

The background of the cover is a scenic landscape photograph. It features a calm body of water in the foreground, reflecting the sky and the surrounding greenery. A dense line of trees and shrubs runs along the middle ground. In the background, there are rugged, rocky mountains under a bright blue sky with scattered white clouds. A green geometric shape, resembling a stylized mountain or a corner, is positioned in the top left corner of the image.

New Mexico Climate Strategy

Initial Recommendations
and Status Update

2019

New Mexico
Interagency Climate
Change Task Force



Table of Contents

| | |
|--|----|
| The Governor's Message | 3 |
| Science and Data | 4 |
| Reducing Greenhouse Gas Levels | 8 |
| Electricity Sector | 9 |
| Transportation Sector | 11 |
| Industrial Sector | 13 |
| Built Environment Sector | 15 |
| Natural and Working Lands Sector | 18 |
| Cross-Sector Emissions Reductions: Market Mechanisms | 19 |
| Adaptation and Resilience | 21 |
| Economic Transition | 21 |
| Public Health | 22 |
| Emergency Preparedness and Management | 23 |
| Water Availability | 25 |
| Conclusions | 26 |





The Governor's Message

Governor Michelle Lujan Grisham



New Mexico has always treasured its air, land, and water. Our skies, our streams, our mountains, and mesas — these are our inheritance as people of this sacred place. But they do not belong to us. We receive them in a trust; we are obligated to protect them, to preserve them, to ensure they remain beautiful and whole. Our natural resources are what we will leave behind to our children, their children, and every generation to follow.

The threat of climate change is a threat to this trust, a threat to who we are as New Mexicans. It endangers how people have lived in this place for thousands of years, the air and soil and water we have always depended upon. It's a threat to the future we want to leave for our kids and grandkids, the future they deserve.

We cannot ignore it. Neither can we bring to bear anything less than our full strength, our complete capacity for innovation, vision, and execution. We will rise to the challenge of climate change as New Mexicans rise to every challenge — together, with our neighbors by our side. The report that follows this message is not the first step but an important step on the path we have already set ourselves upon; it is a demonstration of our commitment to rise to that challenge.

We will make our communities more sustainable and resilient. We will make sure the benefits of clean, renewable energy touch every New Mexican. We will protect the sanctity of our soil, our water, and the air we all breathe. We will not leave anyone behind. We will employ every strategy — and break new ground where we can — in reducing emissions and building our economy. We will lay the foundation to provide for the generations of New Mexicans yet to come.

I signed an executive order in my first month as governor directing New Mexico to align with the scientific consensus around climate change and the burgeoning policy consensus the crisis demands we adopt and enact. Under my direction, through the ongoing work of the task force which has compiled this report, for the first time, New Mexico is integrating adaptation and resilience into its climate policies across all of state government. We will lead — not only within our state's borders but beyond. We have every opportunity to serve as an example of bold and balanced leadership as the world moves into a clean and climate-conscious new day. I expect, and New Mexicans deserve, a state that will seize those opportunities and deliver.

It is not hyperbole to suggest the stakes are higher than perhaps ever before in human history. New Mexico, as underscored by this initial report and our clear recognition of the work still to be done, will step up.

A handwritten signature in blue ink that reads "Michelle Lujan Grisham".

GOVERNOR MICHELLE LUJAN GRISHAM

SCIENCE & DATA

Science

Climate scientists identified warming of 1.5 degrees Celsius as the point where climate change becomes severely dangerous to human life and society. By taking decisive action now and staying under a temperature increase of 1.5 degrees Celsius, we can avoid the worst effects of climate change.¹

New Mexico is already experiencing the effects of climate change. We see changes in our weather manifested in hotter and longer summers, more intense storms, and more frequent droughts. We see less predictable and robust harvests of our agricultural products, an increase of natural disasters like flash floods and brushfires, and in the health of New Mexicans – who are experiencing higher rates of asthma and heat-related illnesses. Warmer year-round temperatures mean additional energy costs to keep residences and businesses cool throughout the year. Our critical infrastructure is vulnerable, including roads, overpasses, bridges, and rail; electrical power distribution systems; drinking water and sewer pipes; and flood control and drainage systems. Declining air and water quality are disrupting natural habitats and ecosystems, leading to bark beetle infestations, fish habitat reduction, and fewer alpine meadows.

If we do not commit to rapid and ambitious action now, climate change will continue to adversely impact public health, our environment, our communities, and our economy. The economic costs of inaction are high, while the opportunities associated with a clean energy economy are real.²

Data

In 2018, New Mexico produced approximately 66.7 million metric tons (MMT) of greenhouse gas emissions - an amount equal to approximately 1% of the total U.S. greenhouse gas emissions (6,457 MMT). New Mexico's emissions are a byproduct of the oil and natural gas industry, cars and trucks, electricity production, industrial sources, and agriculture (Figure 1). New Mexico produces about 70% more greenhouse gas emissions per capita than the national average. New Mexicans produce around 31 tons per person per year, while the average in the United States is 18 tons per person. New Mexico's high per capita emissions are largely the result of our greenhouse gas-intensive oil and gas industry, which makes up a significant portion of our overall greenhouse gas emissions profile.

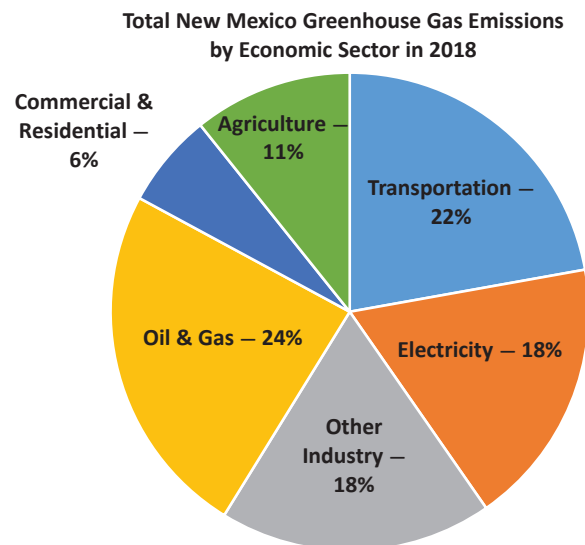


Figure 1

¹ 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.)]. In Press.

² Funk, J., Barnett-Loro, C., Rising, M., & Dayette, J. (2016). *Confronting Climate Change in New Mexico: action needed today to prepare the state for a hotter, drier future*. *Union of Concerned Scientists*. Retrieved from <https://www.ucsusa.org/sites/default/files/attach/2016/04/Climate-Change-New-Mexico-fact-sheet.pdf>

Carbon dioxide (CO₂) makes up 61% of New Mexico's emissions profile followed by methane at 31% (Figure 2). Nationally, CO₂ makes up 82% of the emissions profile, followed by methane at 10% (Figure 3). In New Mexico, 62% of methane emissions are from the oil and gas sector. Nationally, 31% of methane emissions come from the oil and gas sector.

From 2005 to 2018, total New Mexico greenhouse gas emissions declined by 5%, mostly due to two units at the coal-fired San Juan Generating Station closing at the end of 2017. This closure helped reduce emissions from the electricity sector by 26%. The most recent data on CO₂ emissions from electric power generation in New Mexico is from the U.S. Environmental Protection Agency (EPA). The state's power sector emissions will drop again in 2023 should the remaining two units at the San Juan Generating Station close as planned, and even further reductions in electric power sector emissions are expected in the coming years as power generators comply with New Mexico's Energy Transition Act.³

Because of the drop in emissions in the power sector, transportation is now the second-highest source of greenhouse gas emissions in New Mexico. We have seen some decline in transportation sector emissions between 2005 and 2018 (9%), largely because motor vehicles have become more fuel-efficient. Fuel-efficient vehicles use less gasoline and diesel fuel to do the same work, and thus produce a decline in emissions overall.

While these emissions declines are good news, unfortunately, emissions from all other sectors of our state's economy have increased from 2005 to 2018 (Figure 4, on the following page). Most of this increase comes from more oil and gas production in New Mexico.

