DRILLING TOWARD DISASTER:
NEW MEXICO'S OIL & GAS BOOM UNDERMINES THE STATE'S CLIMATE GOALS

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SUMMARY

This briefing compares New Mexico's oil and gas boom with the state's goals to reduce climate emissions. It shows how the projected increase in New Mexico's oil and gas production is entirely out of sync with the action necessary to prevent catastrophic climate change.

We compare the emissions from burning the oil and gas that New Mexico is projected to produce over the next decade with New Mexico's goal of reducing carbon emissions by 45% over that same period (from 2005 levels).

We find that New Mexico cannot meet its commitment to global climate goals if it allows a massive expansion in oil and gas production, exporting new emissions outside of the state.

The numbers:

- **Unprecedented expansion:** Since 2010, New Mexico's oil and gas production has grown 125%, to just under 2 million barrels of oil equivalent per day (boe/d) in 2019. **Oil and gas production is expected to grow an additional 85% by 2030,** reaching 3.5 million boe/d.
- **Dependent on new drilling:** From now to 2030, **over 70% of New Mexico's oil and gas production will come from wells that have not yet been drilled.** We call this 'undeveloped' oil and gas.
- **Pollution in 2030 on par with 141 coal plants:** In 2030, annual carbon dioxide (CO_2) emissions from burning New Mexico's oil and gas will reach over 550 million metric tons per year (MMT/yr), the equivalent of 141 coal plants.
- **CO_2 from new drilling would wipe out in-state emissions reductions:** In 2030, 86% of projected emissions — 478 MMT — will come from burning currently undeveloped oil and gas. This is equivalent to the annual emissions from 123 coal plants, and **over 10 times Governor Michelle Lujan Grisham's target for in-state emissions in 2030.**

New Mexico cannot expect other states and countries to follow its example in reducing emissions if it continues to push an increasing amount of fossil fuel into the global market. Only a managed and equitable phase-out of oil and gas production, while protecting and supporting workers and communities along the way, can achieve the governor's commitment to meet the goals of the Paris Agreement.[1]

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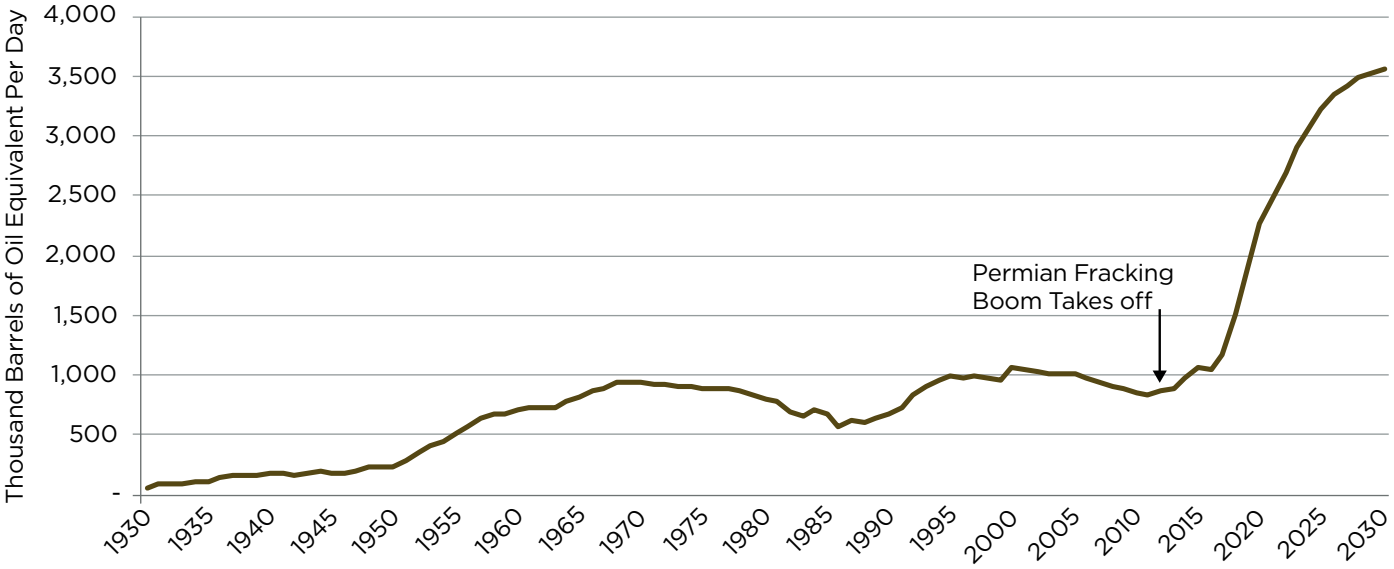
1 New Mexico Interagency Climate Change Taskforce, 'New Mexico Climate Strategy: Initial Recommendations and Status Update.' 2019 https://www.climateaction.state.nm.us/documents/reports/NMClimateChange_2019.pdf

