

2021



**Progress & Recommendations**  
New Mexico Interagency Climate Change Task Force

# Table of Contents

The Governor's Message	3
2021 Climate Action By the Numbers	5
Science, Data, and Modeling	8
Reducing Greenhouse Gas Emission Levels	12
Industrial Sector	12
Transportation Sector	14
Electricity Sector	17
Built Environment Sector	21
Natural and Working Lands Sector	23
Building Adaptation and Resilience	25
Climate Resilience Gaps	26
Natural and Working Lands	29
Public Health	32
Emergency Management	34
Water Resources	35



# THE GOVERNOR'S MESSAGE

Governor Michelle Lujan Grisham



When I entered office in 2019, one of my very first actions was to set New Mexico on a path toward a greener future. Three years after issuing that executive order, I am proud to say that we have already achieved most of the directives of the order.

Those efforts were on the world stage in November 2021, when I represented New Mexico at the United Nations Climate Change Conference in Glasgow, Scotland. I was honored to speak alongside President Joe Biden's top climate advisors, where I highlighted New Mexico's leadership in addressing climate change. At that conference, we heard again and again that effective government at the sub-national level is often what initiates, influences and steers national and global action.

That's all to say that while our efforts here in New Mexico are being felt far beyond our borders, our work is certainly not done, and the next decade of action will be decisive in our fight against climate change. The data supports both our successes and illustrates the need for further action: the policies put in place under this administration will result in a whopping 31 million metric tons of CO<sub>2</sub> equivalent reduced by 2030 – equal to the annual emissions of nearly 7 million cars. In 2021, the Climate Change Task Force identified policies and practices to pursue that would result in another 17.3 million metric tons of reductions, getting us ever closer to our goal of 45% below 2005 levels by 2030. This year, we will map out how we close that final gap – and we will get there.

Our most significant achievement of 2021 was the implementation of nationally leading regulations in the oil and gas industry. The Energy, Minerals and Natural Resources Department's natural gas waste rules require that by 2026, 98% of gas at well sites is captured by operators, preventing it from entering the atmosphere and contributing to a warming climate. Meanwhile, the Environment Department put forth a rule that will not only curb harmful air pollutants from the oil and gas industry, but eliminate up to 426,000 tons of methane emissions annually. That rule will be finalized in April of 2022.

The steady growth in the state's utility-scale renewable generation after the 2019 passage of the Energy Transition Act continues. A total of 1,395 megawatts of power generated by renewables came online between March 2019 and the end of 2021 – more than double the growth in renewable generation in the two years prior. Today, that number is even higher, because New Mexico is now the proud home of the largest wind power plant in the country. In addition to adding 1,050 megawatts to our portfolio, the project also created thousands of jobs. This rapid transition points to New Mexico's promising future as a renewable energy exporter.



We're also working to make solar power accessible to every New Mexican. After years of negotiation, the New Mexico state legislature passed SB 84, the Community Solar Act, during the 2021 legislative session, and I signed the bill into law on April 5th, 2021. Community solar allows access to solar projects for people who can't afford or otherwise do not choose rooftop solar – like renters and apartment-dwellers. New Mexico's community solar law makes solar energy more accessible to low-income New Mexicans, as each community solar project must have a 30% carve-out of its capacity reserved for low-income customers and low-income service organizations. Additionally, in the Solar Market Development Tax Credit's first year of implementation, over 2,300 solar projects were installed in nearly every New Mexico county. That's an estimated annual energy cost savings of \$1,400 per customer.

And in a rural state like New Mexico, we know we must take continued action to reduce emissions from the transportation industry. We have made speedy progress to deploy additional electric vehicle charging infrastructure across the state in the past year, making electric vehicle use easier and more accessible in every corner of our state. Visitors to New Mexico can now pick up a rented electric vehicle at the Albuquerque Sunport and drive to ski at Taos, explore the Navajo Code Talkers Museum in Gallup, or hike in Caballo Lake State Park without worrying about running low on charge – all because of our strategic investments in electric vehicle infrastructure that resulted in the addition of hundreds of miles of electric vehicle corridors in 2021. We are also going to implement clean car rules this year, reducing emissions and increasing consumer options.

Looking forward, we also have an unprecedented opportunity to tackle water infrastructure challenges – and we are. The state will complete its 50-year water plan and is working closely with communities to make sure the historic levels of federal and state funding gets to the shovel-ready New Mexico projects that need it most. I would like to thank the members of the state's Climate Change Task Force, under the leadership of Environment Department Secretary James Kenney and Energy, Minerals and Natural Resources Department Secretary Sarah Cottrell Propst, for their commitment and hard work to achieve results for New Mexicans.

I am clear: we have further to go, and this administration is committed to continued, meaningful and impactful action that protects our environment, grows and diversifies our economy, and lifts up all New Mexico communities – and we are not slowing our momentum.

A handwritten signature in blue ink that reads "Michelle Lujan Grisham". The signature is written in a cursive style and is positioned above a horizontal line.

GOVERNOR MICHELLE LUJAN GRISHAM

# 2021 CLIMATE ACTION BY THE NUMBERS



## EMISSIONS REDUCTIONS

### CURRENT

Our current policies will reduce emissions by **31 million metric tons** of carbon dioxide equivalent (CO<sub>2</sub>e) by 2030.

### PLANNED

Under policies we have planned, we will reduce emissions by an additional **17.3 million metric tons** of CO<sub>2</sub>e by 2030.

### STILL NEEDED

We need **16.4 million metric tons** of further CO<sub>2</sub>e reductions to hit our 2030 goal of 45% lower emissions than 2005 (64.6 MMT of CO<sub>2</sub>e reduced).

## INDUSTRY AND OIL & GAS

### 98% Gas Capture by 2026

The New Mexico Oil Conservation Division of the Energy, Minerals and Natural Resources Department (EMNRD) finalized its natural gas waste rules in March 2021. The rules went into effect in May 2021 and require 98% gas capture from oil and gas production and midstream operations by the end of 2026, as well as banning routine venting and flaring.

### An Estimated 426,000 Tons of Methane Reduced Annually

The New Mexico Environment Department (NMED)'s adoption of new rules governing ozone precursor pollutants will not only reduce ozone pollution and toxic air contaminants, but also has the co-benefit of reducing methane emissions. NMED's rules are estimated to reduce methane emissions by 426,000 tons annually, equivalent to the energy needed to power 1.2 million homes for an entire year.



## TRANSPORTATION

### 69 New Charging Stations & 166 Total Charging Stations Statewide

Visitors to New Mexico can pick up a rented electric vehicle at the Albuquerque Sunport and drive to skiing at Taos, exploring the Navajo Code Talkers museum in Gallup, or hiking in Caballo Lake State Park, given New Mexico's strategic investments in EV infrastructure. In 2021, 69 new charging stations (89 total charging outlets) were installed at businesses, fueling stations, and public parking areas across the state. This brings the statewide total to 166 publicly available stations with 391 individual charging outlets.

### \$7.3 Million in Cleaner Public Transportation Funding

In December 2021, NMED designated approximately \$7.3 million of Volkswagen settlement funding for projects that will reduce emissions from diesel-fueled vehicles. These funds can be used for repowering or replacing local freight trucks, school buses, transit buses, shuttle buses, and freight switcher locomotives. Reducing diesel emissions means healthier air for schoolchildren, bus riders and drivers, and freight operators - a huge benefit to public health.

### Less Carbon-Intense Asphalt

The New Mexico Department of Transportation (NMDOT) now uses warm-mix asphalt technology for 50% of all road projects in New Mexico. Warm-mix asphalt reduces the fuel needed to heat up asphalt for paving by 15-18%, reducing total CO<sub>2</sub> emissions for a road project by between 30% and 40%.

# 2021 CLIMATE ACTION BY THE NUMBERS

## ELECTRICITY

### **43.9% Decline in Electricity Sector CO<sub>2</sub> Emissions**

Largely due to the 2019 Energy Transition Act, the electricity sector is rapidly decarbonizing. In 2020 (the last year for which we have complete data) electricity-sector carbon dioxide emissions had already declined 43.9% from 2005 levels.

### **1,395 MW of New Renewable Power Generation Since 2019**

A total of 1,395 megawatts (MW) of renewable power generation came online in New Mexico between March 2019 and the end of 2021—more than double the growth in renewable generation in the two years prior. Approximately 40% of this energy is used in New Mexico, and the other 60% is exported.

### **155 Miles of New High-Voltage Transmission**

The New Mexico Renewable Energy Transmission Authority (RETA), through a public-private partnership with Pattern Energy, saw in 2021 the completion, energization, and entrance into commercial operation of the 155-mile high-voltage Western Spirit transmission line.

### **1,340 Solar Market Development Income Tax Credit Applications Approved**

In 2021, over 1,340 Solar Market Development Tax Credit applications were approved, representing more than \$4 million in credits issued to New Mexico taxpayers. These credits resulted in **10.4 MW of installed distributed solar capacity** and an average of **12,374 kilowatt-hours** and **\$1,485 in energy savings per taxpayer** receiving a credit, for a total of nearly 4,000 megawatt-hours in statewide annual energy savings.

## BUILDINGS

### **Updated Building Codes Will Create 2.6 MMT in CO<sub>2</sub> Reductions**

In March 2021, New Mexico formally adopted the 2018 International Energy Conservation Code (IECC), fulfilling a directive from Governor Lujan Grisham's Executive Order 2019-003. 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 get the benefits of the most recent building standards.

## NATURAL & WORKING LANDS

### **30x30 Framework**

On August 25, 2021, Governor Lujan Grisham signed an executive order to conserve at least 30% of all lands in New Mexico by 2030. New Mexico's "30x30" framework complements a nationwide effort to protect the lands and waters of the United States (the federal government's "America the Beautiful" initiative), but is tailored to honor New Mexico's traditional land uses while promoting biodiversity, encouraging outdoor recreation opportunities, and protecting watersheds.

# 2021 CLIMATE ACTION BY THE NUMBERS

## **2,247 Acres Treated Via the Forest and Watershed Restoration Act (FAWRA)**

FAWRA-funded projects enhance the adaptability and resilience of New Mexico's forests and watersheds to climate change and wildfire, improve water quality, and support economic activity associated with wood harvesting. In 2021, over 2,247 acres were treated using FAWRA funds, and eight new projects are underway, including the continuation of landscape-scale thinning projects in the Turkey and Zuni Mountains and along the Gila River; a new landscape-scale thinning project near Cimarron; two national forest projects near Cloudcroft and in the Zuni Mountains; and three new bosque restoration project areas on the Middle Rio Grande.

## **Over \$1.5 Million in Funding Tribal Partnerships for Landscape Restoration**

EMNRD's Forestry Division launched a tribal working group in 2021 to provide a forum for tribes, state, federal, and other agencies to coordinate and collaborate on landscape restoration. Some of this year's partnerships include \$1 million in FAWRA funding for treatment of forested areas containing springs on the lands of the Mescalero Apache Tribe; \$420,000 of FAWRA funding for treatment of the Rio Grande Bosque area of Santa Clara Pueblo; \$120,000 in funding provided to Sandia Pueblo for wildland fire burn restoration and treatment of invasive species; and 200 cords of firewood delivered to the Navajo Nation for heating and cooking fuel.

## **\$28.5 Million in Clean Water State Revolving Fund Projects**

The Clean Water State Revolving Fund (CWSRF) program provides low-interest loans for a wide range of wastewater and stormwater projects that protect surface water and groundwater resources. Through the CWSRF, communities can address sustainability, resiliency, and vulnerability issues brought to the forefront by climate change. 2021's funded projects include \$21.8 million for eight critical wastewater treatment plant construction and/or rehabilitation projects, and \$6.7 million for stormwater management projects.

## **ADAPTATION AND RESILIENCE**



### **\$700,000 in FEMA BRIC Funding to Conduct Statewide Resilience Planning**

Starting in 2021, EMNRD's Sustainability and Resilience program is conducting a statewide climate resiliency planning effort funded by two sub-grants from the Federal Emergency Management Agency, administered through the New Mexico Department of Homeland Security and Emergency Management. These grants will support the development of a comprehensive plan to mitigate risks from natural hazards exacerbated by climate change, informed by input from state, local, and tribal governments, non-profit organizations, and the public.

# SCIENCE, DATA, AND MODELING

Climate change is affecting every region of the world, and New Mexico is no exception. For much of 2021, the entire state experienced drought conditions, some 'exceptional' – the most severe category. The long drought is just one example of the warmer, drier climate that anthropogenic climate change is bringing to the Southwestern United States. The 2021 Intergovernmental Panel of Climate Change (IPCC) Sixth Assessment Report predicts that increases in drought and fire weather will be a certain consequence of continued climate change in Western North America, along with increases in extreme precipitation events, like last year's Winter Storm Uri.<sup>1</sup> Reducing greenhouse gas emissions and keeping warming to less than or equal to 1.5 degrees Celsius is vital to the health, well-being, and sustainability of life for all New Mexicans.