**Total New Mexico Greenhouse Gas Emissions
by Gas in 2018**

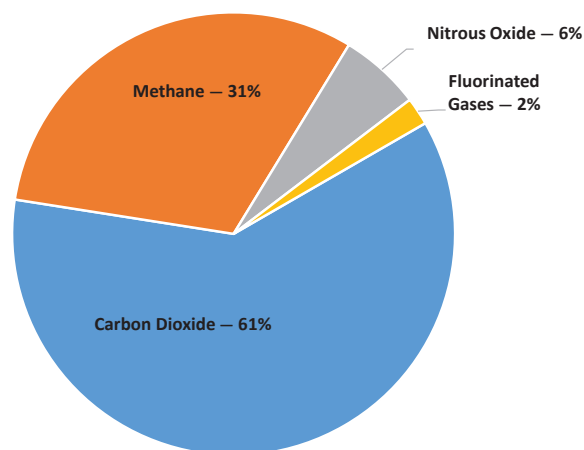


Figure 2

**Total United States Greenhouse Gas Emissions
by Gas in 2018**

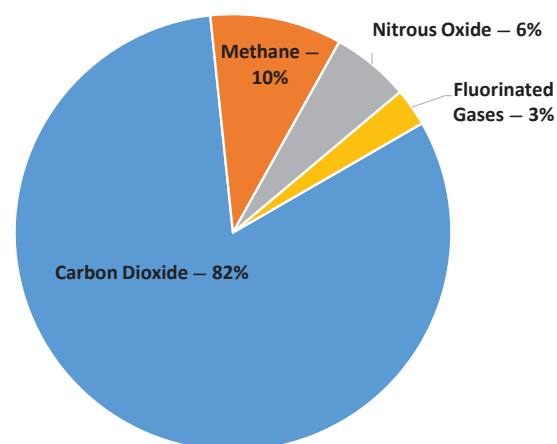


Figure 3

³"Energy Transition Act," SB 489 (2019), <https://www.nmlegis.gov/Sessions/19%20Regular/final/SB0489.pdf>.

New Mexico GHG Emissions Trends

Million Metric Tonnes CO₂e

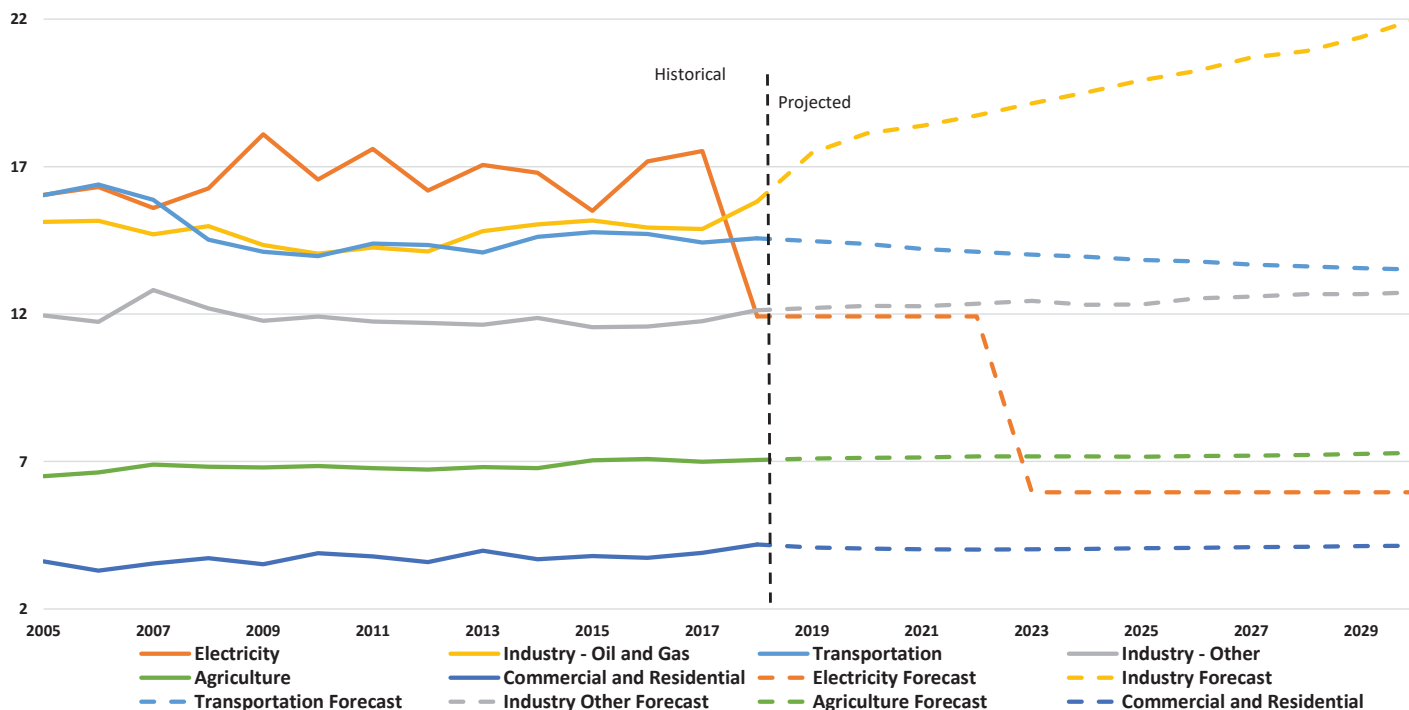


Figure 4

Data Source: Power plant data is from the EPA. All other data is from the Rhodium Group's US Climate Service database.

Without new rules to limit emissions from the oil and gas industry, these emissions are projected to escalate. The data presented in this figure is based on the EPA's methodology, but a growing body of research indicates that the EPA underestimates methane emissions from the oil and gas sector.⁴ To improve New Mexico's data collection of oil and gas sector methane emissions, the New Mexico Environment Department (NMED) and the Energy, Minerals and Natural Resources (EMNRD) have partnered with Descartes Labs, Inc., a Santa Fe-based data company, who will employ machine learning techniques – an advanced data analysis and programming approach that uses pattern recognition to continuously improve analysis of large data sets – to provide a more complete picture of methane emissions. This partnership, unlike any other in the United States, will locate where oil and gas production-related methane leaks are in real time, using satellite imagery and weather pattern prediction.

"New Mexico will be the first state in the nation with a comprehensive data refinery to reduce methane emissions. Descartes Labs will use satellite data and other imaging sources and sensors to know where the problems are and to develop strategies to address them. We'll share all that data with the public and use it to determine how well we're progressing on reducing emissions."

- Governor Michelle Lujan Grisham

⁴ Omara, M., Zimmerman, N., Sullivan, M., Li, X., ... Ellis, A. (2018). Methane Emissions from Natural Gas Production Sites in the United States: Data Synthesis and National Estimate. *Environmental Science and Technology* 52 (21), 12915-12925.

This will allow our state environmental compliance inspectors to be as efficient and effective as possible.

In addition to this exciting new partnership, we are deepening how we measure greenhouse gas emissions in every sector, statewide. For years, NMED has conducted an annual air emissions inventory that includes CO₂ and other greenhouse gas (GHG) pollutants from the largest polluters. However, none of these inventories have ever gathered data about both large and small sources of air pollution in the same year.

Now, in 2021 NMED will complete its first ever comprehensive emissions inventory which will include these smaller sources. The inventory will cover emissions for the calendar year of 2020. The data collected will help regulators evaluate ambient air quality, improve modeling analyses and emissions trends, and assess the effectiveness of air pollution reduction and climate change strategies.



Wind Energy Center, Fort Sumner, New Mexico



REDUCING GREENHOUSE GAS LEVELS

To reach our ambitious statewide target of a 45% reduction in net emissions by 2030 (relative to 2005 levels), we need to pick up the pace of our work. The following sections detail our aggressive policy and regulatory strategies.