NEW MEXICO'S OIL & GAS PRODUCTION

Oil and gas production in New Mexico is in the midst of an unprecedented boom.[2] At no time in the 100-year history of the state's oil and gas industry has production grown so much and so quickly. While the growth rate is projected to slow slightly compared to the past five years, production is still expected to grow 85% by 2030, reaching over 3.5 million boe/d, compared to a pre-fracking boom high of around 1 million boe/d (Figure 1).

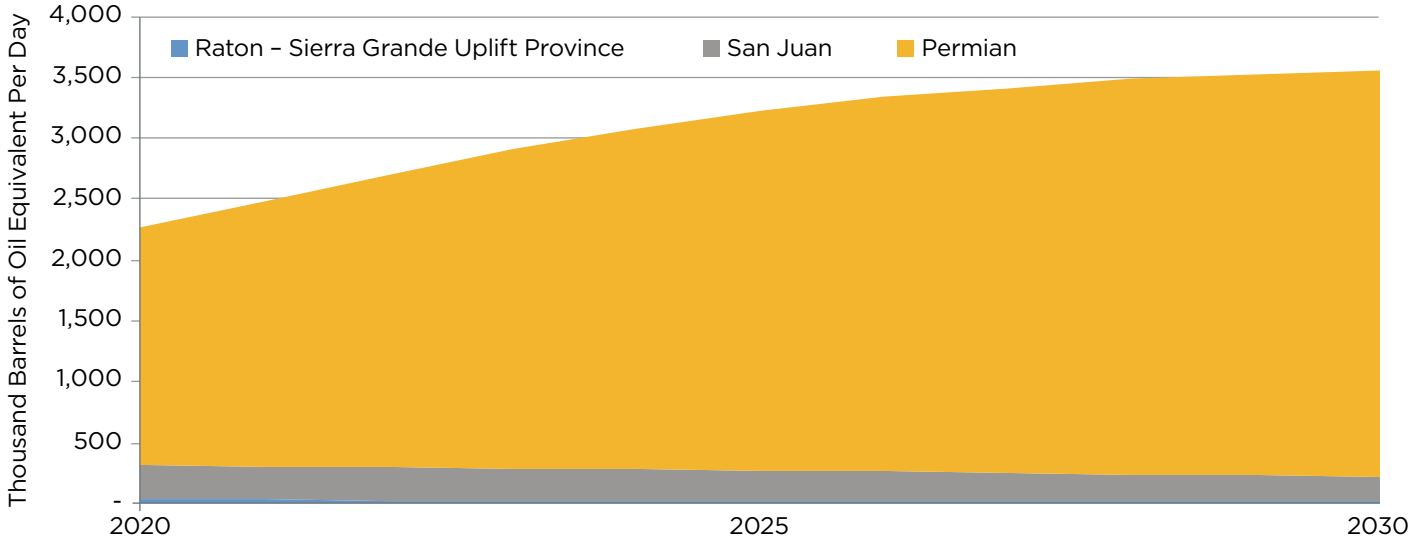
This growth comes at a time when the world's foremost climate scientists are telling us global oil and gas consumption should be in decline in order to meet climate goals. This means that New Mexico's growing dependence on oil and gas revenue is fundamentally out of step with global climate goals, and is not as secure as many like to think.[3]

Figure 1: New Mexico Oil & Gas Production



Source: Rystad Energy

Figure 2: New Mexico Oil & Gas Production by Basin



Source: Rystad Energy

2 All oil and gas production figures in this briefing are sourced from the Rystad Energy UCube database, January 2020.
3 IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson- Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)].

