

What More Public Lands Leasing Means for Achieving U.S. Climate Targets

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My name is Nick Loris, and I am the Vice President of Public Policy at the Conservative Coalition for Climate Solutions (C3 Solutions). Thank you for this opportunity to appear before the subcommittee to discuss what more public lands leasing would mean for achieving U.S. climate targets.

My written testimony consists of the following four sections:

- **Emissions on federal lands by the numbers.** To consider what public lands leasing means for climate ambitions, it is important to place the emissions from oil and gas development on federal lands into the necessary context. Oil and natural gas extraction on federal lands represent a small percentage of global greenhouse gas emissions, and restricting production would have minimal climate impact.
- **The unintended environmental and economic consequences of restricting domestic exploration.** Leasing moratoriums or drilling bans on public lands would not stop the domestic or global consumption of oil and natural gas. Reducing domestic supply would instead increase dependence on sources with less rigorous environmental standards than the U.S. Moreover, reducing natural gas supplies could prolong the use of coal. Both outcomes would have the unintended consequence of increasing pollution and increasing carbon dioxide emissions. Western states and Alaska would suffer, as energy production is an important jobs creator, and royalty revenues are a critical funding source for schools, hospitals, conservation, and other public services.
- **The importance of affordable, reliable energy and a clean environment.** America's ascent to become the world's largest oil and gas producer generates significant economic benefits for households and businesses across the country. The U.S.'s leadership on reducing energy-related carbon dioxide emissions, largely through market forces, is also cause for celebration. The energy industry continues to innovate, improve efficiency, and invest in state-of-the-art technology, all of which generates significant economic and

environmental benefits. Expanding energy competition and choice would continue to supply affordable, reliable power while reducing pollution and greenhouse gas emissions.

- **Continuing U.S. leadership on energy and climate change.** Climate change is real, presents real risks and demands attention. Rather than impose arbitrary restrictions and bans on energy production, policymakers should implement pragmatic reforms to federal land management to drive energy and climate policy forward. For instance, integrating natural climate solutions to remediation and abandoned mine sites could create jobs, minimize environmental liabilities, and reduce emissions. Expedited permitting that maintains environmental safeguards could expand infrastructure and zero emissions technologies. In addition, Congress should empower state governments to conduct environmental reviews and permitting on federal lands, which would result in more accountable, effective management.

Emissions on federal lands by the numbers

To understand how oil and gas development on federal lands impacts the climate, it is helpful to examine greenhouse gas emissions figures and place them into the necessary context. Two recent federal government reports assessed greenhouse gas emissions on federal lands. A November 2021 study from the U.S. Department of Interior’s Bureau of Land Management (BLM) found that fossil fuel extraction contributed 918.6 million metric tons of carbon dioxide equivalent in 2020.¹ That figure includes coal, oil and natural gas and emissions from direct, indirect and end use.² A November 2018 report from the U.S. Geological Survey found emissions from fossil fuel production represented 23.7% of U.S. carbon dioxide emissions, 7.3% of U.S. methane emissions, and 1.5% U.S. nitrous oxide emissions from 2005-2014.³

Breaking these numbers down by resource, in the context of overall domestic emissions, global emissions and impacts on global temperatures provides useful context for these figures and what these numbers mean for domestic and global climate targets.

Based on 2019 data reported by BLM, it is worth noting that:

- The direct emissions from coal, oil and gas from BLM’s leasing and extraction represent 0.8 percent of U.S. emissions and 0.09 percent of global emissions.
- Including end-use consumption, the total emissions from coal, oil and gas production on federal lands represent 14 percent of U.S. emissions and 1.6 percent of global emissions.⁴

¹U.S. Department of Interior Bureau of Land Management, “2020 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends from Coal, Oil, and Gas Exploration and Development on the Federal Mineral Estate,” October 2021, <https://www.blm.gov/content/ghg/#exsum> (accessed November 29, 2021).

² Ibid.

³ Ibid.

⁴ Ibid. Based on calculations using different Intergovernmental Panel on Climate Change reports, BLM notes these figures may be overestimations.

- The Biden administration’s Department of Interior claims that fossil fuel extraction represents “nearly a quarter” of all emissions⁵, yet in fact energy-related emissions is much closer to 1/5th of all emissions based on DOI’s own data.
- Of the 918.6 metric tons of carbon dioxide released each year on federal lands, coal accounts for 53 percent of emissions.
- Oil and gas development on federal lands (extraction, indirect and end use combustion) is responsible for 6.5 percent of total domestic greenhouse gas emissions and 0.7 percent of global greenhouse gas emissions.