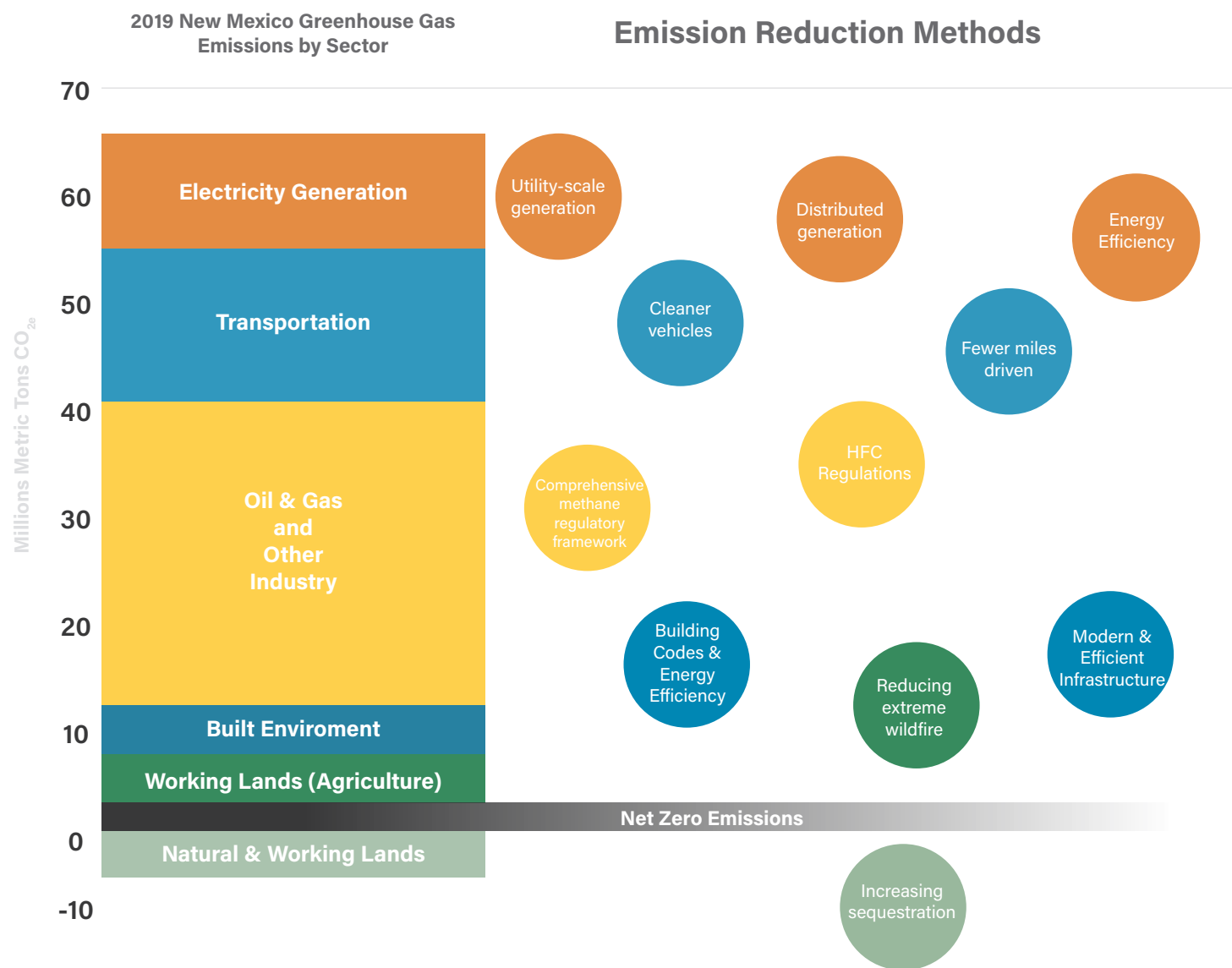


Figure 5 - Emission Reduction Methods by Sector

Electricity Sector

The electricity sector has historically been one of New Mexico's largest sources of greenhouse gas emissions. This sector includes all the electricity generated in the state.

To cut greenhouse gas emissions from the electricity sector, New Mexico is taking a two-pronged approach. First, we are transitioning from fossil fuel-burning power plants to zero-carbon electricity generation sources. We will achieve this result no later than 2045 for large utilities, and 2050 for all electricity generators. Secondly, we are concentrating on increasing energy efficiency in our homes, businesses, and industries. Improving energy efficiency not only helps New Mexico reach our goals of reducing greenhouse gas emissions, but it has the bonus of saving New Mexicans money on their electricity bills.

Since energy efficiency not only affects emissions in the electricity sector but also in the built environment – which includes homes, businesses, and industry buildings – we will discuss our energy efficiency policies in the Built Environment section (page 15).

Utility Electricity Generation and Transmission

In 2019, New Mexico passed major legislation to reduce emissions in the electricity sector. The Energy Transition Act (SB 489) sets one of the most ambitious renewable portfolio standards in the United States and provides tools to support New Mexico's transition to carbon-free electricity.

Successful implementation of the Energy Transition

Act will require a modernized electricity grid. We will need to build new transmission lines and invest in energy storage. Building this infrastructure will ensure that New Mexico's renewable energy serves New Mexicans in addition to providing statewide economic benefits by selling our excess generation to neighboring states.

To make sure that our grid modernization is successful, the New Mexico Renewable Energy Transmission Authority (RETA) is performing a study to find out what our transmission and storage needs will look like in a decarbonized electric sector. In parallel to RETA's work, New Mexico was one of four states selected to work with the National Governors Association and the U.S. Department of Energy on state-level grid modernization strategies. This program, which is already underway, provides New Mexico with crucial additional technical assistance, in-state training, and financial assistance in modernizing our grid.

Distributed Energy Resources

Businesses, homeowners, and public facilities can also reduce electricity emissions by installing their own renewable energy generation equipment – such as rooftop solar – creating distributed generation. We can think of renewable electricity generation as having two different formats: utility-scale generation and distributed generation. Utility-scale generation mostly means large wind, solar, and battery storage facilities developed by and for utilities. Distributed generation means smaller-scale projects, like installing solar panels on a home or business. We call this kind of generation 'distributed energy resources' because it is more geographically dispersed than larger, utility-run projects.

The landmark **Energy Transition Act** (SB 489) set a clear and comprehensive electricity policy for the state. All providers must deliver 50% renewable energy by 2030. Investor-owned utilities must deliver 80% renewable energy generation by 2040 and 100% carbon-free generation by 2045; rural electric co-ops must meet the same goals by 2050. The law also establishes three transition funds to help communities and our workforce adapt to a changing economy.

To increase distributed generation in New Mexico, the legislature passed House Bill 440, the Solar Energy Improvement Assessments Act, in 2019. This Act makes it easier for New Mexicans to use Property Assessed Clean Energy (PACE) and Commercial Property Assessed Clean Energy (C-PACE) programs, which are popular financing tools for distributed energy projects in other states.

The **Solar Energy Improvement Assessments** (HB 440) act expands access to county solar energy improvement special assessments, in which counties pay the up-front cost of renewable energy systems that individuals pay back through property tax assessments. This law makes it easier for counties to launch PACE and C-PACE programs. In other states such as California, PACE and C-PACE have been key drivers for smaller scale solar projects.

The legislature also requested that state agencies, universities, and industry study microgrids (House Memorial 71). Microgrids – essentially smaller, independent versions of the large state electricity grid – use a combination of distributed generation and energy storage to guarantee continuous power for a small, specific area. This power can be used as a backup when utility power goes out or can be used all the time in places where connecting to the larger grid is impractical. University campuses and small, remote towns are common locations where using a microgrid makes the most sense.

LEADING BY EXAMPLE: ELECTRICITY SECTOR



State agencies have already installed over 500 kilowatts (kW) of renewable energy to reduce emissions from state buildings. However, this is a small fraction of total state government electricity use – over 22 million kilowatt hours (kWh) – the amount of power consumption that is equal to one kilowatt every hour – per year.

To move faster on reducing emissions from state buildings, the General Services Department (GSD), with technical support from EMNRD, launched the State Buildings Green Energy Project in August 2019. This initiative will cut utility bills in half, saving the state at least \$1.1 million every year, while making workplaces more comfortable through better regulation of indoor temperatures. This \$32 million project includes installing solar panels at 19 state office buildings in Santa Fe. After the installation, the electricity used by these buildings will be substantially carbon-free.

In order to capitalize on the emissions and energy savings this program creates, GSD and EMNRD are offering training to agency facility and energy managers statewide. This training will help managers run their buildings using the latest monitoring and evaluation techniques. In addition, some buildings are receiving submetering equipment as part of the State Buildings Green Energy Project. Submetering equipment provides detailed data about energy use, which will help GSD decide where future energy system upgrades are most useful.

In addition to our buildings, we are making improvements to how we use energy in our state parks. EMNRD's State Parks Division's *Next Generation of Adventure* initiative to modernize parks and improve visitors' experiences, is constructing solar photovoltaic systems, adding

electric vehicle (EV) charging stations, conducting energy audits, and implementing conservation measures statewide. State Parks has already built 26 solar installations and one EV charging station at park facilities.

Transportation Sector

Transportation is the second-largest source of greenhouse gas emissions in New Mexico. In our rural state, tackling this sector will be a challenge: for many of us, cars are the only way to get to work, school, and grocery stores. Businesses – agricultural, industrial, and commercial – all use vehicles to transport materials and conduct their day-to-day operations.

Given the complexity of decarbonizing transportation in New Mexico, we are using two different policies to reduce transportation emissions. The first is to increase adoption of cleaner vehicles, whether they are all-electric or use fuels that produce fewer carbon emissions than gasoline or diesel. The second policy is to lower the amount of time and distance we spend in motor vehicles in general: reducing vehicle miles traveled (VMT).

Increasing Clean Vehicle Adoption

The state can spur clean vehicle adoption by incentivizing EV purchases, investing in charging infrastructure, requiring that a percentage of vehicles for sale be zero emission vehicles, and regulating vehicle emissions.

NMED is coordinating applications for Volkswagen settlement⁵ funding, which can be used for purchasing medium and heavy duty EVs and the infrastructure to charge them. EMNRD and the Public Education

Under the **Public Regulation Commission (PRC) Application for Vehicle Electricity**

(HB 521) law adopted in 2019, utilities are required to plan for electric vehicle infrastructure integration and submit detailed filings every two years with the PRC to make it happen.

