

2020



New Mexico Climate Strategy

2020 Progress and Recommendations

New Mexico Interagency Climate Change Task Force

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The Governor's Message

Governor Michelle Lujan Grisham




In just the eighteen months since I signed Executive Order 2019-003 on Addressing Climate Change and Energy Waste Prevention, we have made significant progress on our agenda. This annual report provides updates on my administration's policies to advance our goals as well as sobering reminders of the work ahead.

In an unprecedented year, dominated by the coronavirus pandemic, our work to address climate change has not stopped because the need to address climate change has not gone away – just the opposite. Our record-breaking fire season is just one reminder that tackling climate change must be one of our top priorities.

Implementation of the Energy Transition Act (ETA) – our signature legislation driving electric sector emission reductions - is progressing. We anticipate 1,346 megawatts (MW) of renewables will have come online between ETA passage in March 2019 and the end of 2020, for both in-state use and exports. This is almost twice the amount of new renewables that came online in the prior two years between March 2017 and March 2019, highlighting the importance of state leadership.

At the same time, new building codes have been adopted that will save new homeowners up to \$400 per year on energy costs while reducing emissions. The Solar Market Development Tax Credit, passed in the 2020 legislative session, is expanding solar affordability and growing New Mexico's solar industry by investing up to \$8 million per year through a 10% tax credit on new solar systems. The tax credit makes solar panel installation more affordable and will save New Mexicans money over time by reducing electric bills.

New Mexico is also making progress in the transportation sector. This year, the state awarded \$4.6 million in Volkswagen Settlement funds for 43 projects including electric vehicle charging infrastructure, new electric transit buses, electric and alternate-fueled school buses, and alternate-fueled solid waste vehicles. Utilities are also filing electric vehicle and charging infrastructure plans with the Public Regulation Commission to further spur electric vehicle adoption and infrastructure deployment. Clean cars and hydrofluorocarbon (HFC) rules are scheduled for next year, giving us additional goals to work for to reduce emissions in the transportation sector.



Our Departments have also made significant progress on our methane and natural gas waste and volatile organic compounds (VOC) rules. Final rules that will curb emissions from our state's largest source of greenhouse gas emissions—the oil and gas industry—are expected this fall.

We're also taking this progress and translating it into jobs. Economic Development Department programs invested over \$5.8 million in clean energy and emissions monitoring companies that will help us reach our climate goals while generating over 300 jobs in New Mexico.

We are rising to the challenge even as we confront the twin crises of climate change and COVID-19. State government is evolving and increasing its leadership by looking at everything from our buildings and fleets to procurement and budget policies. Agencies are leveraging all the resources we have to increase staff time on this important work and gear up for the next phase of action.

Even in the midst of a global pandemic, it is critical to keep thinking and talking and acting on climate change. Our bold action at the state level is in stark contrast to the failure of our federal government to put into place a national policy on climate change. In the context of COVID-19, we must go beyond "getting back to normal" in our recovery and instead think about how we can cultivate a better, cleaner future for New Mexico.

We are on the right track and we will not let up. Even as we continue work on our established policy priorities, we are looking ahead to how we can be more aggressive in tackling difficult sectors — oil and gas, transportation — and implementing broader market mechanisms. We are staffing up and building tools to expand our adaptation and resilience work with input from local and tribal governments and communities around the state.

I am encouraged by the progress we have made thus far and look forward to pushing ahead on our ambitious and important climate change agenda. We cannot afford to stand still in our fight to combat climate change. Our future depends on winning this fight.

Michelle Lujan Grisham

SCIENCE & DATA

Science

Climate scientists identified warming of 1.5 degrees Celsius as the point where climate change becomes severely dangerous to human life and society. We must continue our decisive action now to do our part to stay under 1.5 degrees Celsius and avoid the worst effects of climate change.¹ New Mexico is already experiencing negative climate change impacts. Just this summer, Truth or Consequences saw extensive flooding during heavy monsoon storms and the Medio Fire in the Santa Fe National Forest burned over 3,000 acres, blanketing much of the region in smoke and haze. Science tells us to expect more flash flooding and wildfires, as well as hotter and longer summers, more intense storms, and more frequent droughts.

We expect less predictable and robust harvests of our agricultural products, and changes in the health of New Mexicans – who are experiencing higher rates of asthma and heat-related illnesses. All of these changes bring economic, human, and natural costs. Warmer year-round temperatures mean additional energy costs to keep residences and businesses cool throughout the year. Declining air and water quality are disrupting natural habitats and ecosystems, leading to bark beetle infestations, fish habitat reduction, and fewer alpine meadows. Climate change also threatens our critical infrastructure, including roads, overpasses, bridges, and rail; electrical power distribution systems; drinking water and sewer pipes; and flood control and drainage systems. We must reaffirm our commitment to rapid and ambitious action to avert continued climate change impacts to public health, our environment, and our communities.²

Data

A new study from Colorado State University (CSU) conducted in 2020 analyzed New Mexico's greenhouse gas emissions in detail, giving us the best estimates to date of our recent and projected emissions.³ 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. The results of this study are reflected in our understanding of New Mexico's emissions profile throughout this report.

Key findings from the CSU inventory of New Mexico greenhouse gas emissions:

- The oil and gas sector generated 60 million metric tons (MMT) of greenhouse gas emissions in 2018, nearly four times more than previously estimated based on national data.
- Transportation is still the second-largest source of emissions, followed by electricity generation.
- Natural and working lands emissions, while uncertain due to data limitations, may have been a net source of emissions in 2018 rather than absorbing more emissions than they produced. This is due to several factors including wildfire and changes in land use that cause deforestation.

¹IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson- Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.

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

³Sharad Bharadwaj et al., "New Mexico Greenhouse Gas (GHG) Emissions Inventory and Forecast" (Prepared for Center for the New Energy Economy at Colorado State University by Energy and Environmental Economics, Inc., October 27, 2020), <https://cnee.colostate.edu/repowering-western-economy/>.

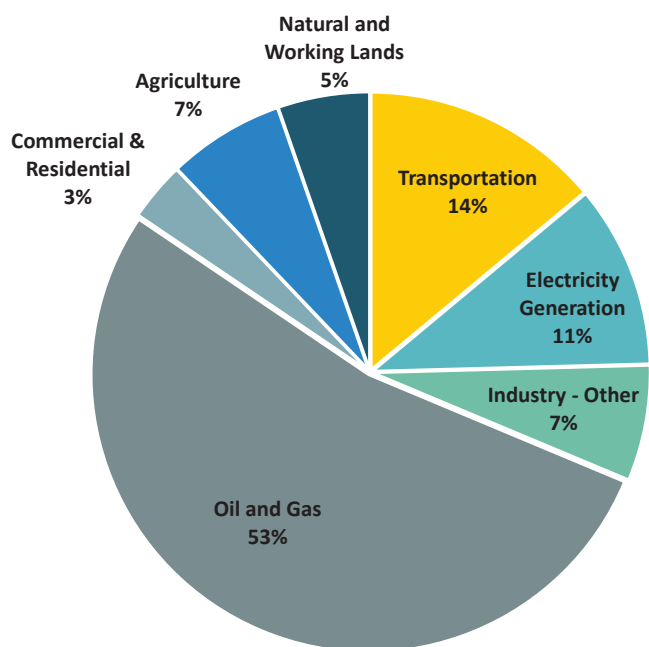


Figure 1. Total New Mexico Greenhouse Gas Emissions by Economic Sector in 2018

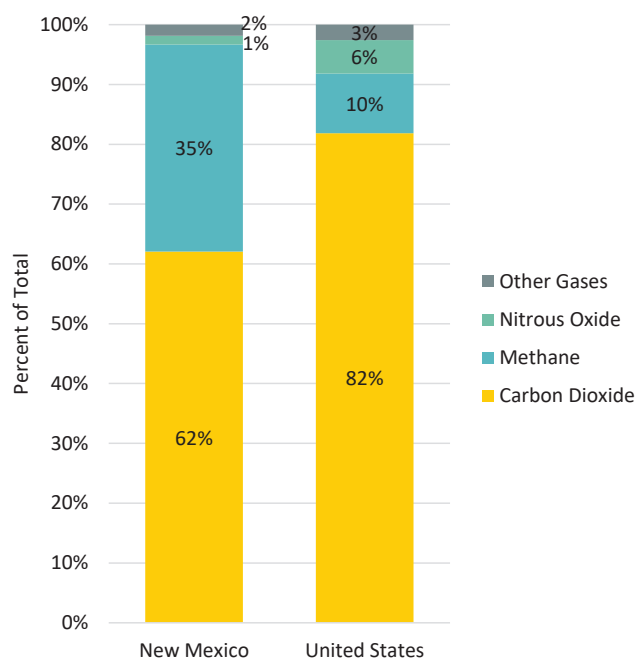


Figure 2. Greenhouse Gas Emissions by Gas in 2018, New Mexico and United States

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 oil and natural gas industry, cars and trucks, electricity production, industrial sources, and agriculture (Figure 1).

New Mexico produces more than twice the national average of greenhouse gas emissions per capita. New Mexicans produce over 50 tons per person per year, while the average in the United States is 18 tons per person per year. New Mexico's high per capita emissions are largely the result of our greenhouse gas-intensive oil and gas industry, which makes up a significant portion of our overall greenhouse gas emissions profile. Carbon dioxide (CO₂) makes up 62% of New Mexico's emissions profile followed by methane at 35%. Nationally, CO₂ makes up 82% of the emissions profile, followed by methane at 10% (Figure 2).

In New Mexico, most methane emissions are from the oil and gas sector. Nationally, 31% of methane emissions come from the oil and gas sector.

The CSU study confirmed our previous understanding regarding which sectors of the economy generate most of New Mexico's greenhouse gas emissions. It revealed that our oil and gas sector emissions in recent years are even greater than previously estimated, and that transportation is the second-largest source of emissions in the state. The profile of other sectors is largely consistent with previous estimates, though the analysis did find that natural and working lands are, on balance, a source of emissions, rather than providing overall sequestration benefits. This highlights the importance of our work to improve sequestration capacity and reduce emissions from this sector.

We also now have a set of state-specific projections from the CSU study to further guide our climate policy

development. Figure 3 illustrates the anticipated effect on New Mexico's greenhouse gas emissions trajectory of the policies and regulations which have been put in place since Governor Lujan Grisham issued Executive Order 2019-003 on Climate Change and Waste Prevention (EO 2019-003).

These policies include the Energy Transition Act of 2019, which requires New Mexico's utilities to use at least 50% renewable energy by 2030 and will drive continued reductions in electricity sector emissions;⁴ updated building energy codes adopted in August 2020 by the Regulation and Licensing Department which will reduce emissions from residential and commercial buildings; and the New Mexico Environment Department's (NMED)'s anticipated low-emission vehicle (LEV), zero-emission vehicle (ZEV) and hydrofluorocarbon (HFC) rules that will reduce transportation and industrial sector emissions. Looking ahead, some of the largest emissions reductions will come from the final rules on regulating volatile organic compound (VOC) and methane waste in the oil and gas sector from NMED and the Energy, Minerals, and Natural Resources Department (EMNRD), respectively.

These recently implemented policies and upcoming regulations — all of which implement directives from EO 2019-003 — demonstrate significant progress towards the greenhouse gas emission targets set forth in the same executive order. However, reaching these ambitious targets will require significant change beyond the bold steps we are already taking. The graph below shows the significant gap between our current achievements and our goal of a 45% reduction in CO₂ equivalent from 2005 levels by 2030.

Our current and proposed climate strategies will make a significant dent in our greenhouse gas emissions profile by 2030—but reaching our targets will require renewed ambition and additional action.

Understanding the gap between our achievements and the targets we want to reach is one of the primary benefits of the CSU study, as the data collected within it will help guide our climate policy going forward and spur us to even greater ambition.

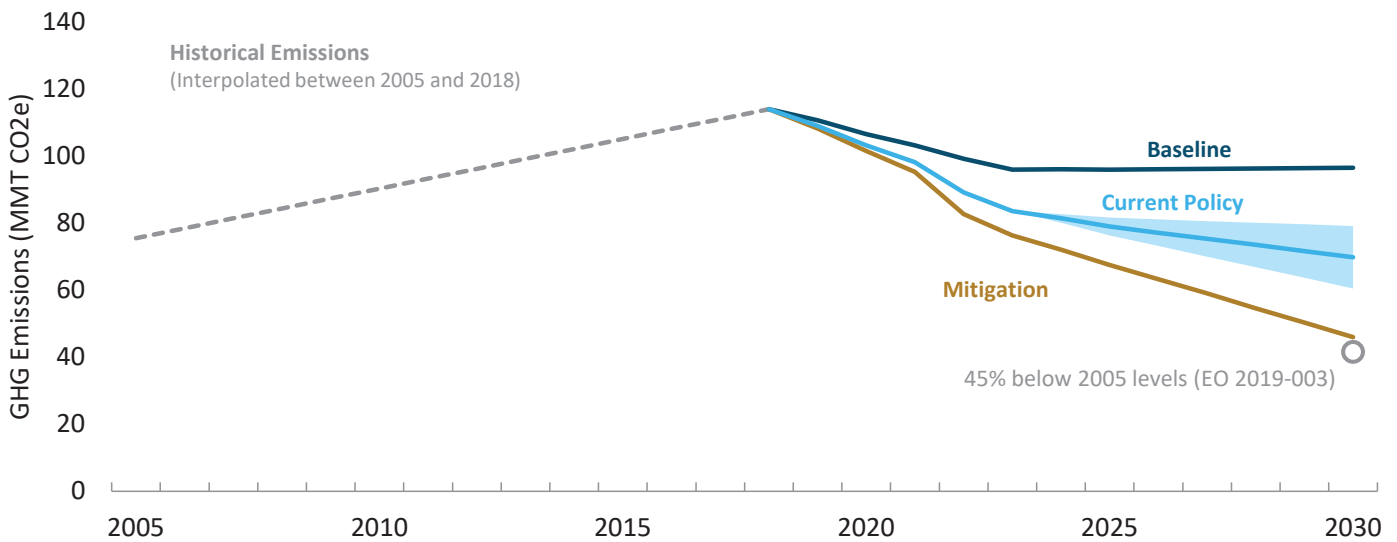


Figure 3. New Mexico Emissions Projections, 2005-2030

Source: CSU Emissions Study. Baseline scenario represents policies in place in 2018; Current Policy represents current and pending policies resulting from EO 2019-003 and indicates range of possible effects of oil and gas sector regulation; Mitigation scenario represents level of ambition necessary to approach 2030 emissions reduction goal. For additional detail on policy assumptions, see the report at <https://cnee.colostate.edu/repowering-western-economy/>

⁴ NMSA 1978, § 62-18-1 et seq

Data collection efforts will continue to be central to our understanding of our work and how to measure its success. In the fall of 2019 Governor Lujan Grisham announced a public-private partnership between the State of New Mexico and Descartes Labs. Descartes Labs was established in 2014 by a team of scientists from Los Alamos National Laboratory, based on their shared belief that planetary knowledge has the power to radically alter how companies, governments, nonprofits, and other stakeholder groups across the globe carry out their charters. Descartes Labs is the first company founded for the purpose of creating a geospatial data refinery to fuel predictive models.