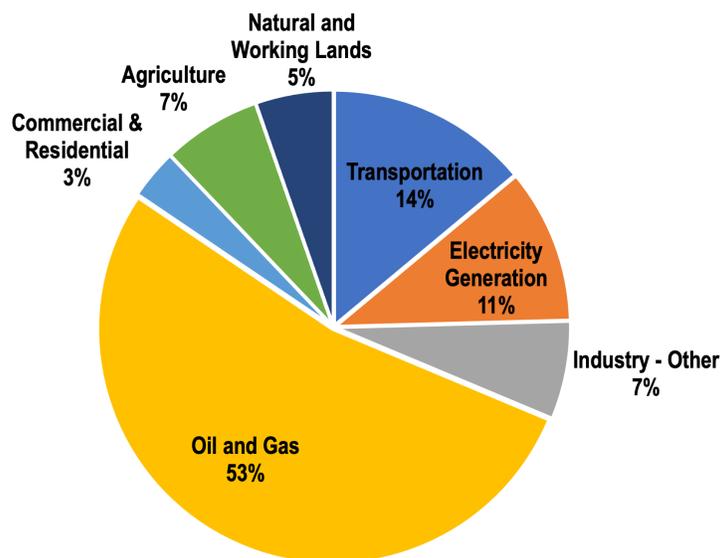
## WHERE WE ARE

In 2020, a study from Colorado State University (CSU) analyzed New Mexico's greenhouse gas emissions in detail, giving us the best estimates to date of our recent and projected emissions.<sup>2</sup> Unlike previously reported emissions estimates, this study relied on extensive New Mexico-specific data sources, including sources for the difficult-to-measure oil and gas sector, which our recent methane waste and ozone precursor rules will continue to refine. A detailed overview of this study can be found in the 2020 New Mexico Climate Change Task Force Report.

Key takeaways from the CSU study of New Mexico greenhouse gas emissions include:

In 2018, New Mexico produced approximately 113.6 million metric tons (MMT) of greenhouse gas emissions – an amount equal to approximately 1.8% of total U.S.

greenhouse gas emissions (6,457 MMT). New Mexico's emissions are primarily generated by the industrial sector (which includes the oil and natural gas industry), followed by the transportation sector (cars, trucks, and aviation), the electricity sector (power production), the built environment sector (industrial sources as well as commercial and residential buildings), and agriculture (Figure 1).



<sup>1</sup> [https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC\\_AR6\\_WGI\\_Regional\\_Fact\\_Sheet\\_North\\_and\\_Central\\_America.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGI_Regional_Fact_Sheet_North_and_Central_America.pdf)

<sup>2</sup> Sharad Bharadwaj et al., "New Mexico Greenhouse Gas (GHG) Emissions Inventory and Forecast" (Prepared for the Center for the New Energy Economy at Colorado State University by Energy and Environmental Economics, Inc., October 27, 2020), <https://cnee.colostate.edu/empowering-western-economy>

# SCIENCE, DATA, AND MODELING

## WHERE WE'RE HEADED

In 2021, the New Mexico Climate Change Task Force responded to the results of the CSU study by beginning to develop climate action plans aimed at reducing greenhouse gas emissions at least 45% below 2005 levels by 2030, in accordance with Governor Lujan Grisham's Executive Order 2019-003. These climate action plans are five years long, covering 2023-2028. The Climate Change Task Force will release these action plans in late 2022 and shape the 'decisive decade' of work which is necessary to reach our ambitious 2030 goal —and set New Mexico on the path to net-zero emissions by 2050.

To prepare these action plans, the Task Force looked outside of what state government can do alone and reached out to all New Mexicans, with an eye towards creating an equitable, just, and specifically New Mexican set of climate actions.

We took multiple steps toward those plans this year:

- The Climate Change Task Force's Climate Action Teams (CATs)<sup>3</sup> continued to implement previously identified climate-related actions in order to reduce emissions and build resilience. These actions are described in more detail in the second and third sections of this report, *Reducing Greenhouse Gas Emissions* and *Building Adaptation and Resilience*.
- The Climate Change Task Force convened a Climate Equity Working Group of community advocates and environmental justice experts from across New Mexico to draft a set of Climate Equity Guiding Principles to guide the Task Force in developing just and inclusive climate policies.

These principles will underpin the recommended actions for emissions reductions and adaptation and resilience in the proposed climate plans, as well as serve as a foundational screen for all climate policies developed by the state. The principles will be released to the public in 2022.

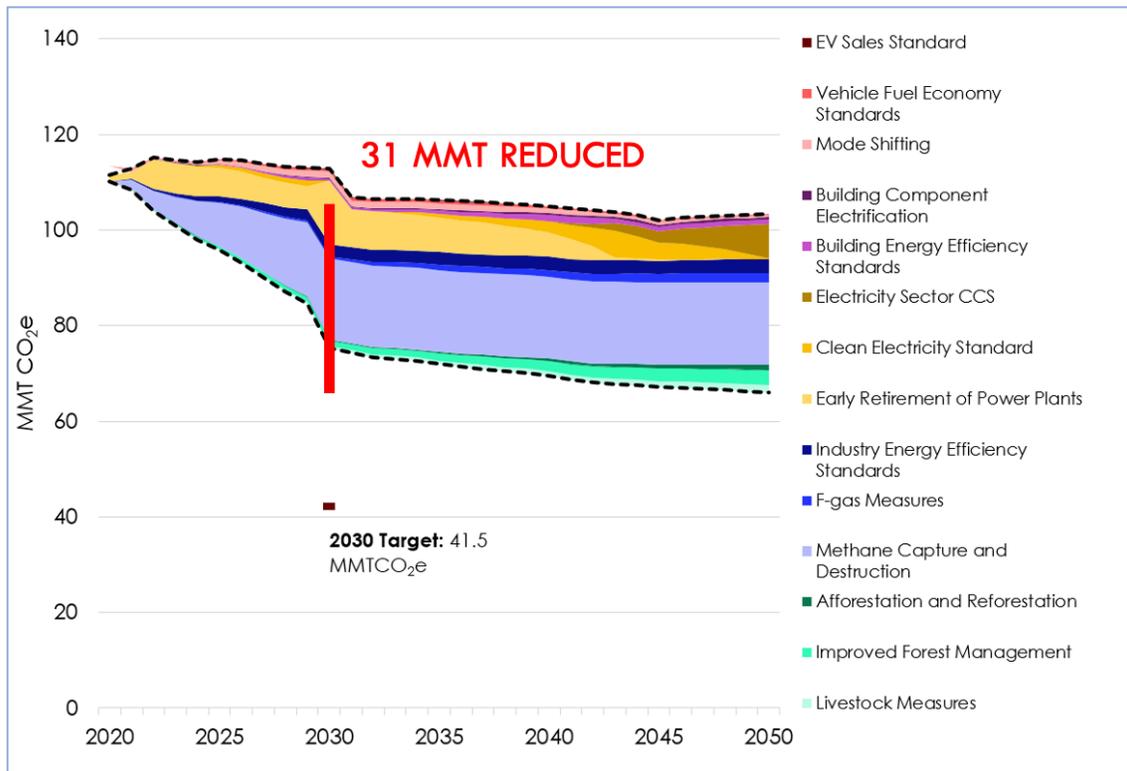
- The Task Force also conducted a public outreach survey to solicit the input of New Mexicans on climate strategies. The survey was offered in both English and Spanish, and the responses have become part of the development of the climate action plans.

New Mexico has already put into place powerful policy tools to reduce greenhouse gas emissions. The combination of policies which have already been implemented since Governor Lujan Grisham took office and the policies currently planned for implementation unlock 30.9 million metric tons (MMT) carbon dioxide equivalent (CO<sub>2</sub>e) of reductions by 2030, as shown in Figure 2.

However, there remains a significant gap between that achievement and our 2030 goals. Therefore, with support from the US Climate Alliance and the Rocky Mountain Institute (RMI), the Task Force spent much of the summer and fall of 2021 analyzing climate policy options which would be sufficiently ambitious and actionable to achieve our reduction targets. RMI prepared a New Mexico-specific version of their Energy Policy Simulator tool, a model which looks at economic and emissions-reduction impacts of various climate policy actions. Using this tool, RMI and the Task Force held a series of planning workshops to begin to evaluate policy goals and internal implementation

<sup>3</sup>The Climate Action Teams are comprised of staff from all the state agencies represented on the Climate Change Task Force. The CATs are organized thematically: five emissions-related CATs (Transportation, Electricity, Buildings, Industry, and Natural and Working Lands), and three cross-cutting CATs (State Leadership, Cultural Heritage, and Emergency Management, Health, and Resilience).

# SCIENCE, DATA, AND MODELING



**Figure 2 - Impact of Policies Instituted During Governor Lujan Grisham's First Term**

steps which could become part of our in-progress climate action plans. The goals and policies identified in the workshops will deliver, if implemented, another 17.3 MMT of CO<sub>2</sub>e reductions by 2030.

Implementing all of our existing policies and adding these newly proposed policies will mean that in 2030 New Mexico will emit 57.9 MMT CO<sub>2</sub>e emitted per year – 23% below the 2005 baseline of 112.8 MMT CO<sub>2</sub>e per year. Our goal, however, is to be below 41.5 MMT CO<sub>2</sub>e emitted per year – 45% below the 2005 baseline.

Figure 3 shows how these newly proposed policies get New Mexico much closer to our 2030 goal – but not over the finish line.

Over the next few months, the Task Force will work with a newly-formed Technical Advisory Group of industry, environmental, government, and policy experts to prioritize our sector-by-sector goals, create feasible, equitable, and rapid implementation plans, and develop more policies to close that final gap between our climate planning and our 2030 emissions reduction target. The Technical Advisory Group's input, along with the public survey and the planning workshops led by RMI, will form the basis of our five-year climate action plans – which will rest on the foundation of equity and environmental justice developed in the Climate Equity Principles.