The House also passed a memorial to **study gas tax alternatives** (HM 77).

Department are working together to pilot the adoption of electric school buses in multiple school districts across the state.

To charge these vehicles, we will work with other states to plan and invest in electric vehicle infrastructure. We are a participant in the Regional Electric Vehicle Plan for the West (REV West). REV West is an alliance of eight western states to create electric highway corridors throughout the intermountain west. Our REV West commitment is to install enough charging infrastructure to crisscross the state.

In 2019, the REV West signatory states, along with the Clean Cities Coalition and the National Association of Energy Officials, received a \$1.2 million grant for a project entitled **Supporting EV Deployment along Rural Corridors in the Intermountain West**.

This project will combine funding from the federal, public, and private sectors, along with Volkswagen settlement funds, to support EV infrastructure investment in rural communities along key corridors and near rural destinations such as national and state parks.

⁵In June 2016, the U.S. Department of Justice issued a partial consent decree settling claims by the U.S. EPA and the Federal Trade Commission against Volkswagen. The civil complaint filed against Volkswagen claimed that the automaker installed software in its 2.0-liter diesel engine vehicles to disable emission controls under normal use and to turn on emission controls only when the vehicle was being tested. Part of the settlement includes a mitigation trust that states and tribes may access to fund projects that reduce diesel emissions.

⁶REV West member states are Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.

In September 2019, Governor Lujan Grisham announced that New Mexico will be proposing, adopting, and implementing clean car standards. She made the announcement at 2019 Climate Week in New York City, where she joined other U.S. governors in advancing ambitious climate action in the face of federal inaction. As directed by the Governor's announcement, NMED will propose the adoption of the "California clean car standards" to the Environmental Improvement Board as early as 2020.

Clean car standards consist of low emission vehicle (LEV) standards that limit greenhouse gas emissions and other pollutants from cars and light duty trucks and zero emission vehicle (ZEV) standards that require a percentage of new vehicles for sale to be zero emission vehicles. New Mexico will join 14 other states in adopting the LEV standard and 11 other states in adopting the ZEV standard. These new standards will be more stringent than the federal government's. The purpose of clean car standards is to achieve emission reductions to fight smog and reduce greenhouse gas emissions. Improved efficiency is a co-benefit of the standards because it is one way to reduce emissions. The standards will take effect two years after the rulemaking: applying to vehicles built in model year 2023.

Reducing VMT

EMNRD, in partnership with other agencies, has developed a plan to reduce per capita VMT 15% below 2015 levels by 2027. We will need to:

- Invest in multiple transportation options beyond personal vehicles. We need to prioritize transportation infrastructure that serves more than just cars, like public transit and bicycle-and-pedestrian-friendly streets. Much of this investment will occur at the city, county, and Metropolitan Planning Organization (MPO) levels, so the state will coordinate with these entities to determine policies that will support and encourage these priorities.

- Promote and incentivize programs to increase the use of multiple transportation options. EMNRD's TravelSmartNM program uses marketing tools such as bus wraps to raise awareness of transit, cycling, and pedestrian travel options. Programs like this will help us reach our goals of reducing VMT.

LEADING BY EXAMPLE: TRANSPORTATION SECTOR




BY THE NUMBERS:

- \$2.5 million allocated for GSD's EV and charging station investments in FY 2020
- Growing EV fleet from one vehicle to 30 with this allocation
- 75% of state vehicles purchased each year must be alternatively fueled

Past and current state government investments in EVs and EV infrastructure are building momentum towards decarbonizing the state vehicle fleet. Current and planned actions include:

- EMNRD and GSD will revise the Alternative Fuels Program to phase out credits for flex fuel (ethanol) vehicles over the next three years, pushing the state to adopt more EVs, hybrids, and natural gas vehicles. GSD has a price agreement in place for charging infrastructure and low- and zero-emission vehicles, making it easier for all government entities in the state to purchase EVs and charging stations.
- GSD will spend \$1.5 million to build charging stations in Santa Fe County and \$1 million to purchase EVs for the centralized fleet this fiscal year.
- To encourage further adoption of EVs amongst state employees and the general public, EMNRD purchased a Chevy Bolt (an EV) and has two EV charging stations – one in Santa Fe and one at



Bluewater Lake State Park – which are open for public use.

- NMDOT and EMNRD's State Parks Division are in the process of installing charging stations at additional locations.

Electric vehicle adoption is accelerating. To stay on top of the evolving transportation landscape, we have formed two groups to drive our future actions in the right direction. The first of these is an EV Working Group, composed of state agencies, utilities, electric co-ops, the vehicle industry, and advocacy groups, convened by EMNRD. The second is a multi-agency EV Climate Action Team comprised of EMNRD, NMED, New Mexico Department of Transportation (NMDOT), New Mexico Tourism Department, New Mexico Tax and Revenue Department, and GSD, which is developing partnerships with educational institutions, utilities, automobile manufacturers, and vehicle dealerships to increase EV market penetration. For example, the Team will review the progress of installing charging infrastructure across the state after NMED distributes the next round of funding for projects that improve air quality related to transportation in late 2020, and then assess where New Mexico and its REV West partners need to fill in charging infrastructure gaps on major highways.

Industrial Sector

The industrial sector, including oil and gas production, is the largest source of greenhouse gas emissions in New Mexico. Emissions from the oil and gas industry are 57% of industrial emissions: given current production trends, these emissions are likely to grow absent new regulations. Methane emissions, which the EPA estimates are 25 times more potent than CO₂ emissions, are a large but addressable part of total oil and gas emissions. In addition, the state loses at

least \$10 million each year in revenue when methane is vented or flared – it is an expensive waste of a resource, as well as a major contributor to climate change. These factors make reducing methane emissions from oil and gas through a statewide methane regulatory framework the highest priority for New Mexico.

Reducing Oil and Gas Sector Methane Emissions

NMED and EMNRD both regulate the oil and gas sector and are working together to develop a “statewide, enforceable regulatory framework to secure reductions in oil and gas sector methane emissions and to prevent waste from new and existing sources and enact such rules as soon as practicable” as mandated in Governor Michelle Lujan Grisham's Executive Order 2019-003. The agencies have unique yet complementary jurisdictions. NMED regulates air pollution under the state Air Quality Control Act, while EMNRD regulates the waste of a resource under the state Oil and Gas Act.

Methane from the oil and natural gas industry is emitted alongside with other pollutants: volatile organic compounds (VOCs) and “air toxics” that include benzene, toluene, ethylbenzene, and xylene. VOCs are a key ingredient in creating ground-level ozone (smog).

The state Air Quality Control Act requires the state to develop a plan and regulations to reduce ozone precursors – VOCs (Volatile Organic Compounds) and NO_x (Oxides of Nitrogen) – in areas where monitored ozone levels are greater than 95% of the National Ambient Air Quality Standard (NAAQS) for ozone. Seven counties in New Mexico are approaching 95% of the ozone standard of 70 parts per billion (ppb): Bernalillo, Chavez, Dona Ana, Eddy, Lea, Rio Arriba, and San Juan Counties. Bernalillo County has its own regulatory authority for air quality and will not be included in these rules. To reduce the ozone levels in the remaining six counties, NMED is developing rules

targeting VOC and NO_x reductions. The reductions in VOCs will collaterally reduce methane. This will be the first time that NMED regulates VOCs and methane beyond federal requirements.

The New Mexico Oil and Gas Act governs EMNRD's Oil Conservation Division (OCD) on methane matters. The Oil and Gas Act directs OCD to prevent waste, protect correlative rights, and protect public health and the environment.

Specifically, the Oil and Gas Act prohibits "waste" from oil and gas production, and the OCD has a "no vent or flare" rule in place. Rule 19.15.18.12(A) NMAC, titled "Casinghead Gas" states that, "An operator shall not flare or vent casinghead gas produced from a well after 60 days following the well's completion." However, there are multiple exceptions to the rule. Operators tend to operate within the exceptions of the rule instead of the intent, making additional regulation necessary.