IT DOESN'T HAVE TO BE THIS WAY: EMISSIONS COME MOSTLY FROM WELLS YET TO BE DRILLED

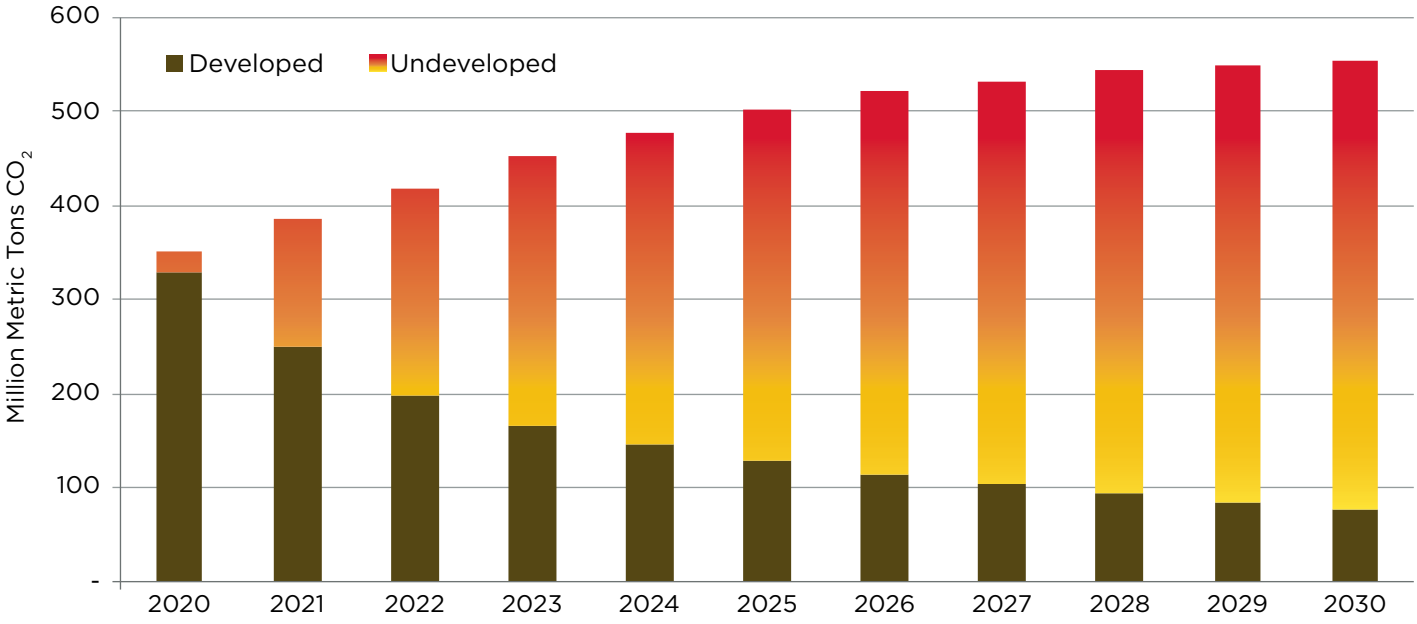
The vast majority of New Mexico's projected oil and gas production from 2020 to 2030 is set to come from the Permian Basin (Figure 2), which is a shale play. Shale wells have notoriously fast depletion rates, which means over 70% of projected oil production in this period comes from wells that have not been drilled yet. This is good news, because it means there is still time for a managed phase-out of New Mexico's oil and gas production that could help prevent billions of tons of CO_2 from reaching our atmosphere and driving catastrophic climate change.

Based on projected production from 2020 to 2030, a total of 5.3 billion tons of CO_2 could be released if the current projection for the state's production plays out.[4] This estimate is based on combustion of oil and gas only, and is therefore conservative. We assume all gas is sent to market and combusted — however, methane emissions from New Mexico's oil and gas industry were estimated at 1 million tons in 2017, and could rise to over 3 million tons per year in the coming decade.[5] As a highly potent greenhouse gas, this methane adds hundreds of millions of tons of CO_2-equivalent to New Mexico's greenhouse gas inventory each year.