# SCIENCE, DATA, AND MODELING

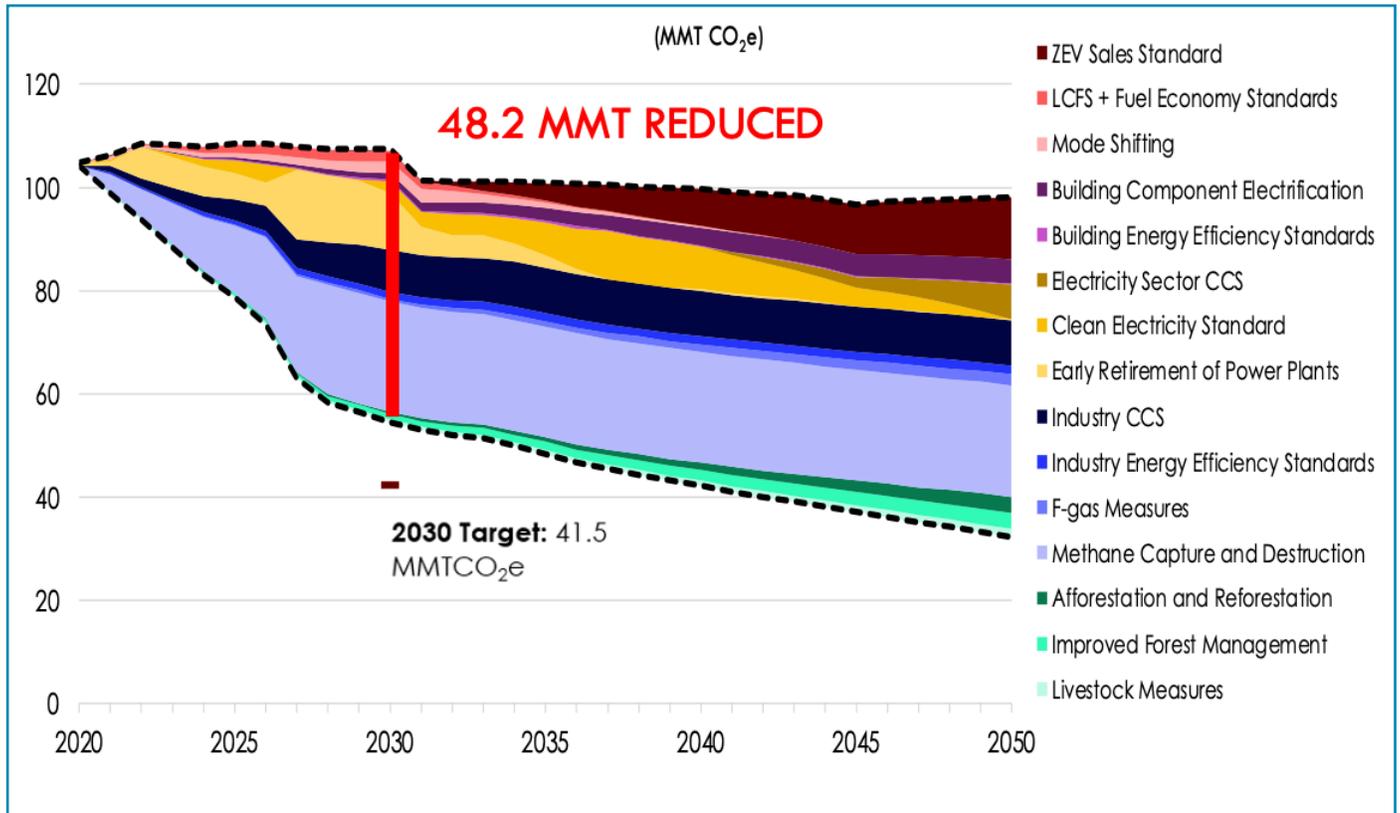


Figure 3 - Impact of Newly Proposed Policies



# REDUCING GREENHOUSE GAS EMISSION LEVELS

## INDUSTRIAL SECTOR

The industrial sector, including oil and gas production, remains the largest source of greenhouse gas emissions in New Mexico. Emissions from the oil and gas industry were 53% of state greenhouse gas emissions in 2018. A substantial portion of these emissions are from methane, which the federal Environmental Protection Agency estimates is 25 times more potent in its ability to cause warming than emissions from carbon dioxide. While methane is an extremely potent greenhouse gas, it is short-lived in the atmosphere as compared to carbon dioxide. Reducing the atmospheric methane concentration now can slow temperature rise through mid-century. Therefore, reducing methane emissions is one of the most necessary actions New Mexico can take to reduce the immediate effects of climate change.

Both the New Mexico Environment Department (NMED) and the Energy, Minerals and Natural Resources Department (EMNRD) regulate aspects of the oil and gas sector. 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 — in this case, natural gas containing methane — under the state Oil and Gas Act. The two agencies have collaborated 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 is practicable” as mandated in Governor

Michelle Lujan Grisham’s Executive Order 2019-003. The regulations developed by the agencies are the culmination of two years of outreach and engagement with stakeholders and communities across the state.

## EMNRD’S OIL CONSERVATION DIVISION NATURAL GAS WASTE RULES

After two years of stakeholder engagement, the New Mexico Oil Conservation Division (OCD) finalized its natural gas waste rules. In January 2021 the Oil Conservation Commission underwent two weeks of hearings and testimony that led to the finalization of the rules in March of 2021. The rules went into effect in May 2021 and require 98% gas capture from production and midstream operations by the end of 2026.

These rules are both unique to New Mexico and nationally leading. The rules operate in two phases. Phase 1 (Data & Reporting) is designed to establish meaningful baselines and enforceable goals to reduce natural gas waste. Historically, the industry has not reported consistent and complete data for venting and flaring. Reliable, robust data was a key point raised by both industry and NGO stakeholders during the process of developing the methane waste rules. New Mexico is currently in Phase 1.

---

<sup>4</sup> [https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5\\_Chapter08\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf); pp. 714.

# INDUSTRIAL SECTOR

Phase 2 (Gas Capture Requirements) establishes an enforceable target for operators to reduce natural gas waste based on the baseline that is set in Phase 1. Starting from the current level of natural gas waste identified 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. In addition, the rules prohibit routine venting and flaring except for tightly defined exceptions.

## NMED'S OZONE PRECURSOR RULES

In September 2021, NMED went before the Environmental Improvement Board (EIB) for a two-week hearing on draft ozone precursor rules.<sup>5</sup> In late April of 2022, the EIB deliberated on the rules and voted to enact them.

NMED's new rules will not only reduce ozone pollution and toxic air contaminants but also reduce emissions of ozone precursor pollutants, which has the co-benefit of reducing methane emissions. NMED's rules are estimated to reduce methane emissions by 213,000 to 426,000 tons annually, equivalent to the energy needed to power 1.2 million homes for an entire year.

The new ozone precursor rules are nationally leading and serve as a model for the U.S. EPA as they move forward with new requirements to reduce methane in the oil and gas industry. NMED's proposal 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.

---

<sup>5</sup>EIB 21-27 — Petition for Regulatory Change in the Matter of Proposed New Regulation, 20.2.50 NMAC - Oil and Gas Sector - Ozone Precursor Pollutants. <https://www.env.nm.gov/opf/docketed-matters/>

# TRANSPORTATION SECTOR

## TRANSPORTATION SECTOR

Transportation – which includes personally owned cars and trucks, commercial trucking, delivery vehicles, aviation, and rail – is the second-largest source of greenhouse gas emissions in New Mexico. Decarbonizing the transportation sector is critical for successful climate action. Each type of transportation – often called ‘modes of travel’ – will require a unique combination of policy, regulatory action, and consumer behavior to achieve meaningful decarbonization. New Mexico is focused on two main policy initiatives in the transportation sector: first, making vehicles and transportation fuels cleaner, and second, reducing the number of trips and the amount of time and distance traveled, especially in single-occupancy motor vehicles (called ‘reducing vehicle miles traveled’).

### NMDOT CLIMATE CHANGE PLAN

In July of 2021, the New Mexico Department of Transportation (NMDOT) finalized the [2045 Long-Range Statewide Transportation Plan](#), which puts both cleaner and fewer single occupancy vehicle trips front and center. The plan includes strategies to transition the NMDOT fleet to electric and alternatively-fueled vehicles; investments in multimodal transportation and complete streets<sup>6</sup> designs; plans to assess and address risks across the entire NMDOT system to improve its resiliency; and an ongoing effort to develop an NMDOT-specific Climate Change Plan for the next five years.

NMDOT has contracted with the New Mexico Institute of Mining and Technology to build a model that estimates greenhouse gas emissions impacts from transportation decarbonization strategies, through assessing existing initiatives for decarbonizing transportation in surrounding states and developing

a Computable General Equilibrium model to better understand the carbon footprint of transportation in New Mexico. This model will underpin NMDOT’s developing climate change planning.

In addition, NMDOT performed an internal study using the Federal Highway Administration’s Energy and Emissions Reduction Policy Analysis Tool (EERPAT) to model scenarios which show how a variety of factors – including fleet electrification, vehicle miles traveled, fuel choice consumption patterns, and others – could affect future fuel tax revenues in New Mexico. This analysis shows that a reduction of fuel consumption will cause fuel tax revenues to no longer keep pace with a growing New Mexico population. A reduction in fuel tax revenues is inevitable, whether it comes from increasing use of alternatively fueled vehicles or increasing numbers of fuel-efficient vehicle models on the road. This study will drive considerations of revising or shifting the funding sources of NMDOT’s road fund, so that transportation decarbonization works in conjunction with maintaining the state’s roads and bridges.

### CLEAN CARS AND CLEAN FUELS

The New Mexico Environment Department, alongside the City of Albuquerque, announced their intent to seek clean car standards for New Mexico before their respective boards, the Environmental Improvement Board (EIB) and the Albuquerque Bernalillo County Air Quality Control Board (AQCB) in July 2021.

NMED filed a petition, which included proposed clean car standard rules, with the EIB in early December 2021 and Albuquerque followed suit in January 2022. The petitions request that the EIB and AQCB set a joint hearing in May 2022 to consider and vote on the rules that would allow New Mexico to join the group of states that have adopted California’s car standards, which are more stringent than those required by the federal government. The standards, if adopted, will

<sup>6</sup> 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/>

# TRANSPORTATION SECTOR

reduce tailpipe emissions from all new vehicles sold in New Mexico and require that manufacturers deliver more zero-emission vehicles – like electric cars – to New Mexico dealerships. The first compliance year of the proposed standards will be model year 2026, with opportunities for manufacturers to earn credits for early action. These companion statewide rules will result in an estimated half a million metric tons of greenhouse gas emission reductions by 2030.

Governor Lujan Grisham has also prioritized clean fuels as well as clean cars, proposing a Clean Fuel Standard

## FUNDING EMISSIONS REDUCTIONS FROM DIESEL-FUELED VEHICLES

In December 2021, NMED designated approximately \$7.3 million of Volkswagen settlement funding for projects that will reduce emissions from diesel-fueled vehicles. These funds can be used for repowering or replacing local freight trucks, school buses, transit buses, shuttle buses, and freight switcher locomotives. In addition, NMED will distribute \$377,000 from the U.S. Environmental Protection Agency Diesel Emission Reduction Act (DERA) funding for projects that reduce idle times for trucks, make use of aerodynamic technologies, or retrofit or replace diesel vehicles and equipment throughout the state. Applications are currently open, and NMED will prioritize projects which make use of hydrogen fuel cell technology, including certified engine replacements and certified/verified vehicle and equipment replacements. Hydrogen fuel cells are an option for eligible urban transit buses, drayage trucks, shuttle buses, terminal tractors/yard hostlers, stationary generators and forklifts.

There have been seven applications for the Volkswagen settlement funding so far.

bill in her legislative priorities for both the 2021 and 2022 legislative sessions. A clean fuel standard is a technology-neutral, market-based way to achieve deep decarbonization in the transportation sector by requiring that transportation fuels meet increasingly lower carbon intensities over time. The clean fuel standard, if passed, will apply to those who refine, blend, make or import fuel to New Mexico, but not to fuel retailers (like gas stations). The standard can be met in multiple ways: blending high carbon-intensity fuel with renewable options, like biodiesel and ethanol; offsetting high carbon-intensity fuels with credits purchased from generators of low-carbon-intensity fuels, like hydrogen, electricity, and renewable natural gas; and purchasing credits from any business that reduces emissions from the transportation sector in a measurable way.

## ELECTRIC VEHICLES AND ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

New Mexico has made rapid progress in deploying electric vehicle charging infrastructure across the state in the past year, making electric vehicle use easier and more accessible. New Mexicans can travel between Roswell and Lordsburg in an electric vehicle without worrying about finding a charging station – there are nine operating along that route. Our strategic investments in EV infrastructure means that visitors to New Mexico can pick up a rented electric vehicle at the Albuquerque Sunport and drive to ski at Taos, explore the Navajo Code Talkers Museum in Gallup, or hike in Caballo Lake State Park – and know charging is available to them.

In 2021, 69 new charging stations were installed at businesses, fueling stations, and public parking areas across the state. This brings the statewide total to 166 publicly available stations with 391 individual charging outlets. NMDOT developed a new [EV dashboard](#) that shows the location of all the charging stations.

# TRANSPORTATION SECTOR

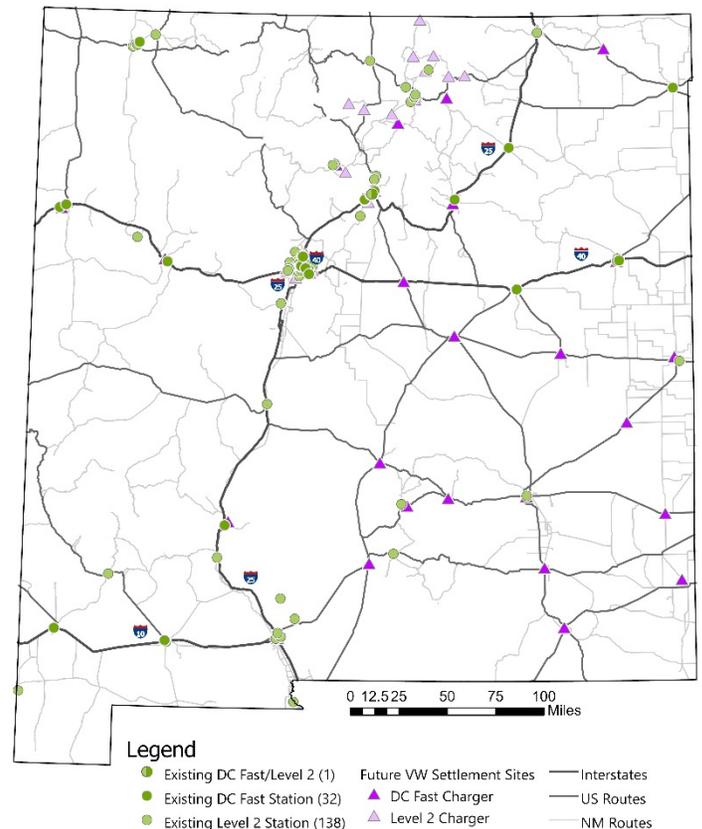
## STATE-OWNED ELECTRIC VEHICLE INFRASTRUCTURE

There are currently 33 electric vehicle chargers on state-owned property in New Mexico, including recently-installed chargers at the state capitol complex – part of the General Services Department’s (GSD) completion of the installation of 30 electric vehicle charging stations on state government campuses across Santa Fe. The ChargePoint stations are available for use by state government’s growing number of battery electric vehicles, as well as by private vehicles. In 2021, GSD added two fully electric sedans and 10 hybrid Ram pickups to the state Motor Pool. The purchases increased the total number of fully electric sedans in the fleet to 35. The Rams are the first hybrid pickups in the Motor Pool and pushed the total number of hybrids in the fleet to 40.

