

**Testimony of Bill Ritter, Jr., 41<sup>st</sup> Governor of the State of Colorado; Director of the Center for the New Energy Economy at Colorado State University**  
**Before the House Committee on Natural Resources**  
February 26<sup>th</sup>, 2020

Chairman Grijalva, Ranking Member Bishop, and Members of the Committee. Thank you for the opportunity to speak to you today.

As Colorado's 41<sup>st</sup> Governor, I led our state's transition to a clean energy economy. I made this transition a top priority of my administration and during my four years in office, I signed 57 clean energy bills into law. Today, Colorado boasts a vibrant clean energy economy. Forty percent of all of our energy workers are employed in clean energy industries; and Colorado ranks sixth in the nation in jobs in renewable energy. In 2018, job growth across all clean energy sectors was 4.8 percent, double statewide job growth. Our clean energy employers predicted that 2019 job growth would be more than double 2018 at 10.3 percent.<sup>1</sup> This growth has been shared across all counties in Colorado.

I continue to lead the national transition as the Director of the Center for the New Energy Economy (CNEE). I founded CNEE in 2011 as a Department of our state's land grant institution, Colorado State University. Our non-partisan initiative works directly with governors, legislators, regulators, utilities, and other stakeholders to facilitate America's transition to a clean energy economy. CNEE is committed to a responsible and equitable transition and to serving diverse stakeholders with our collective expertise in energy systems, policy, politics, economics, sociology, law, and environmental science.

### **The Clean Energy Transition**

Our current efforts to mitigate greenhouse gas (GHG) emissions and adapt to the impacts of climate change are falling short of what many estimate will be needed to avoid substantial

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<sup>1</sup> Environmental Entrepreneurs (E2) and Colorado Solar & Storage Association. 2019. Clean Jobs Colorado. Accessed: 16 Feb. 2020. Available: <https://www.e2.org/wp-content/uploads/2019/09/E2-Clean-Jobs-Colorado-2019.pdf>.

and irreversible damages to economies, ecosystems, and human health and well-being.<sup>2</sup> Without a concerted and collaborative intergovernmental and intersectoral effort to mitigate and adapt, the impacts associated with climate change are also expected to “increasingly disrupt and damage” our critical infrastructure and national security. The Fourth National Climate Assessment estimates that without significant action, “annual losses in some economic sectors are projected to reach hundreds of billions of dollars by the end of the century – more than the current gross domestic product (GDP) of many U.S. states.”<sup>3</sup>

Mitigating GHG emissions not only reduces our exposure to the longer-term economic and health risks associated with climate change, there are also more immediate benefits associated with reducing emissions. These include improving air quality, which benefits public health, the environment, and economic activity by reducing emissions that contribute to asthma, heart disease, lost productivity, smog, acid rain, and crop damage, to name a few.<sup>4,5</sup> The Fourth National Climate Assessment notes that “[r]ecent studies suggest

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<sup>2</sup> See: Intergovernmental Panel on Climate Change (IPCC). 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Core Writing Team, R.K. Pachauri and L.A. Meyer, eds. IPCC. Geneva, Switzerland. 151 pp. Accessed: 18 Feb. 2020. Available: <https://www.ipcc.ch/report/ar5/syr/>. And Jay, A., D.R. Reidmiller, C.W. Avery, D. Barrie, B.J. DeAngelo, A. Dave, M. Dzaugis, M. Kolian, K.L.M. Lewis, K. Reeves, and D. Winner. 2018. Overview. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*. Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds). *U.S. Global Change Research Program*. Washington, D.C. pp. 33–71. doi: [10.7930/NCA4.2018.CH1](https://doi.org/10.7930/NCA4.2018.CH1). Accessed: 17 Feb. 2020. Available: <https://nca2018.globalchange.gov/downloads/>.

<sup>3</sup> U.S. Global Change Research Program. 2018. *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*. Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart, eds. *U.S. Global Change Research Program*. Washington, D.C. doi: [10.7930/NCA4.2018](https://doi.org/10.7930/NCA4.2018). Accessed: 17 Feb. 2020. Available: <https://nca2018.globalchange.gov/downloads/>.

<sup>4</sup> These pollutants include particulate matter, ozone, oxides of nitrogen, and sulfur dioxide.