In 2030, annual emissions from burning New Mexico's oil and gas could reach over 550 million metric tons per year, the equivalent of 141 coal plants.[6]

As Figure 3 shows, each year is projected to see increased production from wells that were not yet drilled at the beginning of 2020. As soon as 2022, over 50% of emissions could come from new wells. That figure rises to 86% in 2030. This progression emphasises both the opportunity for policies aimed at reining in expansion of the oil and gas industry, and the fact that continued production growth depends on drilling hundreds of wells per year, expanding the disregard for regulation and severe environmental and health impacts of the industry in recent years.[7]

Figure 3: CO_2 Emissions from New Mexico Oil & Gas 2020-2030 by Development Stage



Source: Oil Change International using Rystad Energy and IPCC

4 We take the Rystad projections for oil and gas production and multiply them by IPCC emissions factors for the combustion of each fuel. This does not include methane leakage or other process emissions. All gas is assumed to be combusted. Gas that is vented at wellheads, processing plants, and along the entire supply chain increases the full greenhouse gas emissions of New Mexico's oil and gas production.
5 Environmental Defense Fund and Spherical Analytics 2019. 'New Mexico Methane Emissions Modelling Tool. https://www.edf.org/nm-oil-gas/scenarios
6 Coal plant equivalents from https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
7 Adrian Hedden, 'State of New Mexico Issues Air Pollution Violation Notices to Oil and Gas Producers.' January 15, 2020. Carlsbad Current Argus, https://www.currentargus.com/story/news/local/2020/01/15/state-new-mexico-issues-violation-notices-oil-and-gas-operators/4476677002/

UNDEVELOPED OIL & GAS EMISSIONS ARE TEN TIMES NEW MEXICO'S 2030 EMISSIONS TARGET

While New Mexico is pursuing important policies to combat climate change at home — such as a 45% reduction in emissions by 2030 based on 2005 levels — the state also recognizes that the oil and gas industry is a significant and growing source of emissions.[8] Governor Michelle Lujan Grisham's recent climate strategy report cites the oil and gas sector as the key reason why New Mexico's per capita emissions are 70% higher than the national average.[9]

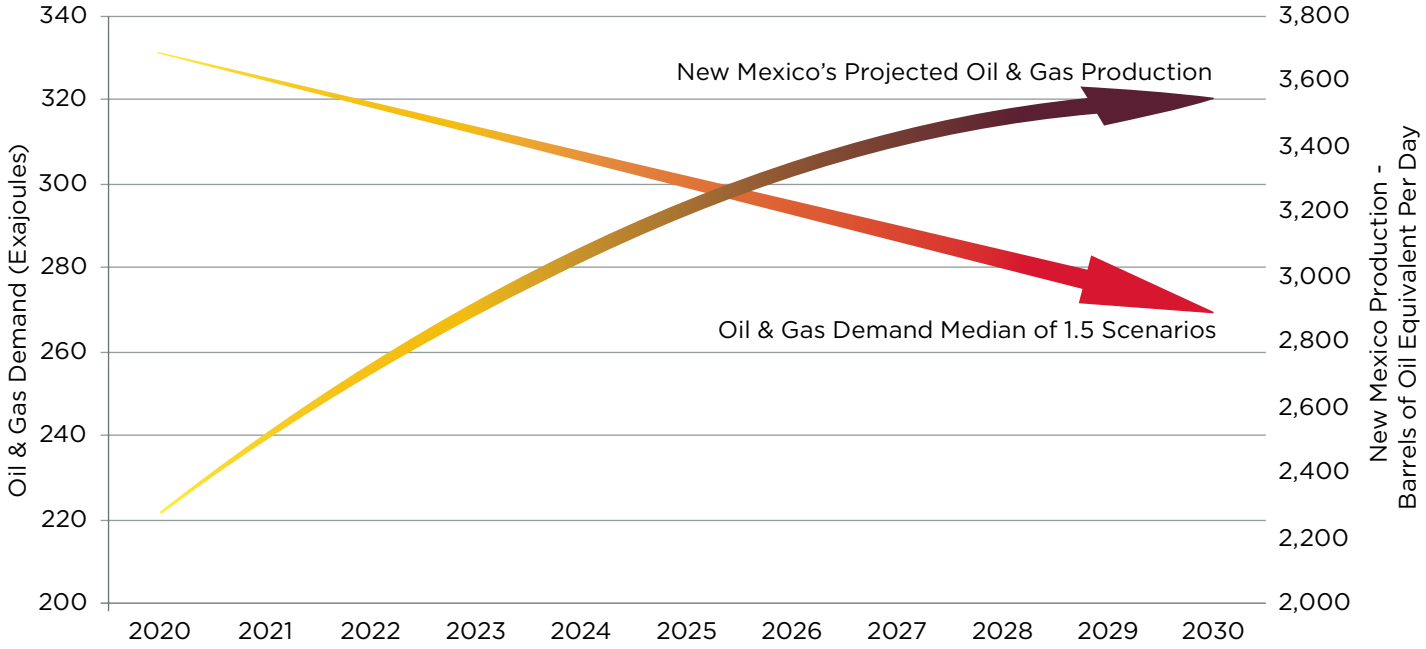
Those calculations are based only on emissions occurring within the borders of the state. However, the majority of New Mexico's oil and gas production is exported and burned outside of the state. Increasingly, it is exported to global markets via Texas, as surging production in the Permian Basin overwhelms U.S. demand.[10] These emissions, known in corporate reporting parlance as Scope 3 emissions, far outweigh the state's internal emissions, (see Figure 5). **Public accountability and transparency require New Mexico to begin by accounting for and reporting these emissions in its greenhouse gas inventory.**