## FEDERAL HIGHWAY ADMINISTRATION ALTERNATIVE FUEL CORRIDORS IN NEW MEXICO

In February 2021, EMNRD’s Energy Conservation and Management Division and NMDOT in partnership with Land of Enchantment Clean Cities and the Public Service Company of New Mexico (PNM) applied to the federal government to designate four new routes in the state as electric vehicle corridors.<sup>7</sup> When the Federal Highway Administration (FHWA) approved these routes in April 2021, New Mexico’s designated electric vehicle corridors expanded from 1,100 miles to 2,300 miles. The corridors span most major routes, connecting New Mexico’s electric vehicle drivers to Arizona, Colorado, and Texas. The new corridors are:

- U.S. Route 60: Vaughn, NM to Clovis, NM (230 miles)
- U.S. Route 285: Alamosa, CO to Carlsbad, NM (380 miles in New Mexico)
- U.S. Route 380: San Antonio, NM to Tatum, NM (300 miles)



Accessed from U.S. DOE Alternative Fuels Data Center, August 12, 2021.

Figure 4

<sup>7</sup> Alternative fuel corridors, including electric vehicle corridors as well as corridors for compressed natural gas and propane, are routes designated by the Federal Highway Administration as part of a national network of alternative fueling and charging infrastructure along the national highway system. New Mexico’s designations set up the state to participate in future public-private partnerships and federal grants aimed at developing continuous alternative fueling infrastructure across state lines. Continuous networks of alternative fueling infrastructure support more Americans using alternatively fueled vehicles – and reducing tailpipe emissions – as they travel across states.

# ELECTRICITY SECTOR

## ELECTRICITY SECTOR

Electricity is decarbonizing rapidly in New Mexico, largely due to the 2019 Energy Transition Act. The electricity sector is now New Mexico's third-highest source of emissions. In 2020, electricity-sector carbon dioxide emissions had declined 43.9% from 2005 levels.<sup>8</sup> However, there is still a great deal of decarbonization to be done, particularly as the electricity sector underlies emissions reductions in other sectors, like transportation and the built environment (as electric vehicles and electric heating are only as clean as the electricity that powers them).

### LARGE-SCALE RENEWABLE GENERATION AND TRANSMISSION

#### UTILITY-SCALE RENEWABLE GENERATION

New Mexico has seen unprecedented growth in utility-scale renewable generation since the 2019 passage of the Energy Transition Act. A total of 1,395 MW of renewable generation has come online since March 2019 – more than doubling the growth in renewable generation in the two years prior to the ETA's passage (Figure 5). The new renewable generation will be used by a mix of in-state and out-of-state customers. This rapid transition to renewable electricity points to New Mexico's future as an energy exporter – just as the state has been historically.

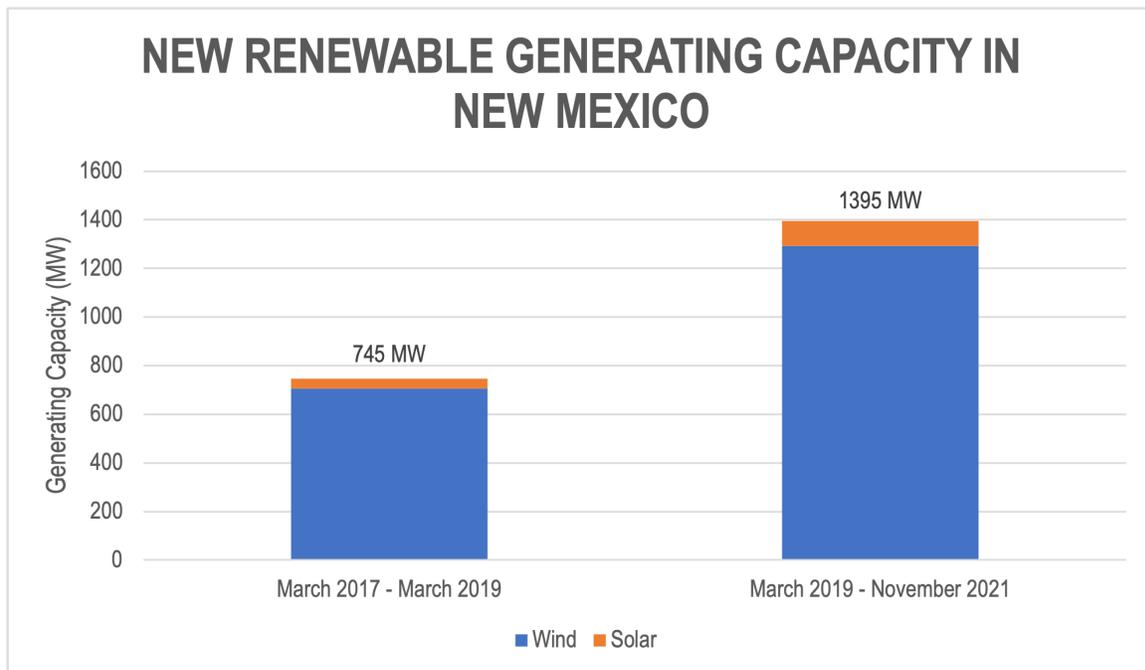


Figure 5

<sup>8</sup> U.S. Energy Information Administration State Electricity Profiles (2020). <https://www.eia.gov/electricity/state/newmexico/>

<sup>9</sup> The New Mexico State Land Office, under the direction of Commissioner Garcia Richard, manages nine million surface and 13 million mineral acres across 32 counties. This land, referred to as state trust land, was allocated to New Mexico by the Federal Government under the Ferguson Act of 1898 and the Enabling Act of 1910. The mission of the agency is to use state trust land to raise revenue for New Mexico public schools, hospitals, colleges, and other public institutions.

# ELECTRICITY SECTOR

## RENEWABLE GENERATION ON STATE LANDS

In the past year, the State Land Office (SLO)<sup>9</sup> has more than doubled the number of renewable energy leases on state lands and is on track to triple renewable energy leases on state lands from 2019 levels. These projects come in all sizes and cover a range of renewable generation types – solar, wind, and energy storage projects. The State Land Office is seeing sustained demand for land among the renewable energy industry, especially as developers anticipate community solar projects in 2022. Because it takes significant time and effort to put new long-term leases in place, SLO has developed a “due-diligence” short-term lease, which is an innovative solution that helps project developers apply for and secure electric grid interconnections for their renewable generation projects.

These new land leases for renewable generation on New Mexico state lands are helping to increase the percentage of renewables in the state’s generation mix, further decarbonizing New Mexico’s grid, while continuing to meet SLO’s fiduciary responsibilities. In addition, the Land Office’s policy of diversifying land lease uses and increasing the number of renewable energy-related land leases makes New Mexico even more of a favorable location for renewable developers to invest.

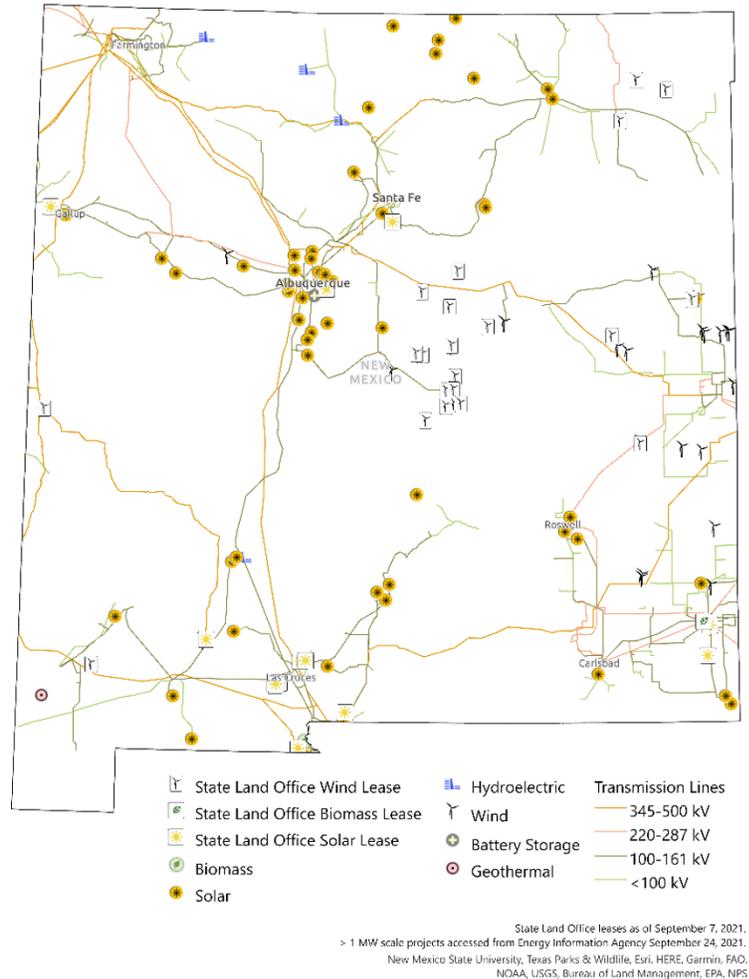


Figure 6

## THE RENEWABLE ENERGY TRANSMISSION AUTHORITY (RETA): TRANSMISSION PLANNING AND EXECUTION

New Mexico’s Renewable Energy Transmission Authority’s public-private partnerships with transmission developers have borne substantial fruit over the past year, adding additional transmission capacity to carry renewable energy throughout the state and onward for export. National and regional studies have demonstrated the need for transmission buildout to carry renewable electricity throughout the United States,<sup>10</sup> and RETA’s own analyses show that New Mexico’s transmission buildout will enable the state to achieve its 2030 renewable generation goals.<sup>11</sup>

As a result of RETA’s public-private partnership with Pattern Energy, the 155-mile Western Spirit Transmission project is now energized and came into commercial operation by the end of 2021. This 345-kV high voltage line will interconnect over 1,050 MW of New Mexico wind generation to create the largest single-phase renewables

<sup>10</sup>Energy Strategies. *Exploring Western Organized Market Configurations: a Western States’ Study of Coordinated Market Options to Advance State Energy Policies (State-Led Market Study)*. <https://static1.squarespace.com/static/59b97b188fd4d2645224448b/t/6148a012aa210300cbc4b863/1632149526416/Final+Roadmap+-+Technical+Report+210730.pdf>

<sup>11</sup> NM RETA. *New Mexico Renewable Energy Transmission and Storage Study*. [https://nmreta.com/wp-content/uploads/2020/10/NM\\_RETA\\_Transmission\\_Study\\_June2020v2.pdf](https://nmreta.com/wp-content/uploads/2020/10/NM_RETA_Transmission_Study_June2020v2.pdf)

# ELECTRICITY SECTOR

project in U.S. history. Once complete, the Public Service Company of New Mexico (PNM) will purchase the transmission line, its most significant grid upgrade since the 1980s.

Additionally, RETA upgraded public-private partnership agreements for three other transmission lines that are all moving forward in development: SunZia, Mora Line, and North Path. Collectively, these projects are planning to implement approximately 800 miles of high-voltage transmission, which are critical for New Mexico to interconnect more of its vast wind and solar resources to the regional grid. New Mexico will see benefits in economic development from both regional export opportunities and meeting in-state targets of the Energy Transition Act.

## DISTRIBUTED GENERATION

### THE SOLAR MARKET DEVELOPMENT INCOME TAX CREDIT

The Solar Market Development Income Tax Credit, enacted in 2020, makes solar systems more accessible for New Mexico residents and business owners by offering a 10% tax credit on solar system installation costs for qualified solar thermal and photovoltaic (PV) systems, up to a maximum of \$6,000. In 2021, over 1,340 Solar Market Development Tax Credit applications were approved, representing more than \$4 million in credits issued to New Mexico taxpayers.