<sup>5</sup> See also: Jay, A., D.R. Reidmiller, C.W. Avery, D. Barrie, B.J. DeAngelo, A. Dave, M. Dzaugis, M. Kolian, K.L.M. Lewis, K. Reeves, and D. Winner. 2018. Overview. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*. In Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart, eds. *U.S. Global Change*

that some of the indirect effects of mitigation actions could significantly reduce – or possibly even completely offset – the potential costs associated with cutting greenhouse gas emissions.”<sup>6</sup>

The time to act is now. In 2018, the IPCC found that we must reduce global GHG emissions to net-zero by 2050 to limit warming to 1.5 degrees Celsius above pre-industrial levels.<sup>7</sup> Also in 2018, the U.S. Geological Survey found that an average of approximately 25 percent of annual national GHG emissions are associated with fossil fuel development, and the downstream use of those fuels, on public lands.<sup>8</sup> A recent report by The Wilderness Society (TWS) warns that the emissions associated with activity on public lands might be on the increase: leases approved between January 2017 and January 2020 “could result in lifecycle emissions between 1 billion and 5.95 billion [metric tons of carbon dioxide equivalent].” On the low end, TWS estimates that these emissions would be equivalent to the total annual emissions of Brazil. On the high end, these emissions would equal more than half of China’s annual emissions.<sup>9</sup>

Public pressure for action, as Americans increasingly experience the effects of climate change, is mounting. At least 46 percent of Americans think climate change is a very serious

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*Research Program*. Washington, D.C. pp. 33–71. doi: [10.7930/NCA4.2018.CH1](https://doi.org/10.7930/NCA4.2018.CH1). Accessed: 17 Feb. 2020. Available: <https://nca2018.globalchange.gov/downloads/>.

<sup>6</sup> Ibid.

<sup>7</sup> Davenport, Coral. 2018. Major Climate Report Describes a Strong Risk of Crisis as Early as 2040. *The New York Times*. 7 Oct. Accessed: 18 Feb. 2020. Available: <https://www.nytimes.com/2018/10/07/climate/ipcc-climate-report-2040.html>.

<sup>8</sup> Merrill, M.D., B.M. Sleeter, P.A. Freeman, J. Liu, P.D. Warwick, and B.C. Reed. 2018. Federal lands Greenhouse Emissions and Sequestration in the United States—Estimates for 2005–14: U.S. Geological Survey Scientific Investigations Report 2018–5131, 31 p. Accessed: 19 Feb. 2020. Available: <https://pubs.usgs.gov/sir/2018/5131/sir20185131.pdf>.

<sup>9</sup> The Wilderness Society. 2020. The Climate Report 2020: Greenhouse Gas Emissions from Public Lands. *The Wilderness Society*. Accessed: 19 Feb. 2020. Available: [https://www.wilderness.org/sites/default/files/media/file/TWS\\_The%20Climate%20Report%202020\\_Greenhouse%20Gas%20Emissions%20from%20Public%20Lands.pdf](https://www.wilderness.org/sites/default/files/media/file/TWS_The%20Climate%20Report%202020_Greenhouse%20Gas%20Emissions%20from%20Public%20Lands.pdf).

threat to the U.S.<sup>10</sup> Seventy percent of Americans support some sort of government action to address climate change and at least 34 percent believe that passing a bill to address climate change should be a high priority for Congress.<sup>11</sup>

The American people and their state and local leaders recognize the wisdom in reducing emissions for a number of reasons including economic opportunity, public health, and reducing the risks associated with climate change. State and local governments continue to lead the nation in developing clean energy policy. For instance, 13 states, Puerto Rico, and the District of Columbia have adopted, in statute or by executive order, 100% clean energy goals. One hundred fifty-nine cities, including eight of the top 30 largest cities (by population), have adopted or have already met 100% clean or renewable energy goals.<sup>12</sup> Of the states that have adopted 100% clean energy goals, seven are located in the Western U.S.<sup>13</sup> Of the eight largest cities that have adopted clean energy goals, six are located in the West.<sup>14</sup>

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<sup>10</sup> Climate Nexus, Yale Program on Climate Change Communication, and George Mason University Center for Climate Change Communication. 2019. National Poll Number pr1922. Accessed: 18 Feb. 2020. Available: <https://climatenexus.org/wp-content/uploads/National-Poll-Toplines-Crosstabs-PR1922.pdf>. And Kennedy, B. and M. Hefferon. 2019. U.S. Concern about Climate Change is Rising, but Mainly Among Democrats. *Pew Research Center*. 28 Aug. Accessed: 18 Feb. 2020. Available: <https://www.pewresearch.org/fact-tank/2019/08/28/u-s-concern-about-climate-change-is-rising-but-mainly-among-democrats/>.

