



New Mexico Greenhouse Gas Emissions Inventories (2005 oil & gas and 2021) and Forecasts



December 2024



Introduction

In 2019, Governor Michelle Lujan Grisham issued ***Executive Order 2019-003 on Addressing Climate Change and Energy Waste Prevention*** to “further New Mexico’s responsibility and opportunity to build a clean energy future for our people, limit adverse climate change impacts that harm our natural and cultural heritage, prevent the waste of New Mexico energy resources and reduce pollution that threatens human health.”

Executive Order 2019-003 outlined several directives including:

- Support the 2015 Paris Agreement Goals by joining the U.S. Climate Alliance
- Work with stakeholders on legislation to increase the New Mexico renewable energy standard
- Evaluate policies to reduce greenhouse gas and criteria pollutant emissions from light-duty vehicles
- Adopt new building codes
- Collaborate with the Renewable Energy Transmission Authority (RETA) to identify transmission corridors needed to transport the state's renewable electricity to market
- Develop a statewide, enforceable regulatory framework to secure reductions in oil and gas sector methane emissions

By following through on these directives, New Mexico has significantly reduced GHG (greenhouse gas) emissions and made substantial progress toward the Governor’s 2030 climate goal of a statewide reduction in greenhouse gas emissions of at least 45% by 2030 as compared to 2005 levels.



NMED Completes Studies to Evaluate GHG Emissions Reductions

In 2024, studies commissioned by NMED from Eastern Research Group (ERG) and Energy and Environmental Economics (E3) analyzed New Mexico's greenhouse gas emissions in detail, giving the best estimates to date of New Mexico's past, current and projected GHG emissions. The state is using the ERG and E3 reports to help track progress towards its GHG emissions reduction goals and will continue to update and improve GHG emissions data and modeling in 2025.

The ERG and E3 studies utilized New Mexico-specific data sources, including for the difficult-to-measure oil and gas sector. They show that in 2021 New Mexico produced approximately 83 million metric tons CO₂ equivalent (MMT CO₂e) of greenhouse gas emissions—an amount equal to approximately 1.3% of total U.S. greenhouse gas emissions.

In 2025, GHG emissions in New Mexico are expected to be approximately 68 MMT CO₂e, which is 29% below 2005 levels. This surpasses the 2025 emission reduction goal of 26-28% below 2005 levels originally established by the United States under the Paris Climate Agreement and subsequently committed to by states that are members of the US Climate Alliance, including New Mexico.

In 2030, GHG emissions in New Mexico are estimated to be 32% below 2005 levels, indicating that additional measures are needed to achieve the State's goal of 45% below 2005 levels by 2030. The work to identify additional emissions reduction measures will be carried out in 2025 through the development of New Mexico's Comprehensive Climate Action Plan (CCAP).



New Mexico GHG Emissions Inventory Reports

2018 GHG inventory and forecast (October 2020, E3)

- Utilized Western Regional Air Partnership (WRAP) emissions estimates for oil and gas

2020 oil and gas GHG inventory (August 2022, ERG)

- ERG updated the oil and gas sector GHG emissions estimates for 2020 utilizing data collected by NM Air Quality Bureau

2005 oil and gas GHG inventory (December 2024, ERG)

- ERG produced a 2005 GHG emissions estimate for the oil and gas sector utilizing a methodology consistent with the 2020 inventory.
- This report also updated the oil and gas emissions forecasts for 2025 and 2030

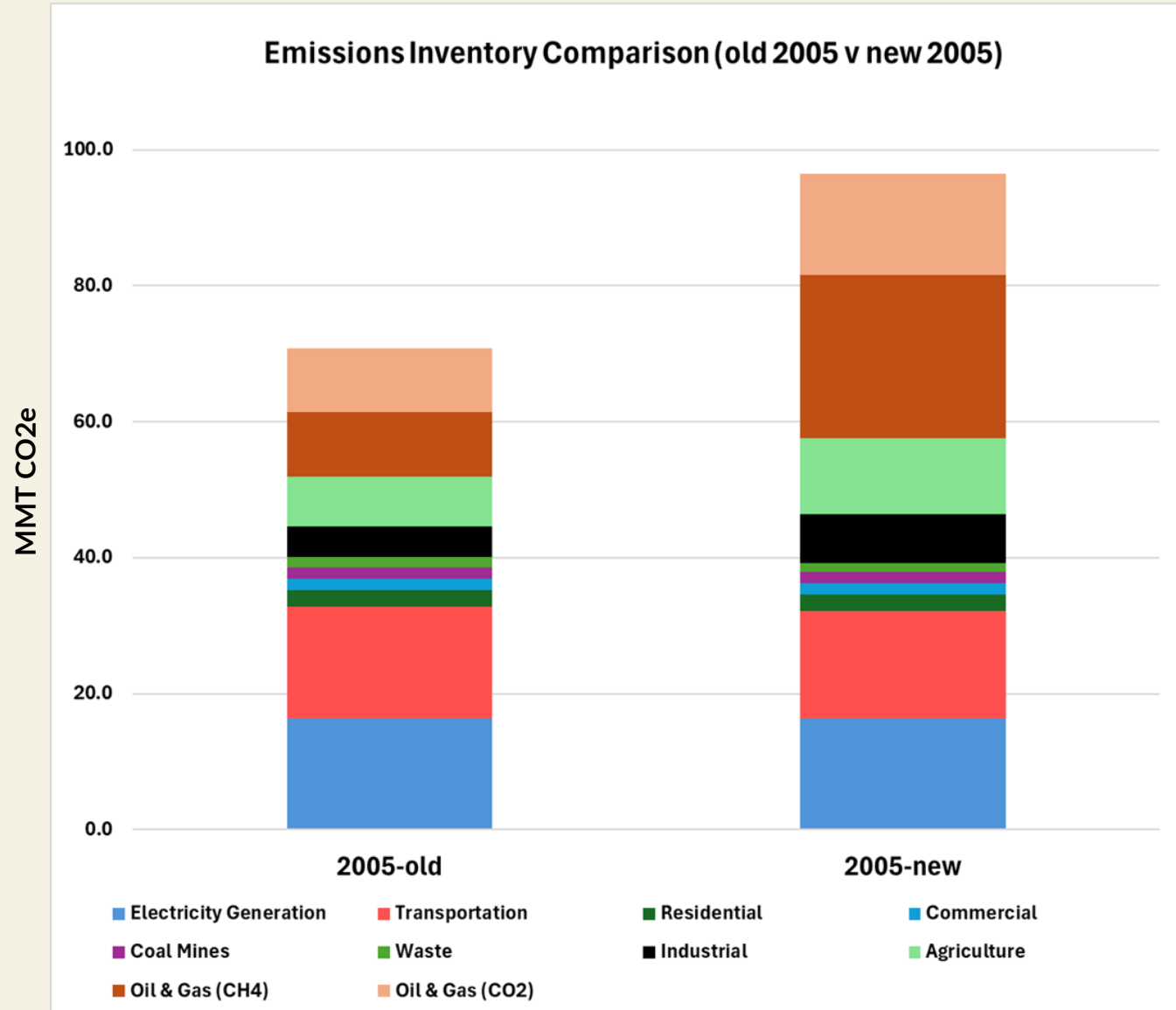
2021 GHG inventory and forecast (December 2024, E3)

- E3 utilized the ERG's emissions estimates for the oil and gas sector (2005-2030)
- Provides economy-wide GHG emissions estimates for 2005–2050 based on current state and federal policy
- Includes a “mitigation scenario” to illustrate the additional reductions needed to achieve the state’s 2030 GHG emissions reduction target of 45% below 2005 levels



The latest estimate of 2005 GHG emissions is significantly higher than previously estimated

