Written Testimony of Wyoming Governor Mark Gordon

before the House Select Committee on the Climate Crisis

Hearing on State Perspectives on Cutting Methane Pollution

June 14, 2022

Natural gas will continue to be used to fuel the Nation's economy, and indeed is a necessary resource to meet decarbonization goals. Wyoming is a leader in the natural gas industry generally, and specifically with respect to low-carbon natural gas and responsibly sourced gas (RSG). This written testimony provides additional background on these and related matters.

Background on Wyoming's Critical Role in Natural Gas Markets

Wyoming produces fourteen times more energy than it consumes and is the biggest net energy supplier among the states. In 2020, Wyoming was the ninth-largest natural gas producer, accounting for almost 4% of U.S. marketed gas production.[1] Wyoming produces more natural gas from federal leases than any other state.[2]

Mining and oil and gas extraction are the biggest contributors to Wyoming's gross domestic product (GDP). Mineral royalties, severance payments, and related taxes typically provide a substantial portion of state revenues.[3] In 2020, oil and natural gas production: (1) paid over $247M in severance taxes, about 59% of all the severance taxes paid by all minerals; and (2) accounted for over 40% of the total property taxes levied in Wyoming and nearly 70% of the property taxes levied on all minerals in 2020. Midstream operations in Wyoming support 9,217 high-paying jobs and contribute an annual average to state GDP of $609M.[4] Crude and natural gas production is spread across the state, and each fossil fuel was produced alone or together in 21 of Wyoming's 23 counties during 2021.[5]

Wyoming ranks among the top 10 states in both natural gas reserves and marketed natural gas production. Two-thirds of the state's natural gas is produced on federal lands leased by energy companies. Production takes place throughout the state, but most of Wyoming's natural gas has come from fields in the Green River Basin, located in the state's southwest corner. Wyoming has 16 of the nation's 100 largest natural gas fields, including the Pinedale

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[1] "Wyoming State Profile and Energy Estimates" (U.S. Energy Information Administration, March 18, 2021) (available at https://www.eia.gov/state/?sid=WY).
[2] "Wyoming State Profile and Energy Estimates: Profile Analysis (U.S. Energy Information Administration" March 18, 2021) (available at https://www.eia.gov/state/analysis.php?sid=WY).
[3] Id.
[4] "Oil & Gas Facts and Figures 2021" (Petroleum Association of Wyoming, 2021) (available at https://pawyo.org/facts-figures/).
[5] Id.

and Jonah fields that rank among the top 10.[6]

During 2020: (1) 211 companies in Wyoming produced natural gas; and (2) 14,449 wells were producing gas. In 2019 Wyoming had 25 operating gas plants processing nearly 97% of the state's gas production. There are currently about 100 companies operating 30,000 miles of pipelines in Wyoming, not including all gathering systems or all inactive or abandoned pipelines. Pipelines are located in all of Wyoming's 23 counties and carry crude, natural gas, natural gas liquids, carbon dioxide (CO_2) and petroleum products.[7]

Wyoming is the third-largest producer of coalbed methane, behind Colorado and New Mexico. Coalbed methane accounts for about 7% of the state's natural gas production.[8]

Wyoming consumes about one-tenth of the natural gas it produces. Two-fifths of the state's gas consumption is used in the production and distribution of energy. The state's industrial sector accounts for another two-fifths of gas use, and the residential, commercial, and electric power sectors together account for the remaining one-fifth of natural gas consumption. Natural gas is Wyoming's most widely used home heating fuel, found in 6 out of 10 households.[9]

Most natural gas produced in the state is shipped out through interstate pipelines that cross into Utah, Nebraska, Colorado, and Montana, on its way to both Midwest and West Coast markets. Several interstate pipelines converge at Opal, Wyoming, a major interstate natural gas trading hub. Some of the natural gas that remains in the state is placed in underground storage. Wyoming has nine natural gas underground storage sites that can hold a combined 140 billion cubic feet of gas, which is about 1.5% of U.S. total storage capacity.[10]

Wyoming Is Committed to C02 Capture

Fossil fuels should, and will, continue to be an important mix in providing a consistent, reliable source of energy for our country. Coal and other fossil fuels have become the scapegoat for climate change fears. That target is misplaced, burning coal and other fossil fuels is not the issue, the release of C02 in the atmosphere is the issue. That is where the target should be and we are committed to the use of carbon capture to keep an "all the above" energy strategy for our state and nation.