<sup>11</sup> Climate Nexus, Yale Program on Climate Change Communication, and George Mason University Center for Climate Change Communication. 2019. National Poll Number pr1922. Accessed: 18 Feb. 2020. Available: <https://climatenexus.org/wp-content/uploads/National-Poll-Toplines-Crosstabs-PR1922.pdf>. And Volcovici, V. 2019. Americans Demand Climate Action (As Long as It Doesn't Cost Much). *Reuters*. 26 Jun. Accessed: 18 Feb. 2020. Available: <https://www.reuters.com/article/us-usa-election-climatechange/americans-demand-climate-action-reuters-poll-idUSKCN1TR15W>. And Morning Consult and Politico. 2019. National Tracking Poll #190431. *Morning Consult and Politico*. Accessed: 18 Feb 2020. Available: [https://morningconsult.com/wp-content/uploads/2019/04/190431\\_crosstabs POLITICO RVs v1 ML.pdf](https://morningconsult.com/wp-content/uploads/2019/04/190431_crosstabs POLITICO RVs v1 ML.pdf).

<sup>12</sup> Sierra Club. 2020. 100% Commitments in Cities, Counties, & States. *Sierraclub.org*. Accessed: 18 Feb. 2020. Available: <https://www.sierraclub.org/ready-for-100/commitments>.

<sup>13</sup> These states are California, Colorado, Hawaii, Nevada, New Mexico, Oregon, and Washington.

<sup>14</sup> These cities are Denver, CO; Los Angeles, CA; Portland, OR; San Diego, CA; San Francisco, CA; and San Jose, CA.

The transition to a clean energy economy is not only policy driven, it is also emerging in response to economic realities. Electricity generated using coal now has a higher levelized cost of energy (LCOE) than electricity generated by unsubsidized natural gas combined cycle (NGCC) units, wind, and utility-scale solar.<sup>15</sup> In 2019, Lazard found that building new wind and solar is approaching or has obtained cost competitiveness with the marginal cost of continuing to operate existing coal and nuclear facilities.<sup>16</sup> Analyses by major utilities and others have found that continuing to operate existing coal plants is uneconomical.<sup>17</sup>

Utility scale solar and wind are now also cost-competitive with NGCC units,<sup>18,19</sup> and we are seeing increasingly low renewable energy prices. For instance, Xcel Energy's last all-source solicitation in late 2017 in Colorado attracted over 400 bidders and record low prices for wind and solar. The utility's Colorado Clean Energy Plan includes wind priced between \$11-18 per megawatt hour (MWh), solar between \$23-27 per MWh, and solar with storage between \$30-32/MWh.<sup>20</sup> Xcel Energy expects that increasing the use of solar and wind across its system will reduce future fuel costs and that those savings will be passed directly

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<sup>15</sup> Lazard. 2019. Lazard's Levelized Cost of Energy Analysis: Version 13.0. *Lazard*. Accessed: 19 Feb. 2020. Available: <https://www.lazard.com/media/451086/lazards-levelized-cost-of-energy-version-130-vf.pdf>.

<sup>16</sup> Ibid.

<sup>17</sup> See, for instance: PacifiCorp. 2019. Integrated Resource Plan. Accessed: 21 Feb. 2020. Available: <https://www.pacificorp.com/energy/integrated-resource-plan.html>. And Dyson, M. and A. Engel. 2018. A Low-Cost Energy Future for Western Cooperatives: Emerging Opportunities for Cooperative Electric Utilities to Pursue Clean Energy at a Cost Savings to Their Members. *Rocky Mountain Institute*. Accessed: 21 Feb. 2020. Available: <https://www.rmi.org/wp-content/uploads/2018/08/RMI-Low-Cost-Energy-Future-for-Western-Cooperatives-2018.pdf>.

<sup>18</sup> The LCOE of unsubsidized utility scale solar in 2019 was \$32-44/MWh, unsubsidized onshore wind was \$28-54/MWh, and unsubsidized NGCC was \$44-68/MWh.

<sup>19</sup> Lazard. 2019. Lazard's Levelized Cost of Energy Analysis: Version 13.0. *Lazard*. Accessed: 19 Feb. 2020. Available: <https://www.lazard.com/media/451086/lazards-levelized-cost-of-energy-version-130-vf.pdf>.