The 2018 USGS report also noted that carbon dioxide emissions fell more than 6 percent on federal lands from 2005-2014.⁶ Methane emissions and nitrous oxide emissions from fossil production on federal lands fell 10.5 percent and 20.3 percent, respectively, over the same period.⁷

Another way of assessing the climate impact of energy production on federal lands is to estimate the amount of warming produced by the emissions and the potential amount of warming abated by restricting development. One tool for doing so is the Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC).⁸ Developed at the National Center for Atmospheric Research in part with funding from the Environmental Protection Agency, the MAGICC model quantifies the temperature effect and sea level changes from increases and decreases in greenhouse gas emissions.

According to the MAGICC model, using a climate sensitivity of 4.5 degrees Celsius (the warming effect of a doubling of carbon-dioxide emissions, even though such an estimate exceeds some of the recent peer-reviewed research on the topic), eliminating coal, oil and natural gas production on federal lands would result in 0.08 degrees Celsius of averted global warming by the year 2100.⁹ If increased fossil development on federal land occurs and increases greenhouse

⁵U.S. Department of Interior, “Interior Department Outlines Next Steps in Fossil Fuels Program Review,” March 9, 2021, <https://www.doi.gov/pressreleases/interior-department-outlines-next-steps-fossil-fuels-program-review> (accessed November 29, 2021).

⁶ Matthew D. Merrill, Benjamin M. Sleeter, Philip A. Freeman, Jinxun Liu, Peter D. Warwick and Bradley C. Reed, “Federal lands greenhouse emissions and sequestration in the United States—Estimates for 2005–14: Scientific Investigations Report 2018–5131,” U.S. Geological Survey, 2018, <https://pubs.usgs.gov/sir/2018/5131/sir20185131.pdf> (accessed November 26, 2021).

⁷ Ibid.

⁸ M. Meinshausen, S. C. B. Raper, and T. M. L. Wigley, “Emulating Coupled Atmosphere-Ocean and Carbon Cycle Models with a Simpler Model, MAGICC6—Part I: Model Description and Calibration,” *Atmospheric Chemistry and Physics*, Vol. 11 (2011), pp. 1417–1456, <https://www.atmos-chem-phys.net/11/1417/2011/acp-11-1417-2011.html> (accessed November 29, 2022), and University Corporation for Atmospheric Research, “MAGICC/SCENGEN,” <http://www.cgd.ucar.edu/cas/wigley/magicc/> (accessed November 26, 2021).

⁹ Ibid.

gas emissions, the climate effects would be a rise of 0.03 degrees Celsius by the end of the century.¹⁰

Unintended economic and environmental consequences of restricting production on federal lands

Decisions to curtail resource extraction in the U.S. would likely have the unintended environmental consequence of increasing global greenhouse gas emissions and would likely increase criterion pollutants that adversely affect public health and the environment. Policies that restrict oil and natural gas production domestically would not meaningfully change energy consumption patterns in the U.S. and around the world. Higher energy prices from restricted domestic supplies could reduce some consumption, but those changes would depend in the price elasticity of demand in the intermediate and long run.¹¹ However, restrictions and bans on domestic extraction would likely provide opportunities for increased supply from OPEC+ and other countries where the environmental standards are less rigorous. Even if the production shifts to nonfederal lands in the U.S., the emissions leakage rate could range from 53-73 percent.¹²

Additionally, reductions in natural gas supply could result in a switch back to coal or could force electricity producers to keep existing coal-fired generation on-line. In a September 2020 study prepared by OnLocation, Inc and using the U.S. Energy Information Administration's National Energy Modeling System, higher natural gas prices increase coal generation 15 percent by 2030 and half as much coal generating capacity is retired.¹³ The report concludes that CO2 emissions increase two percent in 2030 and five percent over the long run.¹⁴

Government-imposed restrictions on leasing have other adverse economic and environmental costs. Federal and state governments generate substantial returns from oil and natural gas production on public lands through revenues collected from royalties, rents and bonus bids. For production onshore, states receive nearly half that revenue, which can help fund schools, public

¹⁰ Ibid. In its Annual Energy Outlook, the federal government's Energy Information Administration (EIA) makes projections of energy production, consumption, and prices. The reference case assumes midpoint projections for energy resources and assumes that regulations follow their legislative timelines. As part of its sensitivity analysis, the EIA also produces two side cases where energy resources are assumed to be (a) 50 percent higher and (b) 50 percent lower than the reference case. Though these side cases are not intended to model policy changes, the High Resource Case offers a glimpse of what might be. Running a high-resource case using the U.S. Energy Information Administration data and projected a 12 percent increase in carbon dioxide, methane and nitrous oxide emissions.