As a result of this public-private partnership, Descartes Labs has worked alongside EMNRD to create a methane detection model using satellite imagery from the Sentinel-5P satellite. The model determines potential methane emissions hotspots which can then be validated by EMNRD inspection staff. This validation creates a feedback loop with the model, which helps to fine-tune its predictions. The end goal is to use this model to help direct inspections and compliance actions. New Mexico is aligning its economic development strategies with our climate mitigation goals. The New Mexico Economic Development Department (EDD) pledged \$5 million in Local Economic Development Act funding to Sceye Inc., an aerospace company that builds helium filled airships that will hover over remote locations to conduct environmental monitoring and provide broadband connectivity.

The company expects to build a fleet of airships that can hover for long periods of time at about 65,000 feet

In August, the New Mexico Public Regulation Commission (PRC) approved 650 MW of solar resources and 300 MW of battery storage resources to replace retiring units of the coal-fired San Juan Generating Station. These resources, which will help the utility Public Service Company of New Mexico (PNM) comply with the ETA, will be located across San Juan, McKinley, and Rio Arriba counties and the Jicarilla Apache Nation. Of the total capital investment, \$447 million will be located within the San Juan County Central Consolidated School District, reducing lost revenue expected due to the closure of San Juan Generating Station.

that can support New Mexico’s ozone attainment and climate change efforts by monitoring ozone levels and methane emissions. Sceye is currently testing and launching airships at the Roswell International Air Center.

Both NMED and EMNRD’s Oil Conservation Division (OCD) collect data during their inspections and compliance actions which help to build a more complete picture of New Mexico’s methane emissions. In order to promote data transparency and make the data usable to the public, EMNRD has developed a publicly accessible online methane tracking map and dashboard (Figure 4).⁵

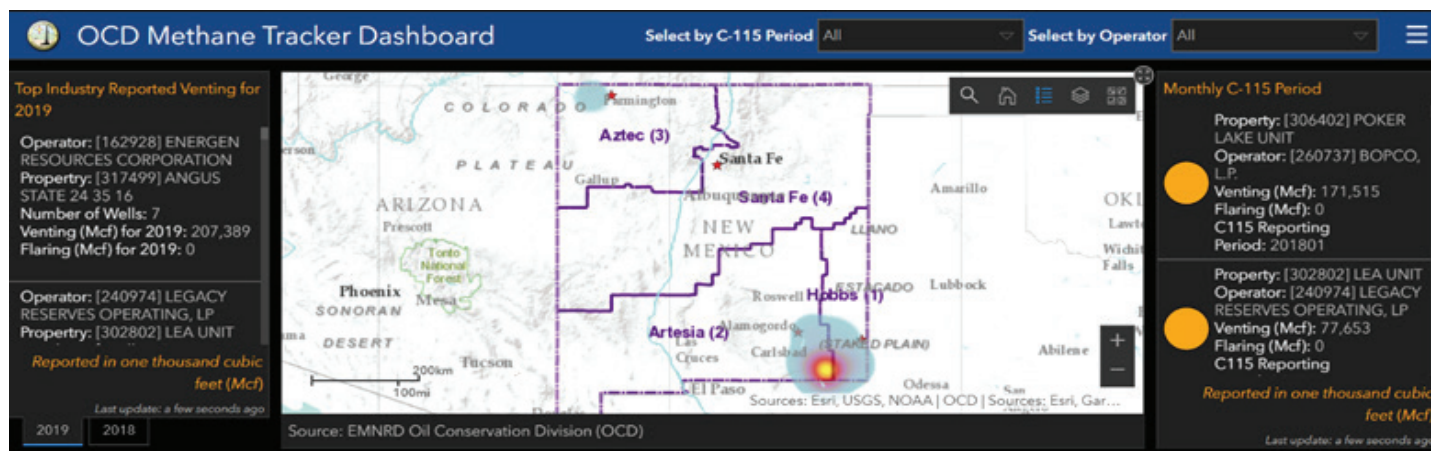
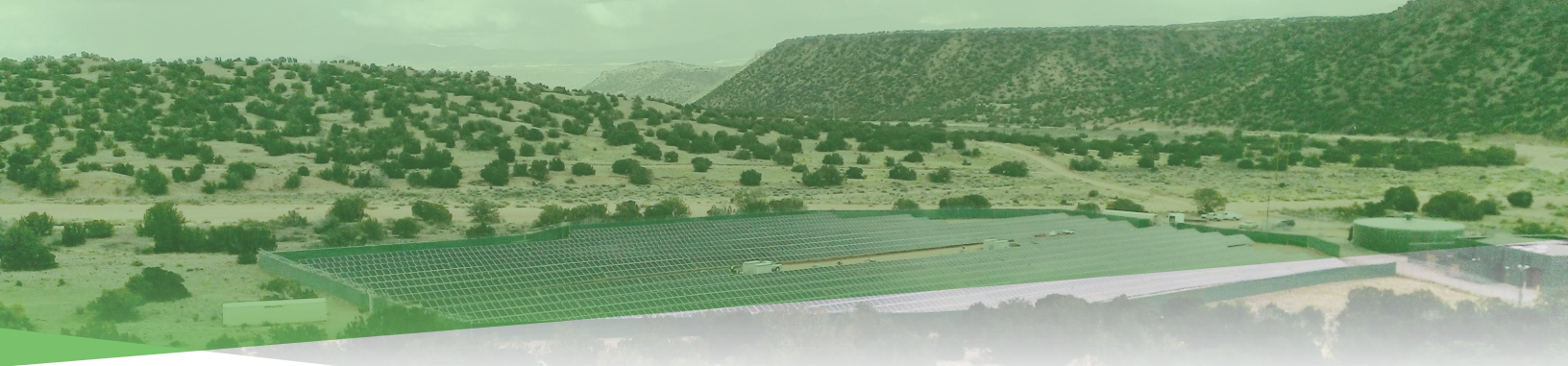


Figure 4. Snapshot of EMNRD Oil Conservation Division Methane Tracker Dashboard

⁵ <https://nm-emnrd.maps.arcgis.com/apps/opsdashboard/index.html#/522aee3ad2fb4758863f16269281520d>



REDUCING GREENHOUSE GAS LEVELS

New Mexico needs a combination of immediate action and long-term strategy to meet our ambitious greenhouse gas emissions reduction goals. Over the past year, New Mexico’s Climate Change Task Force⁶ has developed nine interagency Climate Action Teams. These teams, illustrated in Figure 5, span both emissions reduction and adaptation and resilience action areas. The following sections highlight progress from these teams and other state entities on actions to reduce emissions in each sector.



Leveraging State and External Resources

It is critical for agencies to maximize use of the state resources we have and identify external resources to build our capacity to act on climate. In the past year:

- The Economic Development Department (EDD) and EMNRD have secured federal CARES Act funding for four staff positions whose work on economic recovery and diversification will support clean energy development and jobs in our state.
- EMNRD and NMED have secured funding through the US Climate Alliance for three new staff positions focused on climate adaptation and resilience, natural and working lands climate solutions, and climate policy coordination.
- The U.S. Climate Alliance has provided in-kind technical assistance on numerous policy areas including natural and working lands data analysis and stakeholder engagement planning for 2021.
- EMNRD has been selected for workshops and technical assistance from the U.S. Department of Energy (DOE) National Community Solar Partnership, National Governors’ Association, and the Rocky Mountain Institute eLab Accelerator on clean energy initiatives.
- The New Mexico Department of Agriculture (NMDA) has secured matching funds for its Healthy Soil and Technical Service Provider Programs from the U.S. Department of Agriculture Natural Resources Conservation Service, and uses its partnership with the New Mexico State University Cooperative Extension Service to advance education and outreach activities.

Figure 5. New Mexico Climate Action Teams
 Note: The Natural and Working Lands, Sustainable Infrastructure and Planning, and Economic Transition teams address both greenhouse gas reductions and adaptation and resilience.

⁶ EO 2019-003 created the Interagency Climate Change Task Force, co-chaired by the EMNRD and NMED secretaries and composed of the secretary or a designate from every executive branch agency. For more information on the Task Force, see <https://www.climateaction.state.nm.us/task-force.html>.

Electricity Sector

The landmark passage of the Energy Transition Act in 2019 has unleashed extensive renewable energy activity across New Mexico. Now that we have a nationally leading clean electricity standard, the state is focused on reaching that standard in the most affordable, reliable, and equitable way possible.

Grid Modernization

Having a more modern electric grid means incorporating new technology to handle more variable renewable resources and improve the reliability, efficiency, and security of the power system.

In December 2019, EMNRD held a Grid Modernization Retreat with state and national stakeholders and experts. This event, supported by the National Governors Association and the DOE, brought over 50 attendees' technical and policy expertise to bear on strategies to modernize New Mexico's electric grid.

In 2020, Governor Lujan Grisham signed into law House Bill 233, Energy Grid Modernization Roadmap, which directed EMNRD to develop a roadmap for grid modernization, established a corresponding grant program and fund, and allows utilities to submit applications to the PRC for investments in eligible grid modernization projects.⁷ To inform the development of this roadmap, EMNRD launched the Grid Modernization Advisory Group in September 2020. Advisory group members representing electric utilities, the renewable energy industry, academia, the national laboratories, and non-profit energy and consumer groups will identify specific technology improvements

as well as enabling science and policy capabilities to ensure our electrical grid can accommodate the large-scale and distributed renewable energy resources growing across the state. The Grid Modernization Advisory Group will complete a series of white papers in November 2020, and EMNRD will release its roadmap early in 2021.

As directed by the Energy Grid Modernization Roadmap Law, EMNRD launched its Grid Modernization Advisory Group in September 2020. This group, consisting of stakeholders from electric utilities, the renewable energy industry, academia, the national labs and non-profit energy and consumer groups will participate in seven collaborative workshops modeled on the technology road mapping system developed at Cambridge University's Center for Technology Management. Participants will evaluate how to achieve nationally recognized grid modernization objectives such as ensuring energy affordability and maximizing system efficiency. This process will yield an action-oriented graphic roadmap and white papers with recommendations for achieving necessary grid upgrades by 2030 and beyond.



⁷ NMSA 1978, § 71-11-1 and NMSA 1978, § 71-11-2

Utility-Scale Generation and Transmission

New Mexico has long been an energy exporter. Given the high quality and potential of our solar and wind resources, we expect this trend to continue with our transition to renewable electricity. New large-scale solar and wind projects will help New Mexico meet our own clean energy goals, bring economic development to the state, and support the decarbonization of electricity across the West. Since the passage of the Energy Transition Act in March 2019, 11 renewable energy projects have come online, with a total capacity of 268 MW, and there will be a total of fifteen projects online by the end of 2020, resulting in a total added renewable energy capacity of 1,346 MW. This represents significant growth relative to the period between 2017 and 2019 (Figure 6). National stakeholders have also taken notice of our success—the American Wind Energy Association named Governor Lujan Grisham their 2020 Wind Champion for her leadership on the Energy Transition Act.

The Legislature passed the **Industrial Revenue Bond Act (HB 50)** in 2020, making certain electric transmission projects eligible under the Industrial Revenue Bond Act for the first time. This gives local governments a financing tool that can benefit their communities as well as eligible transmission projects.

Because these resources are not always located in the same places as previously operating power plants, New Mexico needs to develop additional transmission capacity—power lines—to carry our world-class renewables within and beyond our borders. In July, the New Mexico Renewable Energy Transmission Authority (NM RETA) completed a study of transmission needs over the next twelve years. The study found increasing high-voltage transmission lines by 900 to 1,300 miles could spur development of 11,500 MW of renewable generation in New Mexico by 2032—more than enough power to meet our interim clean electricity requirement of 50% renewable electricity sales by 2030. New Mexico currently has over 9,300 miles of transmission lines.

EMNRD and its partners at NM RETA, UNM, the Audubon Society, Pattern Energy, and private landowners were selected to participate in the Rocky Mountain Institute's 2020 eLab Accelerator program to identify best practices related to land use in developing and siting both transmission and large-scale renewable energy projects. These guidelines could improve community and stakeholder engagement for future projects, which may make development more efficient and lower impact to communities and the environment.

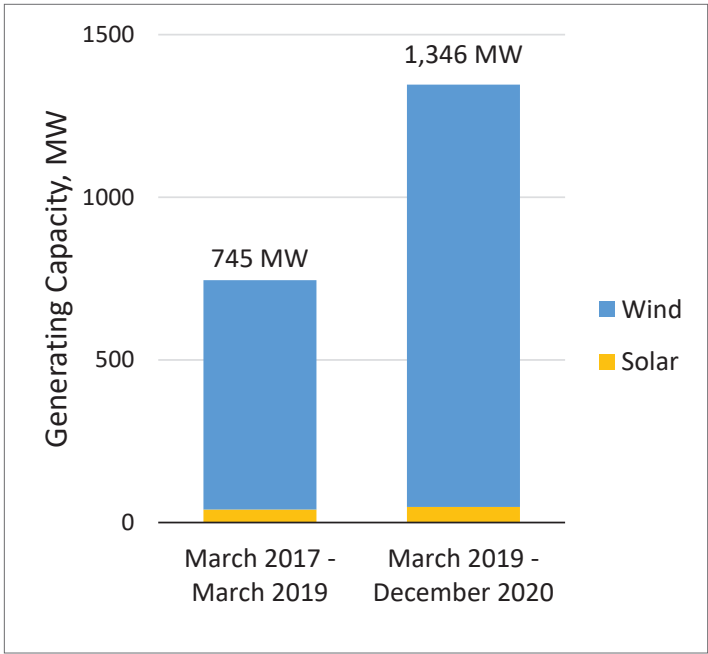


Figure 6. New Renewable Generating Capacity in New Mexico

Recent project developments in New Mexico:

- Avangrid Renewables started construction on its 306 MW La Joya wind project in May 2020. Of the 111 turbines, 74 will be on state trust land.
- Construction began in late August on the Western Spirit transmission line, developed by Pattern Energy in partnership with NM RETA.