<sup>20</sup> Correspondence with Xcel Energy. And: Smyth, J. 2018. Colorado Energy Plan Analysis Shows Switching from Coal to Renewable Energy Will Boost Jobs and Local Tax Revenue. *Clean Cooperative*. 22 Jun. Accessed: 23 Feb. 2020. Available: <https://www.cleancooperative.com/news/colorado-energy-plan-analysis-shows-switching-from-coal-to-renewable-energy-will-boost-jobs-and-local-tax-revenue>.

to all of its customers. According to our state’s largest electricity provider, “[t]oday, Xcel Energy’s average Colorado customer bill is 35 percent below the national average and has declined by more than 14 percent since 2014. During that same time period, the company added over 1,000 megawatts [(MW)] of wind and solar power to its Colorado system.”<sup>21</sup>

A second major Western utility, Tri-State Generation and Transmission, also expects that its transition<sup>22</sup> to clean energy will keep rates flat and might even reduce them.<sup>23</sup> According to Tri-State’s CEO Duane Highley, “because wind and solar energy [are now less expensive] than the cost of generating with any fossil fuel, coal or gas...those savings in energy costs can be used to help us accelerate the retirement of coal and pay for that accelerated retirement without negative rate impacts.”<sup>24</sup>

The environmental and economic benefits are clear, and utilities around the nation are increasingly investing in lower-cost and less risky clean energy technologies, developing emission reduction strategies, and retiring coal-fired electric generating units. To date, at least 42 electric utilities operating around our country have adopted clean energy or GHG emission reduction goals. Of these, 16 have adopted 100 percent clean energy or net-zero GHG emissions goals. Of the utilities that have adopted clean energy or GHG emissions

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<sup>21</sup> Correspondence with Xcel Energy.

<sup>22</sup> Tri-State’s Responsible Energy Plan includes the addition of one gigawatt of wind and solar and GHG emissions reductions in Colorado by 90 percent of 2005 emissions by 2030. The utility operates in four Western states: Colorado, Nebraska, New Mexico, and Wyoming.

<sup>23</sup> Best, A. 2020. Tri-State CEO Says Wholesaler’s Clean Energy Transition Will Pay Dividends. *Energy News Network*. 21 Jan. Accessed: 23 Feb. 2020. Available: <https://energynews.us/2020/01/21/west/tri-state-ceo-says-wholesalers-clean-energy-transition-will-pay-dividends/>.

<sup>24</sup> Smyth, J. 2020. Tri-State Will Replace Coal Plants with A Gigawatt of New Wind and Solar. *Clean Cooperative*. 9 Feb. Accessed: 23 Feb. 2020. Available: <https://www.cleancooperative.com/news/tri-state-will-replace-coal-plants-with-a-gigawatt-of-new-wind-and-solar>.

reduction goals, 17 operate in the Western U.S., and eight of these utilities have set 100 percent clean energy or net-zero GHG emissions goals.<sup>25</sup>

Across nine Western states,<sup>26</sup> over 17,000 MW of coal-fired electric generating capacity is scheduled to retire by the end of 2031. The bulk of these retirements (11,470 MW) are scheduled to occur before the end of 2025 and will or already have impacted communities across the West.<sup>27</sup> As coal plants retire, the mines that supply them will also shutter. Our coal-reliant communities are facing a great deal of economic and social uncertainty. This is especially the case because these communities can be mono-industrial, where the industry is not only a crucial economic driver but is also associated with identity and heritage.

We have heard examples of coal miners and power plant employees out of work without enough notice, and communities suffering direct and indirect job loss as well as the loss of tax revenue associated with the local coal industry. Some towns receive over half of their budgets from coal-related industries; and without this revenue, local government services, including public schools, safety, and infrastructure can be left underfunded.

At CNEE, we believe that the transition to a clean energy economy needs to be equitable for all involved. Embracing the notion of a “just transition” acknowledges that these communities have provided energy for our economy for decades, and that they should not be left behind as we transition to clean energy. States, local governments, non-profits, utilities, mine owners, and other stakeholders are beginning to consider, promote, and implement policies and programs to support a just transition. For instance, New Mexico enacted legislation last year that includes funding for workforce and economic

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<sup>25</sup> These utilities are: Arizona Public Service, Austin Energy, Avista, Hawaiian Electric Utilities, Idaho Power, Platte River Power Authority, Public Service Company of New Mexico, and Xcel Energy.

<sup>26</sup> Arizona, Colorado, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming.

