

Colorado's 2019 Climate Action Plan

by Madeline R. Macmillan

The Colorado General Assembly House Bill 19-1261, originally introduced on March 21st, 2019, was signed into law May 30th, 2019¹. The legislation highlights the rising rates of greenhouse gas emissions, and the evidence of climate change in the state such as increased wildfire vulnerability, beetle infestation, and extreme heat.

HB 19-1261 points out the resulting impacts disproportionately affect rural communities, people of color, the youth and elderly, and the working-class. Representatives and senators responsible for proposing the bill argue decreasing greenhouse gas emissions in the state, subsequently improving the air quality, would also improve both the overall health of the natural resources and the public health, economy, and quality of life of Colorado. The other focus of the policy is to increase renewable energy development, improve technology efficiency, and adopt low emissions technologies.

AIR QUALITY

Colorado has consistently failed to be compliant with EPA air quality standards since 2004. Due to increasingly stringent standards, the gap between the goal and the actual concentrations of many air pollutants remains considerable. The previous EPA ozone standard was 75 parts per billion while the current EPA ozone standard, finalized in 2015, is 70 parts per billion. Recent air quality measurements on the Front Range of Colorado indicate an ozone concentration of 79 parts per billion, violating both the old and new air quality standards². A common set of EPA standards in effect are the National Ambient Air Quality Standards (NAAQS). The NAAQS, like other EPA standards, are created to protect both public health and public welfare with the establishment of both primary and secondary standards³. Due to the importance of protecting the health of the

¹ "Climate Action Plan to Reduce Pollution." Colorado General Assembly, May 1 2019.

<https://leg.colorado.gov/bills/hb19-1261>.

² Finley, Bruce. "EPA Mulls Whether to Downgrade Colorado to a 'Serious' Violator of Air Quality Standards — a Move the State Favors." The Denver Post. September 6, 2019.

<https://www.denverpost.com/2019/09/06/colorado-serious-air-quality-violator-epa/>.

³ "NAAQS Table." Environmental Protection Agency, December 20 2016. <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.

population and resources, Colorado's inability to meet EPA's standards supports the bill's argument for greater environmental protection and efforts to improve the air quality of the state.

STRENGTHS AND WEAKNESSES

Within HB 19-1261 there is minimal data presented to support the policy. Significant claims are made throughout the policy describing the environmental impacts already taking place in Colorado. In Section 1 Subsection (2)(b), some impacts listed are prolonged droughts, increasingly severe ground-level ozone pollution, and decreased economic activity from ecotourism. These large claims are presented without references. Despite this shortcoming of evidence in the policy itself, the effects of increased greenhouse gas pollution can be corroborated⁴.

Detailed in Section 3 Subsection (e)(I)(VII), the state will be held accountable for any progress made by requiring reporting to the commission on a biennial basis. Additionally, Section 3 Subsection (e)(I)(VI) discusses the commission's pledge to continuously assess the status of the pollutants and their contributions to the overall greenhouse gas emissions in the state. Throughout the bill, the air quality goals are clearly stated (in Section 1 Subsection (2)(g)). The state aims to reduce greenhouse gas pollution 26% by 2025, 50% by 2030, and 90% by 2050 from 2005 pollution levels.

NEXT STEPS

The policy appears effective, however there are several unanswered questions. One question is regarding manufacturing sources in the state. According to Section 3 (IX)(A), manufacturing sources throughout Colorado will be subject to routine emissions audits. Will these assessments consider power purchase agreements when determining the net emissions of a manufacturer? If considered, power purchase agreements could enable conventional manufacturers lacking the necessary flexibility to improve efficiency to still be capable of meeting stringent emissions standards. On the other hand, the inclusion of power purchase agreements could be viewed as a potential escape route for manufacturers unwilling to adopt cleaner technologies to outsource the necessary emissions reductions elsewhere.

One key element of the policy with little explanation is the appropriation amount of \$281,588. How was \$281,588 determined to be enough funding for a year's worth of implementing this policy? The goals detailed in the policy are ambitious, however there is no plan for how the money will be spent and no explanation for how the amount was determined. Will the amount of money allocated toward this policy be reassessed? If so, what factors will determine whether more or less money is needed to execute this policy? There are no mechanisms in the policy suggesting continuous funding.

There is also a concern related to the pollutant measurement methods. Air quality data was assessed for accuracy in Colorado's 2017 Air Quality Data Report. The report showed the four gaseous

⁴ Essick, Peter. "Air Pollution Causes, Effects, and Solutions." Air pollution, facts and information. National Geographic, June 25, 2019. <https://www.nationalgeographic.com/environment/global-warming/pollution/#close>.

criteria air pollutants fell outside the specified probability intervals at a rate breaking the limits set by the EPA⁵. This violation implies the techniques or equipment used to gather air quality data is not sufficiently accurate. What measurement techniques will be used, and how can greater accuracy be ensured? A lack of accuracy presents issues with affirmatively staying on track with the goals of the policy.

With these above concerns addressed and questions answered, HB 19-1261 would have the potential to make monumental change toward improved air quality in the state of Colorado.

⁵ “2017 Air Quality Data Report.” Colorado Department of Public Health & Environment, December 26 2018.
https://www.colorado.gov/airquality/tech_doc_repository.aspx?action=open&file=2017AnnualDataReport.pdf.

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Madeline Rose Macmillan is a current PhD Candidate at the Colorado School of Mines in the Advanced Energy Systems program partnered with the nearby National Renewable Energy Laboratory in Golden, CO. Madeline recently graduated from North Carolina State University with a Bachelor of Science in Environmental Engineering. Madeline has research experience at her undergraduate institution where she investigated the potential to reduce emissions through residential demand response programs. Madeline also conducted research this past summer at the National Renewable Energy Laboratory as a full-time intern in the Integrated Applications Center incorporating lithium-ion degradation into the REopt tool. In addition to her coursework at the Colorado School of Mines, Madeline is conducting research at the National Renewable Energy Laboratory within the Strategic Energy Analysis Center developing econometric tools for renewable technologies. As a new student at the Colorado School of Mines, Madeline is eager to engage with the policy world and its intersection with engineering and technology.

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