Wyoming law provides that regulated electric utility companies must establish goals for low carbon power generation through the use of carbon capture. We are working with those companies to see that carbon capture becomes a part of their planning process.

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[6] Id.
[7] "Oil & Gas Facts and Figures 2021" (Petroleum Association of Wyoming, 2021) (available at https://pawyo.org/facts-figures/).
[8] "Wyoming State Profile and Energy Estimates: Profile Analysis" (U.S. Energy Information Administration, March 18, 2021) (available at https://www.eia.gov/state/analysis.php?sid=WY).
[9] Id.
[10] Id.

Additional Federal Regulation Of Methane Is Not Needed

Let me be very clear, Wyoming does not need, nor do we welcome, an additional layer of federal regulation to regulate methane emissions. Our regulatory process works and has buy-in from the Wyoming oil and gas industry.

In Wyoming, we manage our natural and mineral resources exceptionally well, providing for both environmental stewardship and energy production. Wyoming's statutory and regulatory framework encourages the responsible production of oil and gas resources. Throughout the past twenty-six years, Wyoming has been recognized as a national leader in regulating air emissions from oil and gas production. In that time, Wyoming has issued over 29,000 air quality permitting actions to control and minimize emissions. In 1997, absent an U.S. Environmental Protection Agency (EPA) permitting program or guidance, Wyoming Department of Environmental Quality's (DEQ) Air Quality Division established its oil and gas minor source guidance and permitting program. This air emissions program is consistent with Wyoming's legislative directive aimed at preventing, reducing, and eliminating pollution and retaining primacy over Wyoming's air quality resources.

Wyoming's air permits are issued under its state implementation plan that the EPA has approved and codified into federal regulation. *See* 40 C.F.R. § 52.2620(c)(1) (2021).

EPA has long recognized that Wyoming is a leader in regulating air emissions from oil and gas production. In 2011, in response to the growth in hydraulically fractured natural gas wells, the EPA looked to Wyoming and Colorado as it developed its oil and gas new source performance standards for production equipment – commonly referred to as Quad O. EPA's rule recognized that some state permitting programs already regulated those wells and the rule took advantage of existing state compliance mechanisms.

Our history and experience have shown that the best regulatory process is at the state and local levels. We work closely with regulatory agencies such as the EPA, particularly since we have been delegated primacy over air. We earned that delegation and take that responsibility seriously. In short, let the states do their jobs.

The Critical Role Played By Timely Federal Lease Sales

In order to develop fields responsibly, with minimal surface disturbance and the least amount of stranded oil and gas, leasing must be thoughtful, strategic, and forward-thinking. It may take a company several years and multiple sales for a successful bidder to gather enough leases to allow the organized development of the entire field to avoid waste and stranding assets. In Wyoming, much of the land is in what we call "the checkerboard," where federal,

private and state lands (or minerals) alternate section by section, much like a checkerboard. While it might look like a company is stockpiling leases, it is really attempting to gather enough leases to form a multi-section drilling spacing unit, working out pooling arrangements and verifying who gets rental and royalty payments. When you add the time necessary for environmental reviews and surface use agreements it is often years and the holding of many leases before the actual exploration can begin. Quarterly lease sales allow companies to keep working towards completing their development plans. A pause on leasing can set back development for years.

It is important to point out that the companies must pay the federal government while they hold the lease. Those payments come as bonus bids, rentals and royalty payments. Most companies do not have unlimited capital, thus they are not going to pay for leases that do not have the real potential for an eventual return. During the window when a company holds a lease, the lands remain available for other uses not incompatible with the ability to develop a lease.