These credits resulted in:

- 10.4 MW of installed distributed solar capacity
- An average of 12,374 kWh and \$1,485 in energy savings per taxpayer receiving a credit; and
- An estimated 1,155 new jobs.<sup>12</sup>

In October of 2021, EMNRD released [a new data dashboard](#) to track and present highlights of the Solar Market Development Tax Credit program in a user-friendly way. The dashboard captures key indicators

such as total approved projects statewide and by county, total installed capacity, estimated average taxpayer annual energy cost savings, and estimated number of jobs supported through investments in solar

### LEGISLATIVE ACTION — 2021 Senate Bill 84, the Community Solar Act

After years of negotiation, the New Mexico state legislature passed 2021 SB 84, the Community Solar Act. On April 5, 2021, Governor Lujan Grisham signed the bill into law. The Community Solar Act authorizes and sets conditions for the operation of subscriber-owned community solar projects in New Mexico. Community solar facilities generate up to 5 megawatts (MW) of electricity and allow individual consumers to pay a monthly fee to become “subscribers” to the program. Subscribers receive a credit on their utility bills corresponding to the amount of energy generated by the community solar facility on their behalf.

Community solar allows access to solar projects for people who can’t afford or otherwise do not choose rooftop solar – like renters and apartment-dwellers. New Mexico’s community solar law makes solar energy more accessible to low-income New Mexicans, as each community solar project must have a 30% carve-out of its capacity reserved for low-income customers and low-income service organizations. New Mexico’s tribes, pueblos, and Indian nations are exempt from the general provisions in the Community Solar Act and can negotiate or formulate their own.

The rules for community solar projects were published by the Public Regulation Commission on April 22, 2022.

<sup>12</sup> Based on an estimate of 14 jobs per \$1 million invested, (Pollin et al. 2013). <https://cleantechnica.com/2013/03/20/over-3-times-more-green-jobs-per-million-than-fossil-fuel-or-nuclear-jobs/>

# ELECTRICITY SECTOR

development. Dashboard users can also see the total credit amount approved, which is refreshed every 24 hours.

## GRID MODERNIZATION

A modern electric grid is required for New Mexico to achieve deep decarbonization, take advantage of the state's abundant renewable resources, spur economic growth, and improve the lives of residents by lowering carbon emissions and providing more opportunities for New Mexicans to engage in the energy transition. In 2020, the state enacted the Grid Modernization Roadmap and Grant Program Act.

Early in 2021, EMNRD's Grid Modernization Advisory Group released recommendations and white papers detailing some of New Mexico's objectives for grid modernization and presenting actions that will enable New Mexico to transition its electricity resource mix to renewable and zero-carbon resources while maintaining grid reliability and affordability. These recommendations include updating New Mexico's interconnection rules and manual; deploying advanced metering infrastructure statewide; proactively engaging in regional transmission planning and considering joining a formal regional market; revising utility integrated resource planning (IRP) processes; deploying the community solar program; and expanding methods for bringing energy efficiency and beneficial electrification to traditionally underserved areas of the state. Several of the recommendations are already being implemented through NM Public Regulation Commission (PRC) dockets and rulemakings.

## GRID MODERNIZATION GRANT PROGRAM

The Grid Modernization Roadmap and Grant Program Act of 2020 allows EMNRD to provide funding for pilot projects that make improvements to electric distribution or transmission infrastructure, in order to enhance grid reliability, grid security, demand response capability,

customer service, or energy efficiency.

EMNRD awarded the first Grid Modernization Grant Program demonstration project funding in October 2021 to the City of Albuquerque's Municipal Development Department (Energy and Sustainability Management Division). Albuquerque will use this funding to build the Balanced Resource Acquisition and Information Network (BRAIN).

BRAIN is a data center and computer platform that will give Albuquerque real-time data about its existing and future energy storage, renewable generation, and building controls resources. The BRAIN data will allow Albuquerque's energy system to be more resilient and responsive to demand. The project exemplifies how to make the electric grid more energy efficient and flexible.

# BUILT ENVIRONMENT SECTOR

## BUILT ENVIRONMENT SECTOR

The built environment – buildings, roads, and other human-made structures – is a source of greenhouse gas emissions in two ways: buildings and infrastructure consume energy, and the construction process uses significant energy. Infrastructure requires materials like concrete, steel, and asphalt, which are all carbon-intensive to make and use. The strategies we use to reduce emissions from the built environment will also reduce emissions from other sectors and vice versa. Energy efficiency and better building codes reduce electricity emissions as well as direct emissions from burning fossil fuels to heat and cool buildings. Investments in infrastructure – like new road designs, creating more pedestrian and bicycle access, and improving our water and wastewater systems – are especially effective at reducing emissions in the transportation sector, but also reduce emissions from buildings.

### BUILDINGS

#### ENERGY CONSERVATION CODE UPDATES

In March 2021, New Mexico formally adopted the 2018 International Energy Conservation Code (IECC), fulfilling a directive from Governor Lujan Grisham's Executive Order 2019-003. The code update was accomplished through a collaboration between EMNRD, the Regulation and Licensing Department's Construction Industries Division, the residential and commercial construction industries, advocates, and NGOs. New buildings and major renovation projects must now follow the 2018 IECC standards.

### STATE BUILDINGS GREEN ENERGY PROJECT

In June 2021, GSD completed construction of a 1.6 megawatt solar carport, which serves the Runnels, Montoya, Wendell Chino, and Simms state buildings in Santa Fe. The carport is the largest single-site, non-utility solar installation in New Mexico. Since it became operational, electricity consumption from the grid for those three buildings has declined 67%.

The carport is part of GSD's State Buildings Green Energy Project, a \$32 million energy-efficiency, solar power initiative for 30 buildings in Santa Fe. Substantial completion of the project is expected in mid-2022, cutting the buildings' electricity bills in half and reducing carbon dioxide emissions annually by the equivalent of taking nearly 1,200 vehicles off the road.

### SUSTAINABLE EDUCATION FOR ADVANCED BUILDINGS (SEAB) PROJECT

In order to support professionals working in the construction industry as these new codes go into effect, EMNRD's Energy Conservation and Management Division partnered with Santa Fe Community College (SFCC) to develop and implement a training program for blower door and duct testing methods to meet the 2018 IECC Energy Code requirements. Via a recent grant award from the U.S. Department of Energy, EMNRD and its partners (Doña Ana Community College, Northern New Mexico College, San Juan College and SFCC – all institutions with established and successful building trades programs) are developing and delivering other continuing education, training, and technical assistance initiatives to support construction

# BUILT ENVIRONMENT SECTOR

industry professionals as they adapt to advanced energy technologies and the 2018 IECC code.

## INFRASTRUCTURE INVESTMENTS

Infrastructure – our roads and bridges, hospitals and schools, public spaces, and parks – affects multiple sources of greenhouse gas emissions. Design choices, like the locations and accessibility of bus stops and other public transit or the amount of green space in our urban communities, change how far we travel in personal vehicles and how much extra heat stress is experienced by New Mexicans who live in cities. The way we build infrastructure matters, too: materials in asphalt and street lighting have powerful effects on emissions from the built environment sector.

Since 2019, NMDOT has been converting traffic signals and street lighting fixtures to LEDs, which are much more energy efficient than traditional sodium arc lights – saving energy and money. In 2021, NMDOT completed 30 more traffic signals and five additional intersections. Additionally, NMDOT uses warm-mix asphalt technology for 50% of road projects in New Mexico. Warm-mix asphalt reduces the fuel needed to heat up asphalt for paving by 15-18%<sup>13</sup> and reduces total CO<sub>2</sub> emissions by between 30% and 40%.<sup>14</sup> The agency uses warm-mix asphalt where appropriate and cost effective, and recycles much of its asphalt. NMDOT contracts allow for up to 35% recycled asphalt materials.

NMDOT's Design and Planning Bureau has centered greenhouse gas impacts in how it allocates federal funding to local governments and communities. The applications for programs like the Transportation Alternatives Program, the Congestion Mitigation and Air Quality Improvement Program, and the Recreational Trails program now include climate change-related

questions and evaluation criteria. These new criteria were added for the May 2021 call for projects, which will be funded in fiscal year 2023, and will be used in every project application period going forward. [Guides to the programs are available on the NMDOT website.](#)

### LEGISLATIVE ACTION — 2021 Senate Bill 15, the Sustainable Buildings Tax Credit

In the 2021 Legislative Session, the New Mexico state legislature amended the Sustainable Buildings Tax Credit (SBTC) to more accurately reflect the state's intention to incentivize cutting-edge sustainable building practices.

The 2021 Sustainable Buildings Tax Credit requires a higher level of LEED (Leadership in Energy and Environmental Design) certification for a project to qualify for a credit. In addition, the 2021 credit provides bonuses for a fully electric house, and/or for meeting net-zero carbon certification, zero energy certification, zero waste certification or zero water certification. The 2021 credit also scales up for low-income persons and affordable housing projects.

A new part of the 2021 tax credit is the provision for the installation of energy-conserving products in existing commercial and residential buildings – helping to improve existing building stock. This part of the 2021 tax credit went into effect on January 1, 2021. In addition, to support adoption of electric vehicle usage, a tax incentive is now available for 'EV-ready buildings' – buildings, whether existing or new, commercial or residential, that make EV charging available or provide the appropriate electrical upgrades for future charger installation.

<sup>13</sup> Wang, Hao and Gangaram, Rashmi, 2014. "Life Cycle Assessment of Asphalt Pavement Maintenance. Center for Advanced Infrastructure and Transportation," Rutgers University Press.

<sup>16</sup> NMDOT Research Bureau, 2019. "Field and Laboratory Use of Warm Mix Asphalt, Phase 2," prepared by UNM Department of Civil Engineering.

# NATURAL & WORKING LANDS SECTOR

## NATURAL & WORKING LANDS SECTOR

New Mexico's forests, grasslands, ranches, and farms – our natural and working lands – are essential to reducing greenhouse gas emissions in two ways: first, natural and working lands absorb CO<sub>2</sub> from the atmosphere, in a process called carbon sequestration; and second, emissions produced by natural and working lands (from wildfires, agricultural uses, and other processes) can be reduced. A high-sequestration, low-emission natural and working lands sector is the foundation of a resilient New Mexico.

### 30 x 30 EXECUTIVE ORDER

On August 25, 2021, Governor Lujan Grisham signed an executive order ([E.O. 2021-052](#)) to conserve at least 30 percent of all lands in New Mexico by 2030. New Mexico's "30 x 30" framework complements a nationwide effort to protect the nation's lands and waters (the federal government's [America the Beautiful Initiative](#)), but is tailored to honor New Mexico's traditional land uses while promoting biodiversity, encouraging recreation opportunities, and protecting watersheds. The executive order directs EMNRD, NMED, the Office of the State Engineer, the Department of Agriculture (NMDA), the Indian Affairs Department (IAD) and the directors of the New Mexico Department of Game and Fish and the Outdoor Recreation Division of the Economic Development Department to use their existing authorities to support and implement programs that conserve, protect, and enhance our lands and natural environments.

The executive order specifically:

- Directs the agencies to use existing programs across all land types, leverage state and federal funding to the fullest extent, engage with federal land management agencies in planning, and coordinate with stakeholders;
- Directs the agencies to meet quarterly to assess the state's progress toward the goals set by the executive order and provide an annual report to the governor on progress; and
- Instructs the agencies to use the best available science, take a broad view of conservation, including contributions from working lands, and demonstrate a commitment to equity, including respect for and consideration of tribal sovereignty and self-determination.

### CARBON SEQUESTRATION THROUGH LAND CONSERVATION

EMNRD's Forestry Division launched a new natural and working lands initiative in 2021 that aims to sequester carbon in forests and other natural and cultivated lands. This work plays an important role in reducing overall greenhouse gas emissions in New Mexico. This program will also assist in stabilizing watershed functions, such as snowpack storage, surface water regulation, absorption of stormwater, soil health, and below-ground carbon storage. In partnership with the NMDA, Forestry is co-developing strategies to reduce greenhouse gas emissions from wildfires and increase

# NATURAL & WORKING LANDS SECTOR

the sequestration capacity of New Mexico's forests, rangelands and cultivated agricultural lands through sustainable management practices.

The majority of 2021 was spent establishing measurable goals for the program and identifying forestry and agricultural strategies with high carbon sequestration potential. Strategies with the greatest carbon sequestration potential include: landscape-scale fire reduction and mitigation in high risk and high priority areas; prescribed burning on private land and across all land ownership types; landscape-scale restoration to improve soil health and mitigate drought stress; and soil health improvement. The program is organizing technical assistance for state personnel and establishing measures for state agencies to track natural climate solutions to aide in the development and implementation of a science-based monitoring protocol for carbon sequestration from natural and working lands strategies.