Regional Collaboration

In most of the western U.S., utilities conduct their own regulatory planning processes and buy and sell power through bilateral contracts and trading. Several entities in the West are developing new market options for this trading, which could increase the efficiency and cost-effectiveness of electricity delivery and transmission planning. For example, different parts of the West have different renewable resources which, if connected, can benefit customers across the region. Having more resources spread across a large geographic area to balance electricity needs can improve reliability and make it easier to add more renewable energy to the power system. New Mexico's largest utility, PNM, plans to join the regional Western Energy Imbalance Market (EIM) in 2021, and this is the kind of enhanced regional collaboration we expect to grow in the future. As of July 3, 2020, the Western EIM surpassed \$1 billion in economic benefits.⁸

To explore ways to access the benefits of greater regional collaboration, New Mexico is participating in the Western Interconnect Regional Electricity Dialogue (WIRED), a group of western state energy advisors, electric utilities, public power administrations, renewable energy companies, and clean energy advocates convened by former governor of Colorado Bill Ritter, Jr. and the Center for the New Energy Economy at Colorado State University. The purpose of the initiative is to present actionable recommendations on integrating state policy with ongoing regional efforts related to grid modernization and coordination in the West by December 2020.

Distributed Energy Resources

Businesses, homeowners, and public facilities can also reduce electricity emissions by installing their own renewable energy generation equipment – such as rooftop solar – creating distributed generation. We can think of renewable electricity generation as having two formats: utility-scale generation and distributed generation. Utility-scale generation mostly means large

wind, solar, and battery storage facilities developed by and for utilities. Distributed generation means smaller-scale projects, like installing solar panels on a home or business. This kind of generation is known as a type of distributed energy resources because it is more geographically dispersed than larger, utility-run projects. Other distributed energy resources include battery storage and demand response programs. Demand response programs compensate residential and business customers for voluntarily reducing how much energy they use when electricity demand is high. Two legislative initiatives from 2020 will support the growth of distributed solar: Senate Bill 29, the Solar Market Development Income Tax Credit, will make installing both solar thermal and photovoltaic systems more affordable for taxpayers, and Senate Memorial 63 created a working group to further community solar discussions in the state.

2020 Legislation Supporting Distributed Energy Resources

- **2020 Senate Bill 29 Solar Market Development Income Tax Credit** established an income tax credit of up to \$6,000 per taxpayer per taxable year for solar thermal and photovoltaic systems. EMNRD received 150 applications within the first two months of launching the program.
- **2020 Senate Memorial 63 Community Solar Working Group Memorial** created a working group to bring stakeholders together to identify a path forward for future legislation to enable community solar in New Mexico.

The National Community Solar Partnership (NCSP) also selected EMNRD and partner El Paso Electric to receive technical assistance to explore options for realizing community solar benefits in New Mexico. The NCSP, an initiative of the DOE, is a coalition of community solar stakeholders working to expand access to affordable community solar to every American household by 2025.⁹

⁸ <https://www.westerneim.com/Documents/ISO-Announces-Western-EIM-Surpassed-1Billion-Benefits.pdf>

⁹ For more on the NSCP, see <https://www.energy.gov/eere/solar/national-community-solar-partnership>

LEADING BY EXAMPLE: ELECTRICITY SECTOR



The state General Services Department (GSD) is completing upgrades to reduce electric utility costs by 50 percent for 30 GSD-owned executive office buildings in Santa Fe, the capital city of New Mexico. The upgrades include solar installation, both rooftop and carport, for 19 buildings and our state government’s first battery storage equipment to store solar power. This project will be substantially complete in November 2021 and fully complete by February 2022. GSD continues to explore similar projects for GSD-owned buildings outside of Santa Fe.

EMNRD’s State Parks Division and Energy Conservation and Management Division have launched a project to develop a microgrid at Hyde Memorial State Park. Construction began in August 2020 for this microgrid, which will meet 100% of the park’s electricity needs with reliable, secure, and clean energy following loss of a powerline to the facility.

Hyde Memorial State Park Project by the Numbers:

- 81 kW of solar and 350 kWh of battery storage
- One 150kW propane generator
- Projected savings of over \$180,000 per year

Mexico is focused on two broad types of policies: those that increase clean vehicle adoption, including expanding available infrastructure to fuel them, and those that lower the number of trips and amount of time and distance traveled in single-occupant motor vehicles (reducing vehicle miles traveled). As we pursue both strategies, we must ensure that the financial and air quality benefits of cleaner transportation options benefit all New Mexicans, regardless of income.

Increasing Clean Vehicle Adoption

In September 2019, Governor Lujan Grisham announced that New Mexico will join 14 other states in adopting low emission vehicle (LEV) standards and 11 other states adopting zero-emission vehicle (ZEV) standards. NMED will hold initial informational public meetings on these regulations starting in spring 2021 and petition the Environmental Improvement Board (EIB) in July 2021 to hold a hearing on proposed rules later in 2021. If adopted, these standards will take effect in January 2023. The LEV rules would limit greenhouse gas and other pollutants from cars and light duty trucks and the ZEV rules would require a percentage of new vehicles for sale in New Mexico to be zero-emission vehicles.

On April 24, 2020—the 50th anniversary of Earth Day—NMED announced its award of \$4.6 million to 43 projects across the state from the Volkswagen Settlement fund. Close to \$1.9 million will contribute to projects in Bernalillo, McKinley, Santa Fe and Torrance counties to purchase new electric transit buses, electric and alternate-fueled school buses, and alternate-fueled solid waste vehicles. Nearly \$2.7 million will be awarded for electric vehicle charging infrastructure projects; the maximum amount allowed under the settlement agreement for New Mexico. The ZEV supply equipment projects will significantly improve charging infrastructure throughout the state, bringing more than 116 new charging stations to 23 of New Mexico’s 33 counties (Figure 7).

Transportation Sector

As the second-largest source of greenhouse gas emissions in New Mexico, transportation is a critical sector for climate action. It is also a complicated one: emissions come from personally owned cars and trucks, commercial trucks, and delivery vehicles, plus rail and air services that move both people and freight. Decarbonizing each of these types of transportation—often called modes of travel—takes a combination of policy, regulatory action, and collaboration to implement projects across state agencies and our partners. New

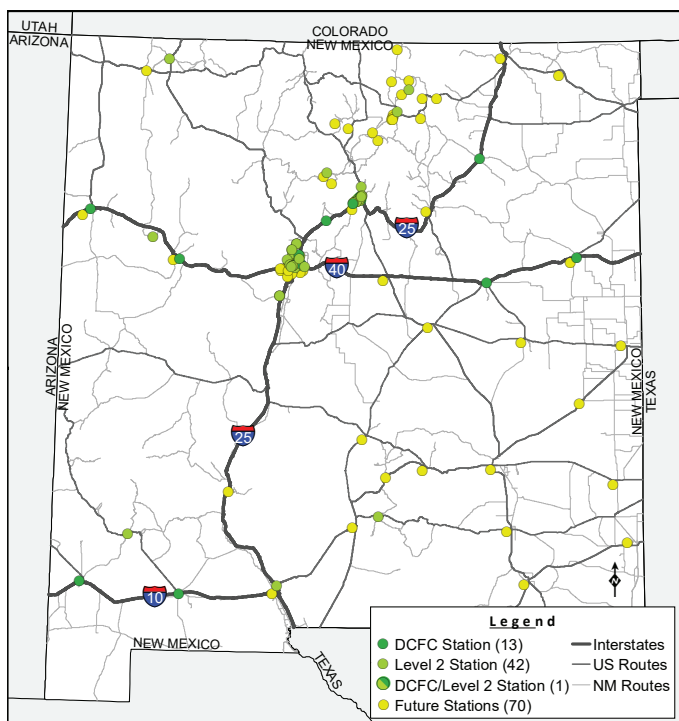


Figure 7. Current and Anticipated Electric Vehicle Charging Stations

Regulation is not the only tool the state can use to increase the number of clean vehicles on our roads. Although electric vehicle tax credit legislation did not succeed in 2020, EMNRD and the rest of the state Transportation Climate Action Team are researching additional ways to incentivize electric vehicle (EV) purchases in the state, as well as options such as EV ride-sharing or shuttle services that bring EV benefits—lower operating costs and reduced emissions—to those currently unable to purchase their own EV.

Car dealerships are important partners in growing the number of electric vehicles on the road. They need to have the information and support to stock and promote these cars. EMNRD and NMED are exploring ways to support and train dealership staff to better promote EV sales in the state.

We often think about EVs as passenger cars, but the technology is changing rapidly, particularly for larger vehicles. This means that buses and other medium- and heavy-duty vehicles can be electrified, which would reduce both greenhouse gas emissions and pollution from such vehicles. Air pollution from medium- and heavy-duty vehicles often disproportionately affects the health of communities of color and lower income areas.¹⁰ The freight and logistics sector has grown in recent years, and COVID-19 has brought additional growth due to increased e-commerce activity.¹¹ In 2018, medium- and heavy-duty vehicles contributed to over 25% of New Mexico's transportation emissions. As with any emerging technology, pilot projects are key to demonstrating the reliability and savings from electrification of medium- and heavy-duty vehicles. EMNRD is seeking partners for pilot projects for freight decarbonization and additional electrification of airport support vehicles. NMED and the New Mexico Department of Transportation (NMDOT) are identifying NMDOT highway maintenance vehicles eligible for replacement with funds from the federal Diesel Emissions Reduction Act to reduce greenhouse gas emissions from these vehicles.

NMDOT has contracted with the New Mexico Institute of Mining and Technology to build a model to estimate greenhouse gas emissions impacts from planned and proposed transportation decarbonization strategies such as electrifying public transportation, school buses, and freight vehicles. This will help NMDOT focus its efforts on the strategies with the greatest potential to reduce emissions in New Mexico specifically. Through another research contract, NMDOT is developing an Energy and Emissions Reduction Policy Analysis Tool to estimate the implications of EV adoption for gas tax revenue in New Mexico. Understanding this data and learning from other states—such as Oregon's VMT tax pilot program—will help NMDOT identify strategies to manage revenue through the transition to electric vehicles.

¹⁰ <https://ww2.arb.ca.gov/news/california-takes-bold-step-reduce-truck-pollution>

¹¹ <https://www.prologis.com/logistics-industry-research/covid-19-special-report-5-supply-chain-shifts-poised-generate>

In July 2020, The U.S. Department of Transportation Federal Highway Administration (FHWA) approved New Mexico's application to designate 60 miles of fully developed EV Alternative Fuels Corridors and 890 miles of pending EV corridors in New Mexico, the first in the state. These designations, along with others for compressed natural gas and propane, allow New Mexico to actively participate in the national transition to alternative fuels across state borders and will encourage continued electric vehicle charging infrastructure investments. EMNRD, NMDOT, PNM, and Land of Enchantment Clean Cities Coalition submitted the application on behalf of the state.

Infrastructure Expansion

Having enough electric vehicle charging stations along our roads and highways is an important way to encourage New Mexico residents to consider buying an EV and attract tourism from EV owners from other states by providing a seamless driving experience. Figure 8 shows the electric corridor designations the FHWA approved this year; Green areas are "corridor-ready," with enough charging stations already installed, and yellow areas are "corridor-pending," meaning enough infrastructure is planned but not yet fully installed. The state also now has compressed natural gas (CNG), liquid propane gas (LPG), and liquefied natural gas corridors. Figure 9 shows the location of CNG and LPG infrastructure in New Mexico.

In addition to using these designations to better mark and advertise charging station availability, EMNRD and NMDOT are working together to maintain an accessible and regularly updated map of active and planned EV infrastructure in New Mexico. This map will also highlight key tourism routes.

Through the Regional Electric Vehicle Plan for the West (REV West) alliance and the related regional EV Corridors of the West (CORWest) project, EMNRD, NMDOT, and partner states are developing multi-state EV charging corridors, and compiling a toolkit of strategies to enhance the affordability and accessibility of EVs. This toolkit, designed for state agencies and their partner Clean Cities Coalitions, will help standardize EV awareness events held at charging

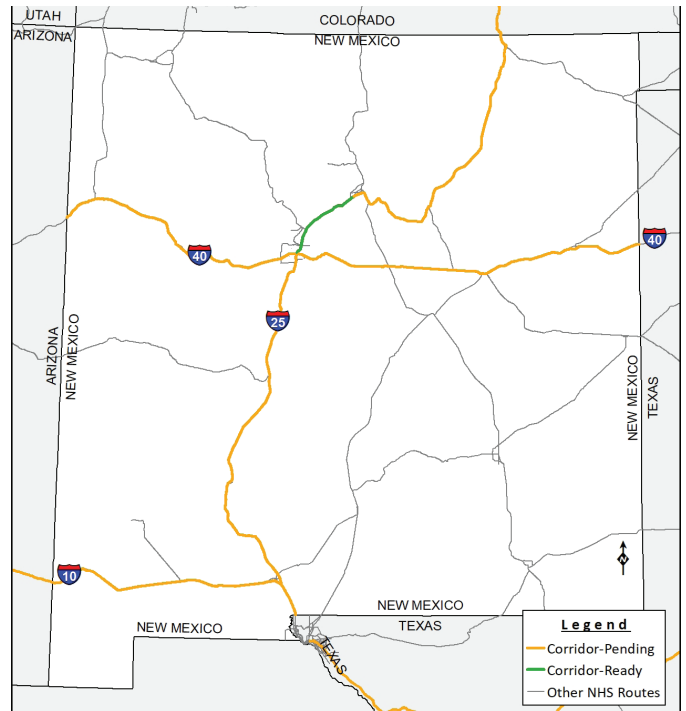


Figure 8. New Mexico EV Ready and Pending Alternative Fuel Corridor Designations

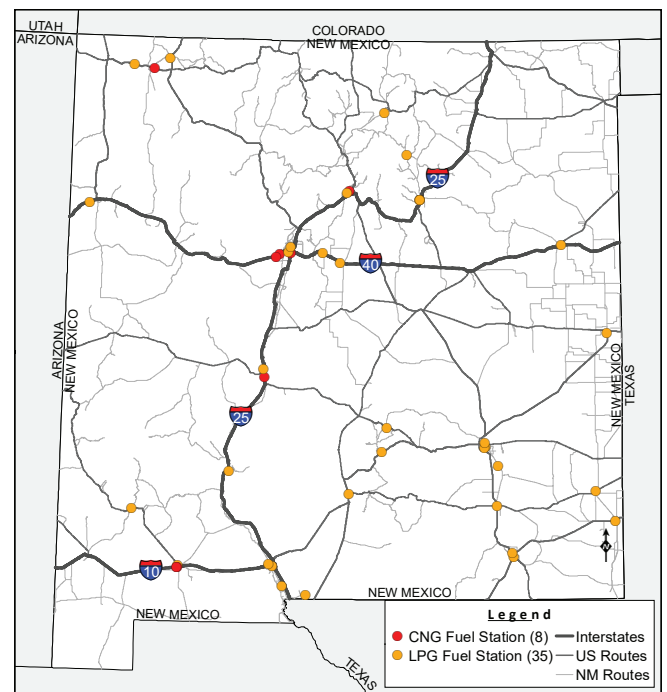


Figure 9. CNG LPG Fuel Stations in New Mexico

infrastructure locations over the next two years, including in underserved areas of the state. By the end of 2021, the CORWest group will develop EV and EV charging education materials and compile a menu of EV events and options for opening charging stations.