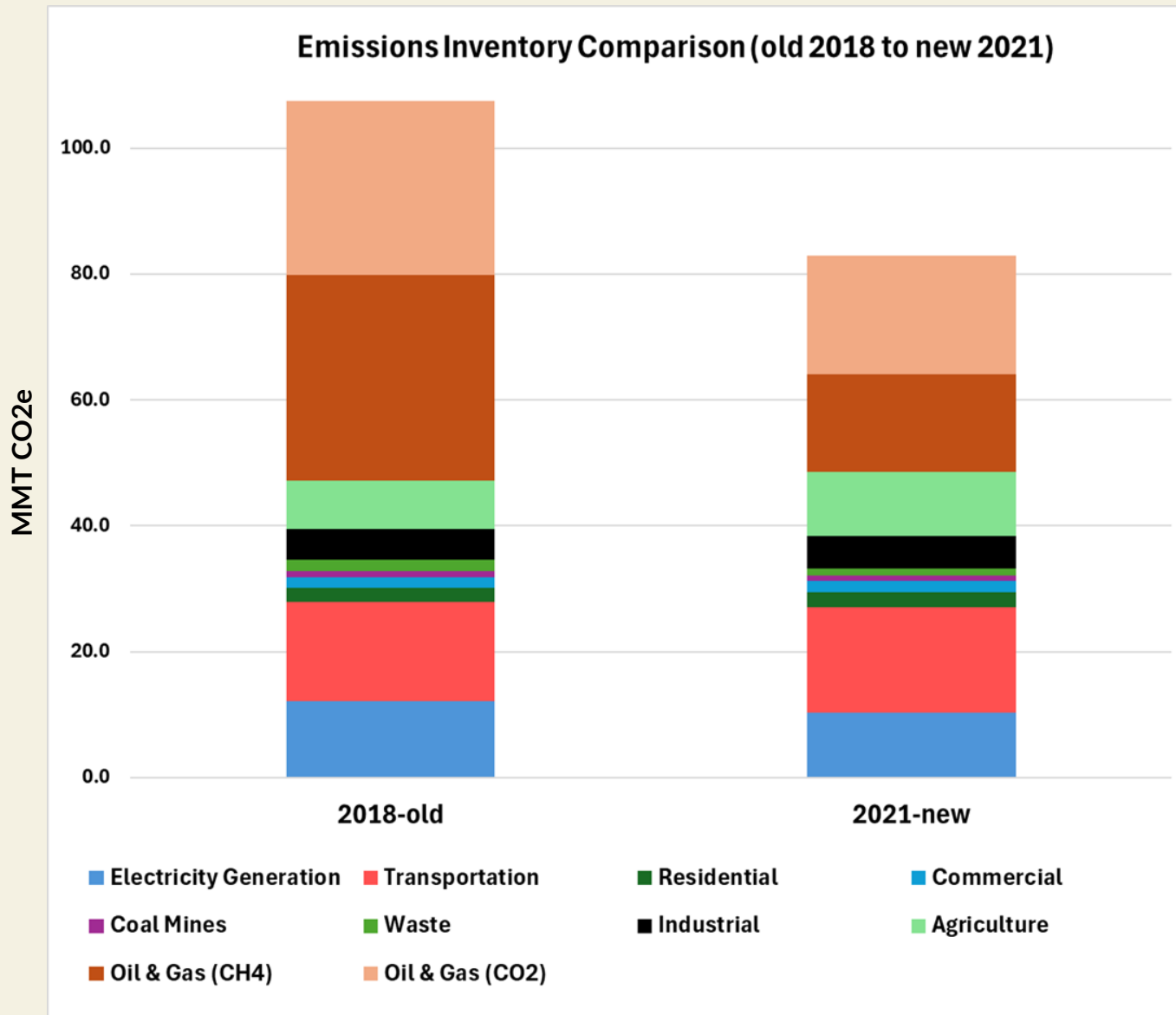
- New data and analysis specific to New Mexico's oil and gas sector were used to refine estimates of 2005 GHG emissions (December 2024, ERG)
- The new estimate for 2005 GHG emissions is based on the methods used in the 2020 New Mexico oil and gas GHG inventory (August 2022, ERG)





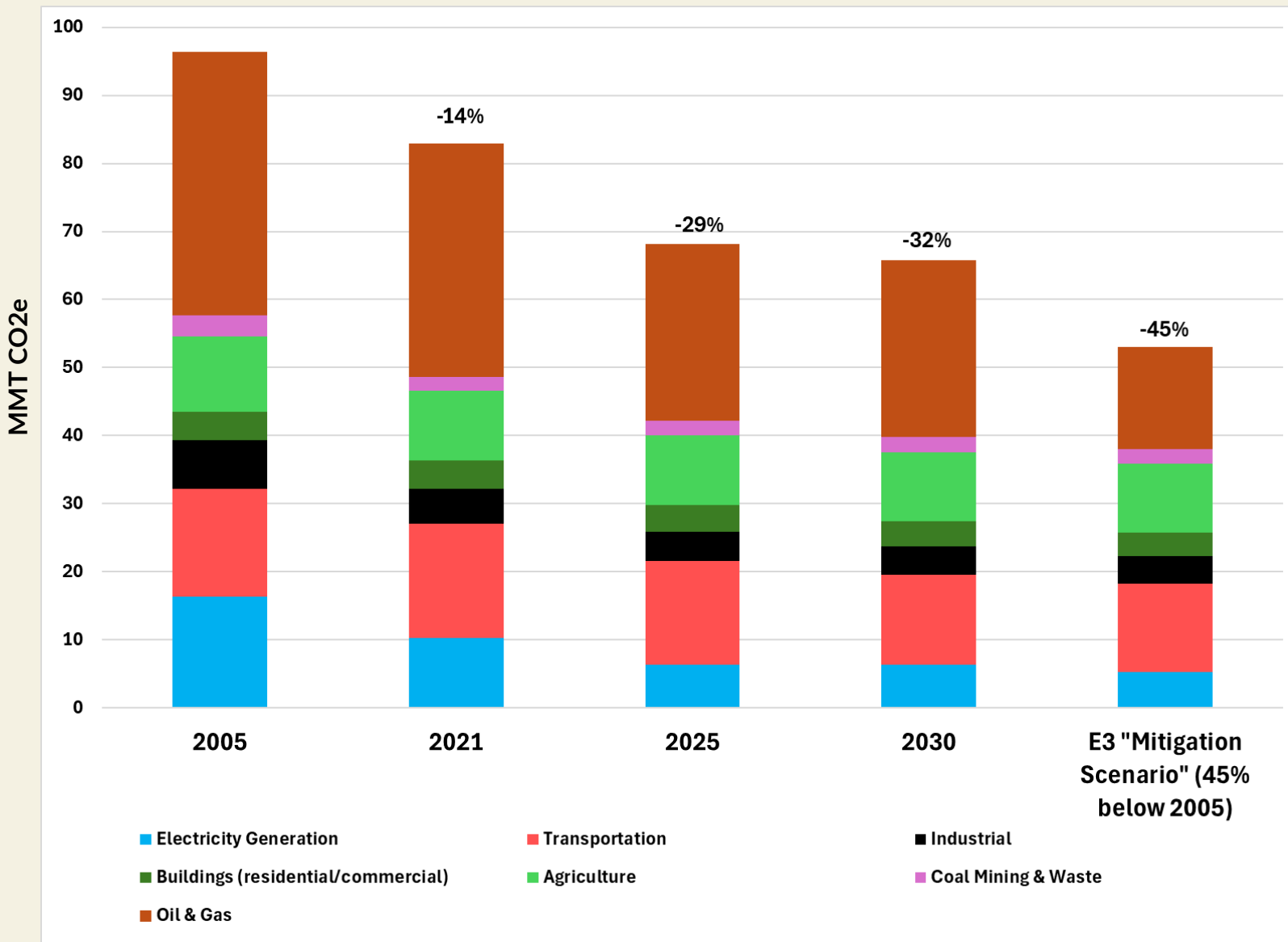
The latest base year (2021) emissions estimate is significantly lower than in the previous base year (2018) estimate

- The difference between the 2018 and 2021 New Mexico GHG emissions estimates is primarily due to incorporating new data and analysis for the oil and gas sector as documented in the oil and gas sector reports prepared by ERG





Looking ahead, 2025 emissions are estimated to be 29% below 2005 levels and 2030 emissions are estimated to be 32% below 2005 levels.