## ESTABLISHING A BASELINE FOR CARBON SEQUESTRATION

Establishing a baseline for carbon storage in natural and working lands, including agricultural and rangelands along with forests and woodlands, is a challenging task. Knowing how much carbon dioxide is being stored is highly dependent on the exact nature of the lands in question, which means that a mathematical model that works for one part of the world may not be specific or accurate enough for New Mexico. EMNRD's Forestry Division, the State Land Office, and NMDA have partnered with multiple organizations including New Mexico State University Extension, the Quivira Coalition, the University of New Mexico, the Nature Conservancy, and the U.S. Geological Survey's Southwest Climate Adaptation Science Center, amongst others, to improve our understanding of carbon sequestration in New Mexico.

Projects underway include:

- A UNM project using analysis of data from nine carbon flux towers – sensors which monitor the air for carbon dioxide, water vapor, and other gases, measuring the rate of exchange of carbon dioxide between the earth and the atmosphere – which will help establish a baseline of carbon stored in New Mexico-specific natural and working lands;
- A partnership between the State Land Office, NMSU Extension, and the Quivira Coalition to measure soil carbon storage on rangelands in three Major Land Resource Areas around the state (high elevation grassland, Great Plains grassland, and Chihuahuan desert grassland);
- EMNRD's Forestry Division and NMDA are working with the U.S. Geological Survey and other partners to develop a gap assessment which will improve data collection and develop science-based methods for understanding how natural and working lands in New Mexico can offset emissions as natural climate solutions; and
- EMNRD's Forestry Division is providing technical assistance to the Nature Conservancy in their development of the NWLANDs model for Colorado and New Mexico which will assess the impacts of sustainable land management practices on the ability of natural and working lands to increase carbon sequestration.



# BUILDING ADAPTATION & RESILIENCE

While it is critical to rapidly reduce carbon emissions to minimize the impacts of climate change, New Mexico is already feeling the effects of a shifting climate. Warmer temperatures have resulted in changes ranging from more frequent heatwaves to exceptional drought to earlier snowmelt.<sup>15</sup>

The State of New Mexico is developing adaptation strategies and is investing in resilience to reduce climate-related impacts and to safeguard our communities.

*“A strong scientific consensus indicates that New Mexico should plan for a hotter, more arid climate for at least the next half-century.”<sup>16</sup>*

*- Dr. David DuBois, State Climatologist for New Mexico*

Resilience takes many forms, but at its center is the capacity to prepare for, adapt to, and recover from hazards quickly.<sup>17</sup> Economic resilience benefits our communities with a diverse, robust economy, while social resilience bolsters the ability of communities to protect themselves and their neighbors in times of need. Physical resilience incorporates climate risk into infrastructure, supply chains, and natural ecosystems, whereas resilient watersheds preserve our state’s precious water resources and ecosystem services. A resilient health system ensures that residents can continue to receive health care for climate-related health risks and during emergency situations.

It is essential that social equity for all New Mexicans is embedded throughout all forms of resilience. New Mexico benefits from a rich, diverse cultural heritage with many long-standing cultures. Climate change will only exacerbate social inequities, often disproportionately affecting overly burdened communities—such as people of color, tribal communities, immigrants, low- or no-income earners, rural communities, and agricultural and extraction-dependent communities—which are most vulnerable to the impacts of a changing climate and most limited in their financial resources to cope with climate impacts. State agencies are working hard to mitigate climate risks experienced by overly burdened communities and to uplift all residents of New Mexico.

---

<sup>15</sup> Segarra, C. “Has New Mexico’s climate changed? What decades of data reveal.” KRQE Media Group. May 21, 2021. <https://www.krqe.com/plus/data-reporting/has-new-mexicos-climate-changed-what-decades-of-data-reveal/>

<sup>16</sup> DuBois, D., Quote from presentation to the CCTF/Climate Resilience Gap Assessment closeout meeting. August 24, 2021.

<sup>17</sup> National Institute of Standards and Technology defines resilience as “The ability to prepare for anticipated hazards, adapt to changing conditions, and withstand and recover rapidly from disruption.” <https://www.nist.gov/community-resilience>

# CLIMATE RESILIENCE GAPS

## CLIMATE RESILIENCE GAP ASSESSMENT

From April to June 2021, EMNRD's Energy Conservation and Management Division conducted the New Mexico Climate Resilience Gap Assessment of state agencies on behalf of the Climate Change Task Force (CCTF). The assessment was adapted from the National Governors Association's State Resilience Assessment Planning tool. The gap assessment helped unveil state vulnerabilities to climate-induced hazards and potential policy or programmatic solutions that state agencies could implement to better prepare for or mitigate those threats. Over 30 state and quasi-state agencies in the CCTF provided responses to specific questions on the State's preparedness and qualitative information on how to improve New Mexico's resilience. The findings identified 36 resilience gaps. These gaps fall under 13 categories of resilience efforts, organized into five broad sections, as outlined in the graphic below (Figure 7).

The gap assessment findings will help the State of New Mexico prioritize its adaptation, resilience, and hazard mitigation planning efforts.

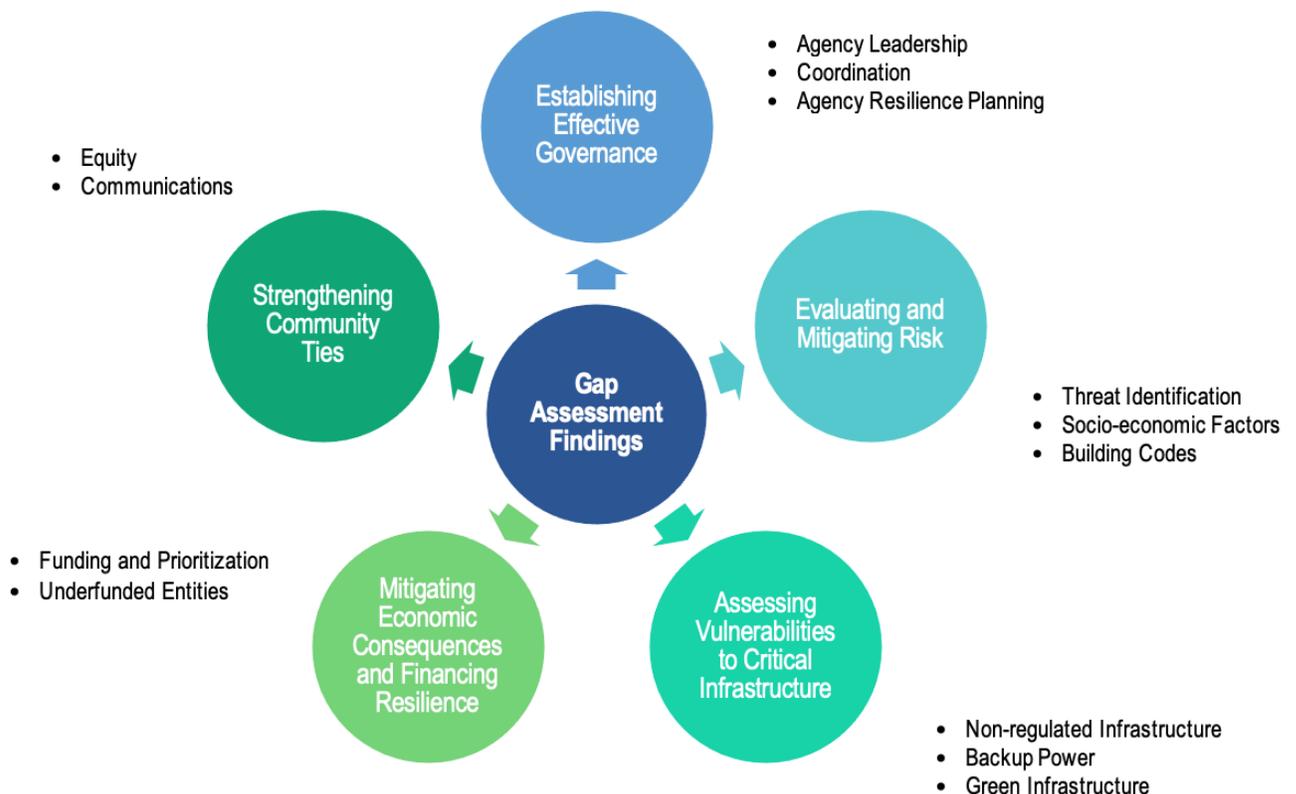


Figure 7 - The Climate Resilience Gap Assessment's 13 categories and five sections.

# CLIMATE RESILIENCE GAPS

## CLIMATE CHANGE TASK FORCE RESILIENCE COORDINATOR

Building resilience to climate change through state government actions spans multiple state agencies. In order to better coordinate our collective efforts, EMNRD's Sustainability and Resilience program hired a Resilience Coordinator in 2020. In this first year of the program, the Resilience Coordinator was able to conduct the Climate Resilience Gap Assessment, develop applications for the Federal Emergency Management Agency's (FEMA) [Building Resilient Infrastructure and Communities \(BRIC\)](#) grant, and engage in extensive outreach to state agencies.

The Resilience Coordinator also conducted external outreach, including with the [South Central Climate Science Adaptation Center](#), to offer resources to local stakeholders and tribes on building capacity for climate adaptation and resiliency. Moving into 2022 and beyond, the Sustainability and Resilience Program will focus on additional partnership and training activities that complement the state's planning and coordination work, building a statewide culture of commitment to climate resiliency.

## BUILDING RESILIENT INFRASTRUCTURE AND COMMUNITIES (BRIC) FUNDING FOR RESILIENCE PLANNING

Building Resilient Infrastructure and Communities (BRIC) is a new annual grant from FEMA which is administered in New Mexico by the Department of Homeland Security and Emergency Management (DHSEM). BRIC aims to "support states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards."<sup>18</sup> The grant makes federal funds available for natural hazard risk reduction activities with an emphasis on promoting climate adaptation and resilience.

For the FY2020 funding cycle, FEMA selected seven proposals from New Mexico. The State's funding requests totaled \$1.6 million in total project cost, with \$1.4 million being the federal government's share. Of those

## CLIMATE RISK & RESILIENCE COOPERATION PROJECT

As a member state of the U.S. Climate Alliance (USCA), a bipartisan coalition of governors committed to reducing greenhouse gas emissions consistent with the goals of the Paris Agreement, New Mexico has had the opportunity to participate in the European Union-USCA Climate Risk and Resilience Cooperation Project—a first-of-its-kind collaboration among EU and U.S. Climate Alliance states to accelerate sustainable, climate-smart investments.

Through this initiative, New Mexico, represented by EMNRD and the Emergency Management, Health, and Resilience (EMHR) Climate Action Team, participated in a knowledge exchange and sharing of best practices between EMHR Climate Action Team members and their European Union counterparts on topics of importance to New Mexico. These exchanges, which will support the state's future resilience action planning, took place in December 2021 and were funded by the European Union's Partnership Instrument.

<sup>18</sup> "Building Resilient Infrastructure and Communities." Federal Emergency Management Agency website. <https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities/fy2020-subapplication-status>

# CLIMATE RESILIENCE GAPS

seven proposals, one is a statewide climate resilience planning effort and one is a statewide climate resilience partnership-building effort – both of which will be managed by EMNRD’s Sustainability and Resilience program through sub-grants totaling over \$500,000 from DHSEM in early 2022.

The first of these sub-grants, a proposal through FEMA’s Climate Adaptation and Resilience Planning category, will support the development of a comprehensive plan for state actions to mitigate risks from natural hazards exacerbated by climate change. The second sub-grant, in FEMA’s Climate Adaptation and Resilience Partnerships category, will engage government agencies, local governments, tribal governments, non-profit organizations, environmental groups, and the public to identify risks from natural hazards, plan for mitigating impacts from climate change, adapt to changing conditions to withstand hazard events, and recover rapidly from disruption.

Through this federal funding, EMNRD and the Emergency Management, Health, and Resilience Climate Action Team will help to develop a statewide Climate Adaptation and Resilience Plan which will become an annex to the State Hazard Mitigation Plan prepared by DHSEM.

## CLIMATE RISK MAP TOOL

EMNRD and the Earth Data Analysis Center at the University of New Mexico designed and launched the Climate Risk Map in June 2021, a publicly available, interactive, GIS-enabled data and analytics tool to help New Mexico communities and citizens identify the factors that contribute to their overall climate change risk. Users can generate a map and a local data summary report to understand how climate change may impact their community.