¹¹ Lutz Killian, "Understanding the Estimation of Oil Demand and Oil Supply Elasticities," Federal Reserve Bank of Dallas, September 2020, <https://www.dallasfed.org/-/media/documents/research/papers/2020/wp2027.pdf> (accessed November 29, 2021).

¹² Brian Prest, "Supply-Side Reforms to Oil and Gas Production on Federal Lands: Modeling the Implications for Climate Emissions, Revenues, and Production Shifts," Resources for the Future, September 2020, https://media.rff.org/documents/RFF_WP_20-16_Prest.pdf?ga=2.25893309.1499405328.1638287529-1934057910.1638287529 (accessed November 29, 2021).

¹³ OnLocation, Inc., "The Consequences of a Leasing and Development Ban on Federal Lands and Waters," September 2020,

https://www.api.org/~media/Files/News/2020/09/Consequences_of_a_Leasing_and_Development_Ban_on_Federal_Lands_and_Waters.pdf (accessed November 29, 2021).

¹⁴ Ibid.

safety, hospitals, infrastructure projects and conservation programs. In Fiscal Year 2021 alone, oil and gas development on federal lands generated nearly \$8 billion in revenue.¹⁵

University of Wyoming economist Timothy Considine estimates that the fiscal and economic costs of leasing moratoriums and drill bans would be devastating to western states and the broader economy. Specifically, Considine found:

Total lost investment from 2021 to 2040 is \$372 billion under a lease moratorium and \$389 under a drilling ban. Lost investment translates to lost production, which is \$478 and \$503 billion under a lease moratorium and a drilling ban respectively. Fiscal losses are significant accumulating to \$114 billion under a lease moratorium. A drilling ban generates losses in oil and gas tax revenues of \$119 billion over the next 20 years, creating a difficult situation for resource dependent states, such as New Mexico, Wyoming, and Alaska. Finally, these policies reduce economic growth, causing losses of \$640 billion and \$671 billion under a lease moratorium and drilling ban respectively.¹⁶

Recently the Biden administration announced it would consider greenhouse gas emissions before allowing oil and natural gas leasing on public lands. In doing so, the administration should consider:

- Potential unintended environmental, energy security and economic consequences from prohibiting lease sales. That may include increased coal generation, additional imports from less environmentally friendly sources, job losses, lost economic development and lost revenue opportunities.
- The temperature and sea level rise effects of oil and natural gas development on federal land. While it is understandable to assess the climate impacts of projects and policies, determining what the social cost of each additional metric ton of carbon dioxide is would be challenging. The Integrated Assessment Models used to generate the social cost of carbon produce widely different results based on relatively simple and reasonable changes to the inputs of the model. If the administration is going to require a climate analysis before oil and gas leasing, agencies should also use the MAGICC model to measure the effects on global temperatures and sea level rise. Doing so would provide additional information for policymakers and the general public when assessing the costs and benefits of different climate policies.
- The lifecycle emissions of all energy development on public lands. The increased development of renewable energy on BLM-managed land is encouraging. As of November 2021, 123 renewable projects (48 geothermal, 37 solar and 36 wind) on

¹⁵ U.S. Department of Interior, "Natural Resources Revenue Data," November 23, 2021, <https://revenue.data.doi.gov/?tab=tab-revenue> (November 29, 2021).

¹⁶ Timothy J. Considine, "The Fiscal and Economic Impacts of Federal Onshore Oil and Gas Lease Moratorium and Drilling Ban Policies," University of Wyoming, December 14, 2020, <https://www.wyoenergy.org/wp-content/uploads/2020/12/Final-Report-Federal-Leasing-Drilling-Ban-Policies-121420.pdf> (accessed November 29, 2021).

federal lands have a combined generating capacity of more than twelve gigawatts.¹⁷ However, if the administration is going to consider the direct, indirect and end use emissions of fossil fuel development on federal lands, Interior should do the same for all energy projects.

The Importance of Affordable, Reliable Energy and a Clean Environment

Americans are feeling the economic pain of higher energy bills and prices at the pump. Much of Europe is facing an energy crisis that could worsen during the winter months.¹⁸ Therefore, policymakers must properly weigh the costs and benefits of energy and environmental policy, including potential effects on prices and reliability.

