

Climate Change Efforts in Colorado: Update in accordance with HB 13-1293

Annual report to the legislature regarding climate change effects to the state, efforts to reduce greenhouse gas emissions and prepare the state for climate change effects.

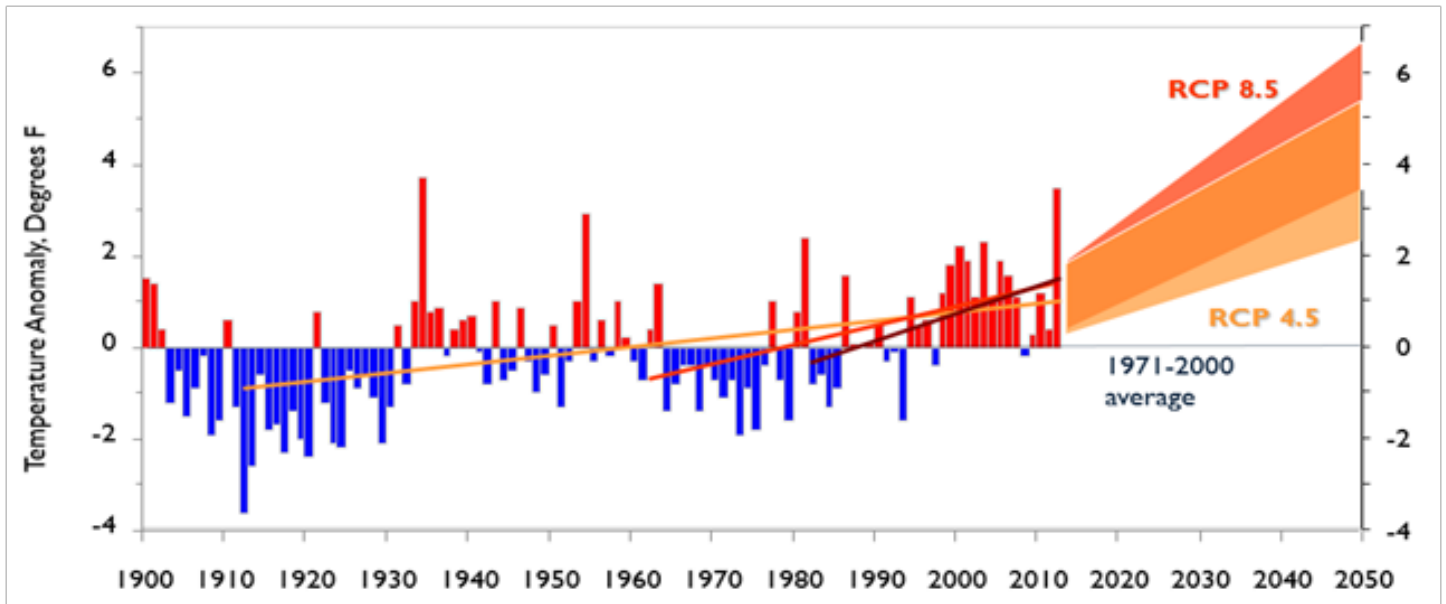


Figure1: Observed Colorado temperatures and projected temperatures by 2050

Observed Climate

- Colorado has warmed 2 degrees in the last 30 years and 2.5 degrees over the last 50 years.
- No long term trends in precipitation have been detected.
- Increased trend in drought severity over the last 30 years.

Projected Climate Change in Colorado

By 2050, models project between 2 to 5 degrees of additional warming for Colorado. For context, with temperature increase Denver's seasonal cycle would resemble: Pueblo (at 2°F), Lamar (at 4°F), and Albuquerque at (6°F).

Colorado Climate Plan (2015)

The Climate Plan was released by the Governor in September 2015 and addressed state level policies and strategies to mitigate and adapt to climate change. It represents a collaborative statewide effort across several sectors with contributions from DNR, CDOT, CDPHE, CEO, CDA, DOLA and OEDIT.