E3 Report - Key Assumptions by Scenario

Table 7. Key assumptions for PATHWAYS measures by scenario

Sector	Strategy	Expressed as	Current Policy	Mitigation Scenario
Buildings	Building Shell Efficiency	Efficient shell sales share	100% of new and retrofit building shells meet IECC 2018 building codes	Same as Current Policy
	Building Electrification	Electric heat pump sales share	14% heat pump sales by 2030, 48% by 2050 (consistent with EPA analysis of electrification effects of Inflation Reduction Act)	15% sales of heat pumps for space heating and water heating by 2027; 100% by 2030
	Appliance Efficiency (non-HVAC)	Efficient appliance sales share	100% efficient sales for lighting by 2030; 100% efficient sales for all appliances by 2030	Current Policy
Industry	Efficiency	Efficiency increase relative to baseline projection	None	15% by 2030, 20% by 2050
Transportation	Corporate Average Fuel Economy (CAFE) Standards	Light Duty Vehicle (LDV) fuel economy	CAFE extension (MY2021-2026 extension)	Same as Current Policy
	Smart Growth	LDV VMT reduction relative to Current Policy	None	15% reduction by 2030 (consistent with New Mexico Priority Climate Action Plan)
	Vehicle Electrification	Zero Emission Vehicle (ZEV) sales share	LDV ZEV sales consistent with Advanced Clean Cars II and Advanced Clean Trucks: 82% LDV Sales by 2031	Continued growth in LDV EV Sales: 100% by 2035
Zero Emissions Fuels	Biofuels Blend	Share of conventional fuel use met with biofuels	10% ethanol blend by volume (equivalent to 7% ethanol blend by energy) for gasoline	Fuels blended as needed to meet New Mexico Low Carbon Fuel Standard after including reductions associated with ZEV sales: 20% reductions in carbon intensity of fuels by 2030; 30% by 2040
Clean Electricity	Clean Electricity Generation	Share of renewable/zero-emission generation	50% RPS by 2030; 100% clean electricity by 2045	60% RPS by 2030, 100% clean electricity by 2045
Non-combustion (Industrial Processes, Agriculture, Waste)	Industrial Processes	Hydrofluorocarbon (HFC) reductions	17% reduction by 2030; 29% by 2050 (based on downscaling of EPA SNAP rules)	30% reduction by 2030; 85% by 2050 (phase down in line with Kigali Amendment)
	Natural and Working Lands	Reduction in forest/soil emissions	None	Same as Current Policy
	Waste	Methane emissions captured	None	40% reduction in landfills and wastewater management emissions by 2050
	Agriculture	Methane and nitrous oxide reductions	None	Same as Current Policy
Oil and Gas	Equipment improvements	Reduced fuel combustion and methane emissions	Reductions consistent with data from ERG 2025 and 2030 emissions forecast: 18% reductions relative to 2021 levels by 2030	Further ambition in oil and gas sector GHG emissions reductions as needed to meet State targets: 56% reductions relative to 2021 levels by 2030

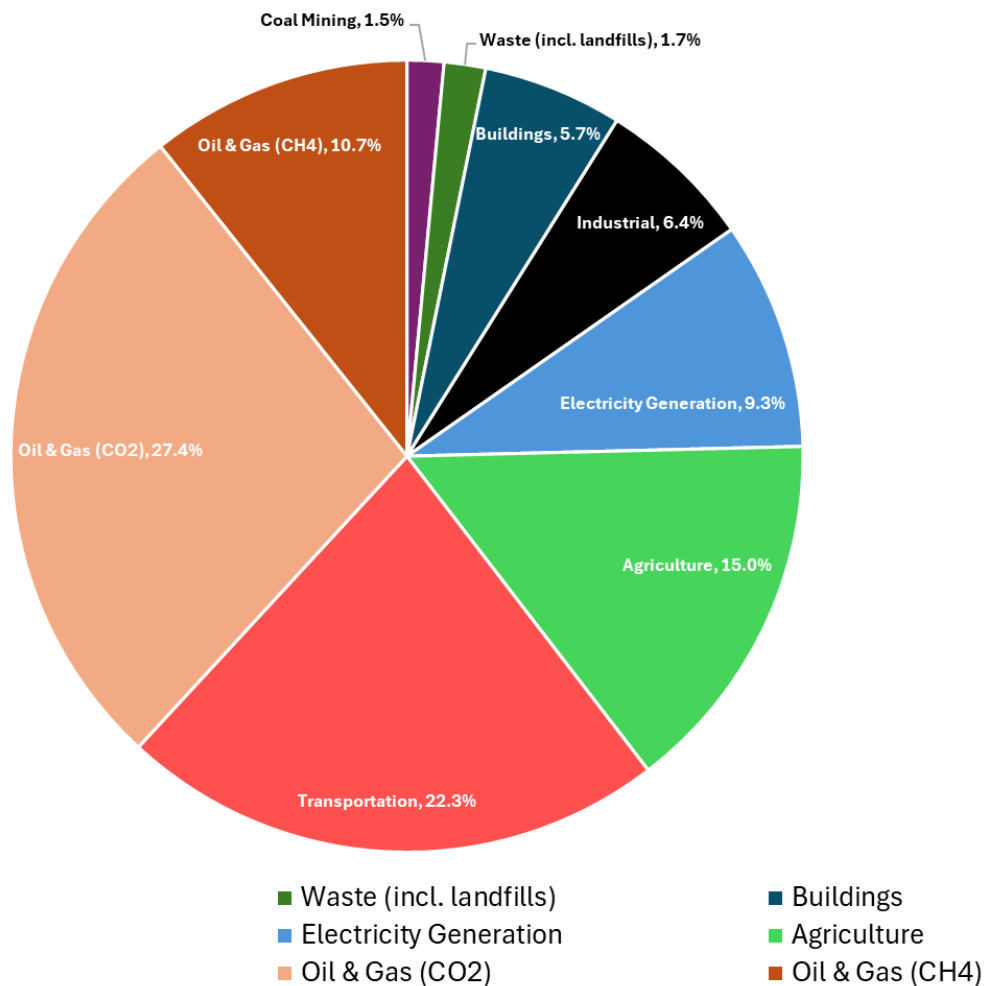


Emissions by Sector

Sector	2005 (MMT CO ₂ e)	2021 (MMT CO ₂ e)	2025 (MMT CO ₂ e)	2030 Current Policy (MMT CO ₂ e)	2030 Mitigation (MMT CO ₂ e)
Electricity Generation	16.3	10.3	6.3	6.4	5.3
Transportation	15.9	16.8	15.2	13.2	13.0
Residential	2.4	2.4	2.3	2.2	2.0
Commercial	1.7	1.8	1.6	1.5	1.4
Industrial	4.7	3.6	3.0	2.8	2.8
Industrial Processes	2.5	1.5	1.4	1.2	1.2
Agriculture	11.2	10.3	10.2	10.2	10.2
Coal Mining & Abandoned Mines	1.7	0.9	1.0	1.0	1.0
Waste	1.3	1.1	1.2	1.2	1.0
Oil & Gas (CH ₄)	24.0	15.5	7.3	6.8	3.9
Oil & Gas (CO ₂)	14.8	18.9	18.7	19.2	11.2
Total (gross)	96.4	83.0	68.2	65.8	53.1
Percent Reduction from 2005	N/A	-14.0%	-29.3%	-31.8%	-45.0%



Forecasted 2025 Emissions by Sector



Note: Emissions estimates for the Land Use, Land Use Changes, and Forestry Sector (LULUCF) are presented in the E3 report but are not included in the inventory totals or projections due to significant uncertainties in model results, especially for soil carbon stocks. More work is needed to understand sources and sinks in the LULUCF category.