Data fall under three overarching categories: climate-related hazards related to air quality, drought, flood, heat, and wildfire; sensitivity (the degree to which communities are affected by each hazard); and adaptive capacity (communities’ abilities to respond to and recover from climate effects). Data in the tool do not encompass all climate change-related factors and instead serve as a starting point for users to further investigate and assess climate risk. Further enhancements are planned utilizing funding from the FEMA BRIC sub-grant and will incorporate both outreach to and recommendations from stakeholders.

# ADAPTATION & RESILIENCE IN NATURAL & WORKING LANDS

## ADAPTATION & RESILIENCE IN NATURAL & WORKING LANDS

2021 began with drought conditions that worsened through late May. At the height of the drought, more than half the state was in either the ‘exceptional’ or ‘extreme’ drought categories – the two most severe categories described by the USGS. Wildfires, both human and naturally caused, were nearly a daily occurrence, with more than 250 fires in the first six months of the year. A warmer, drier New Mexico requires more resilient natural and working lands – and state agencies, along with local, tribal, and federal partners, rose to the challenge this year.

### 2020 FOREST ACTION PLAN

Every ten years, the Forestry Division of EMNRD is required by statute to prepare a new Forest Action Plan, providing the Division and its partners with a roadmap for managing New Mexico’s forests and watersheds over the next decade. Finalized in March 2021, the 2020 New Mexico Forest Action Plan emphasizes increasing forest and watershed resilience to wildfire and other disturbances accelerated by climate change.

The Forestry Division began 2021 with a workshop about implementing the actions laid out in the plan. More than 80 participants contributed ideas and committed their organizations to carrying out activities in the plan. These include actions that meet the objectives, and carry out the intent, of the Agreement for Shared Stewardship in New Mexico, signed by Governor Lujan Grisham and the USDA Forest Service in 2019.

As of this year, EMNRD’s Forestry Division and the Southwest Region of the U.S. Forest Service are leading the way for other states to implement shared stewardship. New Mexico mapped ten large Shared Stewardship Priority Landscapes based on cutting-edge geospatial analysis. Together with partners and local collaboratives, the Division zeroed in on strategic ‘focal areas’ within the Priority Landscapes, and then identified shovel-ready projects inside those focal areas.

### LEGISLATIVE ACTION —

#### 2021 House Bill 57, the Prescribed Burning Act

EMNRD worked with the governor, lawmakers, and many public groups to pass the state’s first prescribed fire legislation. Governor Lujan Grisham signed the bipartisan Prescribed Burning Act on April 8, 2021.

The Prescribed Burning Act:

- establishes a negligence standard for any prescribed burning on private lands;
- creates a training program for landowners and contractors to build the skills to conduct prescribed burns safely;
- creates a certification program for prescribed burners who demonstrate proficiency; and
- creates a model prescribed burning permit for counties and municipalities to use if they choose to issue permits.

# ADAPTATION & RESILIENCE IN NATURAL & WORKING LANDS

## THE FOREST & WATERSHED RESTORATION ACT (FAWRA)

The Forest and Watershed Restoration Act (FAWRA) Advisory Board met two times in 2021 to review and recommend projects to enhance the adaptability and resilience of New Mexico's forests and watersheds to climate change and wildfires, improve water quality and support economic activity associated with wood harvest. Outcomes include:

- \$2 million allocated annually;
- 4,480 total acres completed with FAWRA funding since the passage of the Act in 2019;
- 2,247 acres completed with FAWRA funds in CY2021; and
- 8 new projects proposed in spring 2021 for FY2022.

The eight projects recommended for FY2022 include the continuation of landscape-scale thinning projects in the Turkey and Zuni Mountains and along the Gila River; a new landscape-scale thinning project near Cimarron; two national forest projects near Cloudcroft and in the Zuni Mountains; and three new bosque restoration project areas on the Middle Rio Grande reach.

## TRIBAL PARTNERSHIPS FOR LANDSCAPE RESTORATION

In 2021, the Forestry Division launched a tribal working group to provide a forum for tribes, state, federal and other agencies to coordinate, collaborate and communicate on a recurring, regular and consistent basis. The group discusses state-wide natural resource and forest and watershed management efforts where tribal entities can engage, share knowledge and funding opportunities, leverage resources, and coordinate across boundaries. The group is intended to be a

cultural exchange and to build state-tribal relationships. Forestry's most recent tribal partnerships include working with Sandia Pueblo, Santa Clara Pueblo, and the Navajo Nation to restore bosque habitat, using a variety of techniques that range from invasive plant removal by grazing goats to mastication machines and prescribed burning of excessive vegetation. A project with the Mescalero Apache Tribe on their reservation lands resulted in wildfire-protecting tree thinning in dry mixed conifer forests. Ongoing tribal partnerships in restoration have been planned for next year with the Pueblos of Laguna and Acoma. Highlights include:

- \$1 million in FAWRA funding for treatment of forested areas containing springs on the Mescalero Apache Reservation;
- \$420,000 of FAWRA funding used for treatment of the Rio Grande Bosque area of the Santa Clara Pueblo;
- \$120,000 in funding provided to the Sandia Pueblo for wildland fire burn restoration and treatment of invasive species, including the use of 130 goats to treat invasive salt-cedar and Russian-olive in the Sandia Pueblo Bosque; and
- 200 cords of firewood delivered to a portion of the Navajo Nation for heating and cooking.

## THE HEALTHY SOILS PROGRAM

New Mexico State University's Cooperative Extension Service is using funding from the Healthy Soils Program, established in 2019, to develop a soil health manual for New Mexico's technical service providers — like soil and water conservation districts, county extension offices, and other Healthy Soils Program eligible entities — to use in employing best practices in agriculture, watershed management, and drought resilience. In addition, the New Mexico Department of Agriculture's ongoing participation in the USDA

# ADAPTATION & RESILIENCE IN NATURAL & WORKING LANDS

Southwest Climate Hub and National Drought Mitigation Center's Drought Learning Network as co-lead of the Drought in Agriculture team has provided the New Mexico ranching community with outreach and information about drought management and drought conditions.

## CLIMATE-AWARE MINE RECLAMATION

This year, the Abandoned Mine Lands Program of EMNRD's Mining and Minerals Division completed two construction projects west of Raton on the Vermejo Park Ranch, using reclamation techniques intended to increase the resilience of the landscape in a warming climate. The Tin Pan Canyon Gob Reclamation Project was completed in early 2021 and involved reclaiming a large coal gob (waste) pile adjacent to an intermittent stream. The dark surface, density, and lack of soil on the gob pile made it difficult for vegetation to grow. The Abandoned Mine Lands program staff built terraces using straw bales and coir rolls, and mixed a large quantity of new soil into the surface of the coal gob to create a growing medium. Seedlings grown by EMNRD's Forestry Division were planted on the terraces and the area was hydroseeded.

The nearby Swastika Mine and Dutchman Canyon Maintenance and Stream Restoration Project was the site of previous construction in 2012, when large coal gob piles were buried, and a straightened stream channel was restored. The land was graded to mimic the adjacent natural area with a geomorphic reclamation technique. However, over the past decade, multiple severe storms affected the project area before the vegetation could grow, leading to erosion. In order to secure water quality in the area, a 2021 maintenance project was undertaken to mitigate the erosion problems before they impacted the buried coal waste and to enhance water quality, stream stability and function. The project offered an opportunity to expand wetland and riparian habitat. Rock structures were constructed in the channel and side drainages to slow the flow and allow the deposition of rocks and sediments, creating stable banks for vegetation to flourish. The maintenance project was a tremendous success, and the project was awarded the Western Region Abandoned Mine Land Reclamation Award from the federal Office of Surface Mining Reclamation and Enforcement on September 14, 2021.



Figure 8 — A coal waste pile before, during, and after the Tin Pan Mine Reclamation Project

# ADAPTATION & RESILIENCE IN PUBLIC HEALTH

## PUBLIC HEALTH

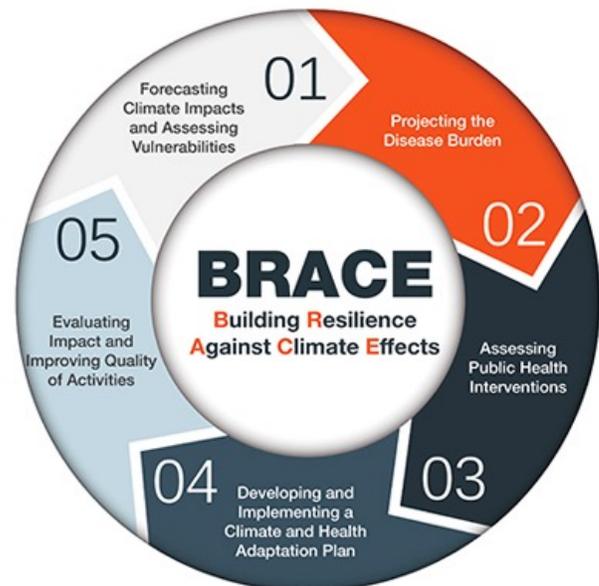
Increases in the frequency and severity of climate change impacts—droughts, wildfires, extreme heat, among others—will have rippling effects on the health of New Mexicans. For example, climate change impacts are expected to worsen asthma, chronic obstructive pulmonary disease, and mental health. Simultaneously, the COVID-19 crisis is exacerbating public health outcomes for people across New Mexico. These health impacts are acutely felt by the elderly, tribal populations, and overly burdened communities. However, the State of New Mexico has achieved progress this year in addressing issues at the intersection of climate resilience and public health.

## AN ADAPTATION FRAMEWORK THAT INCORPORATES HUMAN HEALTH

The New Mexico Department of Health (NMDOH) has updated its plan for the adaptation of behaviors to protect human health in the face of climate change. By applying the Centers for Disease Control and Prevention’s (CDC) iterative [Building Resilience Against Climate Effects \(BRACE\) Framework](#), NMDOH has advanced strategies to help New Mexico communities prepare for the health impacts of climate change. Through coordination among the interagency Climate and Health Adaptation Working Group, the State has applied the CDC’s Agency for Toxic Substances and Disease Registry’s [Social Vulnerability Index](#) and climatological information to identify vulnerable communities in New Mexico whose health will be most severely affected by climate change.

## HEALTH IMPACTS FROM WORSENING AIR QUALITY

NMDOH has made progress on health effects from worsening air quality driven by climate events, such as fine particles from wildfires. It has identified health outcomes — including temperature-related illness, asthma, pulmonary diseases, carbon monoxide poisoning, among others — affected by poor air quality and climate change.



The importance of addressing these outcomes is included throughout the state’s BRACE plan.

# ADAPTATION & RESILIENCE IN PUBLIC HEALTH

To estimate the burden of excess disease due to air quality changes from climate change, NMDOH conducted a comparative analysis of Environmental Protection Agency air monitoring data and modeled air quality data from satellite imagery to identify more localized air quality conditions in areas where monitoring data are sparse. It has also identified best practices to mitigate and disseminate adaptive health behaviors to protect against poor air quality. For instance, NMDOH is currently compiling best practices for cooling of indoor air in residential, commercial, educational and health facilities, and other spaces, especially during wildfire smoke advisories. The best practices will be released within the next few months, and available at that time on [NMDOH's Heat Related Illness page](#).

## HEALTH IMPACTS FROM DROUGHT AND FLOODING

NMDOH has also made strides on the assessment of health outcomes from climate-related drought and flooding by reviewing best practices and gathering data on methods to assess the impacts of drought on drinking water infrastructure, such as the quality of drinking water available to private well owners and small community water systems. Furthermore, NMDOH has examined best practices to assess harmful algal bloom (HAB) exposures, which will inform current algal bloom tracking mechanisms. Harmful algal blooms can pose serious threats to the health of humans, animals, and aquatic habitats. Conditions attributable to climate change, such as an increase in extreme heat events and prolonged droughts, are conducive to HAB growth. It is important to track and monitor HAB occurrences and cases of illness attributable to exposure to HAB toxins in order to better understand HAB trends in the

state and to take preventative action to protect the health and safety of New Mexicans, our animals, and the state's aquatic habitats. NMDOH is evaluating the feasibility of creating a New Mexico harmful algal bloom database.

## HEALTH IMPACTS FROM EXTREME HEAT

The New Mexico Environmental Public Health Tracking Program within NMDOH's Environmental Health Epidemiology Bureau, Epidemiology and Response Division (ERD)—in collaboration with the National Oceanic and Atmospheric Administration's National Weather Service Albuquerque Office—has drafted a Heat Related Illness Prevention Health Communications Plan and Protocol for New Mexico. This plan is a coordinated risk communication approach to address health outcomes associated with high heat events. Look for heat-related illness communications in 2022.