The plan aims to reduce greenhouse gas emissions in a cost effective and efficient manner, while also preparing Colorado for the impacts we cannot avoid. State agencies are working collaboratively to achieve the goals Colorado set in its Climate Plan.

Each of the sectors examined under the plan are also planning to hold public engagement sessions that will provide stakeholders with an opportunity to help the state chart our path forward. The water sector session was held in January and provided very valuable feedback that will be incorporated into future efforts.

The vast majority of those in attendance indicated that they thought the Plan was “on the right track.” A brief summary of some of the feedback is provided below.

- **Implementation Needs-** there is a need for more specifics on how the state plans to implement and develop policies around recommendations.
- **Use and Constraints Existing Systems-** existing tools and support systems should be used to assess climate impacts and responses related to drought, emergency management, and monitoring; in addition, existing collaborative networks should be utilized to develop tools, provide data, and work collaboratively to address impacts and adaptation strategies. However, there is a need to better understand how the current systems, incentives, laws, funding criteria, business models, and policies are constraining climate change response and adaptation, and the implementation of innovative solutions, and find ways to address these.
- **Education-** there is a need to promote greater understanding by the public of potential climate change impacts related to water.
- **Work with Partners-** the implementation of the Plan’s recommendations should include partnering at all levels, that is federal, state, local, academia, science, etc., including the Colorado Resiliency Office.
- **Explore and Identify Interconnections-** there is a need to better understand how policies and actions interact, and develop policies and solutions that complement each other, as well as an acknowledgement that climate change impacts and effects need to be better incorporated and integrated into all aspects of water decision making, from funding criteria, project development, etc.
- **Identify Appropriate Mechanisms for Regulatory Streamlining-** there is a need to examine and find ways to “streamline” regulatory processes, such as National Environmental Policy Act (NEPA) reviews, however the focus should be on identifying specific concerns under these processes and ways to address them, rather than on wholesale exemptions of water projects and strategies from these regulatory processes.

The transportation sector will hold a Climate Change Adaptation in the Planning Process full day workshop on July 14th in Denver to solicit feedback and information regarding the best ways to incorporate climate change into CDOT’s long range planning processes and how to best communicate climate change to key stakeholders and the public.

Other agencies are working to schedule their public engagement sessions. These will be posted online at CWCB’s Climate Page once a date has been finalized.

In addition, since the Climate Plan was released in September 2015, each sector is moving forward with implementing aspects of the Climate Plan as summarized below.

Water:

- Climate change impacts on water resources were enhanced and integrated into Colorado’s Water Plan.
- Continued analysis of Climate impacts on water resources will be incorporated into the Statewide Water Supply Initiative over the next two years



Agriculture:

- The Colorado Energy Office (CEO) works with the Colorado Department of Agriculture (CDA) to implement the Colorado Dairy and Irrigation Efficiency program. See the “Energy” section for details.
- The small hydropower program, has assisted 137 agricultural producers, made 19 site visits, and completed 10 project site assessments
- CDA is currently accepting applications for six additional small hydropower projects, totaling nearly \$600,000 in assistance.
- To expand the technical services available to local producers, 65 engineers and field technicians have been trained, including 30 NRCS engineers/conservationists, 9 Conservation District engineers/conservationists, 11 renewable energy specialists, 7 irrigation

services providers, 7 electric utility engineers, and 1 CSU Extension agent/engineer.