Electric utilities are important partners in increasing the amount of charging infrastructure available. In 2019, the Legislature passed HB521, PRC Application for Vehicle Electricity. This bill accomplished two key goals: first, it allows individuals or businesses who resell electricity for use as a transportation fuel to not be subject to regulation as if they were a utility. This is a vital component in creating a business model for electric vehicle charging at commercial, residential, and government facilities. Secondly, HB521 requires all investor-owned utilities in New Mexico to file an application with the PRC regarding their plans for transportation electrification before Jan. 1, 2021. So far, Southwestern Public Service Company submitted its plan to the PRC on July 20, 2020. PNM plans to submit its plan after an extensive stakeholder outreach process, at the beginning of the fourth quarter of this year. Both filings propose rebates for home charging equipment and associated wiring upgrades, proposals for residential time-of-use rates to encourage charging during off-peak hours, and targeted support for low- and moderate-income New Mexicans to benefit from transportation electrification. Both filings also propose incentives for commercial and industrial customers to install and operate electric vehicle charging stations for the benefit of their employees.

In addition to regulatory obligations, individual companies are making commitments to infrastructure investment. Xcel Energy, the parent company of Southwestern Public Service Company which operates in southeastern New Mexico, has proposed investing \$300 million in four states, including New Mexico. The investment will fund programs related to smart charging (when a customer plugs in a car and the utility manages when it charges based on factors such as current electricity rates or percent of renewable energy present on the grid) and fleet and public infrastructure programs.¹²

Reducing Vehicle Miles Traveled

New Mexicans use vehicles for most of our trips — and they are the only way to get to some destinations. But many trips could use other types of transportation or combine travel options in what is called multimodal travel. For example, instead of driving into downtown Albuquerque, a resident could walk or ride a bicycle to a bus stop and continue by bus to the destination. Walking, riding bicycles, and taking buses and trains are all ways New Mexicans can reduce the number of miles we travel in our cars. This reduces greenhouse gas emissions and pollution because driving — particularly with only one passenger — emits the most per mile a person travels.¹³

State agencies and local governments are promoting vehicle miles traveled (VMT) reductions through several actions. The Mid-Region Metropolitan Planning Organization's Connections 2040 plan, approved in April 2020, increased its emphasis on active transportation goals and devotes a full chapter to bicycle and pedestrian travel and safety.

NMDOT recently updated its Design Manual to include pedestrian safety measures. The Design Manual provides options for how streets that are owned and maintained by NMDOT are designed. Safer streets, with features like raised and more visible crosswalks, may lead to people being more comfortable walking and therefore, over time, can increase the amount we walk and decrease the amount we drive.

NMDOT is integrating climate change initiatives into its Long-Range Statewide Transportation Plan update (2045 Plan). These initiatives could include increased opportunities and funding to support multimodal transportation. NMDOT held five stakeholder workshops in July 2020 and will complete the plan in spring 2021.

¹² <https://www.utilitydive.com/news/xcel-energy-unveils-plan-to-serve-15m-evs-by-2030/583428/>

¹³ <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/PublicTransportationsRoleInRespondingToClimateChange2010.pdf>

In August, EDD's Outdoor Recreation Division awarded a \$10,000 grant to Gallup-based non-profit Silver Stallion to fund the Mobile Ride Center. This mobile bike shop, run by a world-class Diné bicycle mechanic, will travel the Navajo Nation, fixing kids' bicycles and promoting sustainable transportation.

LEADING BY EXAMPLE: TRANSPORTATION SECTOR



GSD expects to install 30 EV charging stations on state government campuses in Santa Fe this fall to serve both public and private vehicles. GSD also is building charging stations in Las Vegas and Farmington and exploring other locations around the state to help serve government fleet vehicles. In addition, GSD has already purchased 31 all-electric vehicles for its Motor Pool and will soon establish state government's first statewide price agreement for the purchase of plug-in hybrid electric vehicles. The State Leadership Climate Action Team is developing a proposed policy to restrict GSD and other state agencies from purchasing light-duty vehicles that are powered solely by internal combustion engines. GSD is also compiling data on VMT for each agency to support setting targets for state fleet VMT reduction.

EMNRD is researching legal options for strengthening New Mexico's alternative fuel regulations for state vehicles.

in New Mexico, but given the size of the industry, even at reduced production levels the oil and gas sector will remain the primary source of greenhouse gas emissions in the state. A large portion of these greenhouse gas emissions are methane, which the EPA estimates is 25 times more potent than CO₂ emissions and data from the International Panel on Climate Change show could be as much as 86 times more potent than CO₂ in the short term.¹⁴ The good news is that there are many ways to reduce methane emissions from oil and gas production. This makes reducing methane emissions through a statewide methane regulatory framework the highest priority for New Mexico in this sector.

NMED and EMNRD each regulate different 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 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 practicable" as mandated in Governor Michelle Lujan Grisham's Executive Order 2019-003.

The New Mexico Air Quality Control Act requires NMED to reduce ozone precursors in areas of the state close to exceeding the health-based national ambient air quality standard for ozone. Ozone precursors are volatile organic compounds (VOCs) and oxides of nitrogen (NO_x). The reductions in VOCs will collaterally reduce methane. It is likely that pollution sources outside of New Mexico are causing and/or contributing to elevated ozone levels in the state. NMED is improving its emissions inventory and conducting air dispersion modeling to better understand all pollution sources causing or contributing to the ozone problem and will take all necessary steps to address these emissions. Under the Oil and Gas Act, the Oil Conservation Division (OCD) of EMNRD is charged with preventing

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. Global energy markets and the COVID-19 pandemic have affected oil and gas prices

¹⁴ https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf p. 714

the waste of a salable resource. Under this jurisdiction, the OCD has drafted rules to clearly define venting and flaring of natural gas as a waste and has set annual gas capture percentages to limit the amount of allowed venting and flaring.

Both agencies committed to creating a nationally leading regulatory framework and providing as much opportunity as possible for innovation and cutting-edge technologies to contribute to reducing methane emissions from the oil and gas sector. NMED was the first state environment department in the nation to propose the use of hydrogen fuel cells as an alternative emission reduction strategy. This technology chemically converts hydrocarbons to electricity via fuel cells as an alternative to natural gas flaring. EMNRD created a comprehensive regulatory framework which would require both production and natural gas midstream operations to meet a strong gas capture target. This mechanism creates an umbrella which aims to capture all types of natural gas along the natural gas value chain. It also steers away from prescriptive reduction mechanisms which allows for creativity and innovation amongst operators. The combined NMED and EMNRD draft regulatory proposals would accomplish what no

state has done before: a robust comprehensive and collaborative regulatory framework to reduce methane from the oil and gas industry.

NMED and EMNRD have conducted extensive stakeholder and public outreach to draft these nationally leading rules and will continue to do so as rules are finalized (Figure 10). In 2019, the agencies convened the Methane Advisory Panel for seven technical presentations between September and November to compile information on strategies for reducing methane emissions. Panel members represented industry and environmental groups, and each contributed to one or more presentations and associated reports. NMED and EMNRD compiled this information into a technical report in December 2019 and held two public meetings following its release. Following initial draft rule release in July 2020, the agencies held additional stakeholder and public meetings and will follow standard public input processes once they propose final draft rules. The EIB will hold a hearing for NMED's rules in early summer 2021, and the Oil Conservation Commission will hear EMNRD's proposed rules by early 2021.

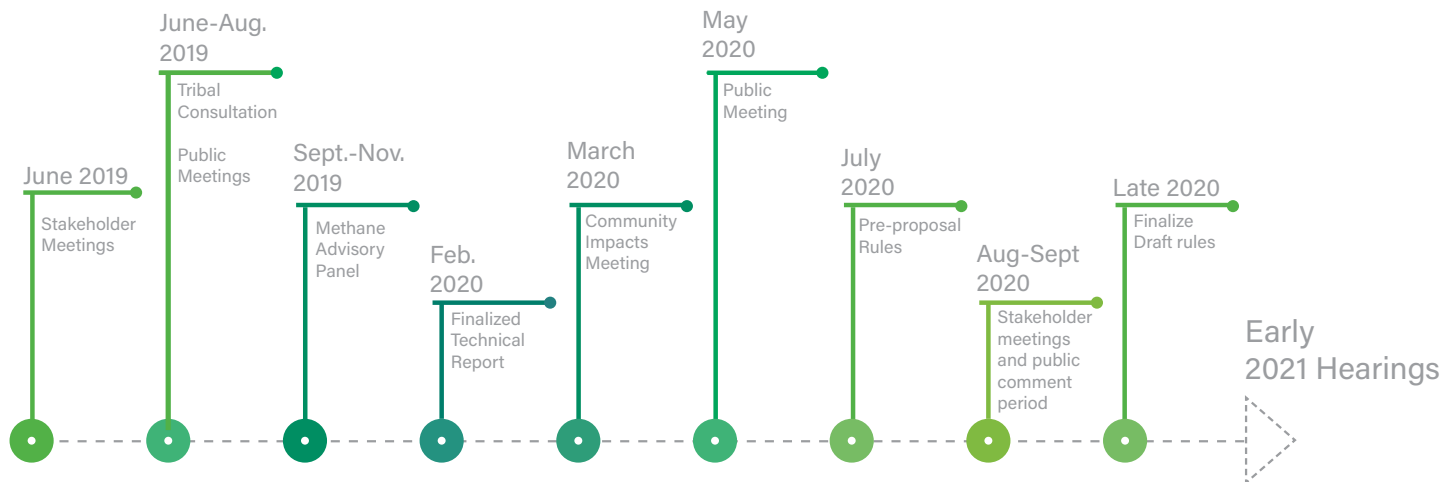


Figure 10. Timeline for Methane and VOC Rulemakings

New Mexico's Regulation and Licensing Department acted in August 2020 to adopt new IECC codes for both residential and commercial buildings, increasing required efficiency levels from the 2009 IECC code levels to 2018 IECC requirements. These updated codes will affect new buildings and major renovation projects permitted after March 24, 2021. The Pacific Northwest National Laboratory estimates that switching from IECC 2009 to IECC 2018 in New Mexico will save a typical single family homeowner over \$400 per year and multifamily homeowners over \$100 per year because of lower energy costs in more efficient new buildings.¹⁵ These efficiencies will also result in significant reductions in greenhouse gas emissions. Updating building codes is a directive under Governor Lujan Grisham's EO 2019-003. The City of Albuquerque also adopted the IECC 2018 code in August.



Hydrofluorocarbon (HFC) Regulations

HFCs are a component of the industrial sector's greenhouse gas emissions profile. HFCs are gaseous compounds used as refrigerants in air conditioning systems and refrigerators, blowing agents in foams, propellants in medicinal aerosols, and cleaning agents. HFCs contain carbon, fluorine, hydrogen, and water vapor. Unlike the generation of refrigerants that preceded them (phased out by the 1987 Montreal Protocol), they do not damage the ozone layer. However, HFCs are powerful greenhouse gases, with a warming potential 1,300 to 3,700 times greater than an equivalent amount of CO₂. Some states, including California, Vermont, and Washington, have set targets to reduce HFC emissions by as much as 40% by 2030. Other states, like New York, Connecticut, and Maryland, are developing rules based on California's regulations.

NMED is writing rules to mitigate HFC emissions, including entirely phasing out the use of HFCs in New Mexico. NMED will hold initial informational public meetings on these regulations starting in summer 2021, petition the EIB in September 2021 to hold a hearing on the proposed rules, and finalize those rules by the end of 2021.

Built Environment Sector

The built environment – buildings, roads, and other structures built by people – is a source of greenhouse gas emissions in two ways: buildings and infrastructure

users consume energy, and construction of these buildings and infrastructure also uses significant energy which produces emissions. The strategies we use to reduce emissions from the built environment will also reduce emissions from other sectors. Energy efficiency and better building codes reduce electricity emissions as well as emissions from heating and cooling buildings. Infrastructure investments, like new road design, creating more pedestrian and bicycle access, and improving our water and wastewater systems, reduce emissions across all sectors.

Energy Efficiency and Building Codes

Energy efficiency – using less energy to accomplish everyday activities – is a way to reduce greenhouse gas emissions from the electricity and built environment sectors without changing how we live our everyday lives.

Adopting and enforcing more efficient energy codes is one of the most effective ways to reduce emissions from the built environment. State building codes set minimum standards for the efficiency of all new buildings and major renovations to older buildings. The International Energy Conservation Code (IECC) releases new codes every three years as building technologies improve and evolve.