NMED and EMNRD conducted extensive stakeholder engagement during the summer of 2019 to seek feedback on effective ways to prevent methane pollution and waste. In addition, to gain a deeper technical perspective on methane emissions and waste, the agencies established a Methane Advisory Panel (MAP) consisting of 27 stakeholders who possess technical expertise related to the oil and natural gas industry. MAP members are professionals with specific areas of practice, including petroleum engineers, chemical and life scientists, environmental attorneys, and public administrators. Individuals from Los Alamos National Laboratory, Colorado State University, and the New Mexico Institute of Mining and Technology are providing technical assistance throughout the MAP process. A draft technical report stemming from the MAP efforts will be available for public review and comment prior to December 20, 2019. The focus of this report is methane controls in the production (upstream) and midstream industry sectors of the oil and natural gas value chain.⁷

MAP Meeting Topics

- Process overview and available data and studies
- Completions and stimulations
- Workovers and liquids unloading
- Dehydrators, separators, and heater treaters
- Compressors and engines
- Pneumatic controllers and pumps
- Infrastructure planning and gathering lines
- Venting and flaring
- Produced water tank storage vessels
- Closed loop systems
- Leak detection and repair
- MAP summary and next steps

MAP Member Affiliations

Aztec Well Service
 Center for Civic Policy
 Chaco Canyon Coalition
 Chevron Corp.
 Conoco Phillips Company
 Devon Energy
 DJR Energy
 Earthworks
 Enduring Resources LLC
 Environmental Defense Fund
 EOG Resources, Inc.
 Epic Energy
 Hanson Operating Company
 Hilcorp Energy Company
 Lucid Energy Group
 Marathon Oil
 Merrion Oil and Gas Corp.
 Mewbourne Oil Company
 New Mexico Environmental Law Center
 Occidental Petroleum Corp.
 San Juan Citizens Alliance
 Sierra Club
 Western Environmental Law Center
 Whiptail Midstream
 XTO Energy, Inc

⁷ Production includes well drilling and subsequent operations that support mineral extraction. Once the oil or natural gas has left the well site, it is put into gathering pipelines that transport the gas. Compressor/gathering and boosting stations push the natural gas through the lines to a natural gas processing plant where the methane gas is separated from the natural gas liquids such as propane, butane, and pentane. The midstream sector encompasses the moment that the gas leaves the well site through the processing.

After the MAP meetings conclude, NMED and EMNRD will host follow-up public meetings to discuss the information gathered on options for reducing methane pollution and waste so far. After the public meetings, NMED and EMNRD will develop draft rules that will be available for public comment prior to going before their respective rulemaking bodies in 2020. There will be public hearings in front of the Environmental Improvement Board for NMED rules to reduce VOC/methane pollution and in front of the Oil Conservation Commission for EMNRD rules to reduce methane waste.

HFC Regulations

Hydrofluorocarbons (HFCs) are a component of the industrial sector's greenhouse gas emissions profile. HFCs are gaseous compounds used as refrigerants in air conditioning systems and refrigerators, blowing agents in foams, propellants in medicinal aerosols, and cleaning agents. HFCs contain carbon, fluorine, hydrogen, and water vapor. Unlike the generation of refrigerants that preceded them (phased out by the 1987 Montreal Protocol), they do not damage the ozone layer.

However, HFCs are powerful greenhouse gases, with a warming potential 1,300 to 3,700 times greater than an equivalent amount of CO₂. Some states, including California, Vermont, and Washington, have set targets to reduce HFC emissions by as much as 40% by 2030. Other states, like New York, Connecticut, and Maryland, are developing rules based on California's regulations.

NMED is writing rules to mitigate HFC emissions and HFC use in New Mexico. These rules will be published as early as 2021.

Built Environment Sector

The built environment – buildings, roads, and other structures built by people – are a source of greenhouse gas emissions in two ways: the energy they use and the resources they require during construction. The strategies that we will use to reduce emissions from the built environment will also reduce emissions from all other sectors. Energy efficiency and better building codes reduce electricity emissions as well as emissions from heating and cooling buildings. Infrastructure investments, like new road design, creating more pedestrian and bicycle access, and improving our water and wastewater systems, reduce emissions across all sectors.

Energy Efficiency and Building Codes

Energy efficiency – using less energy to accomplish our everyday activities – is a way to reduce greenhouse gas emissions from the electricity and built environment sectors without changing how we live our everyday lives. While using LED lightbulbs, energy-efficient appliances, and installing better insulated windows are a great place to start reducing energy use, there is a lot more that we can do.

Current New Mexico law requires utilities to offer programs to improve energy efficiency in residential and commercial customers' buildings. To complement this existing law, we need to expand the availability of energy-efficient housing and appliances to low-income and disadvantaged New Mexicans. We also need to continue to update the Efficient Use of Energy Act, making sure that the method utilities use to measure energy efficiency cost-effectiveness is the fairest it can be, bringing energy efficiency upgrades and benefits to more New Mexicans – while saving them money and improving their comfort and health.⁸

When new buildings are constructed, or major renovations are made to an older building, contractors

⁸ New Mexico currently uses the utility cost test to determine whether energy efficiency improvements are cost effective (and therefore eligible for utility efficiency program funding), which does not account for benefits to participants and ratepayers. The total resource cost test includes these benefits and its use expands available measures and benefits for participants.

and construction companies must abide by the state's building codes. While many states regularly adopt the latest codes, New Mexico still uses the International Energy Conservation Code (IECC) 2009 code for both residential and commercial buildings.⁹ A new IECC code is released every three years as building technologies improve and evolve. All but seven states have adopted some version of the IECC or similar codes.¹⁰ Since adopting and enforcing more efficient energy codes is one of the most effective ways to reduce emissions from the built environment, the Regulation and Licensing Department (RLD) is updating our codes to the most recent version.

- **The Efficient Use of Energy Act Changes** (HB 291) extends electric utilities' energy efficiency program requirements, ensuring continued utility investment in making our communities more efficient.
- Senate Memorial 86 directed the Regulation and Licensing Department (RLD) to **update building codes**.
- Pacific Northwest National Laboratory's analysis for EMNRD and RLD estimates **updating residential codes to IECC 2018 will eliminate almost 25,000 tons of CO₂e statewide annually and save the average homebuyer almost \$6,400 over the life of the home despite modest increases in construction cost.**

Infrastructure Investment

Our communities need new and improved infrastructure in order to both reduce our greenhouse gas emissions and be prepared for the challenges that climate change will bring to New Mexico. Infrastructure is an enormous category, and there are many kinds of climate-smart infrastructure work. Some of the ways we are improving our infrastructure may not look like they will immediately reduce emissions, but infrastructure governs how we live in the world every day – and all these improvements will help us live in a more sustainable fashion.

The most obvious form of infrastructure that we encounter daily is transportation infrastructure: roads, sidewalks, parking lots, train tracks, streetlights, and bus stops. Deciding where all these pieces of our transportation landscape go is done through land use and transportation planning, implemented at the state, regional, and local levels. NMDOT and EMNRD are working with Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Organizations (RTPOs) to make sure our planning practices not only help grow our economy but also reduce our emissions. NMDOT will integrate these best practices into its Long-Range Statewide Transportation Plan in its 2020-2021 update. NMDOT will also recommend these practices to the MPOs and RTPOs for inclusion in their 2020-2021 MPO and RTPO updates.

NMDOT is researching ways to improve the sustainability of materials used in road construction and use more energy efficient traffic signal and street lighting fixtures. Road design and materials affect vehicle energy use. Well-maintained and designed roads are critical to minimizing emissions; rough roads decrease vehicle fuel efficiency.

⁹ United States Department of Energy, Energy Efficiency and Renewable Energy. *Building Energy Codes Program: New Mexico*. Retrieved from <https://www.energycodes.gov/adoption/states/new-mexico>

¹⁰ The American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) also regularly publishes energy codes for commercial buildings.

Where we live and where our businesses and industries are located are governed by land use law, which includes zoning codes. NMDOT and EMNRD are establishing a program to fund updates to Tribal and Local Public Agency zoning codes that will help local agencies coordinate how land use interacts with transportation. For example, if we invest in public transit routes near densely populated areas and business districts, we can increase public transit use and reduce VMT. The same effect can be achieved by locating key services – like hospitals and schools – in areas easily accessible by transit, cycling, or walking.

How we receive information is also a part of our infrastructure: telephone service has been regulated as a public infrastructure utility for over half a century. Similarly, the way we access the internet depends on infrastructure. Right now, many rural New Mexicans cannot get broadband internet service where they live. This means that they must drive more often to receive services they need. In addition, the lack of high-speed internet services in rural areas makes new technologies like telemedicine and web-based meetings impossible to use. Reliable statewide internet will empower an array of digital services. The state needs to coordinate with private internet companies to expand rural broadband access.

LEADING BY EXAMPLE: BUILT ENVIRONMENT SECTOR



New buildings and major building renovations present opportunities for state agencies to integrate the latest energy efficiency technologies and ensure energy and financial savings for years to come. By January 2020, EMNRD will make recommendations to the Governor's Office on adopting new energy performance standards for state projects involving new construction and major renovations.

NMDOT will coordinate with EMNRD on recommendations in these standards for agencies and school districts to choose location-efficient sites¹¹ that includes availability of multiple modes of transportation, proximity to existing neighborhoods and amenities (within ½ mile), and that minimize the need for new infrastructure.