Wyoming's Leadership in Species & Habitat Protection

Wyoming has demonstrated unequaled leadership in mitigation efforts to protect species like Greater sage-grouse and vital habitat components such as migration routes have been established. Much of the work supporting these issues has been funded by the very industries hampered by the moratorium. NGOs, industry, local and state governments are cooperating for the greater good of the environment, society, and people's well-being. But that progress is undermined when timely scheduled development is uncertain. Whole seasons, where development can occur, can be taken off-line, thereby further crippling activity in our state that will, in turn, imperil our local economy significantly and potentially catastrophically.

Wyoming's oil and gas industry is an active participant in the protection and enhancement of wildlife. Projects sponsored by the industry have resulted in more and better habitat for species including mule deer, antelope and sage grouse. As the ability of these industries to develop oil and gas on federal lands decreases, so does their ability to contribute to habitat restoration and enhancement projects.

Wyoming is a Leader in Low-Carbon Intensity Natural Gas and RSG

Wyoming is a leader in responsible oil and gas development. The Wyoming Oil and Gas Conservation Commission (WOGCC) has stringent rules for flaring all wells (federal/fee/state). These are long-standing procedures that protect Wyoming's environment. A small volume of flaring is allowed by rule if alternatives are determined to be uneconomical and for safety reasons during well drilling and completion activities. If operators believe it is necessary to flare volumes in excess of what is allowed by rule, they are required to apply for WOGCC approval. Part of this submission is a gas capture plan that details gas gathering systems, takeaway

capacity, and gas treatment systems within the area, other producing and planned wells within the area, gas gathering companies operating within the area and information on the gas gathering line to which the operator proposes to connect. This information, along with detailed information concerning the well to be flared, is examined by the WOGCC as part of its consideration of approval for flaring. With these stringent rules on flaring, the total gas volumes flared in Wyoming for all wells is very small, less than one percent (0.17% in 2021) of all gas produced within the state in any given year.

The WOGCC also has a long-standing program to plug orphaned oil and gas wells. This program dates back to the early 1990s, and there are records of the WOGCC and the U.S. Geological Survey plugging orphan wells as early as the 1920s in Wyoming. Due to our efforts, there were minimal orphan wells in the state of Wyoming for many decades. However, in approximately 2010, several thousand coalbed methane wells were orphaned due to depressed gas prices. Since 2014 the WOGCC has conducted an accelerated orphan well plugging program to drastically reduce the number of orphan coalbed methane wells and plugged in excess of 1,000 wells in 2020. This plugging process was accomplished through the use of the bonds paid by those companies that abandoned the wells and a conservation fee that is paid by the oil and gas industry. Except for some limited circumstances identified below, no taxpayer dollars have been used to permanently plug orphaned wells.

In 2018, the WOGCC partnered with the Bureau of Land Management's (BLM) Wyoming State Office to plug orphaned wells on federal mineral leases, building on the successful program on state and private land. These wells had been identified by the BLM in Wyoming as orphan, but since funding was not allocated to plug the wells, the BLM was not able to do anything with them. The BLM did have extra funding from other programs available, but was not able to work within the confines of the federal budgeting requirements to reallocate the funding to plug orphan wells. The WOGCC applied for a grant from the BLM to secure funding to plug the orphan federal wells. The WOGCC has extensive experience plugging thousands of orphan fee and state wells, thus bringing knowledge, experience and efficiency to the program by coordinating statewide bids for the plugging contractor, and BLM staff observed the plugging of the wells in the field. The WOGCC and BLM have successfully plugged 82 orphan federal wells and six abandoned produced water reservoirs in Wyoming for the two years this program existed.