Current New Mexico law requires utilities to offer programs to improve energy efficiency in residential and commercial customers' buildings. To complement this existing law, New Mexico must expand the availability of energy-efficient housing and appliances to low-income and disadvantaged New Mexicans. EMNRD

¹⁵ Commercial sector savings are also significant and depend on the size and type of commercial building, e.g. small or large office, retail, grocery, etc.

is identifying the most beneficial energy efficiency program designs through its Financial Resilience through Energy Efficiency (FREE) project. The FREE study is funded by a DOE grant and will use economic and energy modeling to assess potential benefits of different policy tools. EMNRD, in collaboration with stakeholders, will pursue the implementation of the strategies the project identifies upon its completion in late 2020. EMNRD has reviewed options for updating cost-effectiveness methodologies for utility energy efficiency programs ensure this approach is the fairest it can be, bringing energy efficiency upgrades and benefits to more New Mexicans – while saving them money and improving their comfort and health.¹⁶ This research will also inform action following the FREE study process.

Energy efficiency projects are often cost-effective for building and business owners: payback periods can be as short as just a few years. Two of the most common barriers to increased numbers of efficiency projects are a lack of up-front funding and a lack of awareness of the benefits of energy efficiency. EDD is addressing the second barrier with its Rural Efficient Business Program, which will create an outreach and educational series that will increase awareness and understanding of energy efficiency among small businesses in rural New Mexico. EDD is also developing a resource map to help organizations find technical and financial assistance for their energy efficiency projects.

EMNRD will soon educate another important group in New Mexico on energy efficiency: our youth. EMNRD is collaborating with the state Public Education Department to develop, test, and integrate curricula and both in-person and digital modules on this topic into school science programs, starting with material for sixth through eighth grades. EMNRD anticipates presenting curricula and resources to educator focus groups in late 2020 with the goal of school adoption beginning in 2021.

Meanwhile, the State Leadership Climate Action Team is developing resources to educate state employees on actions they can take at work and at home to reduce climate impacts. The team will conduct a survey of employee energy and transportation habits this fall, which will help the team tailor content based on current behavior.

Infrastructure Investments

The way we design and build our infrastructure affects multiple sources of greenhouse gas emissions. Design choices like what type of asphalt to use affect how much energy we use and emissions we produce in building our infrastructure. And urban and regional planning choices, such as where to locate bus stations, bike lanes, and frequently-visited facilities like hospitals and schools, affect how far we travel in cars and thus the amount of gasoline or power we need to get around.

NMDOT used warm-mix asphalt technology for 50% of road projects in New Mexico in 2019. Warm-mix asphalt reduces the fuel needed to heat up asphalt for paving by 15-18%¹⁷ and reduces total CO₂ emissions by between 30% and 40%.¹⁸ 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 to aid in project costs and promote a greener New Mexico.

NMDOT staff are researching incorporating Complete Streets¹⁹ and other sustainability strategies into the agency's Design Manual, following the adoption of the 2045 Plan mentioned above. NMDOT continues to administer several federally funded programs that facilitate the design and construction of multimodal projects at the local and state levels. These programs include the Transportation Alternatives Program and Congestion Mitigation and Air Quality Improvement Program. Program administrators identified opportunities to incorporate greenhouse gas emission

¹⁶ New Mexico currently uses the utility cost test to determine whether energy efficiency improvements are cost effective (and therefore eligible for utility efficiency program funding), which does not account for benefits to participants and ratepayers. Other approaches such as the total resource cost test typically include these benefits, increasing the number of available measures and benefits for participants.

¹⁷ Wang, Hao and Gangaram, Rashmi, 2014. "Life Cycle Assessment of Asphalt Pavement Maintenance. Center for Advanced Infrastructure and Transportation," Rutgers.

¹⁸ NMDOT Research Bureau, 2019, "Field and Laboratory Use of Warm Mix Asphalt, Phase 2," prepared by UNM Department of Civil Engineering.

impacts into several of the application stages for these programs, from project feasibility review to scoring and project selection. This information will be included in the next call for applications in May 2021.

Faced with the public health crisis of COVID-19 and the resulting need to work, learn, and communicate virtually, we see now more than ever the importance of internet access. Many rural New Mexicans cannot get broadband internet service where they live—and not only does that mean driving more to access critical services, but it also limits work and education opportunities amid pandemic-related restrictions. The New Mexico Broadband Program, created to define broadband availability and enhance its adoption, has supported agencies and tribal governments in securing funding from several federal programs for broadband expansion and mobile hotspots to increase access in rural communities. The program has also mapped over 400 hotspots across the state in the New Mexico Broadband Map,²⁰ including at least 45 new locations installed by the Information Technology Disaster Recovery Center in collaboration with the Community Learning Network.²¹



LEADING BY EXAMPLE: ENERGY EFFICIENCY AND BUILT ENVIRONMENT

GSD anticipates substantial completion of its State Buildings Green Energy Project in late 2021, which will reduce electric utility bills by 50% for GSD-owned buildings in Santa Fe. NMDOT and the Department of Workforce Solutions (DWS) also have energy efficiency projects underway at their headquarters that are projected to cut electric consumption from the power grid by more than half. NMDOT estimates completion of its energy project this year and DWS in 2022. The Department of Military Affairs has upgraded energy systems such as heating, ventilation, and air conditioning equipment and lighting in four facilities and has additional projects planned to reduce energy use and reduce overall environmental impacts. The Department of Public Safety is prioritizing efficient and sustainable design in its new State Police building. Across the state, EMNRD's Energy Savings Performance Contracting Program processed over \$120 million in projects in 2019, far above past years' activity (Figure 11).

EMNRD relaunched its Facility and Energy Managers' working group in February 2020 and is working to build a database of energy use in state buildings and share best practices for assessing and managing building energy use with facility management staff across agencies.

¹⁹ 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/>

²⁰ See <https://nmbbmapping.org/mapping/>

²¹ For Community Learning Network and Information Technology Disaster Recovery Center work, see <https://www.communitylearningnetwork.org/itdrc-project-connect.html>

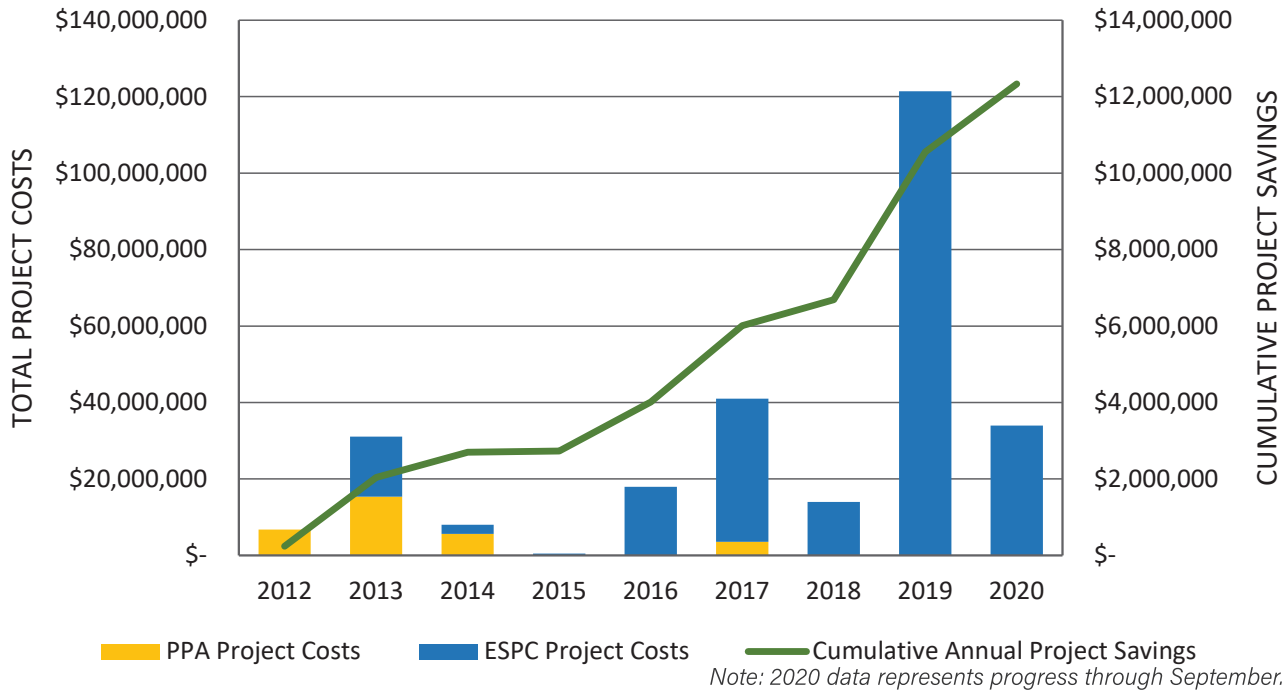


Figure 11. Energy Savings Performance Contracting (ESPC) & Power Purchase Agreement (PPA) Project Costs and Cumulative Annual Savings

Understanding COVID-19 impacts

GSD has had discussions with agencies that are reevaluating their needs for GSD-owned office space and for privately owned office space because of the likelihood that teleworking by at least some state employees will become a permanent government practice and reduce the need for office space. A reduction in state-owned and -leased office space will reduce government buildings' carbon footprint. Teleworking may also reduce motor vehicle emissions because fewer employees will be commuting to work.

EMNRD will offer technical assistance to other state agencies on how to manage building energy use during COVID-19, as many agencies have increased the number of staff teleworking. There are many ways that facility managers can operate buildings to save energy without undertaking big renovation projects, such as using efficient thermostat settings and making sure any lights controlled by timers are using appropriate schedules.

Two agencies have incorporated energy and sustainability into their capital outlay applications this year. The Higher Education Department (HED) has revised its capital outlay process to prioritize projects that use an energy assessment or audit to establish the project scope of work and yield operational savings or otherwise incorporate climate mitigation and adaptation practices, in line with EO 2019-003. The Aging and Long-Term Services Department now requires applications for new buildings and renovations to document proposed energy and sustainability measures, and renovation applicants must document energy audit results or explain the lack thereof.

As the building leasing agent for executive agencies, GSD has also implemented a green leasing program this year. In seeking bids for leased office space, GSD now asks building owners to list measures to reduce environmental impacts. The environmental measures are then scored by a leasing evaluation team.

Improving the technology capability of state agencies can also have sustainability benefits. The New Mexico Department of Information Technology (DoIT), in collaboration with GSD, has begun government-wide implementation of electronic-signature technology, allowing documents to be circulated for virtual signatures in electronic envelopes sent via email. E-signature technology is expected to sharply reduce

paper use and car trips between agencies, since documents will no longer have to be printed and circulated for so-called wet signatures. GSD and DoIT will also complete transformer upgrades for the Simms Building, which houses DoIT, this fall, helping to cut the building's energy use by about 50 percent. DoIT is assessing whether agency data centers outside of Simms should be relocated to Simms, in part to save energy.

Natural and Working Lands Sector

Reducing emissions alone won't achieve New Mexico's greenhouse gas reduction goals. CO₂ can remain in the atmosphere for up to 200 years once emitted—unless another process removes it. Removing CO₂ from the atmosphere is known as sequestration. Our forests, grasslands, and agricultural lands have a large part to play in absorbing CO₂ as we work towards fewer emissions. We must also reduce emissions produced from these natural and working lands – for example, by reducing wildfire risk and managing our forests through prescribed burns.²²

Greenhouse gas emissions reductions from natural and working lands climate strategies can be variable, depending on local conditions and long-term land management practices. New Mexico is partnering with Colorado to guide a study by The Nature Conservancy to improve emissions reduction and sequestration potential estimates and refine inventory methods—how we track our progress—for these strategies in our region. Having this state-specific resource will help the New Mexico Department of Agriculture (NMDA) and EMNRD's Forestry Division, along with partners,

prioritize the most effective natural and working land policies and practices for reducing greenhouse gas levels in New Mexico.

Forests

EMNRD's Forestry Division submitted its 10-year Forest Action Plan update to the US Forest Service in October 2020. This plan is central to how the Forestry Division manages state forest resources, and the 2020 update centered climate adaptation and mitigation approaches. It established numerous long-term goals that will improve the sequestration capacity of state forests, including the three described here.

The first goal is to reduce wildfire risk by enacting landscape-scale fire mitigation treatments and use the biomass removed from forests through these treatments in low-carbon bioproducts. Mitigation treatments include removing undergrowth from forests which could increase fire risk and intensity. Treating forests at a landscape scale means focusing on entire ecosystems and watersheds instead of individually owned properties. To achieve this long-term goal, EMNRD's Forestry Division will:

- Prioritize and leverage funding sources to maximize forest treatments that align with statewide greenhouse gas mitigation on natural and working lands;
- Establish planning and funding requirements from federal funding sources for land management objectives that comply with New Mexico's 2020 Forest Action Plan, stewardship plans or similar plans that validate the prioritization of projects and funding which integrate climate mitigation and adaptation; and
- Set a strategy and timeline for low-carbon biomass utilization project opportunities and seek Farm Bill funding to support these projects, product development, technology

²² Prescribed burns are fires set and controlled intentionally by forest managers, mimicking low-intensity fires that would have occurred naturally without human fire prevention measures. Fire is an important part of forest ecosystems in many regions, including New Mexico, and prescribed burns reduce the amount of flammable material that could increase the intensity of uncontrolled forest fires.

implementation, and business support to industry. This includes coordinating between collaborative agencies and other organizations prior to project implementation.

The second goal is to create reforestation policies and planting strategies that anticipate forest conditions in 2090 and determine how to prioritize reforestation planting areas across New Mexico's landscapes. The Forestry Division will use existing science and expert advisors to develop a state strategy to collect, grow and incorporate drought tolerant plants in reforestation efforts. It will also use science to determine where lands burned by wildfire have microsites favorable for seedling survival. This strategy will design and establish future carbon sinks and provide guidance for sister divisions and agencies to use for tree planting. For example, EMNRD's Mining and Minerals Division will align its mine reclamation reforestation work with the Forestry Division's strategy.

The Forestry Division is also establishing policies and programs to give private landowners the ability to conduct prescribed burning on private lands as recommended by the working group for House Memorial 42 passed in 2019. The working group submitted its report to the Legislature in June 2020 with recommendations for "right to burn" legislation that would clarify prescribed fire liability, establish a training and certification program, and provide guidelines to ensure consistency of local permitting for ignition of prescribed burns.