Electric Power Sector

The ***Energy Transition Act (ETA)*** established New Mexico as a national leader in clean energy.

- For investor-owned utilities, the ETA set a renewable energy standard of 50% by 2030, 80% by 2040, and 100% zero-carbon resources by 2045.
- For rural electric cooperatives, the ETA set a renewable energy standard of 50% by 2030 and 100% zero-carbon resources by 2050 (composed of at least 80% renewable energy)

As a result, New Mexico has transitioned away from coal and toward clean energy, reducing costs for consumers and providing tens of millions of dollars of economic and workforce support for communities impacted by coal plant closures.

Today, wind and solar comprise about 60% of in-state generation and natural gas contributes 40%.



Electric Power Sector - Emissions Inventory Methodology

- The emissions inventory for the electric power sector is based on direct emissions from in-state fossil fuel generation of electricity

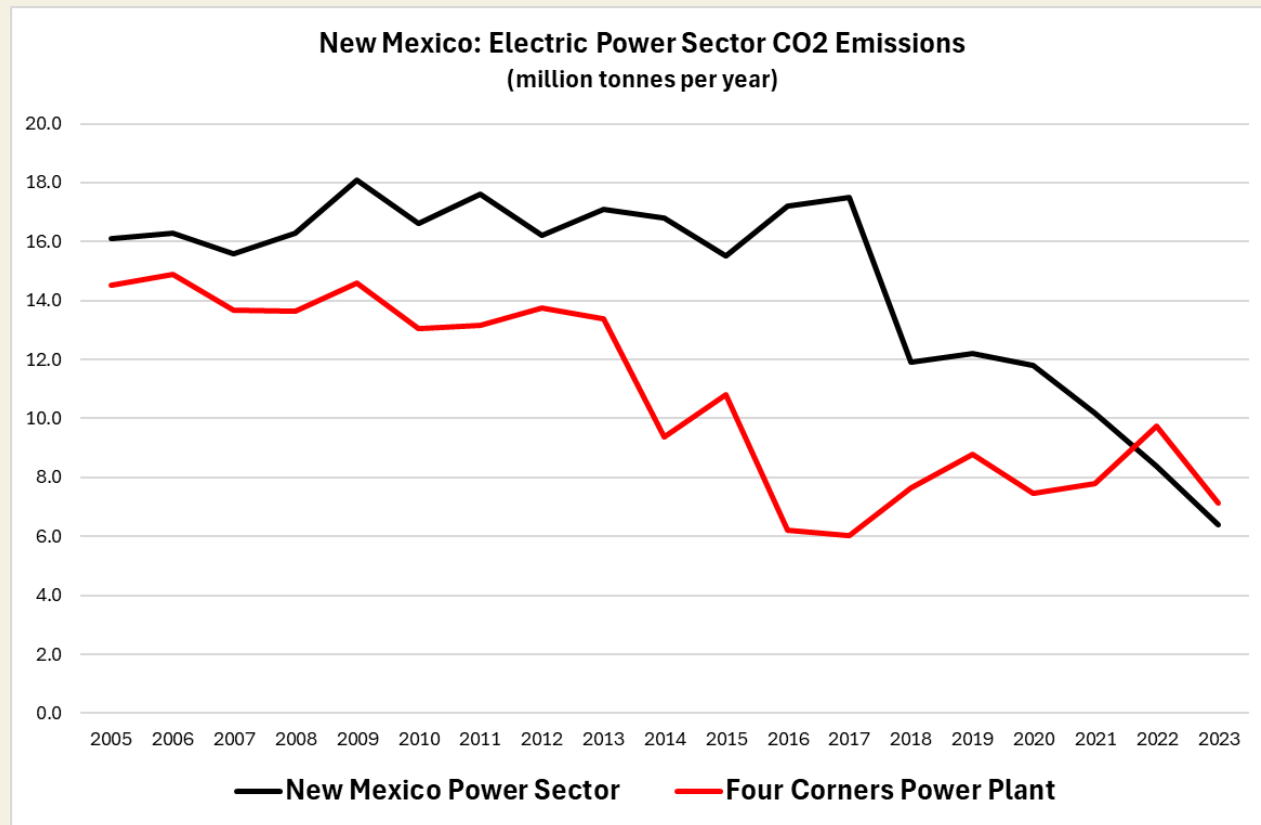
- Emissions from the Four Corners Power Plant are not included in the E3 inventory because Four Corners is a Tribal source (not under state jurisdiction) and most of the power currently goes to Arizona
 - ▣ Data from Four Corners is included in this presentation for informational purposes since most national databases (EPA and EIA) do not separate Tribal sources and include emissions from Four Corners in New Mexico's totals.

- 2030 emissions from the electric power sector are forecasted assuming compliance with the Energy Transition Act requirement of 50% renewable energy by 2030



Electric Power Sector – CO2 Emissions

- CO2 emissions from in-state power generation in New Mexico have declined by 37% from 2005 to 2021, while at the same time power generation has increased by 40%
- All in-state coal plants have retired, so the remaining CO2 emissions from the power sector are from natural gas generation
 - ▣ Natural gas generation in New Mexico is projected to remain relatively flat through 2030
- CO2 emissions from the Four Corners Power Plant have declined 51% since 2005
 - ▣ Four Corners has a planned retirement date of 2031