The pace of plugging was picked up dramatically due to wise use of Coronavirus Aid, Relief, and Economic Security (CARES) Act funding. Under current requirements, today's wells are sufficiently bonded to assure plugging and appropriate abandonment activities. In the event plugging costs were to exceed the available bond, the WOGCC is authorized to utilize funds from conservation taxes paid by the oil and gas industry for the plugging of orphan/abandoned wells.

I recognize there are proposals currently being discussed for federal funding to plug more orphan/ abandoned wells. While that would certainly be helpful, Wyoming is not betting on that outcome. Our program will continue, but it is important that the federal leasing program continues to provide a steady, consistent stream of federal leases along with leases on state

and private lands. Without leases there are not any conservation taxes.

This aggressive program to plug wells means Wyoming does not have a significant problem with fugitive methane emissions, as discussed above.

Concerning overall emissions from oil and gas operations, DEQ works closely with EPA to oversee and regulate emissions. For the most part, we have a cooperative relationship that recognizes our ability and knowledge to adequately address any emission concerns. This includes one of the most responsible programs for regulating volatile organic compounds that also results in reduced methane emissions.

According to a 2021 study by researchers at the Georgia Institute of Technology, natural gas consumed in Wyoming has the lowest estimated consumption-normalized production-stage methane emissions of any state in the western United States (*see* Figure 1).[11] This does not come as a surprise as Wyoming has "long [been] a leader in taking on oil and gas" air emission issues, including being an early mover among the states in addressing fugitive methane emissions.[12] In 2021 Jonah Energy announced its sole status of Gold Standard ranking in the United Nations-sponsored Oil and Gas Methane Partnership 2.0.[13] More broadly, last year I directed the state to pursue a goal of net negative CO_2 emissions *and* continue to use fossil fuels, a task that the Wyoming Energy Authority (WEA) is leading through the development of appropriate strategies.

[11] Burns, D. et. seq. "Attribution of Production-Stage Methane Emissions to Assess Spatial Variability in the Climate Intensity of US Natural Gas Consumption," 2021 Environ. Res. Lett. 16 044059, Fig. 3 (available at https://iopscience.iop.org/article/10.1088/1748-9326/abef33); *see also* "States Looking to Decarbonize May Need to Weigh Their Gas' Origin – Study," (S&P Global Market Intelligence, March 18, 2021) (available at https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/states-looking-to-decarbonize-may-need-to-weigh-their-gas-s-origin-8211-study-63228122).
[12] "Leading States Tackling Fugitive Emissions Problem Head-On" (EDF Blog, April 10, 2014) (available at https://blogs.edf.org/energyexchange/2014/04/10/leading-states-tackling-fugitive-emissions-problem-head-on/).
[13] "Jonah, PureWest Both Reach Natural Gas Milestones" (Pinedale Roundup, Nov. 18, 2021) (available at https://pinedaleroundup.com/article/jonah-purewest-both-reach-natural-gas-milestones).