State agencies are modernizing their operations and improving their construction requirements to emphasize best practices in climate-ready land use. Improving server and other IT service efficiency will reduce state agency electricity costs and energy consumption while increasing the availability of public documents, physical storage space in office buildings, and employee mobility. The New Mexico Department of Information Technology's facilities team is already planning energy upgrades to at least one data center in coordination with GSD.

As previously mentioned in the Electricity Sector section, the State Buildings Green Energy Project is improving energy efficiency at state offices. The project uses energy savings performance contracting, an approach EMNRD deployed successfully for 28 projects for state entities since 2013.

¹¹ See: U.S. EPA. *Location and Green Building*. Retrieved from: <https://www.epa.gov/smartgrowth/location-and-green-building>

Natural and Working Lands Sector

Reducing emissions alone will not get us to our greenhouse gas reduction goals. CO₂ can remain in the atmosphere for up to 200 years once emitted—unless another process removes it. Removing CO₂ from the atmosphere is known as sequestration. Our natural resources have a large part to play in absorbing CO₂ even as we work towards fewer emissions. We must also reduce emissions produced from these lands – reducing wildfire risk and managing our forests through prescribed burns. New Mexico is acting on both these fronts through new programs and practices at EMNRD's Forestry and Mining and Minerals Divisions, the Department of Game and Fish (DGF), and NMDOT. We will coordinate and extend these efforts by accepting the U.S. Climate Alliance Natural and Working Lands Challenge by the end of 2019 and developing a Natural and Working Lands Climate Plan by fall 2020. This challenge commits states to:

- Improving inventory methods for understanding how land produces and absorbs carbon;
- Undertaking actions to maintain natural and working lands as a net sink of carbon and balancing near- and long-term sequestration objectives; and
- Integrating top priority actions regarding natural and working lands into state greenhouse gas mitigation plans by 2020.¹²

Increasing Sequestration from Natural and Working Lands

Healthy lands and forests can reduce emissions by sequestering carbon while simultaneously enhancing

ecosystem resilience to increased drought and extreme weather and fire events.¹³ Reforestation is considered the top global solution for naturally removing carbon from the atmosphere because trees naturally sequester—i.e., consume through photosynthesis—carbon.¹⁴ Rehabilitating land through healthy soil practices and planting other forms of vegetation besides forests also sequesters carbon.

- The **Healthy Soils Act (HB 204)** establishes a program at the New Mexico Department of Agriculture for farmers and ranchers to improve soil health, which can increase carbon sequestration in agricultural land.
- EMNRD's Mining and Minerals Division is incorporating drought-tolerant plants into **mine reclamation plans**, researching ways to improve carbon sequestration capacity of reclaimed area soil, and promoting installation of solar projects on reclaimed mining lands.
- NMDOT is working with the Bureau of Land Management and other partners on a **revegetation project** near Lordsburg to minimize dust storms, which have caused accidents along Interstate 10.

¹² United States Climate Alliance, "Natural & Working Lands Challenge," n.d., <https://www.usclimatealliance.org/nwlchallenge>.

¹³ Remy, C. C., Krofcheck, D. J., Keyser, A. R., Litvak, M. E., Collins, S. L., & Hurteau, M.D. (2019). Integrating species-specific information in models improves regional projections under climate change. *Geophysical Research Letters* 46. <https://doi.org/10.1029/2019/GL082762>

¹⁴ Intergovernmental Panel on Climate Change (August 7, 2019). *Climate change and land: an IPCC Special Report on climate change, desertification, sustainable land management, food security, and greenhouse gas fluxes in terrestrial systems. Approved Draft*. Retrieved from <https://www.ipcc.ch/srccl-report-download-page>

Reducing Potential for Wildfire Emissions

Extreme wildfires, which are becoming more frequent as the climate changes, not only reduce forest cover (and therefore sequestration capacity), but also emit large amounts of CO₂. The United States Department of the Interior estimated the extensive fires in California in 2018 emitted 68 million tons of CO₂, roughly equivalent to that state's entire annual electric sector emissions.¹⁵ Managing our forests to reduce the risk of extreme fire events also reduces emissions those fires produce and keeps more trees alive to continue sequestering carbon.

A new working group established by **House Memorial 42** is studying constraints on the use of prescribed fire and will provide policy recommendations by June 2020.

EMNRD's Forestry Division, with support from the Forest and Watershed Health Coordinating Group, is prioritizing climate mitigation and adaptation practices in its next Forest Action Plan, and is already using prescribed fire and forest restoration to reduce extreme fire events that cause significant damage, limit future resilience, and reduce carbon storage. DGF and EMNRD are working together and with other partners across the state to restore forest and watershed health at ever-larger scales; healthier forests are less susceptible to extreme fire events.

LEADING BY EXAMPLE: NATURAL AND WORKING LANDS SECTOR




The New Mexico Department of Agriculture works with nine partners to fund over \$730,000 of programs that purchase local, fresh fruits and vegetables in schools, support community farming and youth education, and increase access to farmers markets throughout the state. Prioritizing local food consumption not only supports local farmers but also can reduce food transportation emissions; one estimate suggests local food consumption could reduce the average consumer's emissions by up to 5%.¹⁶

Cross-Sector Emissions Reductions: Market Mechanisms

Even with current and planned policies to reduce our emissions, we will likely fall short of our goals without a broader market-based program to reduce carbon usage and emissions. Market-based programs are typically variations on cap-and-trade programs, which set an upper limit on total emissions and establish a market where emitters can purchase rights to emit greenhouse gases. This approach relies on market forces—supply (limited by the declining cap) and demand (driven by the production of greenhouse gases)—to determine the price of emitting greenhouse gases. When compared to traditional forms of regulating air pollutants, cap-and-trade programs provide flexibility to choose the most economically efficient means for achieving greenhouse gas emission reductions. Cap-and-trade was used successfully to address acid rain pollution nationwide.

¹⁵ U.S. Department of the Interior, Press Releases. *New Analysis Shows 2018 California Wildfires Emitted as Much Carbon Dioxide as an Entire Year's Worth of Electricity*. Retrieved from <https://www.doi.gov/pressreleases/new-analysis-shows-2018-california-wildfires-emitted-much-carbon-dioxide-entire-years>

¹⁶ Cho, Renee. Columbia University Earth Institute, State of the Planet. *How Green is Local Food?* Retrieved from: <https://blogs.ei.columbia.edu/2012/09/04/how-green-is-local-food/>



The cap: Each large-scale emitter, or company, will have a limit on the amount of greenhouse gas that it can emit. The firm must have an “emissions permit” for every ton of carbon dioxide it releases into the atmosphere. These permits set an enforceable limit, or cap, on the amount of greenhouse gas pollution that the company is allowed to emit. Over time, the limits become stricter, allowing less and less pollution, until the ultimate reduction goal is met.

The trade: For some companies it is cheaper or easier to reduce their emissions below their required limits than others. These more efficient companies, who emit less than their allowance, can sell their extra permits to companies that are not able to make reductions as easily. This creates a system that guarantees a set level of overall reductions, while rewarding the most efficient companies and ensuring that the cap can be met at the lowest possible cost to the economy.

The Center for American Progress.

<https://www.americanprogress.org/issues/green/news/2008/01/16/3816/cap-and-trade-101/>

Market-based programs have been shown to be an effective complement to other pollution control programs and clean energy policies. Examples of market-based programs include the economy-wide approach of the Western Climate Initiative led by California, multi-sector approaches like the EU Emissions Trading Scheme, and single-sector approaches like the Regional Greenhouse Gas Initiative (RGGI)¹⁷ and the U.S. Acid Rain Program.¹⁸ Market-based programs are often either national in scope or implemented by more than one jurisdiction because larger transaction pools make them more effective.

As directed in the Governor’s Executive Order, NMED and EMNRD will evaluate the adoption of a comprehensive market-based program that sets emission limits to reduce carbon dioxide and other greenhouse gas pollution consistent with the objective of achieving a statewide reduction in greenhouse gas emissions of at least 45% (compared to 2005 levels) by 2030. We will evaluate comprehensive market-based program options, and design and implement the most efficient and cost-effective approaches to meeting our climate targets. This will include reaching

out to states that are already implementing market-based programs.

In parallel with this evaluation, NMED and EMNRD are identifying funding and contracting needs to conduct a rigorous analysis of New Mexico’s emissions trends and proposed policies in 2020. This analysis will estimate how far our current and proposed policies will take us towards our 2030 emission reduction goal, and what remaining reductions we need to achieve through a market-based program.

¹⁷ RGGI is a program created by a group of Eastern states in 2009 that limits CO₂ emissions from power plants.