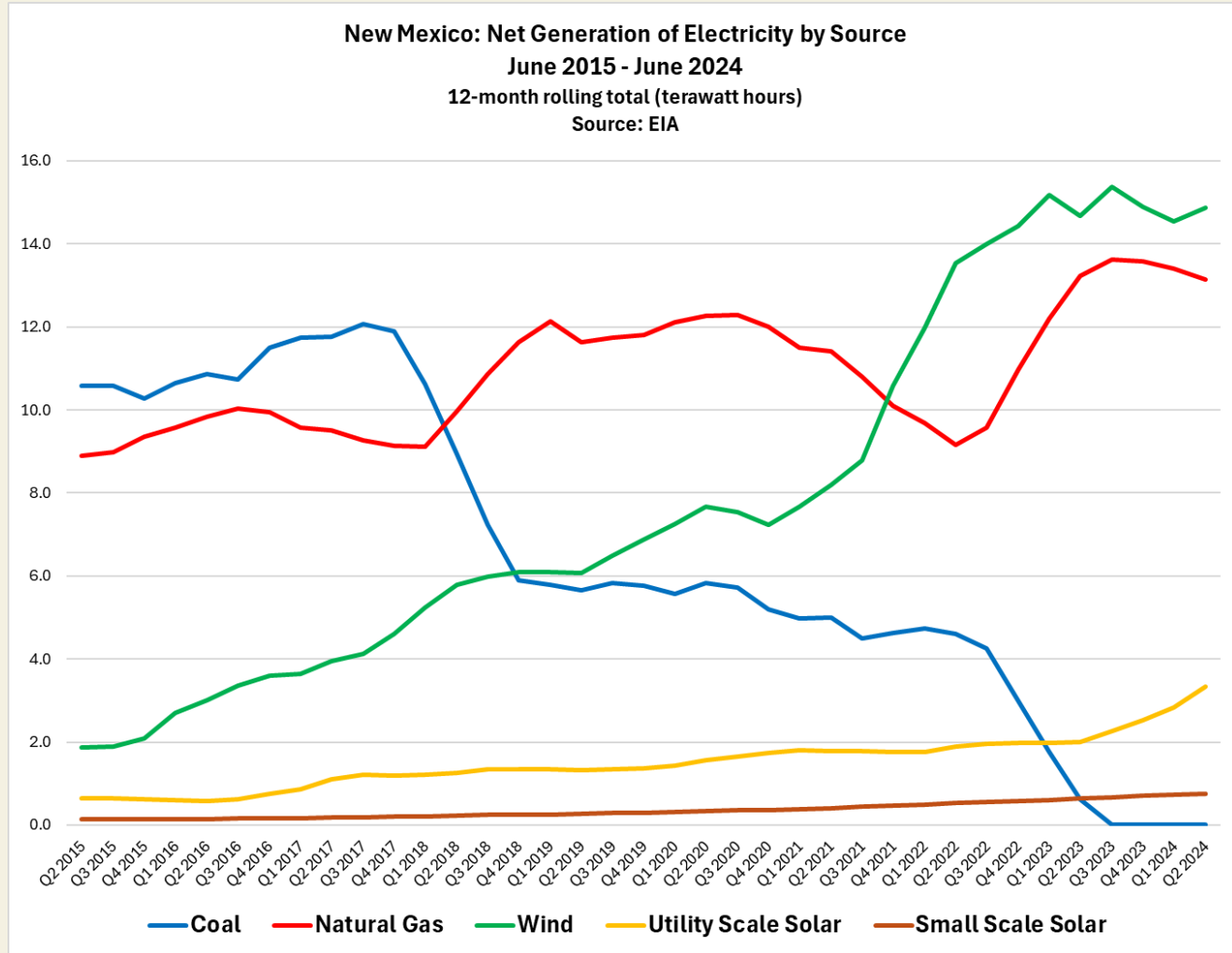




Electric Power Sector – Generation Mix

- New Mexico’s generation mix has rapidly changed:
 - ▣ In 2015 coal and natural gas comprised 88% of in-state generation
 - ▣ Today, wind and solar comprise 59% of in-state generation, natural gas contributes 41%, and coal contributes 0%

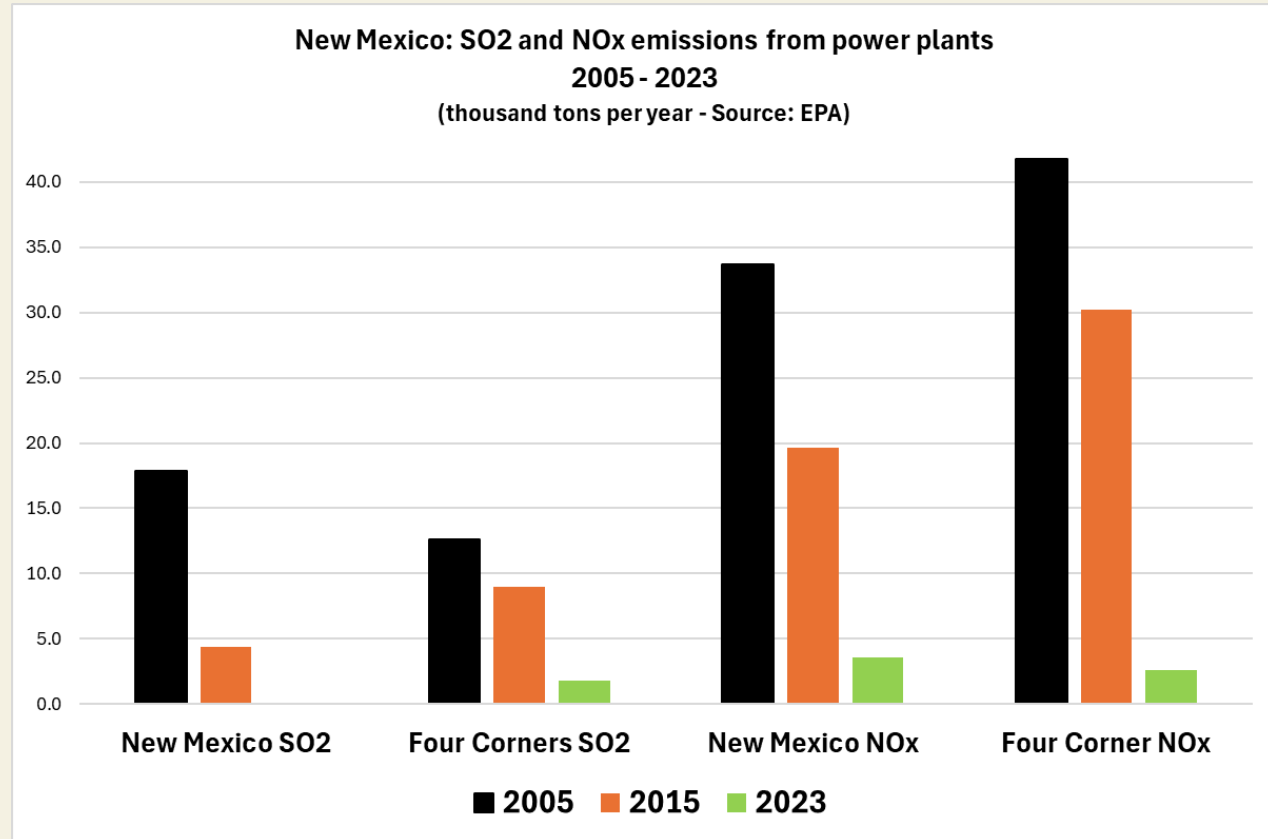
- New Mexico is consistently a net exporter of electricity, even as in-state demand for electricity has increased over time (23% from 2005–2021)
 - ▣ Most of the increased electrical demand since 2005 was in the industrial sector (which includes oil and gas, data centers, etc.)





Electric Power Sector – NOx and SO2 Emissions

- Nitrogen Oxide (NOx) and Sulfur Dioxide (SO2) emissions from power plants and other sources harm human health (particulates and ozone), impair scenic vistas, and contribute to ecological impacts.
- NOx and SO2 emissions from power plants in New Mexico, including Four Corners, have declined 92% since 2005.
- Emission controls on coal plants, and the retirement of coal units, have also reduced mercury emissions in the state.