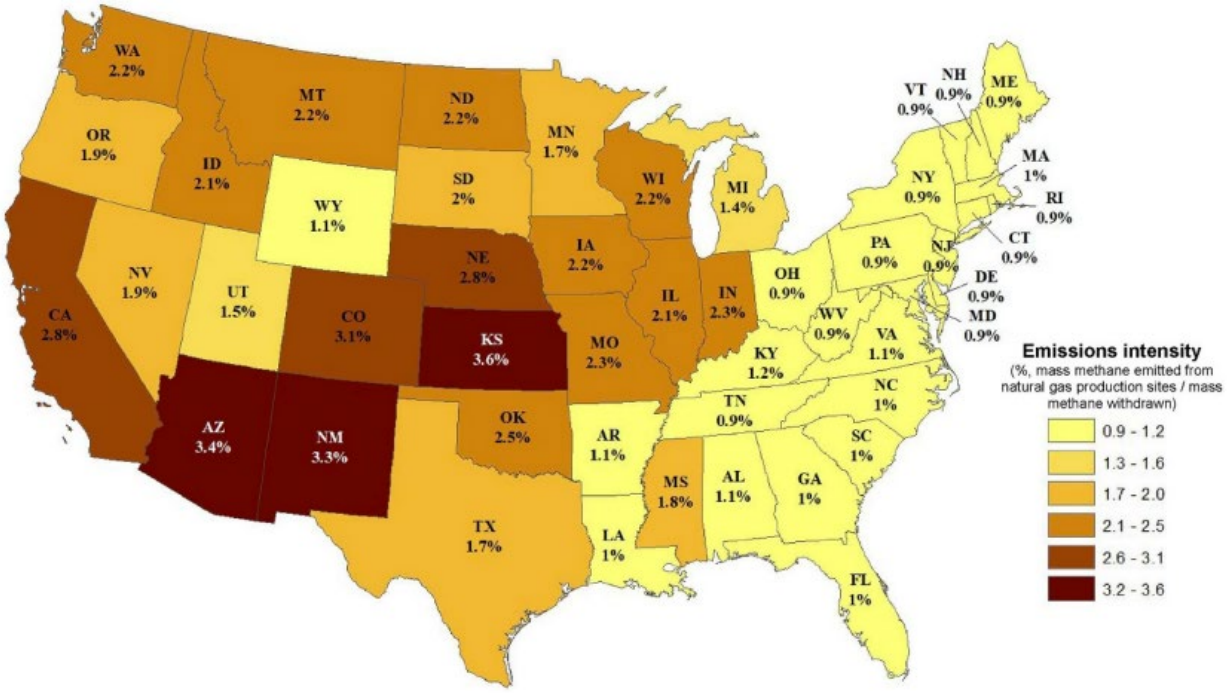

Fig. 1. Estimated consumption-normalized production-stage methane emissions for natural gas consumed in each state

Wyoming also is a leader in RSG. Jonah Energy has a RSG initiative, for example.[14] And in 2021, PureWest Energy LLC, Wyoming's largest natural gas producer, became the first company in the United States to provide a carbon neutral RSG offering to customers.[15]

Wyoming also has several initiatives related to the production and utilization of hydrogen, including but not limited to blue hydrogen with natural gas as a feedstock as Wyoming is a leader in carbon capture & storage/carbon capture utilization & storage technologies, too.[16] On March 17, 2021, for example, WEA opened a request for proposals for a hydrogen pilot project. Three finalists were subsequently approved for the "State of Wyoming Pilot Project: Design and/or Construction of a Pilot Project Demonstration 'Green' or 'Blue' Hydrogen Production and Use."[17] On a related front, the School of Energy Resources (SER) at the University of Wyoming recently launched a Hydrogen Energy Research Center.[18]

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[14] https://www.jonahenergy.com/sustainability/responsibly-produced-gas/.

[15] "Private Wyoming Gas Producer Announces First US Carbon-Neutral RSG Offering" (Hart Energy, October 7, 2021) (available at https://www.hartenergy.com/exclusives/private-wyoming-gas-producer-announces-first-us-carbon-neutral-rsg-offering-196627).

[16] With funding from the U.S. Department of Energy, one of the nation's leading CCS applied research projects – "Wyoming CarbonSAFE" – is based in Gillette, Wyoming. https://www.uwyo.edu/cegr/research-projects/wyoming-carbonsafe.html. The Integrated Test Center – a leading research facility for CCUS technologies – is also located in Gillette. https://www.wyomingitc.org/. For these and other reasons, Wyoming truly is "CCUS ready." https://www.wyoenergy.org/news/wyoming-is-ccus-ready/.

[17] https://www.wyoenergy.org/news/awardees-for-the-hydrogen-pilot-project/.

[18] https://www.uwyo.edu/ser/research/centers-of-excellence/hydrogen-energy-research/index.html.