Affordable, reliable power is essential for American households and businesses that want to maintain living standards. People depend on power to heat and cool their homes, run their hospitals and transport their kids to school. They aren't set up to live without electricity, heat or air conditioning for sustained periods of time. When Americans pay more for electricity and gasoline, fewer dollars available for health care, clothes and food, which disproportionately harms older populations, low-income families and communities of color.¹⁹

Higher energy bills can be the difference between life and death. Mortality rates rise in colder months.²⁰ On the other hand, affordable heat saves lives. A 2021 journal article in the *Monash Econometrics and Business Statistics Working Papers* found that because of the shale revolution the "42% drop in natural gas prices in the late 2000s averted 13,000 winter deaths per year in the US."²¹ The same study also found the positive impacts to be "especially large in high poverty communities."²²

A clean, healthy environment is also extremely important. As the U.S. became a global leader in oil and natural gas supplies once again, it also became a global leader when it comes to reducing energy related CO2 emissions. Fuel switching from coal to natural gas is the primary driver for why CO2 emissions fell over the past 16 years. According to the Energy Information

¹⁷ U.S. Department of Interior Bureau of Land Management, "Expanding Renewable Energy," <https://www.blm.gov/programs/energy-and-minerals/renewable-energy> (accessed November 29, 2021).

¹⁸ Rachel Morison, "Europe's Energy Crisis Is About to Get Worse as Winter Arrives," *Bloomberg*, November 28, 2021, <https://www.bloomberg.com/news/articles/2021-11-28/europe-s-energy-crisis-is-about-to-get-worse-as-winter-arrives> (accessed November 29, 2021).

¹⁹ Ariel Drehobl, "Low-Income Households Pay More for Energy, but Efficiency Can Help," *U.S. News* September 30, 2020, <https://www.usnews.com/news/healthiest-communities/articles/2020-09-30/poor-households-pay-more-for-energy-but-efficiency-can-help#:~:text=Fully%20two%2Dthirds%20of%20low,American%20households%20spend%2045%25%20more> (accessed November 29, 2021).

²⁰ Olivier Deschênes and Enrico Moretti, "Extreme Weather Events, Mortality, and Migration," 2009, *Review of Economics and Statistics* 91 (4), pp. 659–681 and Indur Goklany, "Wealth and Safety: The Amazing Decline in Deaths from Extreme Weather in an Era of Global Warming, 1900–2010," The Reason Foundation, September 2011, https://reason.org/wp-content/uploads/files/deaths_from_extreme_weather_1900_2010.pdf (accessed November 29, 2021).

²¹ Janjala Chirakijja & Seema Jayachandran & Pinchuan Ong, 2021. "Inexpensive Heating Reduces Winter Mortality," *Monash Econometrics and Business Statistics Working Papers* 9/21, Monash University, Department of Econometrics and Business Statistics.

²² Ibid.

Administration, “Between 2005 and 2019, total U.S. electricity generation increased by almost 2% while related CO2 emissions fell by 33%.”²³ Fuel switching from home heating oil to natural gas in the northeast is also saving households money while generating environmental benefits.

Beyond emissions reductions, smaller drill pads are reducing the industry’s land footprint and production efficiencies are increasing per-well productivity and using fewer resources. Engineers and scientists are exploring using carbon dioxide for hydraulic fracturing as a potentially greener, cost-effective and more efficient alternative to water.²⁴ Americans’ entrepreneurial drive will meet consumers’ energy needs while improving air quality, water quality and reducing the risks of climate change. Investments in research and development, reforms to streamline permitting, reducing government-imposed barriers to investment and innovation and sensible regulations will empower innovators to provide cost effective environmental solutions.²⁵

American Leadership on Energy Innovation and Climate Solutions

The 244 million acres managed by the Bureau of Land Management²⁶ is extensive and benefits a diverse set of stakeholders such as ranchers, farmers, tourists, hunters, and energy producers. Instead of lease moratoriums and drilling bans, policymakers should explore ways to reduce emissions on federal lands based on market principles, property rights and principles that adhere to the statutory obligations that agencies have of managing multi-use land. Policymakers should consider:

- **Integrating natural climate solutions into reclamation and remediation projects.** There are hundreds of thousands of abandoned mine sites on federal lands, and policymakers should turn these environmental liabilities into opportunities. Establishing better incentives for abandoned mine clean up can turn health, safety and environmental dangers into productive land.²⁷ Improving soil health, planting more trees and eradicating invasive species could provide more economic opportunities but also sequester more carbon dioxide. Strictly voluntary carbon markets also provide an opportunity for companies to offset their emissions.
- **Expediting permitting for low and zero-carbon technologies.** Technological advancements in renewable, nuclear and conventional fuels will ensure the U.S. remains a global leader on energy innovation and combatting climate change. Recently, NET

²³U.S. Energy Information Administration, “U.S. Energy-Related Carbon Dioxide Emissions, 2019,” September 30, 2020, <https://www.eia.gov/environment/emissions/carbon/> (accessed November 29, 2021).