Transportation Sector

New Mexico has adopted ***leading edge policies to reduce GHG emissions from motor vehicles***. Starting in calendar year 2026, 43% of all new passenger cars and light-duty trucks shipped to New Mexico auto dealerships by national auto manufacturers must be zero emission vehicles. Similarly, beginning in calendar year 2026, 15% of all new heavy-duty trucks shipped to New Mexico by manufacturers must produce zero emissions. These percentages gradually increase over time and will ensure New Mexico has priority for the newest and cleanest vehicles for sale – as well as the benefits that come from less pollution. Learn more at <https://www.env.nm.gov/climate-change-bureau/transportation/>

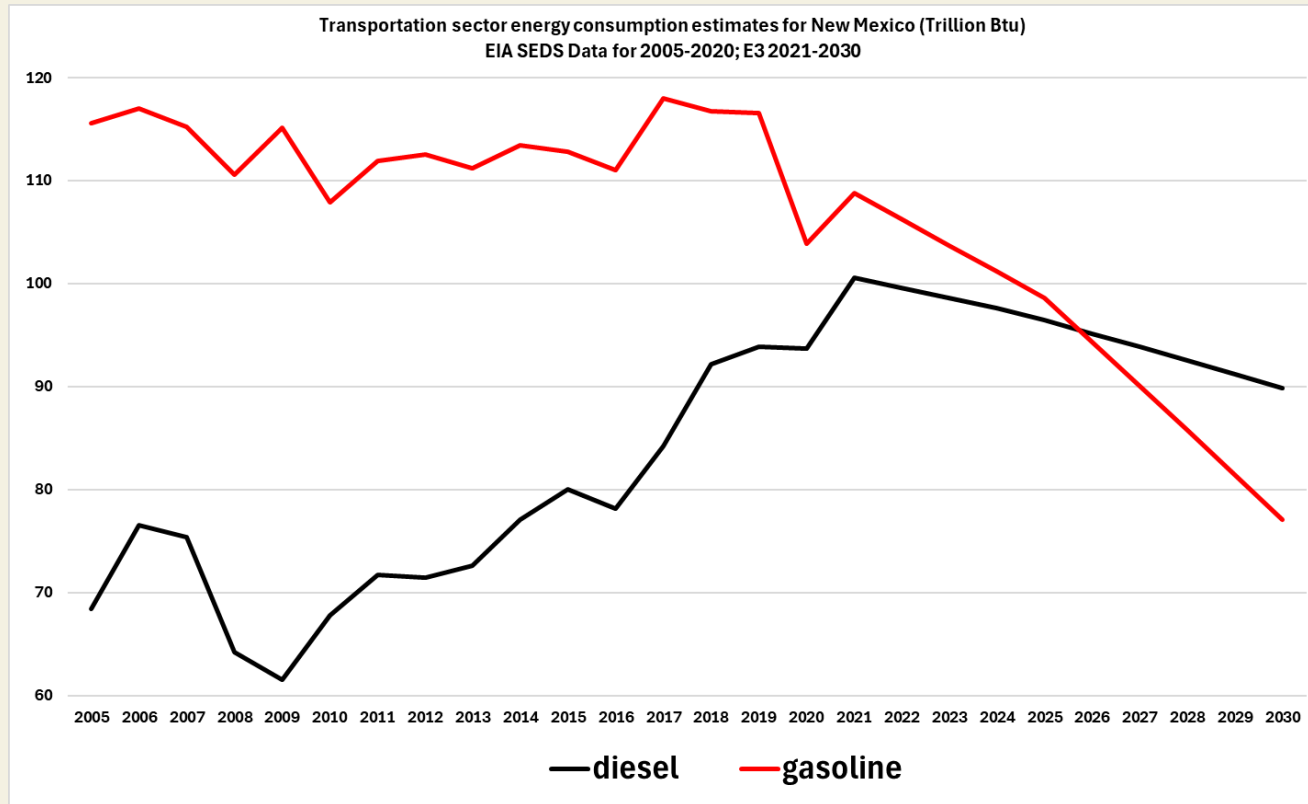
New Mexico's Clean Transportation Fuel Standard utilizes a market mechanism to reduce greenhouse gas emissions from fuels used for transportation. It is technology-neutral, which means it does not limit or favor any technology for meeting the standard. The goal of the clean fuels marketplace is to reduce the overall pollution from transportation fuels used in New Mexico and incentivize fuel producers and importers to reduce their carbon footprint over time. Learn more at <https://www.env.nm.gov/climate-change-bureau/clean-fuel-standard/>

Clean Car Tax Credits - The Energy, Minerals and Natural Resources Department currently offers a variety of tax credits that incentivize New Mexican consumers to purchase clean cars, allowing them to save money and protect our air. Consumers can get up to \$3,000 to buy a clean car in-state and up to \$400 when installing an at-home vehicle charging station. Learn more at <https://clean.energy.nm.gov/>



Transportation Sector – Emissions and Energy Use

- GHG emissions from the transportation sector in New Mexico grew 6% from 2005 to 2021, primarily due to increased use of diesel fuel
- However, under current policies, diesel use is projected to decline 11% from 2021 to 2030
- Gasoline use is projected to decline 29% from 2021 to 2030
- As a result, GHG emissions from the transportation sector are projected to be 17% below 2005 levels by 2030 in E3's current policy scenario





Buildings

Emissions from natural gas and propane combusted in residential and commercial buildings for space heating, hot water, and cooking are expected to contribute about 6% of total GHG emissions in 2025.

In March 2021, *New Mexico formally adopted the 2018 International Energy Conservation Code (IECC)*. Over the next decade, these updated building codes will prevent 2.6 million metric tons of carbon dioxide from being emitted into the atmosphere, while ensuring that New Mexicans realize the economic benefits of more efficient building standards. State and federal policies that incentivize electrification of energy end uses in buildings (space heating, hot water, cooking, etc.), along with more efficient appliances and lighting, will reduce building emissions and improve public health.

Residential and Commercial Electrification and Energy Efficiency - [EMNRD's Energy Conservation and Management Division](#) manages over \$2 million across three grant programs to train workers on the newest building codes, train and certify contractors for residential energy projects, and train workers to conduct energy audits of commercial and residential buildings.



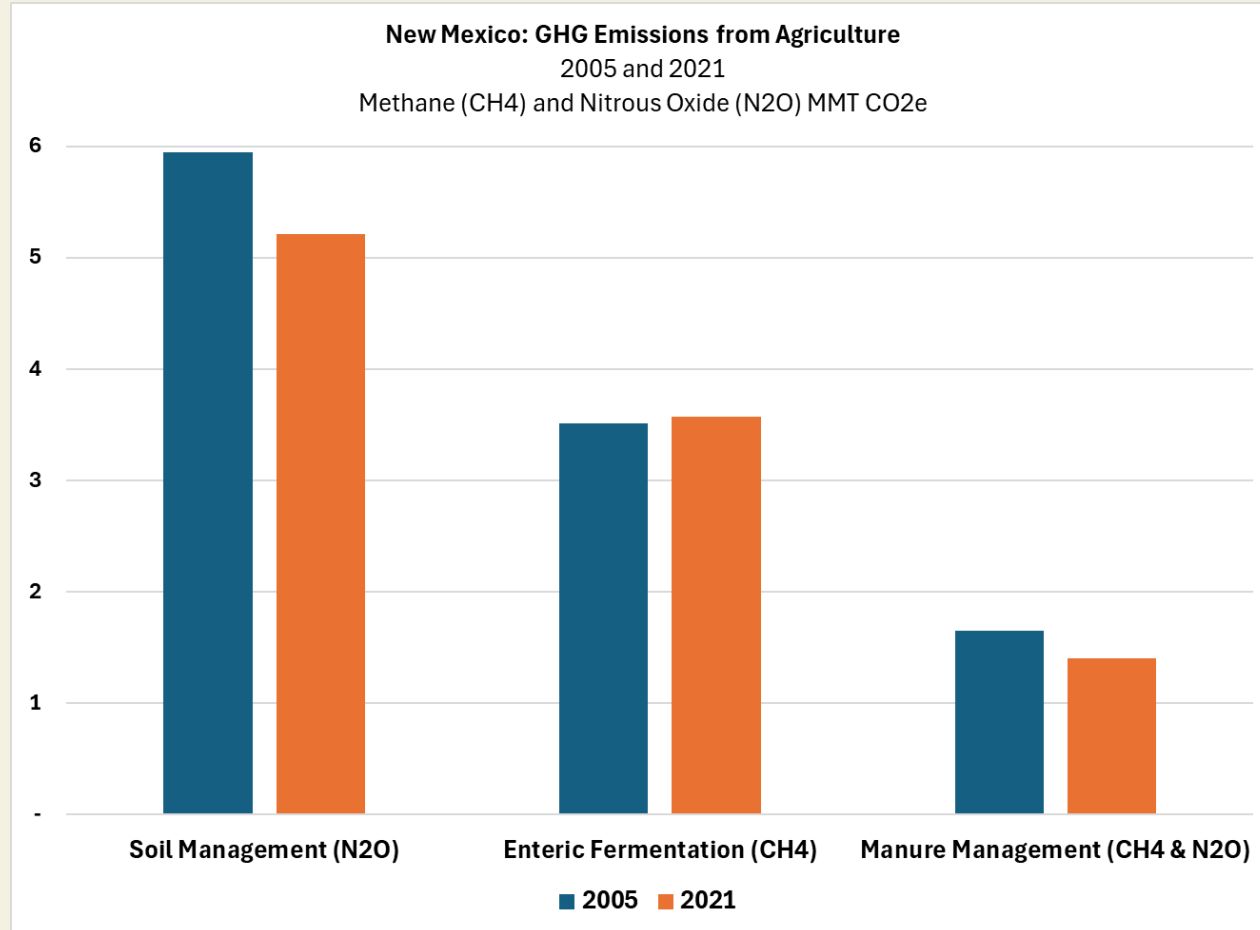
Sustainable Building Tax Credit (SBTC)