In addition to the Forestry Division's work, NMED coordinates with other government agencies to evaluate burn severity and suggest best management practices to reduce erosion and improve stream health. Post-fire actions reduce sedimentation, which then reduce impacts to water quality and protect aquatic habitat. In 2019, NMED participated in the planning, provided comments, and attended public hearings on the Cibola, Santa Fe and Carson U.S Forest Service (USFS) National Forest Plans.

EMNRD's Forestry Division is allocating over \$6.9 million of capital outlay and Department of Game and Fish Pittman-Robertson Act funding across 32 contracts for restoration projects to improve climate change resilience in fiscal years 2020 and 2021. Contract recipients are local New Mexico small businesses and tribal organizations. The division has also awarded over \$1.5 million in federal funding for hazardous fuel reduction, restoration, and landscape scale treatment projects.

In 2021, NMED will assist or provide information to the USFS and the Forestry Division in the development of post-fire action plans, such as Burned Area Emergency Response plans. Within two years of any major wildfire occurring in the watershed of one or more streams with a cold water or cool water aquatic life designated use, with severity outside the natural range of variability for the affected forest types, NMED will fund post-fire actions that reduce sedimentation and protect aquatic habitat, with support of Clean Water Act Section 319 watershed project funds. In 2021, NMED will seek to develop projects that address impacts of wildfire and will also award priority points when evaluating applications for Section 319 projects that address water quality impacts caused by wildfire.

In 2021, NMED will also encourage pre-wildfire protection efforts by providing information related to water quality and forest condition when reviewing funding proposals under the Forest and Watershed Restoration Act and Water Trust Board funding programs, and when reviewing Forest Plans required

by the National Environmental Policy Act, as a means of preventing impacts to water quality from unnaturally intense wildfire.

Source water protection planning can facilitate on-the-ground protection efforts for drinking water sources that may be impacted by wildfires. NMED's Source Water Protection Program is building climate resiliency strategies into source water protection plans for public water systems. These strategies will help drinking water managers and stakeholders identify and mitigate vulnerabilities to infrastructure damage and contamination in areas susceptible to wildfires.

Agriculture and Grasslands

NMDA has several programs and partnerships supporting climate solutions in the agricultural sector and in grassland management.

Through its Healthy Soils Program, launched in 2019, NMDA is partnering with New Mexico State University's Cooperative Extension Service (NMSU Extension) to conduct education and outreach on best management practices established by the Natural Resource Conservation Service (NRCS) for agricultural producers. NMSU Extension focuses on providing practical, research-based knowledge and programs to New Mexico residents, and NRCS is a program within the U.S. Department of Agriculture focused on providing farmers and ranchers with financial and technical assistance to improve conservation and agricultural operations.²³ This partnership will also explore ways to incentivize these practices, which can enhance carbon sequestration, and encourage Healthy Soils Program projects to work with NRCS to develop carbon farm plans. Since changing farming practices can result in short-term financial losses, the program also aims to cover forgone income related to these changes. NMDA is also leveraging its existing relationships with Resource Conservation and Development Councils and Soil and Water Conservation Districts to expand

outreach and education efforts.

NMDA and NMSU Extension will also use this outreach to increase awareness of soil health principles in New Mexico's ranching community to prioritize climate-focused grassland management strategies that bolster natural resource resilience and carbon sequestration. Healthy native plant communities can retain and sustain the soils that they occupy through extensive fibrous root systems which hold topsoil in place and add organic matter to the soil profile. In contrast, the large majority of noxious/invasive weed species root below the topsoil. As a result, sites occupied by noxious weed species demonstrate increased potential for soil erosion and degradation. NMDA is working with private landowners through New Mexico's Cooperative Weed Management Areas (CWMAs), which partner with federal, state, and local land managers, to improve native plant communities through noxious and invasive species management.

To properly value the contributions natural and working land management practices can make to our greenhouse gas emissions reduction goals, we need to better understand how they affect the amount of carbon in the soil and the atmosphere. NMDA and the NMSU Extension are identifying partners and support to develop science-based inventory methods for understanding how land produces and absorbs carbon. Over the next five years, this effort will create a working lands data repository, using data collected on the ground and with remote sensing imagery to assess and document factors such as land use and land cover, primary and cover crop types, and soil type and moisture content.

Once these data are available, it will be easier for individual natural and working landowners to participate in carbon markets. While New Mexico does not currently have a state carbon market program or participate in a regional market, many national and international organizations coordinate carbon offset

²³ For more information on NMSU Extension, see <https://extension.nmsu.edu/>. For more information on USDA's NRCS program in New Mexico, see <https://www.nrcs.usda.gov/wps/portal/nrcs/site/nm/home/>.

markets. NMDA is working with partners to educate landowners and agricultural producers on how to participate in and benefit from these markets.

2020 House Bill 146 Expand Biomass Income Tax Credit and Reporting extended the income tax credit of \$5.00 per wet ton of biomass produced and sold for use in electricity generation or biofuel production and created reporting requirements for EMNRD. The tax credit could help reduce emissions from the agricultural sector by turning manure into usable biofuel.

Cross-Sector Emissions Reductions

As directed in the Governor's Executive Order, NMED and EMNRD are evaluating the adoption of a comprehensive market-based program that sets emission limits to reduce carbon dioxide and other greenhouse gas pollution consistent with the objective of achieving a statewide reduction in greenhouse gas emissions of at least 45% (compared to 2005 levels) by 2030. We are evaluating comprehensive market-based program options and will design and implement the most efficient and cost-effective approaches to meeting our climate targets. Our evaluation includes coordinating with neighboring states as well as those that are already implementing market-based programs, and this will be a priority area for stakeholder engagement in 2021.



Market-based Programs

Market-based programs are typically variations on cap-and-trade programs, which set an upper limit on total emissions and establish a market where emitters can purchase rights to emit greenhouse gases. This approach relies on market forces—supply (limited by the declining cap) and demand (driven by the production of greenhouse gases)—to determine the price of emitting greenhouse gases. When compared to traditional forms of regulating air pollutants, cap-and-trade programs provide flexibility to choose the most economically efficient means for achieving greenhouse gas emission reductions. Cap-and-trade was used successfully to address acid rain pollution nationwide.

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

The trade: For some companies it is cheaper or easier to reduce their emissions below their required limits than others. These more efficient companies, who emit less than their allowance, can sell their extra permits to companies that are not able to make reductions as easily. This creates a system that guarantees a set level of overall reductions, while rewarding the most efficient companies and ensuring that the cap can be met at the lowest possible cost to the economy.²⁴

Market-based programs have been shown to be an effective complement to other pollution control programs and clean energy policies. Examples of market-based programs include the economy-wide approach of the Western Climate Initiative led by California, multi-sector approaches like the EU Emissions Trading Scheme, and single-sector approaches like the Regional Greenhouse Gas Initiative (RGGI)²⁵ and the U.S. Acid Rain Program.²⁶ Market-based programs are often either national in scope or implemented by more than one jurisdiction because larger transaction pools make them more effective.

²⁴ Center for American Progress. <https://www.americanprogress.org/issues/green/news/2008/01/16/3816/cap-and-trade-101/>

²⁵ RGGI is a program created by a group of Eastern states in 2009 that limits CO2 emissions from power plants.

²⁶ The US Acid Rain Program is a national program that limits SO2 emissions from power plants, administered by the EPA since the 1990s.

ADAPTATION AND RESILIENCE

New Mexico's climate strategy goes beyond our ambitious work to reduce greenhouse gas emissions levels. The state is also investing in adaptation to an increasing risk of climate-related emergencies, such as wildfires and flash flooding, and cultivating a resilient, clean economy that uplifts New Mexico's communities.

Adapting to our changing climate and ensuring New Mexico's urban, rural, and tribal communities' resilience through adaptation takes effort in many areas. Economic resilience requires a diverse and robust economy that benefits communities and residents statewide. Maintaining public health requires adapting our education and support services related to climate-related health risks. Building physical resilience requires thinking about climate risk when building or repairing our infrastructure and investing in our natural resources—land and water—that can provide valuable ecosystem services. Ecosystem services are benefits that wildlife and ecosystems provide to people, such as healthy forest root systems' ability to limit erosion and flooding.²⁷

In every facet of our climate adaptation and resilience work, we must choose solutions that sustain New Mexico's long-standing cultures and rich cultural heritage and meet individual community needs. Our state agencies are working hard to identify what hazards climate change will bring to different parts of our state, how vulnerable different communities are based on current resources, and how to work with local and tribal governments to mitigate the effects of these hazards on our residents. EMNRD is hiring a new Resilience Coordinator to support collaboration on these efforts across agencies.

Climate Risk Mapping

To better understand how climate change may affect communities across the state—and what tools and investments communities will need to adapt to these risks—EMNRD has contracted with the Earth Data Analysis Center at the University of New Mexico to develop a climate risk map. For each climate hazard, such as heat, wildfire, or drought, the map will identify where risks are greatest, and include demographic and economic data that indicate how sensitive a community could be to those risks and what adaptive capacity exists to respond should a climate-related emergency occur. The initial project will result in a web-based tool with reporting capabilities aimed at state, local, and tribal government staff looking to assess their climate resilience needs. EMNRD will also seek opportunities to fund follow-on efforts to develop a public-oriented mapping tool and integration of dynamic modeling that could illustrate changes in potential risk based on climate change forecasts.

Economic Transition

Economies around the world have felt the impacts of the COVID-19 pandemic. Businesses and organizations have been forced to adapt to remote work, social distancing, and managing personal protective equipment for staff and customers. In New Mexico, the drop in global oil prices resulting from lower fuel demand during pandemic-related travel restrictions, as well as international energy market dynamics, reduced state revenue significantly. This is a stark reminder of our state's financial reliance on the oil and gas industry.

²⁷ The National Wildlife Federation. Ecosystem Services. Retrieved from: <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services>

As we work through this pandemic and look ahead toward achieving our climate goals, economic diversification has never been more important. New Mexico needs a variety of economic sectors and a growth in businesses to successfully transition to a diversified economy powered by clean energy. Economic diversification will drive more sustainable and steady economic growth and create jobs for our communities. Governor Lujan Grisham has identified nine priority industries that will build on New Mexico's strengths and diversify our economy, including areas directly connected to climate action, such as sustainable and green energy and sustainable and value-added agriculture.

2020 House Bill 8 Electric Generating Facility Economic Districts enacted economic development support for a just transition in the area near the Escalante Generating Station, a coal-fired power plant. Tri-state Generation and Transmission Association, the owner of the plant, announced in January that the plant will close by the end of 2020.

Getting New Mexicans back to work takes both economic growth in these industries—which generates jobs—and providing workforce solutions that help match individuals' skills and training to pathways to those jobs (Figure 12). For example, building enough solar and wind farms to meet our clean energy goals will increase opportunities to work in New Mexico's renewable energy industry. Throughout this transition, we must ensure that communities have a voice in economic development and access to inclusive workforce development programs. EMNRD, the State Land Office (SLO), the Indian Affairs Department (IAD), and EDD will also collaborate on strategies to minimize negative effects of our growing renewable industry on cultural properties and sites across our landscape and consult more closely with nations, tribes, and pueblos during this transition.

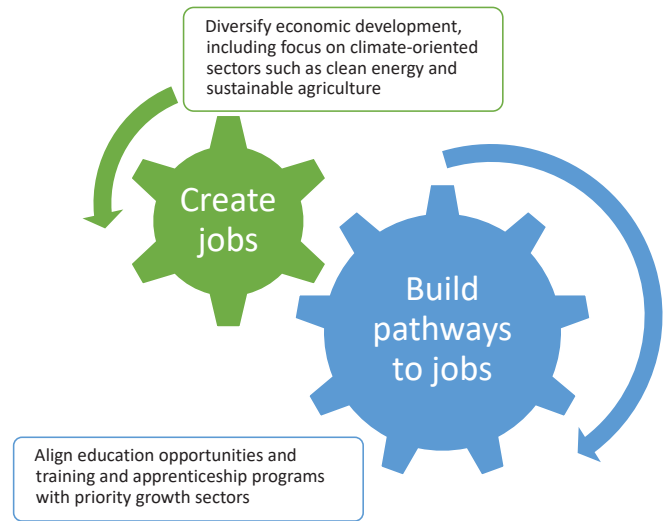


Figure 12. Economic Transition Strategy

Economic Development: Creating Diverse, High-Quality Jobs

EDD has been awarded funds from the federal Economic Development Administration to develop a comprehensive statewide economic development strategy which will include both COVID-19 recovery and long-term economic diversification. Through this grant, EMNRD will also receive funds to hire an Energy and Economic Diversification Coordinator who will collaborate with EDD on these efforts. EDD's financial programs prioritize supporting companies that offer high-paying jobs, helping ensure job quality as emerging sectors grow.

The Tourism Department (NMTD) is expanding its Clean & Beautiful program to inventory, grow and elevate awareness of sustainable tourism, voluntourism and eco-tourism opportunities in New Mexico in key target markets. NMTD is also working with other agencies and partners to gather and share data and perspectives that can inform policy decisions aimed at minimizing the ecological footprint of the tourism industry.

GSD, through its State Purchasing Division, will promote New Mexico green business growth through its sustainable procurement program, to be launched by early 2021. The program will encourage state and local government purchases of green products such as recycled copy paper, low-energy-use electronics, and environment-safe janitorial products. GSD is designing the program with the assistance of masters' students studying sustainable purchasing at Arizona State University.

EDD has supported several clean energy companies through its programs:

The Job Training Incentive Program has awarded over \$1 million to clean energy companies between fiscal years 2019 and 2021. This funding will support almost 100 jobs in New Mexico.

The Local Economic Development Assistance program has awarded over \$4.7 million, creating 229 jobs, to Sceye and LaSen, Inc., both of which will help assess emissions from pipeline leaks.

The Catalyst Fund provided \$50,000 to Osazda Energy LLC to develop research in solar cells for photovoltaic systems, and Integrated Solar Technology and Mountain Vector Energy each received \$2,000 Innovation Vouchers

In response to **2020 House Memorial 9 State Investment Office Renewable Energy Strategic Plan**, the State Investment Office is developing a strategic plan to guide the State Investment Council to make investments that will strengthen New Mexico's renewable energy industry. SLO, EDD, IAD, NMED, EMNRD, and RETA are contributing to the plan.

prepare students for opportunities available in New Mexico's emerging low-carbon economy. DWS has used virtual town hall forums to hear from businesses about their recruiting and training needs. State agencies also recognize that a climate workforce needs to extend beyond the renewable energy industry: EMNRD's Forestry Division has identified extensive workforce needs related to wildfire prevention, forest restoration, and native plant seed banks and nurseries.

