to determine the appropriate sites and timing of CCS deployment, in addition to the proximity to viable carbon sequestration and utilization opportunities. Additionally, continued engagement will provide better insight into the timing of advances in CCS technology and potential areas where policies could provide support for further deployment of CCS technologies.

8. New Regulatory Policies Are Needed to Support GHG Reductions

New performance-based regulatory policies are needed to promote, as appropriate for operators to meet performance targets, the use of advanced facility designs and operational practices, which may include flowlines and pipeline systems to accommodate the transfer of produced fluids from well pads to centralized production facilities. These systems afford significant emission reductions by reducing the operation of production tanks at well pads and decreasing the need to transfer fluids from tanks to trucks. Policies that promote the permitting, approval, and use of pipeline systems will allow operators to achieve emission reductions from oil and gas production.

New performance-based regulatory policies are also necessary to support electrification of oil and gas production facilities *where appropriate and feasible*. The viability and cost of electrification can range extensively depending on a number of factors, including, among others: (1) the route and length of a distribution line; (2) whether pipelines need to be relocated; (3) ease and cost of acquiring rights-of-way; and (4) timing of installation of new lines. Accessibility to the electrical power grid is often dependent on land acquisition, local and state approvals from railroad companies to cross rail lines, and even federal approvals (if the line needs to cross federal lands), and delays can be frequent and substantial. Other factors delaying or restricting access to electrical grid power can include: (1) each utility has different power drop timelines; (2) each utility has different requirements for ownership and installation between

primary and secondary power lines and equipment; (3) slowdowns may occur due to increased residential development (which is prioritized); (4) changes in schedule or right-of-way changes; and (5) proximity and capacity of line power, among others. Regulatory policies that promote the ability for oil and gas operators to plan for and gain timely access to grid power will be beneficial to reducing GHG emissions.

Conclusion

As described above, GHG emission reductions cannot be achieved by the short-sighted over-restriction of one industry locally. Instead, real and sustainable GHG emission reductions will be achieved through collaborative efforts and technological innovation. To that end, Colorado GHG emission reduction policy should be developed according to the following tenets:

1. GHG reduction targets must be created impartially and economy-wide, must be technologically feasible, and must be economically reasonable.
2. GHG reduction targets must be clearly defined, categorized and communicated so that sectors can track and demonstrate progress.
3. GHG emission reductions should not be technology prescriptive. Policies that seek to drive GHG emission reductions by prescribing the use of specific technologies may inhibit the development of alternative technologies that could accomplish those same goals at lower costs or improved timetables.
4. GHG emission reductions should be goal oriented, allowing stakeholders and market participants the greatest flexibility in achieving those goals at the lowest possible cost.
5. GHG emission reduction strategies must be evaluated for all impacts (environmental and economic) on disproportionately impacted communities.

API CO supports global action that drives GHG emission reductions and economic development. The natural gas and oil industry is part of the global solution and plays a vital role in developing and deploying technologies and products that continue to reduce GHG emissions while advancing human and economic prosperity and that are essential to extending the benefits of modern life to all.

API CO appreciates the opportunity to provide comments on the Colorado GHG Roadmap, and we look forward to working with the state of Colorado to achieve its GHG reduction targets in a manner that balances economic, environmental, and energy security needs.

Sincerely,

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