- The [Sustainable Building Tax Credit \(SBTC\)](#) reflects the state's intention to incentivize cutting-edge sustainable building practices, as well as the use of energy-efficient products. There are two types of tax credits available under the program—one for installation of certain energy-efficient products in existing residences and another for commercial renovation and new construction projects.
- These credits are available to New Mexico taxpayers filing either a personal income or corporate tax return.
- The credits for installing energy-conserving products went into effect on January 1, 2021, and applications for those credits can be submitted now via this [online portal for products](#). Energy-Conserving Products include certain air source and ground source heat-pumps, heat pump water heaters, windows, doors, insulation upgrades, and electric vehicle charging equipment.
- The credits for new construction or large commercial renovations went into effect on January 1, 2022, and applications for those credits can be submitted now via this [online portal for new construction or commercial renovation](#).



GHG Emissions from Agriculture

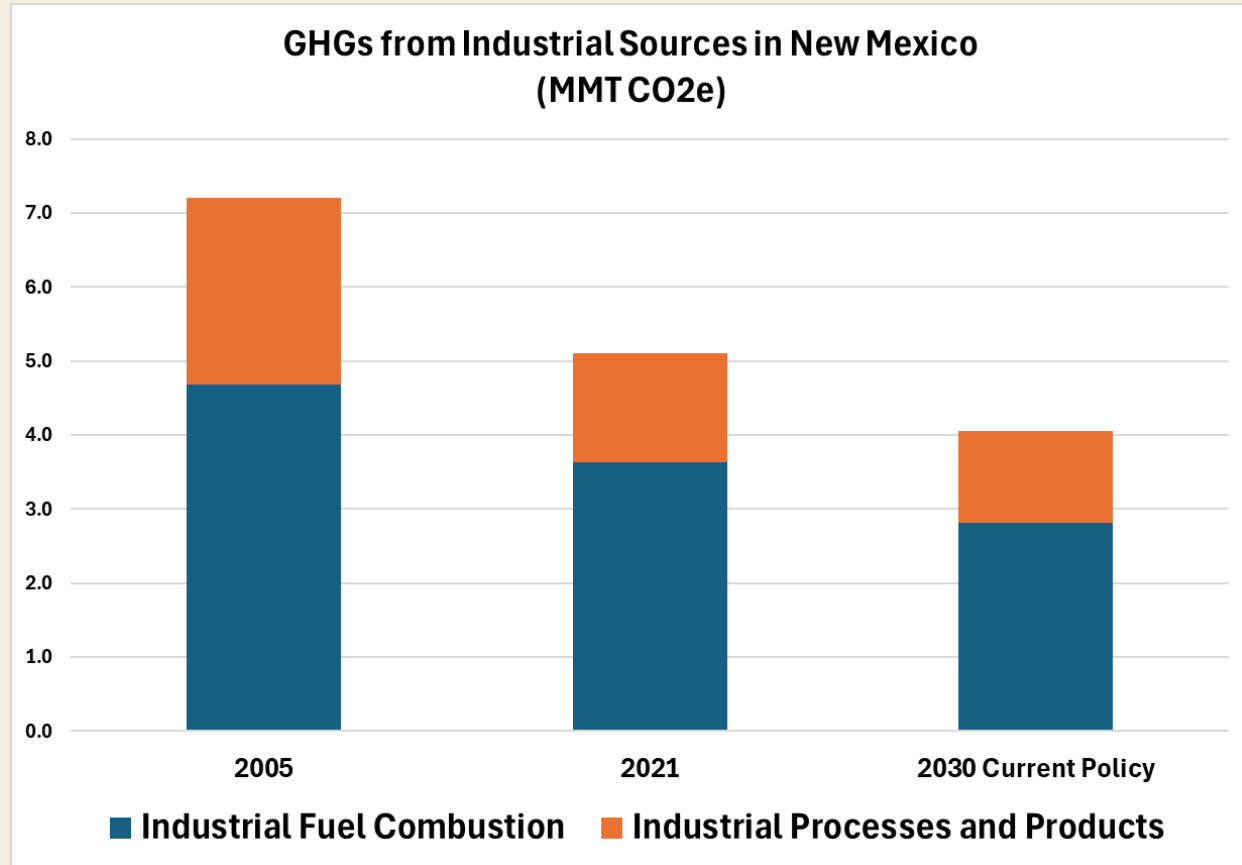
- GHG emissions from agriculture come from nitrogen fertilizers, enteric fermentation (ruminant digestion) and manure management
- Agriculture emissions are forecast to comprise 16% of New Mexico's GHG inventory by 2025; this is elevated relative to estimates in prior years for this sector. The use of recently available, more sophisticated EPA tools to estimate agricultural emissions for NM in the latest 2021 report is responsible for this difference.
- Due to limited data availability for this study, E3 holds agriculture emissions flat at 2021 levels through 2050





Industrial Sources

- E3 estimates that GHG emissions from industrial sources (refineries, cement plants, manufacturing facilities, etc.) currently contribute 6% of total New Mexico GHG emissions.
- Emissions from these industrial sources are estimated to have declined 29% from 2005-2021.
- Further reductions are projected this decade, leading to an estimated 44% reduction in industrial source emissions from 2005 levels by 2030.





Oil and Gas Sector – Methane Waste Rule

New Mexico Energy Minerals and Natural Resources Department's methane waste rule is both unique to the state and nationally leading. The rule prohibits routine venting and flaring, except in emergencies or malfunctions and applies to all operations within New Mexico, including production wells, gas gathering pipelines, and boosting facilities.

The rule was implemented in two phases:

- Phase 1 (Data & Reporting) established meaningful baselines and enforceable goals to reduce natural gas waste. Historically, the industry did not report consistent and complete data for venting and flaring.
- Phase 2 (Gas Capture Requirements) established an enforceable target for operators to reduce natural gas waste using the baseline set in Phase 1.

Each operator must reduce their waste by a fixed amount each year to achieve a gas capture rate of 98% by December 31, 2026.

Learn more at <https://www.emnrd.nm.gov/ocd/methane-waste-rule/>



Oil and Gas Sector – Reducing ozone precursor emissions

The New Mexico Environment Department's (NMED) [rules governing ozone precursor pollutants](#) reduce ozone pollution and toxic air contaminants from the oil and gas sector and they also have the co-benefit of reducing methane emissions. The ozone precursor rules are nationally leading and served as a model for the U.S. EPA as they adopted requirements to reduce methane emissions from the oil and gas industry.