Natural Gas is Necessary to Meet the Nation's Decarbonization Goals

In the United States, natural gas is envisioned to continue to play a vital role in meeting net-zero and related policy goals. According to the International Energy Agency (IEA), "[e]ven with falling battery costs, natural gas is currently the most viable near-term option in most parts of the United States for balancing renewable energy at scale and providing essential load-following services. While this raises the capacity value of natural gas power plants (reflected in the IEA's value-adjusted leveli[z]ed cost of electricity generation), it does not automatically translate into increased natural gas use in power generation … [and] conventional gas power plants play an increasingly important role in providing system flexibility, while baseload generation is met by plants fitted with carbon capture, storage and utili[z]ation technology."[19]

EIA recently "explore[d] [the] effects of not building future interstate natural gas pipelines" between 2024 and 2050, a possible outcome if either or both the Updated Policy Statement and Interim GHG Policy Statement are allowed to take effect. In that scenario, DOE projected in 2050 (and in comparison to the Reference Case of pipeline builds): (1) 5% less natural gas production; (2) 4% less natural gas consumption; (3) "the Henry Hub spot price … would be 11% higher"; (4) natural gas's share of U.S. electricity generation would fall from 34% to 31%, with the deficit made up from renewables, coal and nuclear; and (5) CO_2 emissions would be only "slightly lower."[20]

In 2020/2021, WEA commissioned Professor Tim Considine, an economist at the University of Wyoming, to study the fiscal and economic ramifications that Wyoming could face with a moratorium on new federal leases for oil and gas companies, or a full drilling ban on onshore federal leases. According to Considine's study, a leasing moratorium reduces Wyoming oil and gas tax revenues nearly $200 million per year during the first five years. For onshore federal lands examined in the study, a leasing moratorium reduces oil and gas tax revenues by $1.1 billion per year during the first five years. States with onshore federal lands use this income to fund education, health care, local governments, and special districts, such as conservation boards.[21]

In 2021, WEA, the Wyoming Enhanced Oil Recovery Institute and SER commissioned Advanced Resources, International (ARI) to conduct a similar study of the environmental and economic impacts of policy initiatives that suspend or restrict new leasing and drilling for fossil fuels on federal lands. The ARI study concluded: (1) GHG emissions could increase because of a federal leasing and/or drilling ban; (2) without an increase in oil and/or gas prices, U.S. oil and gas production could decrease by 21% to 34% by 2030; (3) a ban on future drilling on federal lands would prohibit development of 600 to 850 million barrels of incremental oil potential from

[19] "The Role of Gas in Today's Energy Transitions," p. 56 (IEA, 2019) (available at https://iea.blob.core.windows.net/assets/cc35f20f-7a94-44dc-a750-41c117517e93/TheRoleofGas.pdf).
[20] "EIA explores effects of not building future interstate natural gas pipelines" (EIA, April 4, 2022) (available at https://www.eia.gov/todayinenergy/detail.php?id=51898).
[21] "The Fiscal and Economic Impacts of Federal Onshore Oil and Gas Lease Moratorium and Drilling Ban Policies" (Dr. Tim Considine, Dec. 14, 2020) (available at https://www.wyoenergy.org/wp-content/uploads/2020/12/Final-Report-Federal-Leasing-Drilling-Ban-Policies-121420.pdf).

CO_2 enhanced oil recovery in Wyoming, that would facilitate potential geologic storage of 420 to 570 million metric tons of CO_2; (4) without an increase in oil and gas prices, drilling levels in the six western states would drop by as much as 35% due to federal leasing/drilling policies; (5) in Wyoming, by 2030, drilling levels decline by 28%, growing to 43% by 2050; (6) in Wyoming, declines in expenditures associated with oil and gas well drilling would reach over $800 million per year by 2030; and (7) in Wyoming, declines in state revenues associated from oil and gas production could reach over $600 million per year by 2040.[22]

[22] "Assessing Emission and Other Impacts Associated with the Proposed Federal Leasing Ban in Western States" (ARI, March 2021) (available at https://www.eoriwyoming.org/downloads/Impacts-of-proposed-federal-leasing-ban-2021.pdf).