Public Health:

- The United States Supreme Court stayed the U.S. Environmental Protection Agency's (EPA) Clean Power Plan on February 9, 2016, a rule designed to reduce nationwide emissions of carbon dioxide from power plants by about one-third. The stay is a temporary measure while the federal courts review the merits of the rule. The Colorado Department of Public Health and Environment has been working since last summer to develop a state plan to achieve the Clean Power Plan's carbon reduction targets for Colorado. The department will continue to coordinate with stakeholders to develop carbon dioxide reduction strategies and put the state in the best position pending the outcome of litigation. The Court of Appeals for the District of Columbia Circuit will hear oral arguments on the rule in June.
- CDPHE has held initial stakeholder outreach for the clean power plan, including briefings to the Air Quality Control Commission and Public Utilities Commission, a Tribal Consultation, and public comment sessions in Denver, Durango, Commerce City, Brush & Craig.
- Attainment of the ozone standard. The Air Pollution Control Division (APCD) and the Regional Air Quality Council (RAQC) prepared 2017 emissions inventories for the Denver Metro Area/North Front Range ozone nonattainment area and for the rest of the state. Volatile organic compound (VOC) and nitrogen oxide (NOx) emissions are expected to drop about 30% from 2011 levels in the nonattainment area. The RAQC is conducting photochemical modeling to project whether Colorado will attain the 2008 ozone standard of 75



parts per billion by 2017.

CDPHE will adopt a State Implementation Plan (SIP) revision in the fall of 2016, for legislative review and submittal to EPA in 2017. APCD and the RAQC will then begin planning to attain the 2015 ozone standard of 70 ppb.

Local Government:

- DOLA launched its printed guide Planning for Hazards: Land Use Solutions for Colorado printed guide and accompanying website (planningforhazards.com) this spring and will host webinars and workshops on how to utilize these resources.

Energy:

- The CEO continues to work with utilities and the Public Utilities Commission on the state's Renewable Energy Standard goals by providing recommendations and data to inform decision-making. CEO tracks renewable energy projects throughout the state. In 2015, more than 450 MW of utility-scale renewables came online in Colorado, including Xcel's Golden West Wind Farm (250 MW), Tri-State's Carousel Wind Farm (150MW), and Xcel's Hooper Solar Farm (50 MW).
- CEO has integrated cost-effective water savings assessments and recommendations into all energy efficiency programs administered by CEO. Since September 2015, CEO's programs have completed the following:
 - The Energy Performance Contracting program secured agreements with four new entities: These entities will contract with an energy service company to undergo an investment-grade energy audit to realize energy, water

and associated operations and maintenance savings.

- The Energy Savings for Schools program secured agreements with 20 new schools and districts. These schools will receive free energy and water audits, renewable energy assessments, and technical assistance to identify and implement priority projects.
- The Colorado Dairy and Irrigation Efficiency program completed 46 energy audits and renewable energy assessments for agriculture producers. A total of 16 producers are pursuing implementation of energy efficiency improvements. The program expects to achieve 524,000 gallons of water savings annually.
- The Weatherization Assistance Program installed energy efficiency measures in more than 1,000 low-income homes that include providing high water efficiency faucet aerators.
- In the fall of 2015, the CEO was part of the selection committee for the Colorado Cleantech Industries Association's Oil and Gas Challenge, which provides a forum for companies to present technology solutions that can improve the development of energy by having less impact on the environment including water savings technologies.
- The state continues to work to increase access to capital for commercial, residential, agricultural and industrial customers seeking to improve the energy performance of their facilities. In the last year:
 - Colorado launched a statewide, voluntary commercial Property Assess Clean Energy (PACE) program. Commercial PACE financing provides property owners a unique way to finance 100% of energy efficiency, renewable energy and water conservation measures, with no up-front costs.
 - The CEO, in collaboration with the Colorado Department of Agriculture, was selected for a \$1.1 million U.S. Department of Agriculture award to help finance energy efficiency improvements for Colorado farmers. The improvements will generate over 7.9 MWh of energy savings and 780,000 gallons of water savings annually.

- CEO, in partnership with the Regional Air Quality Council and the Colorado Department of Transportation. The state is working to reduce market barriers to the development of all cost effective and technologically viable alternatives to gasoline and diesel fueled transportation. Since September 2015, CEO awarded 40 additional electric vehicle charging stations and one additional CNG station outside of metro Denver.