In addition, the Bureau of Health Emergency Management, also within ERD at NMDOH, is in the process of developing a heat annex to accompany the Emergency Operations Plan. The annex will lay out plans for communities to respond to high heat events in order to protect human health.

# ADAPTATION & RESILIENCE IN EMERGENCY MANAGEMENT

## EMERGENCY MANAGEMENT AND INFRASTRUCTURE RESILIENCE

As the climate changes and the Earth warms, extreme weather events will occur at greater frequencies and intensities, which will affect emergency management response and recovery efforts. Droughts, wildfires, extreme heat, and flash floods are already threatening communities across New Mexico and putting stresses on the state's infrastructure, whether due to the degradation of roads and bridges following flooding and strong storms, or disruptions of energy supply and health care networks following extreme events.

### FLOOD RISK ASSESSMENT FOR STATE-OWNED STRUCTURES

The Earth Data Analysis Center at the University of New Mexico—the New Mexico Cooperating Technical Partner—coordinated with DHSEM and the New Mexico General Services Department's Risk Management Division to conduct an analysis of state-owned structures in areas that are at risk of flooding, as defined by FEMA's Flood Insurance Rate Maps or Base Flood Level Engineering studies. The initial results of the analysis identified ninety-three state-owned structures at risk of flooding. Further refinement and analysis to assist with the prioritization of flood mitigation activities will be part of the State Natural Hazard Mitigation Plan update in 2022.

Following the identification of at-risk buildings in Special Flood Hazard Areas, DHSEM can recommend potential funding to implement flood risk reduction activities including flood proofing, evacuation planning, and potentially structural infrastructure improvements, dependent on the interest of the responsible state agencies. Where appropriate, state agencies are also

seeking to employ green infrastructure (such as parks and gardens capable of increasing absorption of rainfall) to assist with the management of stormwater.

### LEGISLATIVE ACTION — 2021 House Bill 168, the National Flood Insurance Compliance Act

2021's House Bill 168, the National Flood Insurance Compliance Act, signed by Governor Lujan Grisham on April 6, 2021, and taking effect on July 1, 2022, requires [National Flood Insurance Program \(NFIP\)](#) compliance for new structures or developments owned or funded by the state. This law aims to reduce the impact of potential floods on state-owned structures and contribute to maintaining essential functions during emergency situations. DHSEM will provide oversight and lead the preparation of regulations, while the New Mexico Regulation and Licensing Department's Construction Industries Division will permit, inspect, and enforce the future regulations once they are approved.

### PREPARING STATE AGENCIES FOR THE IMPACTS OF CLIMATE-RELATED HAZARDS

DHSEM hosted two webinars for state agencies during the spring of 2021 on the preparation of [Continuity of Operations Plans \(COOPs\)](#), which aim to ensure that essential functions continue during emergency situations, even if office buildings, communication infrastructure, and other required resources are not accessible due to natural or human-caused hazards. DHSEM, in coordination with FEMA, can offer additional courses to interested state agencies to support the development of their COOPs.

# ADAPTATION & RESILIENCE IN WATER RESOURCES

## WATER AND NATURAL RESOURCE RESILIENCE

New Mexico's arid climate necessitates a strong emphasis on securing scarce water resources. These challenges are further magnified in the face of climate change, where altered patterns of precipitation and snowmelt, increased evaporation, and droughts threaten New Mexico's water supplies and water system infrastructure. While New Mexico's natural ecosystems experience climate-driven hazards, they can also provide solutions to the risks our state faces by improving the ability of the land to absorb and retain water, reduce the risks of floods, and better manage water supplies.

### 50-YEAR WATER PLAN

The New Mexico Interstate Stream Commission (NMISC) in the Office of the State Engineer was tasked with producing a 50-Year Water Plan for the state by Governor Lujan Grisham when she took office. This year, the NMISC released a [Leap Ahead Analysis](#) assessment of New Mexico's water resources over the next fifty years under the impacts of climate change. The assessment was prepared by a team of climate and water resources scientists convened by the New Mexico Bureau of Geology and Mineral Resources. This report will inform the development of the 50-Year Water Plan. The NMISC then conducted stakeholder outreach throughout the state, including holding a Tribal Water Summit to gain input from New Mexico's tribes, Indian nations, and pueblos on the future of water resources. The 50-Year Water Plan will be finalized and released in 2022.

### DRINKING WATER AND WATER SUPPLIES

The New Mexico Environment Department (NMED) supports local efforts to monitor and protect public drinking water supplies throughout the state. As part

of this effort, the NMED Drinking Water Bureau has worked to identify drinking water intakes from high-risk wildfire areas vulnerable to debris flow, which can contribute to the pollution of water sources. After wildfires, surface water sources can become contaminated and unusable for years. If a community's water system depends on a single water source, the destruction of this source by wildfire can pose a major public health challenge to the community. The EHMR Climate Action Team is leading efforts to identify strategies to lower the risk of contamination to drinking water intakes and to characterize vulnerabilities in surface water sources and related infrastructure, with the aim of establishing a pathway toward a more resilient state.

### CLEAN WATER STATE REVOLVING FUND

Over the past year, NMED's Construction Programs Bureau provided six entities \$9.9 million in new low interest loans through the Clean Water State Revolving Fund (CWSRF), as well as providing six more entities with existing loans an additional \$18.6 million in funding. The CWSRF program provides low-interest loans to eligible entities for a wide range of wastewater and storm water projects that protect surface water and groundwater resources. Funds may also be used for projects that control non-point source water pollution. Through the CWSRF, communities can address sustainability, resiliency, and vulnerability issues brought to the forefront by climate change. Interest rates for public entities are currently between zero and one percent. [This GIS-based NMED webpage](#) identifies the complete list of projects with associated funding sources managed by the Construction Programs Bureau. 2021's funded projects include \$21.8 million for eight critical wastewater treatment plant construction or rehabilitation projects and \$6.7 million to four stormwater management projects.

# ADAPTATION & RESILIENCE IN WATER RESOURCES

## DROUGHT PREPARATION

Droughts can threaten water utility operations in many ways, including loss of water pressure and water supply, poor source water quality, and difficulty accessing alternative or supplementary water sources. After several communities lost their drinking water due to drought issues in 2021, the NMED Drinking Water Bureau launched the [Drought Information for Public Water Utilities in New Mexico ArcGIS StoryMap](#) to help public water systems with drought preparation and management. Publicly available information includes overview maps for drought conditions within the state, drought planning checklists, funding information, resiliency steps, and various technical and emergency resources.

In addition, during 2021 the Drinking Water Bureau surveyed 426 (75%) of the 574 community water systems in New Mexico to assess how drought is affecting them. These survey responses will continue to inform NMED's efforts to support local utilities in delivering safe drinking water to homes and businesses.

## WATERSHED RESILIENCY

The NMED Surface Water Quality Bureau completed its [biennial report](#) identifying surface waters that do not support designated uses or meet water quality standards.<sup>19</sup> NMED works with multiple stakeholders to prepare Watershed-Based Plans to address water quality problems for watersheds with impaired streams.

NMED expects that the Sapello River Watershed-Based Plan and the Wolf Creek Update to the Mora Watershed-Based Plan will both be completed in 2022.

## POST-WILDFIRE WATER QUALITY REHABILITATION PROJECTS

All water systems in the vicinity of the Ute Park Fire, which burned 36,740 acres in 2018, have experienced major intake clogging and sediment load issues in their raw water collections. Water quality in the towns of Raton, Las Vegas, and Cimmaron suffered significant impacts due to the delivery of ash, sediment, and debris. Reservoirs, infiltration basins, and water treatment plants were filled with sediment, increasing pre-treatment processing and costs for suspended sediment removal.

The NMED Drinking Water Bureau conducted a major restoration in this area to reduce threats to municipal and agricultural water quality and infrastructure by limiting sediment delivery into key waterways and reservoirs. This effort was made possible through partnerships with the Natural Resources Conservation Service, the U.S. Army Corps of Engineers, New Mexico Department of Game and Fish, the U.S. Forest Service, and NMED, with additional matching funds from private donors and aerial support from Cimmaron.

In 2021, the NMED Surface Water Quality Bureau initiated two new rehabilitation projects: one at the Rio en Medio to address post-fire effects from the 2020 Medio Fire (see photo on following page) that burned in the Santa Fe National Forest, and another at Bear Creek to address post-fire effects from the 2014 Signal Fire that burned in the Gila National Forest.

<sup>19</sup> The report is required by the federal Clean Water Act 303(d)/305(b) and was completed in 2020 and approved by the Environmental Protection Agency in January 2021.

# ADAPTATION & RESILIENCE IN WATER RESOURCES



NMED Surface Water Quality Bureau, Medio Fire Rehabilitation Project

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

**[CLIMATEACTION.NM.GOV](https://climateaction.nm.gov)**

# ACKNOWLEDGEMENTS

**Coordination & Drafting:** AnnaLinden Weller, Policy Advisor at EMNRD; Sandra Ely, Environmental Protection Division Director at NMED; Claudia Borchert, Climate Change Policy Coordinator at NMED

**Design:** AnnaLinden Weller, Policy Advisor at EMNRD

**Review and Leadership:** EMNRD Secretary Sarah Cottrell Propst & NMED Secretary James Kenney

*Secretaries Cottrell Propst and Kenney thank the following individuals for their contributions to the Climate Change Task Force and this report:*

**Aging and Long-Term Services Department**

Dolores Gonzales

**Children, Youth and Families Department**

Terry Locke

**Department of Agriculture**

Max Henkels  
Julie Maitland  
Anthony Parra

**Department of Corrections**

Secretary Alisha Tafoya Lucero  
Patrick Guerin  
Morgen Jaco

**Department of Cultural Affairs**

Adan Cordova  
Michaelene Kyrala

**Department of Finance and Administration**

Andrew Miner

**Department of Game and Fish**

Matt Wunder

**Department of Homeland Security and  
Emergency Management**

Wendy Blackwell

**Department of Health**

Heidi Krapfl  
Stephanie Moraga-McHaley

**Department of Information Technology**

Annette Curley  
Gar Clarke

**Department of Military Affairs**

Aaron Roybal  
Sonya Carrasco Trujillo  
Melissa Shahzadeh

**Department of Public Safety**

Mark Shea  
Katharina Babcock

**Department of Transportation**

Secretary Michael Sandoval  
Joseph DeLaRosa  
Jessica Griffin  
Bill Hutchinson  
Todd Howell  
Blake Roxlau

**Department of Veteran's Services**

Gabrielle Sanchez-Sandoval

**Department of Workforce Solutions**

Secretary Ricky Serna

**Economic Development Department**

Axie Navas  
Johanna Nelson  
Felicia DePaula

**Energy, Minerals and Natural Resources  
Department**

Carmelita Austin  
Colleen Baker  
David Griego  
Collin Haffey  
Jeremy Klass  
Alyssa Latuchie  
Todd Leahy  
Louise Martinez  
Laura McCarthy  
Nedra Murphy  
Lindsey Quam  
Carmen Rose  
Adrienne Sandoval  
Holland Shepherd  
Erin Taylor  
Susan Torres  
Harold Trujillo  
Jacqueline Waite  
AnnaLinden Weller  
Daren Zigich

**Environment Department**

Claudia Borchert  
Sandra Ely  
Abraham Franklin  
Rick Greiner  
Rhonda Holderman  
Elizabeth Bisby Kuehn  
John Rhoderick  
Rebecca Roose  
Kerwin Singleton  
Jill Turner

**General Services Department**

Duffy Rodriguez  
James P. Chavez  
Thom Cole

**Higher Education Department**

Gerard Hoehne  
Thomas Schawel

**Human Services Department**

Kristin Abdill  
Jodi McGinnis Porter

**Indian Affairs Department**

Eldred Lesansee  
Aurora Martinez  
Nadine Padilla  
Kalee Salazar

**Office of African American Affairs**

Amy Whitfield

**Office of the State Engineer**

Johnathan Martinez  
John Romero  
Lucia Sanchez  
Julie Valdez

**Public Education Department**

Alexis Alvarez  
Susan Chadoir  
Katarina Sandoval

**Renewable Energy Transmission Authority**

Director Fernando Martinez  
Brian Johnson

**Regulation and Licensing Department**

Secretary Linda Trujillo  
Martin Romero

**State Land Office**

Will Barnes  
Bianca Gonzales  
Jeremy Lewis  
Rachael Lorenzo  
Sunalei Stewart

**State Personnel Office**

Sandy Martinez  
Marko Satarain

**Tourism Department**

Saba Ijadi  
Antoinette Vigil

**Taxation and Revenue Department**

Emily Oster

**Workers Compensation Administration**

Loretta Lopez  
Trey Flynt