¹⁸ The US Acid Rain Program is a national program that limits SO₂ emissions from power plants, administered by the EPA since the 1990s.

ADAPTATION & RESILIENCE

New Mexico is responding to climate change with a two-pronged approach, using **mitigation** (strategies to decrease greenhouse gas emissions) in parallel with **adaptation** (ensuring our state is prepared to recover from climate-related emergencies like wildfires and to prevent such emergencies). While we fight to reduce the impacts of climate change by reducing greenhouse gas emissions, we also need to adapt to remain resilient in the face of the changing climate patterns New Mexico already experiences.

Resilience is not one size fits all: economic resilience requires a diverse and robust economy; maintaining public health requires adapting our education and support services; physical resilience requires new infrastructure approaches and investing in our natural resources—land and water—that can provide valuable ecosystem services. Ecosystem services are benefits that wildlife and ecosystems provide to people, such as healthy forest root systems' ability to limit erosion and flooding.¹⁹

Cultivating a truly resilient New Mexico will take effort from all our residents: this makes education on climate mitigation and adaptation a high priority. Agencies need resources for dedicated staff to provide information about climate actions to state employees and other New Mexicans.

Economic Transition

New Mexico's economy and budget benefit substantially from the oil and gas industry. Recently, the extraction boom in the Permian Basin has enriched New Mexico, and the oil and gas industry is expected to grow and continue supporting our economy in the future. Nevertheless, seeking to balance the success of this one sector with growth in other areas will be necessary to New Mexico as we transition towards a clean energy economy. Climate change is one reason

to seek economic diversity in the energy sector, but it is certainly not the only one. Developing a variety of industries will make our state more resilient in times of economic recession or a period of low oil and gas revenues. Creating diverse economic growth in the energy sector is also a chance to ensure that our clean energy transition is equitable and provides opportunities for all New Mexicans.

To accomplish this diversification and provide opportunities for all New Mexicans to benefit from a clean energy economy, the Department of Higher Education, the Indian Affairs Department, the New Mexico Economic Development Department, and the Department of Workforce Solutions will develop educational training, degree, and apprenticeship programs at our state's universities, community colleges, and technical schools.

The **Energy Transition Act** provides four tools to aid economic and energy transition in communities affected by a coal plant closure:

- (1) securitization, a process for private bonding authority for an entity closing a coal plant;
- (2) three new funds (at Indian Affairs Department, Economic Development Department, and Department of Workforce Solutions) to provide transition assistance to tribal communities, displaced workers, and the broader affected community within 100 miles from a closing plant;
- (3) reinvestment in clean energy and property tax base replacement; and
- (4) apprenticeship opportunities in all types of energy development.

¹⁹ The National Wildlife Federation. *Ecosystem Services*. Retrieved from: <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services>

New Mexico has world-class renewable energy resources that will attract renewable energy developers as well as companies looking to meet corporate sustainability goals by having easy access to clean energy. The New Mexico Economic Development Department will lead recruitment efforts in this sector. Bringing these companies to New Mexico will create jobs – not only for renewable energy industry workers, but for many other New Mexicans as well.

The Department of Health (DOH) is using the Centers for Disease Control and Prevention (CDC)'s **Building Resilience Against Climate Effects (BRACE)** Framework to better position New Mexico as a climate-ready state, including acquiring funding from the CDC.

LEADING BY EXAMPLE: ECONOMIC TRANSITION

To encourage green business activity, GSD is revising the bidding process for state government building leases, creating a preference for proposals with energy conservation measures by July 2020. This revision will incentivize companies that wish to win state leases to improve property efficiency. GSD will also identify selected contractors that have taken measurable energy conservation measures so that individual agencies can take this into consideration in their contracting processes.



to prevent expected health issues associated with the event. NMDOT also uses electronic billboards across the state to warn the traveling public about weather events that will increase in frequency as a result of climate change, such as dust storms and severe winter conditions. DOH and others will broaden this work to engage local emergency managers to coordinate response preparation, increasing residents' ability to weather extreme events safely. In addition to addressing heat-related illness from rising temperatures, DOH will also evaluate the impacts of climate change on vector-borne diseases in New Mexico.


NMED's Occupational Health and Safety Bureau will develop regulations in 2020 to prevent heat-related illnesses and fatalities among people who work outdoors. The incidence of these illnesses will increase with rising ambient temperatures. There are no current regulations addressing worker heat-related illness in New Mexico or at the federal level. NMED will set the model for other states and the federal government.

Many states are combining energy efficiency and health programs for low-income residents, as weatherization of residences can lead to improved indoor air quality and greater temperature stability in extreme weather and during power outages, and EMNRD and DOH are following suit. The Energy\$mart New Mexico program, which offers weatherization and energy efficiency upgrades to low-income residents, is already in high demand, with a waitlist consistently over 2,000 residents.

Public Health

Climate change poses significant threats to public health. The state must monitor these threats and keep residents informed and supported through education and emergency services.

Multiple agencies, including the Department of Health (DOH), DGF, the Department of Homeland Security and Emergency Management (DHSEM), and EMNRD, conducted climate change impact assessments to identify areas and groups especially vulnerable to the effects of climate change. DOH has already developed climate-change-specific risk messages for use during emergency weather events, such as heat waves, to prepare and inform the public on best practices



Emergency Preparedness & Management

Natural disasters such as drought, wildfires, and flash flooding can severely damage our built environment and our agricultural and natural resources. All these hazards and disasters will become more common as our atmosphere warms. Therefore, DHSEM included climate change impacts, vulnerability, and proposed mitigation actions as part of its State Natural Hazard Mitigation Plan.

Resilient Infrastructure

Roads and highways are an extensive state infrastructure resource that is especially vulnerable to a changing climate. NMDOT will complete its vulnerability assessment by spring 2020. The assessment will identify infrastructure and facilities in high-risk zones that are economically and socially critical and will allow the agency to prioritize maintenance and develop contingency plans if a high-risk zone is damaged in a weather event such as flooding. The agency is also using a new framework to consider sustainability, livability, and climate change issues into transportation infrastructure.

NMDOT District 1 is currently using the Institute for Sustainable Infrastructure's Envision framework—like a LEED building certification process, but for infrastructure—on a **\$43 million bridge replacement and interchange reconfiguration** in Las Cruces at the I-25 and University interchange. The design team targeted gold-level sustainability practices.

NMDOT will also complete infrastructure guidelines to improve the environmental impact of our roads and streets by the end of 2020 and will incorporate these guidelines into its design manual. The guidelines will include strategies for stormwater management to increase the resilience of built infrastructure and reduce negative impacts of road runoff on the environment. NMDOT will hire a consultant to assist with developing effective guidelines appropriate for New Mexico's climate.

Other state agencies can drive action at the local level by incorporating resilience, mitigation, and adaptation concepts into tribal and local public agency project applications for state or federal funding. Three agencies are putting this into practice so far:

- To encourage local government use of sustainable planning and infrastructure, NMDOT will incorporate selected Complete Streets,²⁰ and other strategies to increase use of alternative travel modes (e.g. public transit and bicycles) into NMDOT project design standards and project selection criteria for federal and state funding programs. The agency is already modifying its federal funding application forms for local governments to require information on proposed project greenhouse gas emission impacts.
- NMED is adding a category for addressing climate impacts to its priority rankings for local government Clean Water State Revolving Loan Fund applications. Water and wastewater treatment facility projects that address climate impacts will get more points in this area, increasing chances of loan awards relative to otherwise comparable projects.
- EMNRD's Forestry Division is planting trees in urban public spaces through the New Mexico Forest Releaf Program, with a starting goal of 250 trees per year and more with additional funding.

²⁰ Complete Streets policies require planners to "routinely design and operate the entire right of way to enable safe access for all users, regardless of age, ability, or mode of transportation." Smart Growth America. *What are Complete Streets?* Retrieved from: <https://smartgrowthamerica.org/program/national-complete-streets-coalition/publications/what-are-complete-streets/>

Resilient Natural Resources

The DGF and EMNRD's Forestry Division are preparing for climate change impacts on New Mexico's forests, streams, and wildlife.

EMNRD's Forestry Division will incorporate a climate change vulnerability model in its next state forest action plan by June 2020.²¹ In most cases, successful forestry adaptation strategies come with mitigation benefits. In addition to the forest restoration and prescribed fire efforts described above, the Forestry Division will expand its seedling program to increase reforestation with climate-ready trees. This program needs additional resources, such as investments in seed collection and green houses, to grow to a scale with substantive impacts. A larger program would increase availability of drought-resilient species for post-fire rehabilitation and for restoration, reclamation, and reforestation efforts in state parks and other government facilities.

The **Forest and Watershed Restoration Act** (HB 266) provides the state's first dedicated, recurring funding – \$2 million annually – for projects that support climate resilience.