DWS is applying for the Re-imagine Workforce Preparation Grant, a CARES ACT-funded program focused on short-term job training for in-demand occupations and entrepreneurship development. The agency is collaborating with postsecondary institutions and local workforce development boards on the proposal and expects to request \$15 million. If awarded, this would provide another opportunity for low-carbon industries—as growing and priority sectors—to fund expanded workforce programs.

Workforce Solutions: Building Pathways to Jobs

The state is taking several steps to make sure New Mexicans have educational and apprenticeship pathways to these jobs.

The DWS' Economic Research and Analysis Division is analyzing data on what types of workers each region of the state needs. This data will help local workforce boards develop regional economic recovery plans and make sure our schools and higher education institutions

No matter their background, all New Mexicans should be able to participate in the growing sectors of our economy. The New Mexico Corrections Department (NMCD) is partnering with the state AmeriCorps program to create a Workforce Development Specialist position responsible for working with individuals on probation and parole and will incorporate renewable energy career pathway information into this work. NMCD is also assessing its capacity to expand program offerings and trainings that align with state climate priorities and partnering with higher education institutions and DWS to expand inmate training

DWS approved the first solar apprenticeship program in the state this summer. This program will help train New Mexicans in solar installation on the job, growing our solar workforce. The Energy Transition Act includes apprenticeship quotas for all utility-scale renewable energy developers. DWS will use a state apprenticeship expansion grant to increase current and future state apprenticeship programs with a focus on underrepresented populations and program diversification.

opportunities related to the clean energy industry. EMNRD's Forestry Division established its Los Lunas Inmate Work Camp program to provide inmate labor for the Division's natural resources work and give inmates job skills training related to timber thinning, forest health, natural resource project implementation, and fire management. The program encourages participants to pursue careers in natural resource management after their release from incarceration. Through these programs, work beneficial to the citizens of New Mexico is performed on public lands that otherwise could not be accomplished due to lack of resources.

New Mexico's colleges and universities also help cultivate a workforce with the skills to build a clean economy. HED has collected information on New Mexico institution programs focused on clean energy, greenhouse gas reduction, and sustainability, and will compile and post this information on its website in 2021. Four community colleges in the state have on-site clean energy projects installed or planned to give students hands-on experience. Santa Fe Community College has a microgrid on site and is expanding curriculum related to microgrids, clean energy, and building energy automation technologies. Southwestern Indian Polytechnic Institute plans to establish a solar farm on campus that will serve as a testbed for training workers to maintain solar farms remotely. Mesalands Community College plans to add solar

power to campus in a micro-grid configuration and teach micro-grid technology and controls, and already has an operational wind turbine available for hands-on components of its Wind Energy Technology program. Central New Mexico Community College (CNM) is building a 1.3 MW solar array at its westside campus and integrating sustainability into its curriculum through its "campus as a living laboratory" approach. Through the CNM Ingenuity program, students can work directly with solar installers.

Climate education can happen outside of university and college campuses: EDD's Outdoor Recreation Division launched its Outdoor Equity Fund this year and has received over 80 applications for programming, all of which will include a climate change educational element. This will help build awareness of climate change, which could help drive more New Mexicans to careers in this space. Legislation in 2019 established the Outdoor Recreation Division, which also launched a Special Project and Infrastructure fund to support projects that enhance communities' outdoor recreation opportunities. This program explicitly rewards applications with an intent to reduce or mitigate the effects of climate change, or otherwise advance conservation priorities.

2020 House Bill 304 Transfer Outdoor Equity Grant Program transferred the administration of the Outdoor Equity Grant program from the Youth Conservation Corps Commission to EDD's Outdoor Recreation Division, whose mission aligns with the program, and made an appropriation to staff the program. The revived program launched this summer and has received 80 applications already.

Public Health

The Department of Health (DOH) has continued to adapt the Centers for Disease Control and Prevention's (CDC's) Building Resilience Against Climate Effects (BRACE) framework through its New Mexico Climate and Health Adaptation Work Group. The iterative steps of the BRACE framework are as follows:

1. Identify health conditions that are projected to worsen
2. Estimate the additional burden of disease
3. Identify locations and populations most at risk for negative health effects
4. Identify interventions for public health adaptation to mitigate negative health effects of climate change
5. Implement and evaluate the impacts of the interventions

Over the next year, this work group will develop a plan for adapting DOH efforts to protect human health in the face of climate change. These efforts include:

- Developing a Climate Vulnerability Index to identify populations in New Mexico who are at highest risk of experiencing adverse health effects due to climate change;
- Collaborating with behavioral health experts to evaluate the impact of climate change on mental health;
- Developing evaluation metrics for each aspect (Heat, Water, Air Quality, Vector Borne Disease) of the BRACE plan; and
- Developing an extreme heat annex for incorporation into the DOH Emergency Operations Plan.

DOH will also update and continue to disseminate heat-related illness prevention messaging, and NMED's Occupational Health and Safety Bureau has begun

to conduct preliminary research to support public outreach and data collection to propose state Heat Injury and Illness standards by 2023.

COVID-19 has put a spotlight on the importance of air quality for public health. Preliminary research suggests that people living in areas with more air pollution are more likely to die from COVID-19 than those who live in areas with less air pollution.²⁸ DOH is evaluating the health impacts to New Mexicans from worsening air quality due to climate change. The goal is to identify and implement best practices to mitigate and provide adaptive health behaviors to protect against the effects of poor air quality. Because wildfire smoke is a driver of poor air quality, the team is working to develop methods to visualize wildfire smoke-impacted areas to display on the DOH website (<https://nmtracking.org/fire>).

DOH is also developing a plan to assess and address the health impacts of drought and flooding on New Mexico residents. This effort will include researching the health and environmental impacts of produced water reuse outside the oil and gas industry, methods for assessing drought impact on drinking water infrastructure, and harmful algal bloom exposures. These findings will be integrated into the BRACE plan by June 2021. In subsequent years, DOH will identify interventions to control hazards and improve access to safe drinking water for public and small community water systems.

²⁸ <https://www.hsph.harvard.edu/news/hsph-in-the-news/air-pollution-linked-with-higher-covid-19-death-rates/>

Emergency Management and Infrastructure Resilience

Climate science tells us that natural disasters such as drought, wildfires, extreme heat, and flash flooding will become more frequent and severe. These events can damage our infrastructure and communities, as well as our health (described in the previous section) and our natural resources (see next section). The New Mexico Department of Homeland Security and Emergency Management (DHSEM) continues to address the impacts, vulnerability, and proposed mitigation actions for 14 natural hazards in the State Natural Hazard Mitigation Plan, which analyzed climate change impacts and vulnerability for the following natural hazards; drought, wildfire, flooding, extreme heat and land subsidence. An interagency committee will update the State Natural Hazard Mitigation Plan beginning in 2022 and will expand the climate change impacts, mitigation, and adaptation actions sections. DHSEM will integrate resilience information into the State Natural Hazard Mitigation Plan update, in coordination with EMNRD and the Planning Team.

Many New Mexico county governments, municipal governments, and tribal entities have their own hazard mitigation plans, some of which address climate change. These plans are updated every five years. The State Natural Hazard Mitigation Plan will include a summary of new climate change mitigation and adaptation actions identified in these local plans.

Other agencies with significant physical infrastructure are incorporating climate risk into their operations. NMDOT has undertaken a climate vulnerability assessment to identify roads, bridges, and other facilities and infrastructure in high risk zones that are economically and socially critical and will allow the agency to prioritize maintenance and develop

contingency plans if a high-risk zone is damaged in a weather event such as flooding. This assessment will be complete this winter. The agency is also incorporating green stormwater infrastructure guidelines into its Stormwater Manual. Green infrastructure uses cost-effective, resilient approaches to managing stormwater impacts that provide community benefits. It uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and create healthier urban environments. This allows us to use stormwater to support plant life, which helps buffer the effects of stormwater surges and pollutants on our river systems, recharge aquifers, mitigate urban heat island effects, and improve aesthetics for the traveling public. Once these updates are complete in December 2020, the team will develop an inventory and GIS database for green stormwater infrastructure elements and develop and implement training for NMDOT maintenance staff on maintaining green infrastructure by the end of 2021. GSD, which owns and operates many agencies' facilities, is working with DHSEM to identify GSD-owned properties in floodplains by June 2021.

New Mexico is home to many sites with cultural and historic significance, many of which may be threatened by a changing climate. Flash flooding and erosion can damage indigenous sacred sites and other older structures and the landscapes where they reside. Increasing temperatures and aging infrastructure can make both historic buildings and the museums that house artifacts and documents more difficult and expensive to maintain. The Department of Cultural Affairs (DCA) is assessing the climate risks related to preservation of cultural sites and collaborating with IAD and SLO to improve coordination with nations, tribes, and pueblos on these assessments. SLO is increasing its transparency regarding access to cultural properties on state lands and working with nations, tribes, and pueblos to inform preservation strategies by

implementing a tribal consultation policy and a cultural properties rule. IAD is developing a ten-year plan to ensure all tribal nations have their own Tribal Historic Preservation Offices by 2031 and supporting already-extant offices.

Climate change will affect each agency differently. DHSEM will provide training for agencies interested in preparing Continuity of Operations Plans which address how critical operations will continue under a broad range of circumstances such as natural, technological, or human-caused hazards. Continuity of Operations Plans address emergencies from an all-hazards approach, including those associated with climate change. DHSEM anticipates launching these trainings in the spring of 2021, continuing as interest demands. EMNRD will support this effort through its new Resilience Coordinator position.

In addition to developing tools to support local climate risk assessments such as the state climate risk map project mentioned above, EMNRD is supporting the Earth Data Analysis Center (EDAC) at UNM on a FEMA Cooperating Technical Partner (CTP) Special Project to collect community hazard mitigation plans across the state and compile them in a centralized database of natural hazards and impacts. This work will be an opportunity to build and strengthen relationships with local and Tribal partners and identify climate resilience planning needs.

EDAC, as the FEMA state CTP, has also proposed mapping state-owned structures in the FEMA-mapped floodplains to identify risk. Through this proposal, EDAC would work with DHSEM and the General Services Division Risk Management Division to create a map that would identify the flood zone for each state owned building identified as a critical facility in the State Natural Hazard Mitigation Plan.

Water and Natural Resource Resilience

Water is essential to our way of life in New Mexico – our economy, cultural traditions, and ecosystems depend on secure surface and groundwater resources. The challenges of managing scarce water supplies in our arid landscapes will be magnified by a changing climate.

Climate change will impact New Mexico's water supplies through frequent and longer droughts, altered patterns of precipitation and snowmelt, increased evaporation, and historically unprecedented wildfires. These risks threaten domestic and municipal water supplies, water system infrastructure, agricultural needs, and the natural waters and ecosystems that draw many visitors to New Mexico's great outdoors.

Agencies focused on water resources are working to identify and determine how to respond to these threats and foster water resilience in our state through innovative and collaborative approaches informed by sound science. The Office of the State Engineer (OSE) continues to move forward with its statewide Active Water Resource Management (AWRM) initiative. The OSE currently administers AWRM shortage sharing principles – guidance for sharing water during drought conditions – in the Chama, Nambe-Pojoaque-Tesuque, and Gallinas AWRM basins, and is working on District Specific Regulations (DSRs) for other statewide basins.

Improving Water Data Availability and Accessibility

Baseline information about water supplies is essential to state and local climate change resiliency efforts. In 2021, NMED, with a focus on water quality and water and wastewater utility resiliency, will continue coordinating with the OSE, the New Mexico Bureau of Geology and Mineral Resources (NMBGMR), and other experts to advance ongoing efforts to gather and integrate water supply and water quality

In 2019, New Mexico enacted the Water Data Act to identify, share, and integrate key water data. The legislation has launched the Water Data Initiative, a multiyear effort of communication and collaboration among the NMBGMR, OSE, Interstate Stream Commission, NMED, and EMNRD and others collecting or managing water data for the state. The goal is for users to be able to find, access, and use water data and related information, including water quantity, water quality, and water use. Water data topics include water quality, water quantity, water use, climate, energy, ecosystems and wildlife, natural hazards, water planning, and infrastructure.²⁹

data. Staff of the OSE Water Resources Allocation Program are developing increasingly sophisticated tools for measuring and monitoring water resources and cooperating with the U.S. Geological Survey in monitoring groundwater levels throughout the state. NMBGMR continues to implement the Aquifer Mapping Program³⁰ and serves as the project lead for the Water Data Initiative,³¹ which will advance other climate change resiliency planning and implementation in the water sector by building a strong foundation of data about existing water supplies and climate change-related trends.

OSE continues to install surface water metering stations and digitize Water Rights files—including many up to 100 years old—into the Water Administration Technical Engineering Resource System (WATERS) database. Having this data in digital format will preserve the information held in these deteriorating documents and make critical information for implementing AWRM, such as types of water rights and when they were first used, more accessible to OSE staff and the public.

NMED collects data to determine if surface water quality standards are being met. A water quality standard defines the water quality goals of a water body by designating the use or uses to be made of the water, such as drinking water, recreation, wildlife, and agriculture. Policymakers, community planners, researchers and other can use this type of data to assess how climate change is affecting the water quality of potential drinking water sources. The ongoing work of the Water Data Initiative will make water quality data more accessible and integrated with other water data for climate change mitigation and resiliency activities at the regional, state, tribal and local level.

The OSE's Water Use Program inventories surface and groundwater withdrawals and depletions by category, county, and river basin and maintains water-use databases and analyzes crop, weather, and water-use data. Governor Lujan Grisham has charged the OSE to develop a 50-year plan to manage New Mexico's water resources and allow for more flexibility in managing water supplies and infrastructure in the face of weather extremes brought on by a changing climate. The OSE also chairs the Drought Task Force (DTF), which oversees the implementation of drought-preparedness activities in the State of New Mexico. Following the DTF's recommendations from the 2018 New Mexico Drought Plan, the OSE is conducting an Economic Impact Assessment to identify sector-specific economic impacts of the 2017-2019 drought. The quantified estimates of these impacts will guide future drought mitigation efforts.