Transportation:

- Department of Transportation (CDOT) will hold a Climate Change Adaptation in the Planning Process Workshop July 14, 2016. The purpose of this workshop is for the CDOT to obtain information from peers, and input from staff, state and local agencies, and planning partners (Transportation Planning Regions [TPRs] and Metropolitan Planning Organizations [MPOs]) regarding the identification of the best approach to incorporate climate change adaptation into Colorado's long-range planning processes, and in developing the next Statewide Transportation Plan. These long-range planning processes are important as they inform and directly link to decisions related to programing, financing, and eventual construction of transportation projects.
- This peer exchange is intended to be a collaborative effort that builds upon recent work accomplished by the Colorado Resiliency Working Group that developed the Colorado Resiliency Framework, and to move forward with implementing recommendations of the 2015 Colorado Climate Plan.
- Key benefits of the Climate Change Adaptation in the Planning Process Workshop include:
 - Identify ways to include climate change adaptation early in long-range planning, leading to more effective and informed decision making.
 - Provide an opportunity to identify approaches to implement recommendations derived from the Colorado Resiliency Framework.
 - Supports the implementation of the *2015 Colorado Climate Plan* Strategy and Policy recommendations. Identify best methods for communicating climate change adaptation issues to the public.



- The 2015 Colorado Climate Plan includes a strategy and recommendation to Promote and encourage fuel-efficient vehicle technologies and programs to reduce vehicle emissions. CDOT is working toward this through the following:
 - **Automatic Vehicle Locator (AVL) Installation on CDOT Light Fleet:** AVLs have been installed on all of CDOT's light fleet. CDOT is installing these devices into all of its vehicles to explore opportunities for idling reduction and fuel economy improvements as well as optimal maintenance scheduling and route planning. AVLs will be used to locate fleet vehicles in real-time, and to generate and track data on excessive idle time, fuel consumption and savings, and reduction in greenhouse gas emissions. In addition, AVLs contribute to effective emergency preparedness by allowing quicker dispatch of nearby vehicles during emergencies. CDOT plans to complete the installation of the entire fleet in the next year.
 - **Idling Reduction Pilot:** The Colorado Energy Office (CEO) is working with CDOT to pilot specific idling reduction technologies in CDOT's fleet. They will measure idling time by vehicle type as well as the reason for idling and the associated cost of wasted fuel. CEO and CDOT are piloting various technologies that don't require idling to power, including auxiliary load management devices for auxiliary electrical power, coolant circulators to heat vehicle cabins, and auxiliary power units to provide a secondary power source for stationary vehicle operation.

Based on the outcomes, CEO and CDOT will work with State Fleet Management to include the most effective devices on the state fleet bid. In addition, the results will be shared with the Motor Vehicle Advisory Committee (MVAC) for other state agency fleet managers, and the Greening Government Fleet Subcouncil.

- CDOT is about to embark on its Together We Go effort. This is the first annual two-way conversation with stakeholders to report progress made on Statewide Transportation Plan, Highlight key initiatives and how these relate to the public, and to expand and strengthen interactions with stakeholders. A part of this effort, outreach to key environmental stakeholders and special interest

groups will be conducted highlighting the importance of recognizing climate change particularly in the area of adaptation and its relationship to transportation planning and future infrastructure improvements. CDOT will be conducting these two way conversations via telephone town halls and face-to-face meetings, and social media. The timeline for this effort is late May to October 2016.

State agencies are also working with the Greening Government Leadership Council to integrate and coordinate aspects of the Colorado Climate Plan and Executive Order D 2015-013, which establishes new one and five-year Greening Government goals that reflect the State’s commitment to efficient and sustainable government operations. The Colorado Energy Office has dedicated a portion of a staff person’s time to help coordinate the greening government process.

Should you have additional questions or comments regarding the State’s progress on climate change mitigation and adaptation please contact:

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