²⁴ Adam Vaughan, “Could fracking with carbon dioxide instead of water be greener?,” *NewScientist*, May 30, 2019, <https://www.newscientist.com/article/2204939-could-fracking-with-carbon-dioxide-instead-of-water-be-greener/> (accessed November 29, 2021).

²⁵ Nick Loris, “Free Economies are Clean Economies,” C3 Solutions, April 2021, <https://www.c3solutions.org/wp-content/uploads/2021/04/Free-Economies-are-Clean-Economies-4.pdf> (November 29, 2021).

²⁶ Congressional Research Service, “Federal Land Ownership: Overview and Data,” February 21, 2020, <https://sgp.fas.org/crs/misc/R42346.pdf> (accessed November 29, 2021).

²⁷ Jonathan Wood, “Prospecting for Pollution: The Need for Better Incentives to Clean Up Abandoned Mines,” The Property and Environment Research Center, February 2020, <https://www.perc.org/wp-content/uploads/2020/02/prospecting-for-pollution-abandoned-mines.pdf> (accessed November 29, 2021).

Power LLC delivered zero-emissions power from a natural gas plant. In what CEO Ron DeGregorio called a “Wright brothers moment”, NET Power’s technology burns natural gas with pure oxygen rather than air and uses supercritical (liquid state) CO₂ rather than steam to power the turbine that drives the generator. The excess CO₂ created would be pipeline ready for industrial processes like enhanced oil recovery or to pump into greenhouses to boost agricultural yields. However, economically viable innovations do no good if unnecessary barriers shelve their implementation. Traditional infrastructure and clean energy projects have faced lengthy delays, changes in administrations with different political objectives, NIMBY obstructionism and lawsuits. To turn baby steps forward into leaps forward, policymakers must remove government-imposed barriers to innovation, investment and deployment. Private sector and U.S. leadership on research, along with the demonstration and deployment of technologies like carbon dioxide removal and carbon dioxide storage could also minimize the emissions impact of public lands leasing.²⁸

- **Transitioning permitting authority to states.** Transferring decision rights to states and the private sector could lead to an industry that is more flexible, responsive to price changes, and integrates property rights into energy development and conservation. According to research from Utah State University economist Eric C. Edwards, the “potential for improving the responsiveness of federal lands to price signals could be achieved through a reduction in delay in the BLM permitting process.”²⁹ State control of the leasing process (including for conservation leasing³⁰), local governance, and private-sector participation would result in more accountable, effective management. While the federal government can simply shift the costs of mismanagement to federal taxpayers, states have powerful incentives for better management of resources on federal lands. State governments can be more accountable to the people who will directly benefit from wise management decisions or suffer from poor ones.

²⁸ Steven Ashby, “1st of kind project near Tri-Cities may pave way for global greenhouse solutions,” *Tri-City Herald*, November 21, 2021,” <https://www.tri-cityherald.com/news/local/pacific-northwest-national-lab/article255960507.html> (accessed November 29, 2021) and U.S. Department of Energy, “New Target Aims to Dramatically Scale Up Responsible Carbon Dioxide Removal, Slash Costs of Critical Clean Energy Technology,” November 5, 2021, <https://www.energy.gov/articles/secretary-granholm-launches-carbon-negative-earthshots-remove-gigatons-carbon-pollution> (accessed November 29, 2021).

²⁹Eric C. Edwards, Trevor O’Grady, and David Jenkins, “The Effect of Land Ownership on Oil and Gas Production: A Natural Experiment,” Working Paper, December 2016, <https://papers.sioe.org/paper/2022.html> (accessed November 29, 2021).

³⁰ Bryan Leonard et al., “Allow “nonuse rights” to conserve natural resources,” *Science*. Vol. 373 Issue 6558, pp 958-961, August 26, 2021, <https://www.science.org/doi/abs/10.1126/science.abi4573>