Ecosystem changes could reduce hunting and fishing opportunities for thousands of New Mexicans and jeopardize revenue streams for the Department of Game and Fish. DGF will monitor the effects of varying types and levels of precipitation on stream temperatures and trout populations to identify streams with at-risk fish populations and take action to reduce further harm. The DGF is developing a State Wildlife Action Plan that summarizes wildlife and habitat resources in New Mexico, potential threats to those resources, and conservation actions which could address those threats.

LEADING BY EXAMPLE: INFRASTRUCTURE & NATURAL RESOURCE RESILIENCE



Successful agency adaptation and resilience to climate impacts depends on adequately assessing and adapting to risks to agency finances and infrastructure, and using climate risk assessment in long-term investments and planning. For example, the State Land Office is creating a climate change framework to guide permitting decisions.

BY THE NUMBERS:

- At least four state agencies have already conducted climate change risk assessments.
- DHSEM predicts four natural hazards will become more severe due to climate change: drought, flash floods, extreme heat, and land subsidence.

GSD is taking proactive steps to understand climate risks to its properties. GSD's Facilities Management Division (FMD) is working with DHSEM to identify GSD-owned properties located in flood plains statewide so that it can include appropriate design measures in these buildings. For example, the redesign of the West Campus in Santa Fe includes flood remediation features. GSD is also working with the city of Santa Fe to improve its enforcement of ordinances that prevent property owners from wasting water.

²¹ Regular updates to the state forest action plan are required for continued federal funding.

Water Availability

Increased periods of drought and higher portions of our precipitation falling as rain rather than snow will create challenges for water management in New Mexico.

The Office of the State Engineer (OSE) adopted statewide framework rules to use active water resource management (AWRM) protocols to help the state effectively manage water during shortages caused by drought and variability in climate, protect senior water rights, and meet interstate delivery obligations. OSE has many tools and practices to implement AWRM, including facilitating voluntary agreements among water users in times of water shortage, and staffing and participating in the Drought Task Force.

NMED has several initiatives to better prepare New Mexico drinking water systems for periods of drought, water shortages, and the impacts of fire resulting from climate change:

- **NMED will establish baseline information about groundwater and surface water supplies in 2020.** This information will allow public water systems to better prepare for climate change impacts on their water supplies allowing NMED to better assist community drinking water systems across the state in preparing for the short- and long-term effects of diminishing water supplies.
- **NMED will collect data to assess how climate change is affecting surface waters that are used as drinking water sources in 2021.** The agency will monitor public water system surface water intakes to determine if these systems can adjust for dropping water levels. Also, this work will determine which water systems would need to use alternative surface and/or groundwater sources due to diminishing surface water levels. Utilization of new alternative water sources requires funding for engineering applications and infrastructure improvements, so this must be planned for in advance when possible.
- **NMED will develop Source Water Plans that include climate change impacts on community water systems for infrastructure improvement purposes in 2021.** By developing detailed source water plans that include the potential effects of climate change, community water systems will better understand the current and future infrastructure needs.
- **NMED will increase the number of action plans for wildfire control/remediation and watershed health starting in 2019.** Pre-fire action plans are developed to reduce the risk of watershed wildfires. Between 2019 and 2023 NMED will conduct at least one planning project, covering at least one priority watershed, to be supplemented, updated, or completed each year. In post fire action plans, NMED coordinates with other government agencies to evaluate burn severity and suggest best management practices to slow water runoff and improve stream health. Post-fire actions reduce sedimentation, which then reduce impacts to water quality and protect aquatic habitat. Any year in which a major wildfire occurs in a watershed with cold or cool water aquatic life, the affected watershed(s) are identified as priority watersheds for Clean Water Act Section 319 funding opportunities under NMED's nonpoint source management program
- **Beginning in 2019, NMED will encourage pre-wildfire protection efforts,** such as source water protection planning and watershed management (e.g., prescribed burning) to reduce the potential for intense wildfire, by awarding more points to solicited project proposals submitted to NMED that include preventative actions and by providing water quality and forest ecology information when reviewing forest plans to prevent unnaturally intense wildfire.
- **Beginning in 2020, NMED will identify more Outstanding National Resource Waters (ONRWs) to further protect special, exceptional, or undamaged waters.** ONRWs are afforded extraordinary protections which prohibit degradation.



CONCLUSIONS

Since Governor Lujan Grisham signed Executive Order 2019-003, bringing New Mexico to the forefront of states taking ambitious climate action, we have made rapid progress towards our goals. New Mexico joined the U.S. Climate Alliance and committed to a statewide reduction of greenhouse gas emissions of at least 45% by 2030, as compared to 2005 levels. Legislation signed into law by the Governor during the 2019 legislative session demonstrates the seriousness and speed of our work: New Mexico's landmark Energy Transition Act contains one of the most ambitious renewable energy and zero-carbon electricity standards in the United States and establishes worker and community transition funds. Our electric utility efficiency standards are stronger than ever. The Climate Change Task Force, which spans all state agencies, has developed an initial suite of ambitious policies to accelerate our transition into a clean energy future.

These policies, which include a methane emission reduction regulatory framework, an update to the state's building codes, and electricity transmission corridors to transport our renewable electricity resources to market—among many others detailed in this Climate Strategy report—are already beginning to come to fruition. This is only the beginning of our action. Over the next year we will refine our policies, accelerate their implementation, and acquire modeling data to demonstrate the success of our work.

In September 2020 we will report on our progress and new next steps in the 2020 New Mexico Climate Report. The Task Force anticipates releasing new reports annually thereafter.

FURTHER INFORMATION ON
NEW MEXICO'S ONGOING CLIMATE
WORK CAN BE FOUND AT THE NEW
MEXICO CLIMATE ACTION WEBSITE.

[CLIMATEACTION.STATE.NM.US](https://climateaction.state.nm.us)

Abbreviations & Acronyms

| | | | |
|-----------------------|--|--------------|--|
| AWRM | Active Water Resource Management | NAAQS | National Ambient Air Quality Standard |
| BRACE | Building Resilience Against Climate Effects Framework | NMAC | New Mexico Administrative Code |
| CDC | Centers for Disease Control | NMED | New Mexico Environment Department |
| CFC | chlorofluorocarbons | NMEDD | New Mexico Economic Development Department |
| CO₂ | carbon dioxide | NMDOT | New Mexico Department of Transportation |
| C-PACE | commercial property assessed clean energy | NOx | Nitrogen Oxides |
| DGF | New Mexico Department of Game and Fish | OCC | Oil Conservation Commission |
| DHSEM | New Mexico Department of Homeland Security and Emergency Management | OCD | Oil Conservation Division of the Energy, Minerals and Natural Resources Department |
| DMA | Department of Military Affairs | ONRW | Oustanding National Resource Waters |
| DWS | New Mexico Department of Workforce Solutions | OSE | Office of the State Engineer |
| ECMD | Energy Conservation and Management Division of the Energy, Minerals and Natural Resources Department | PACE | property assessed clean energy |
| EIB | Environmental Improvement Board | PRC | Public Regulation Commission |
| EMNRD | New Mexico Energy, Minerals and Natural Resources Department | ppb | parts per billion |
| EPA | United States Environmental Protection Agency | RETA | Renewable Energy Transmission Authority |
| EV | electric vehicle | REV | Regional Electric Vehicle Plan |
| GHG | greenhouse gas | RFP | request for proposals |
| GSD | New Mexico General Services Department | RGGI | Regional Greenhouse Gas Initiative |
| HCFCs | hydrochlorofluorocarbons | RLD | New Mexico Regulation and Licensing Department |
| HFCs | hydrofluorocarbons | SNAP | Significant New Alternatives Policy |
| IAD | Indian Affairs Department | SLO | State Land Office |
| IECC | International Energy Conservation Code | TAG | technical advisory group |
| LEV | low-emission vehicle | TRC | total resource cost |
| MAP | Methane Advisory Panel | UAS | unmanned aircraft systems |
| MMT | million metric tonnes | VOC | volatile organic compound |
| | | ZEV | zero-emission vehicle |



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Marko Satarain, Labor Relations Administrator, State Personnel Office

Ricky Serna, Deputy Secretary, Department of Workforce Solutions

Mark Shea, Cabinet Secretary, Department of Public Safety

Sunalei Stewart, Deputy Commissioner, State Land Office

Alisha Tafoya, Interim Cabinet Secretary, Department of Corrections

Susan Torres, Public Information Officer, Energy, Minerals, and Natural Resources Department

Sonya Carrasco Trujillo, General Counsel, Department of Military Affairs

Antoinette Vigil, Deputy Secretary, Tourism Department

Carrie Wells, Program Coordinator, Economic Development Department

Matt Wunder, EPP Chief, Department of Game and Fish