It is crucial that New Mexico takes responsibility for these emissions. New Mexico cannot expect other states and countries to follow its example in reducing emissions if it continues to push an increasing amount of fossil fuel into the global market. At a global level, the math is simple — worldwide emissions cannot decrease if fossil fuel production continues to grow.

Figure 4 shows the trajectory of global oil and gas consumption (primary energy) from 2020 to 2030 under a median of scenarios developed by the Intergovernmental Panel on Climate Change for limiting average global temperature rise to 1.5°C. This 1.5°C climate target is cited by New Mexico's Interagency Climate Change Taskforce in the opening paragraph of its 2019 report, and generally regarded as a necessary limit to avoid increasingly catastrophic climate damages.[11]

Some scenarios assume high levels of unproven negative emissions technologies, which means that decline may have to be steeper if

Figure 4: New Mexico's Projected Oil & Gas Production Compared to Global Oil & Gas Demand in 1.5C Scenarios



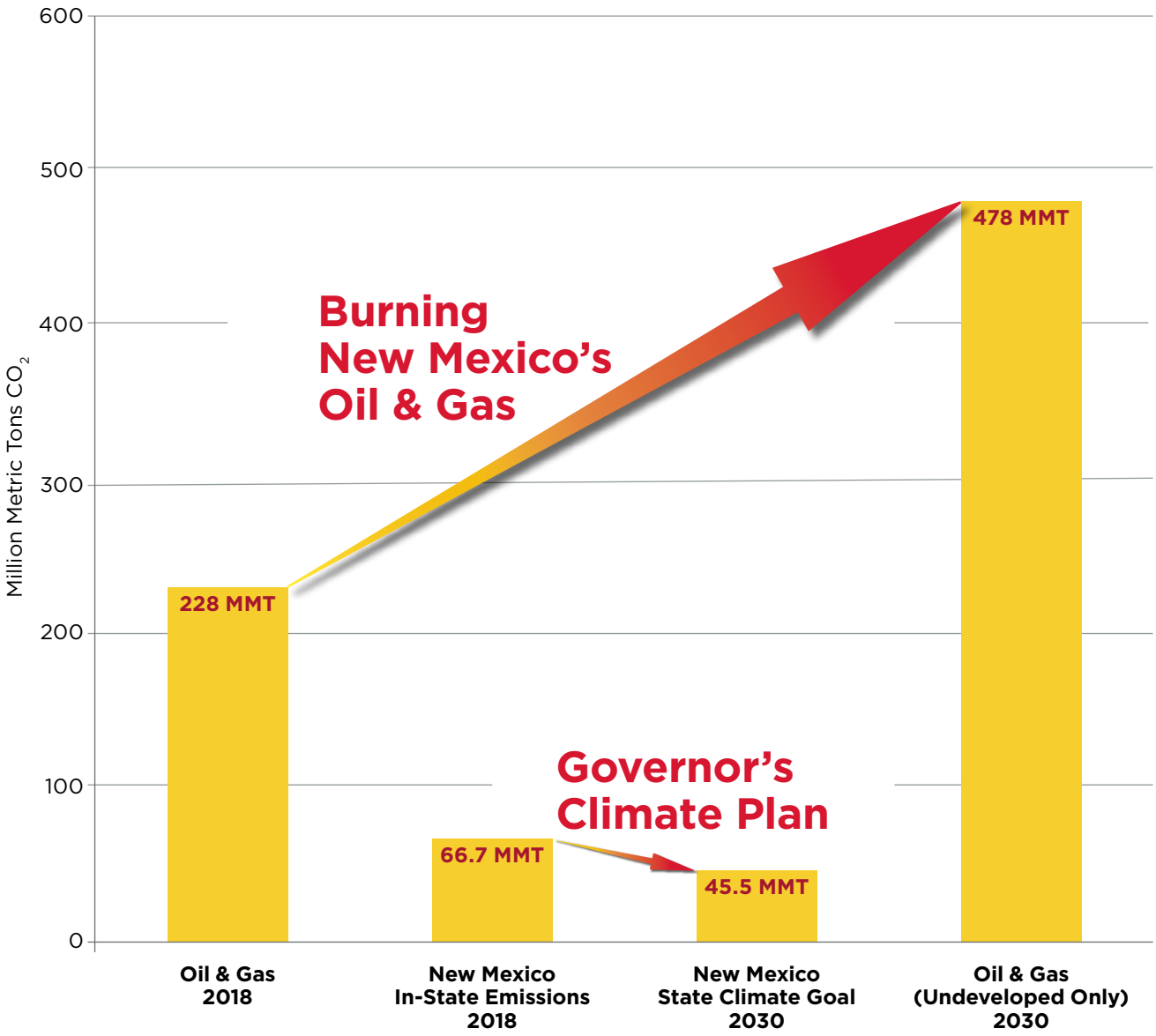
Source: IAMC 1.5°C Scenario Explorer and Data hosted by IIASA, release 1.0[12]

8 New Mexico Interagency Climate Change Taskforce 2019.
9 New Mexico Interagency Climate Change Taskforce 2019.
10 Oil Change International and Greenpeace USA, 'Carbon Impacts of Reinstating the U.S. Crude Export Ban'. January 28, 2020. http://priceofoil.org/2020/01/28/crude-export-ban-carbon/
11 New Mexico Interagency Climate Change Taskforce 2019