NMED's ozone precursor rule comprehensively regulates oil and gas emissions and includes:

- Enforceable rules for new and existing sources that apply to all wells, large or small, with appropriately scaled requirements;
- Technology agnostic emission controls and monitoring practices which encourage the use of innovative approaches;
- Frequent leak detection and repair requirements, which reduce emissions for fence-line communities while creating local jobs; and
- Emission reduction requirements for significant sources of methane, including storage tanks, pneumatic controllers and pumps, natural gas well liquid unloading, compressors, glycol dehydrators, hydrocarbon liquid transfers, pig launching and receiving, well workovers, and produced water management units.



Oil and Gas Sector - ERG Reports

- Using 2020 emissions data collected by NMED's Air Quality Bureau, ERG conducted a new analysis to estimate GHG emissions estimates for the oil and gas sector in New Mexico
 - ▣ ***See: "New Mexico Oil and Gas Greenhouse Gas Emissions Inventory for Year 2020 (dated August 31, 2022)"***

- Subsequently, ERG utilized a consistent methodology to re-evaluate and improve upon the 2005 emissions estimates used in the state's previous GHG inventory
 - ▣ ***See: "New Mexico Oil and Gas Greenhouse Gas Emissions Inventory for Year 2005" (dated December 2024)***

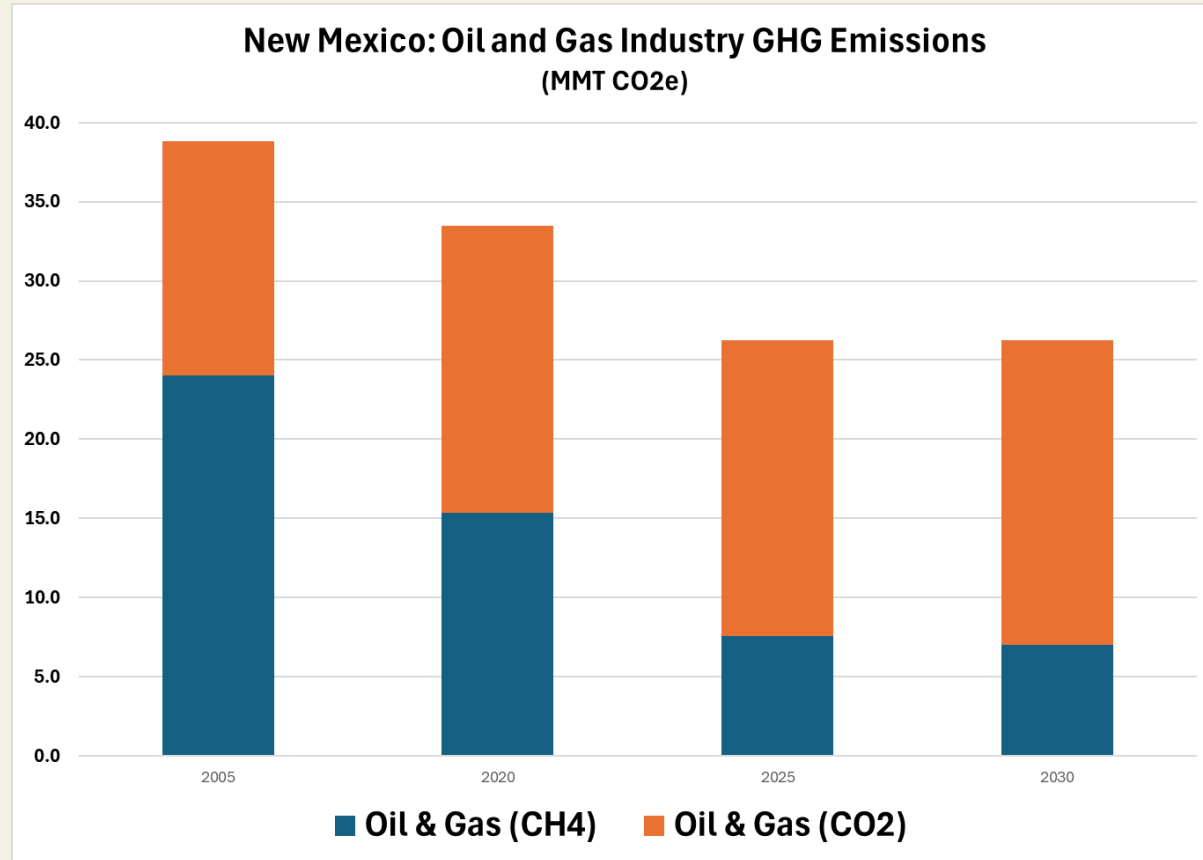
- ERG also projected oil and gas industry GHG emissions for the years 2025 and 2030 based on current state and federal policies and information on industry trends available at the time of the study. Since the latest ERG report was released in December 2024, it does not include the benefits from new federal regulation of methane emissions.

- These two ERG studies provide valuable new information on GHG emissions from the oil and gas sector in New Mexico and greatly improve on the data and methods used in the first E3 report. Ongoing work in this area is important to continue updating and improving the GHG emissions estimates and forecasts for the oil and gas sector.



Oil and Gas Sector GHG Emissions

- ERG's analysis shows substantial reductions in methane emissions from the oil and gas sector between 2005 and 2030 (-72%)
- On the other hand, emissions of CO₂ from fuel combustion in the oil and gas sector are shown to be 30% higher than 2005 levels by 2030
- Total GHG emissions from the oil and gas sector are projected to be 33% below 2005 levels by 2030.
- Oil and gas comprises 40% of total statewide GHG emissions in 2030 under the current policy scenario
- Ongoing updates to the emissions inventories and forecasts for the oil and gas sector will be important to reflect more recent data (e.g., Air Quality Bureau's 2023 minor source inventory), current industry trends, and implementation of state and federal regulations.





Focus on Equity

To formally integrate equity priorities into state climate policy action, NMED and EMNRD worked with community advocates, environmental justice experts, and representatives of disproportionately impacted communities to develop Climate Equity Guiding Principles. These principles have guided, and will continue to guide, the State as it develops just and inclusive climate strategies and identifies concrete ways to build equity into proposed statewide climate actions.

[Climate Equity Guiding Principles \(click for full text\)](#)

Principles Regarding Processes to Develop and Implement Climate Policies

1. Engage Overly Burdened Communities
2. Respect Tribal Sovereignty and Require Collaboration and Consultation
3. Maintain Accountability and Transparency

Principles Regarding Design and Effects of Climate Policies

4. Incorporate Traditional Knowledge and Experience
5. Advance Equitable Economic Transition
6. Prioritize Creating and Maintaining Universal Access to Utilities
7. Reduce Health and Environmental Impacts



Comprehensive Climate Action Plan

New Mexico's Comprehensive Climate Action Plan (CCAP) will be developed over the coming year and completed in December 2025. The priority objectives of the CCAP are to develop GHG emissions reduction measures while providing benefits to low-income and disadvantaged (LIDAC) communities. The CCAP will include measures necessary to reach the state's 2030 and 2050 emissions reduction goals.

CCAP Elements:

1. 2023 GHG Inventory
2. GHG Emissions Projections
3. GHG Emissions Targets
4. Quantified Emissions Reductions by Measure
5. Community Benefits Analysis
6. LIDAC Benefits Analysis
7. Review of Authority to Implement
8. Leverage and Intersection with other Funding
9. Workforce Planning Analysis
10. Stakeholder and Community Engagement
11. Tribal Government Engagement