Addressing Climate Impacts to Drinking Water Sources

Source water includes drinking water supplies—rivers, lakes, reservoirs, springs, and groundwater—that are vital to everyday life in New Mexico. The Safe Drinking Water Act amendments of 1996 required NMED to develop source water assessments for each public

²⁹ <https://newmexicowaterdata.org/about/>

³⁰ <https://newmexicowaterdata.org/>

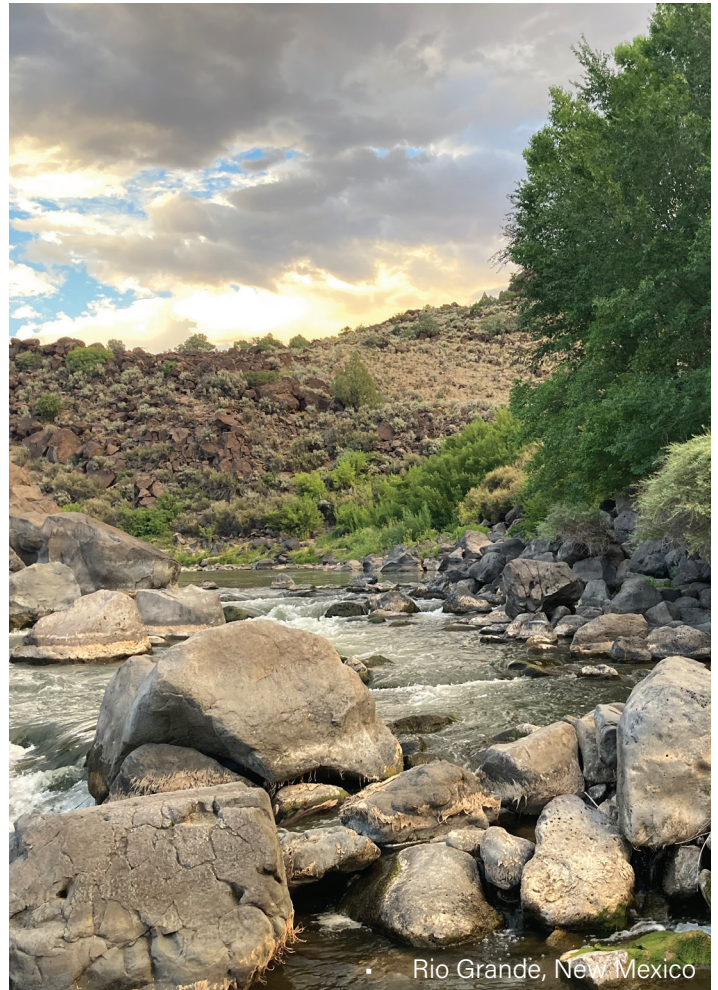
³¹ <https://geoinfo.nmt.edu/resources/water/amp/home.html>

water system in the state and establish a program dedicated to protecting source waters. NMED's Source Water Protection Program is taking action to address climate-related risks to source waters by collaborating with water systems to develop protection plans that identify infrastructure and contamination threats before they occur. Such risks arise from destructive post-wildfire debris flows and degraded water quality where the natural dilution of contaminants is diminished by dwindling surface water flows. Source water protection plans also provide mitigation strategies that water systems can implement to proactively safeguard against these threats, ensuring that clean and safe drinking water continues to be delivered to New Mexicans under a changing climate.

In 2020, NMED inventoried existing source water protection plans that address climate risks to drinking water supplies and identified public water systems located in communities with Firewise USA® status and/or Community Wildfire Protection Plans. Water systems and infrastructure in these communities benefit from well-organized plans and responses to wildfire threats. NMED is currently standardizing the inclusion of climate-related threats and mitigation strategies in future source water assessments and protection plans.

Building Climate Resiliency Through Surface Water Action Plans

To improve and restore watershed condition, which increases climate resiliency, NMED, through EPA-issued Clean Water Act grants, oversees the development of Watershed Based Plans and Wetland Action Plans as well as state and federally funded restoration and improvement projects for surface waters. Watershed and wetland planning addresses water quality problems in a holistic manner by fully assessing the potential contributing causes and sources of pollution, then prioritizing restoration and protection strategies to address these problems. The on-the-ground projects that result from the plans increase watershed resiliency to climate change and wildfires by increasing and improving wetland and riparian habitat and functions. These habitats are critical in restoring and maintaining the quality of our surface waters, especially when confronting climate change. For example, NMED funded a project using Clean Water Act Section 319



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funding in Mora and San Miguel Counties. The Hermit's Peak Watershed Alliance, with their ranching partners, restored 85 acres of riparian and floodplain vegetation, fenced 155 acres of riparian areas to keep out livestock and wildlife, and thinned 200 acres of ponderosa pine forest. This project resulted in improved water quality by reducing nutrient and sediment delivery into the Mora River and reduced the risk of wildfire by thinning the forest.

Local Climate Resiliency Through Infrastructure Loans to Communities

Statutory and regulatory changes in 2018 and 2019 broadened the eligible types of projects and borrowers that could utilize the Clean Water State Revolving Loan Fund program, resulting in a wider range of eligible programs that can assist in mitigating climate

change impacts. Newly eligible projects include energy efficiency and renewable energy sources for wastewater utilities, water efficiency projects designed to reuse wastewater effluent, thus reducing the use of potable water resources, green infrastructure, and water conservation. Proposed changes to the Priority Ranking System used to score projects for 2021 and beyond will include points for projects that will include a climate vulnerability assessment and projects that address climate change threats to infrastructure.

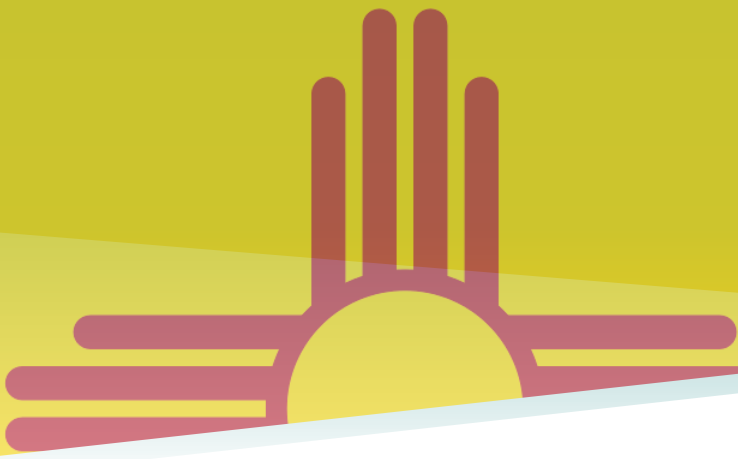
Encouraging Climate Resiliency Through Permitting Conditions

NMED issues water quality certifications under Section 401 of the Clean Water Act, ensuring that discharges into our water supply will comply with state law and regulations. In a federal permit certification, NMED

has the opportunity to add conditions that a permittee must meet to protect water quality. In the coming year, NMED will consider adding conditions to address climate resilience, such as requirements for the facility to implement best management practices that best mimic natural conditions and maintain/improve riparian and wetland functions and/or effluent limits that account for climate change (e.g., droughts and dilution capacity). Through federal permit certifications and state groundwater discharge permits, NMED will also take action, when appropriate, to increase water recycling and re-use to conserve freshwater resources.



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MOVING NEW MEXICO FORWARD

The Climate Change Task Force has made significant progress on the directives of EO 2019-003 and goals identified in the 2019 New Mexico Climate Strategy Report. Recent data analysis shows that these efforts are moving us towards our 2030 emissions goals—and that we have more work to do.

As we continue to identify new strategies for reaching our emissions goals and making our communities more resilient to the changing climate around us, it is critical for the Task Force to continue engaging with our stakeholders and the public. EMNRD and IAD, with support from SLO, are identifying ways to improve state-tribal collaboration specific to climate change mitigation and adaptation. The Task Force will support the integration of “NM TRUE” and “Keep NM True” messaging in climate change priorities, focusing on cultural and land use entities in the state. This will broaden awareness of state climate efforts and highlight their importance to maintaining the natural and cultural resources valued by New Mexicans and our visitors.

With support from the U.S. Climate Alliance, the Task Force is working with the Consensus Building Institute to develop a public engagement strategy for the Climate Change Task Force. The purpose of this engagement will be to prioritize emerging focus areas, drive action, and mobilize support for the climate strategies that will get us to our emissions reductions goals and build resilience in our communities. The strategy will formally integrate equity priorities into climate action and leverage the sector-specific Climate Action Teams to reach stakeholders across New Mexico. Identifying ways to increase our ambition in the transportation sector, our second largest source of emissions, and defining next steps towards possible market mechanisms for New Mexico will be key goals, along with learning from communities statewide about their climate adaptation needs.

Over the coming months, each Climate Action Team within the Task Force will work with stakeholders to generate and assess new strategies that can help our state meet our emissions reduction goals and improve New Mexico’s resilience in the face of climate change with a focus on equity.

Looking ahead, in 2021 New Mexico will accomplish additional directives under EO 2019-003 and develop new legislative and policy initiatives to help meet our statewide climate goals. We will continue to expand our science-based approach to emissions reductions and will deepen our public outreach with equity as a priority. Together, we can build a cleaner, safer, and healthier New Mexico.

**FURTHER INFORMATION ON NEW MEXICO’S ONGOING CLIMATE WORK CAN BE FOUND AT:
[CLIMATEACTION.STATE.NM.US](https://climateaction.state.nm.us)**

Abbreviations & Acronyms

AWRM	Active Water Resource Management	NMDOT	New Mexico Department of Transportation
BRACE	Building Resilience Against Climate Effects Framework	NMSU	New Mexico State University
CDC	Centers for Disease Control	NMTD	New Mexico Tourism Department
CNG	compressed natural gas	NMTRD	New Mexico Tax and Revenue Department
CO ₂	carbon dioxide	NOx	Nitrogen Oxides
CORWest	EV Corridors of the West	OCD	Oil Conservation Division of the Energy, Minerals and Natural Resources Department
CWMA	Cooperative Weed Management Area	OSE	New Mexico Office of the State Engineer
DGF	New Mexico Department of Game and Fish	PNM	Public Service Company of New Mexico
DHSEM	New Mexico Department of Homeland Security and Emergency Management	PRC	Public Regulation Commission
DMA	New Mexico Department of Military Affairs	NM RETA	New Mexico Renewable Energy Transmission Authority
DOH	New Mexico Department of Health	REV	Regional Electric Vehicle Plan
DoIT	New Mexico Department of Information Technology	RGGI	Regional Greenhouse Gas Initiative
DWS	New Mexico Department of Workforce Solutions	RLD	New Mexico Regulation and Licensing Department
ECMD	Energy Conservation and Management Division of the Energy, Minerals and Natural Resources Department	RPS	renewable portfolio standards
EDD	New Mexico Economic Development Department	SLO	New Mexico State Land Office
EIB	Environmental Improvement Board	UNM	University of New Mexico
EIM	Energy Imbalance Market	USFS	United States Forest Service
EMNRD	New Mexico Energy, Minerals and Natural Resources Department	VMT	vehicle miles traveled
EPA	United States Environmental Protection Agency	VOC	volatile organic compound
ESPC	energy savings performance contract	WCI	Western Climate Initiative
EV	electric vehicle	WIRED	Western Interconnect Regional Electricity Dialogue
GHG	greenhouse gas	ZEV	zero-emission vehicle
GSD	New Mexico General Services Department		
HFCs	hydrofluorocarbons		
IAD	New Mexico Indian Affairs Department		
IECC	International Energy Conservation Code		
LEV	low-emission vehicle		
LPG	liqued propane gas		
MMT	million metric tonnes		
MW	megawatts		
NCSP	National Community Solar Partnership		
NMED	New Mexico Environment Department		



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

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Sonya Carrasco Trujillo

Department of Health

Heidi Krapfl

Stephanie Moraga-McHaley

Department of Information Technology

Annette Curley

Department of Transportation

Bill Hutchinson

Blake Roxlau

Jessica Griffin

Joseph DeLaRosa

Michael Sandoval

Paul Sittig

Sky Tallman

Todd Howell

Department of Public Safety

Katharina Babcock

Mark Shea

Department of Veterans' Services

Gabrielle Sanchez-Sandoval

Department of Workforce Solutions

Ricky Serna

Economic Development Department

Johanna Nelson

Axie Navas

Energy, Minerals, and Natural Resources Department

Adrienne Sandoval

Alyssa Latuchie

Carmelita Austin

Carmen Rose

Colleen Baker

Daren Zigich

David Griego

Erin Taylor

Harold Trujillo

Holland Shepherd

Jacqueline Waite

John Busemeyer

Laura McCarthy

Lindsey Quam

Lois Pedro

Louise Martinez

Mark Gaiser

Nedra Murphy

Susan Rich

Todd Leahy

Environment Department

Abraham Franklin

Elizabeth Bisby Kuehn

Jill Turner

Justin Garoutte

Kerwin Singleton

Rebeca Roose

Rhonda Holderman

Shelly Lemon

Wendy Pierard

Office of the Governor

Victor Reyes

General Services Department

James P. Chavez

Ken Ortiz

Thom Cole

Higher Education Department

Gerald Hoehne

Thomas Schawel

Human Services Department

Jodi McGinnis Porter

Kristin Abdill

Indian Affairs Department

Aurora Martinez

Eldred Lesensee

Kalee Salazar

Nadine Padilla

Office of African American Affairs

William Scott Carreathers

Office of the State Engineer

John Romero

Jonathan Martinez

Julie Valdez

Lucia Sanchez

Public Education Department

Alexis Alvarez

Katarina Sandoval

Susan Chadoir

Renewable Energy Transmission Authority

Brian Johnson

Fernando Martinez

Regulation and Licensing Department

Marguerite Salazar

Martin Romero

State Land Office

Jeremy Lewis

Rachael Lorenzo

Sunalei Stewart

State Personnel Office

Marko Satarain

Sandy Martinez

Tourism Department

Antoinette Vigil

Saba Ijadi

Taxation and Revenue Department

Emily Oster

Workers Compensation Administration

Loretta Lopez

Trey Flynt