these technologies are not developed, particularly after 2030. But even this relatively conservative projection shows a steep downward trend in global oil and gas consumption, in stark contrast to the potential trajectory of New Mexico's oil and gas production. Demand for oil, the main driver of the oil and gas industry's growth in New Mexico, declines over 20% from 2020 to 2030 under the median of these 1.5°C scenarios, while New Mexico's oil production grows by 75%.

The contrast between New Mexico's in-state emissions and growing emissions from combustion of its oil and gas is stark. In 2018, combustion emissions from New Mexico's oil and gas amounted to 228 MMT, compared to reported statewide emissions of 66.7 MMT. In 2030, emissions from currently undeveloped oil and gas alone could reach 478 MMT, while the state's climate goal aims for a 45% reduction of emissions based on 2005 levels, or 45.5 MMT. This means that **burning the currently undeveloped oil and gas that New Mexico is projected to produce in 2030 could result in emissions over 10 times that of the state's 2030 emissions target.**

Figure 5: New Mexico's Oil & Gas Emissions Growth (2018-2030) Overshadows State Climate Goals



Source: Oil Change International using Rystad and IPCC data and New Mexico Interagency Climate Change Taskforce 2019

12 Daniel Huppmann et al., IAMC 1.5°C Scenario Explorer and Data hosted by IIASA (Release 1.0), Integrated Assessment Modeling Consortium & International Institute for Applied Systems Analysis, 2018, https://data.ene.iiasa.ac.at/iamc-1.5c-explorer. Based on the median of primary energy from oil and gas from 53 scenarios assessed by the IPCC to keep global warming to 1.5°C by 2100 with no or low overshoot of that limit.