<sup>27</sup> Last year, 3,231 MW was retired in Arizona (2,409 MW at Navajo Generating Station), Colorado, Montana, and Wyoming.



development activities in communities impacted by coal plant closures.<sup>28</sup> A bipartisan proposal currently in front of the West Virginia Legislature<sup>29</sup> is modeled after legislation enacted last year in Colorado, to which I will now speak.

Colorado created the nation's first Office of Just Transition. The Office, along with an advisory committee also established by the legislation, is tasked with creating a just transition plan that will describe how the Office can most effectively respond to the economic changes associated with coal plant and coal mine closures in Colorado.<sup>30</sup> Colorado House Bill 19-1314 also requires that utilities that accelerate the retirement of a generating unit submit a workforce transition plan to the Office and the affected community at least six months before the unit is retired. The first coal-reliant community meetings will be held by Colorado's Just Transition from Coal Advisory Committee next week (March 4<sup>th</sup> – 6<sup>th</sup>). The communities they will be visiting are communities our Center has been working with for the last year.

The towns of Craig and Hayden are coal-reliant communities in northwestern Colorado. Craig is home to the Craig Generating Station, which hosts three coal-fired generating units with a capacity of 1,283 MW. Unit 1 is scheduled to be retired by 2025, unit 2 by 2026, and unit 3 by 2030. Craig is located in Moffat County, which is classified by the U.S. Department of Agriculture as a “mining dependent” county. In 2015, over 700 direct jobs, and more than 1,000 indirect jobs in the county were dependent on coal. The smaller town of Hayden, just east of Craig, is home to the Hayden Generating Station, which has two generating units with a combined capacity of 446 MW. Unit 1 is scheduled to retire in 2030, unit 2 in 2036. A spokesperson for Xcel Energy said that the 64 employees working at the

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<sup>28</sup> New Mexico Senate Bill 19-489. Available: <https://www.nmlegis.gov/Legislation/Legislation?Chamber=S&LegType=B&LegNo=489&year=19>.

<sup>29</sup> West Virginia House Bill 20-4574. Available: [http://www.wvlegislature.gov/Bill\\_Status/bills\\_text.cfm?billdoc=HB4574%20INTR.htm&yr=2020&sesstype=RS&i=4574](http://www.wvlegislature.gov/Bill_Status/bills_text.cfm?billdoc=HB4574%20INTR.htm&yr=2020&sesstype=RS&i=4574).

<sup>30</sup> Colorado House Bill 19-1314. Available: [https://leg.colorado.gov/sites/default/files/2019a\\_1314\\_signed.pdf](https://leg.colorado.gov/sites/default/files/2019a_1314_signed.pdf).



plant will have the option to be transferred to other jobs within the utility when the plant is retired.

Our staff has met with local county commissioners, city managers, economic development offices, small business owners, and other community stakeholders in both towns. We have learned that the communities of Craig and Hayden are experiencing the energy transition differently, as we would expect to be the case.

During our visits to Craig, community leaders expressed concern about the lack of representation of their ideas in the state legislature. They also described coal-fired electricity generation as a central part of their everyday life. Community leaders emphasized that economic responses to the transition should focus on developing natural resources and promoting tourism and recreation, exploring manufacturing or other uses for coal, and enhancing local educational opportunities. They have worked with economic development experts in the past year to develop a plan to diversify their economy.

In Hayden, the community has creative ideas that they want to share with others. While they are proud of their small town and the culture that surrounds coal, they have begun planning for the transition. The solutions the community emphasized included improving quality of life and the town's infrastructure, collaborating with nearby communities, and proactive planning and engagement with the local community college.

During this process, we learned that existing strategies for supporting communities during a transition have often been in the form of (1) direct financial investment, (2) state policy and program development, (3) worker retraining, or (4) economic diversification. While these strategies can be effective, there is no one size fits all solution. The best strategy to obtain community buy-in for any plan is to listen to and involve the community throughout the planning process.

## **Closing Remarks**

Often the negative effects of degraded air quality and transitioning economic industries disproportionately affect low-income, rural, and minority populations. To adequately and equitably transition to clean energy resources and reduce the risks associated with climate change, the stakeholders closest to and most impacted by this transition need to be listened to and involved in the planning and implementation processes. They must have a real seat at the decision-making table. The best outcomes emerge when community members create their own solutions or strongly support the changes recommended by others.

The United States has withstood other transitions in our energy system and larger economy. It behooves all stakeholders to plan for large-scale change and to fund efforts to support the communities that will be most impacted by any transition. Engaging communities early and directly will allow innovation and the development of proactive strategies that bolster resilience.