Box: New Mexico's Oil & Gas Is Controlled by Multi-Billion Dollar Corporations

The lion's share of New Mexico's oil and gas is owned by multibillion dollar corporations. Based on projected production from 2020 to 2030, multinational giants Exxon and Chevron slot in at first and third respectively. The second-biggest player is EOG Resources, formerly Enron.

Rank	Company	Production 2020–2030 Billion BOE
1	ExxonMobil	1.8
2	EOG Resources	1.4
3	Chevron	1.1
4	Concho Resources	1.1
5	Devon Energy	1.0
6	Mewbourne Oil Company	0.9
7	Oxy	0.8
8	Matador Resources	0.4
9	Hillcorp Energy	0.3
10	Cimarex Energy	0.3

Source: Rystad Energy

CONCLUSION: AN OPPORTUNITY TO REMAKE AND CLIMATE-PROOF NEW MEXICO'S ECONOMY

The climate crisis is daunting, and the large-scale transformation needed to address it poses tough choices for New Mexico. Currently, the state's revenues are substantially linked to a fast-growing source of greenhouse gas emissions — its oil and gas industry. If other states and countries implement rigorous climate policies — as is necessary to meet global climate goals and maintain a habitable planet — New Mexico's economy will be impacted. Under any scenario, aligning New Mexico's economy with a safe climate future is essential.

Basic economics tells us that the consumption of any product is shaped by both supply and demand. It follows that reducing supply and demand together, or 'cutting with both arms of the scissors,'[13] is the most efficient and effective way to reduce harm. Putting limits on fossil fuel extraction — or 'keeping it in the ground,' in activist parlance — is a core yet underutilized lever for accelerating climate action.

Managing the phase-out of New Mexico's oil and gas industry in a safe, just, and equitable way is imperative to protect workers and impacted communities. It's also an opportunity to remake and climate-proof the state's economy and ensure the state can thrive for decades to come.[14] New Mexico can and must take a leadership role in tackling climate change to align with its stated aspirations.

New Mexico would not be alone in pursuing such a path. A growing group of nations and sub-national jurisdictions are putting fossil fuel reserves off limits in an effort to avoid emissions lock-in, pioneering a new, inclusive kind of climate leadership.[15] As climate impacts accelerate and calls for meaningful action increase, New Mexico risks more than a laggard's reputation by continuing down the path of oil and gas expansion — it risks real and severe economic disruption as the world shifts ever faster away from fossil fuel dependence.

Thankfully, there's still time for a change in course for the state to confront the climate challenge head-on by taking responsibility for and addressing the full range of its greenhouse gas emissions. This is a conversation that must start now — managing the phase-out of the oil and gas industry requires substantial policy and planning to ensure an equitable transition. Whether it starts with protecting public lands, expanding permitting reviews, strengthening environmental regulations, or implementing moratoria on extraction, it is a strategy New Mexico can no longer ignore.

13 In his seminal 1890 work, Principles of Economics, Alfred Marshall remarked, "We might as reasonably dispute whether it is the upper or the under blade of a pair of scissors that cuts a piece of paper, as whether value is governed by utility [demand] or cost of production [supply]." Marshall's writing inspired the title of the 2018 article in Climatic Change by Fergus Green and Richard Denniss, "Cutting with both arms of the scissors: The economic and political case for restrictive supply-side climate policies." https://link.springer.com/content/pdf/10.1007%2Fs10584-018-2162-x.pdf

14 This briefing is not a comprehensive compilation of the significant issues concerning the risks of oil and gas to New Mexico's economy. Those risks include potential outsized liabilities associated with abandoned wells, impacts to public health and welfare, and more. Further research is needed to elucidate and expand on these risks, and action should be taken to mitigate them during a managed phase-out of oil and gas extraction in New Mexico.

15 Kelly Trout, 'First Movers Towards A Managed Decline: Leading The Way In Stopping Oil And Gas Expansion'. December 2019, Oil Change International. http://priceofoil.org/content/uploads/2020/02/first-movers-factsheet-december-2019-r2.pdf

Oil Change International is a research, communications, and advocacy organization focused on exposing the true costs of fossil fuels and facilitating the coming transition towards clean energy.

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