



# **NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT**



## **2007 ANNUAL REPORT**

# Energy, Minerals and Natural Resources Department

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**V**ision: A New Mexico where individuals, agencies and organizations work collaboratively on energy and natural resource management to ensure a sustainable environmental and economic future.

**M**ission: To position New Mexico as a national leader in the energy and natural resources areas for which the Department is responsible.

Natural

# Contents

Message from Secretary Prukop . . . . .	4
Organizational Charts . . . . .	5
Energy Conservation and Management Division	6
Forestry Division . . . . .	22
Mining and Minerals Division . . . . .	30
Oil Conservation Division Accomplishments . .	50
New Mexico State Parks Division . . . . .	60
New Mexico Radioactive Waste Consultation Task Force/WIPP Transportation Safety Program . . . . .	68
Youth Conservation Corps . . . . .	70

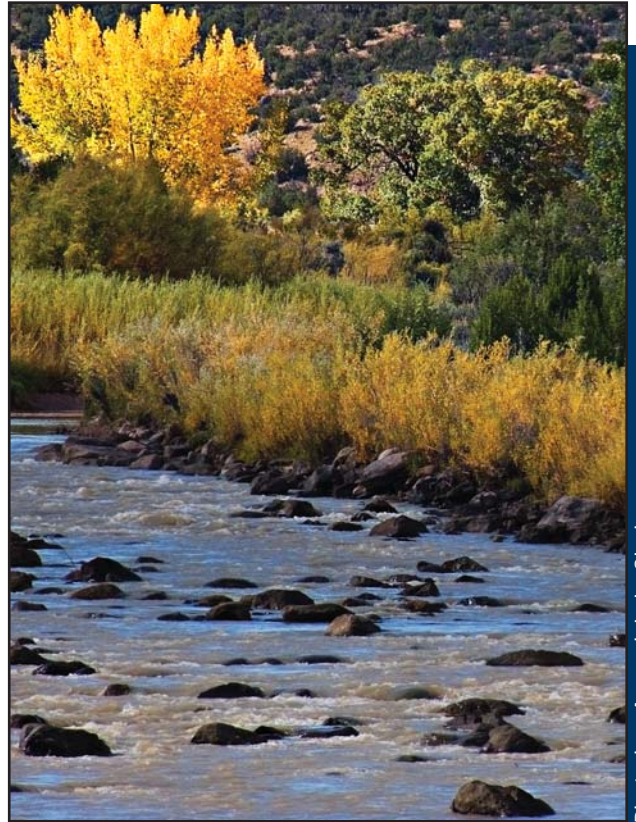


Photo by: Anne deLain Clark

# Resources

# Joanna Prukop

## Cabinet Secretary



## Energy, Minerals and Natural Resources

### *A Message from Cabinet Secretary Joanna Prukop*

President Theodore Roosevelt once said, "The nation behaves well if it treats natural resources as assets which it must turn over to the next generation increased, and not impaired, in value." During his presidency, Roosevelt encouraged the most efficient planning, analysis and use of water, forests and other natural resources. His vision of conserving our nation's resources for the long-term is as important today as it was during his presidency 100 years ago.

Realistic natural resource conservation in today's world calls for a commitment to protect and wisely manage our resources while understanding the need to develop a reliable supply of energy.

We, at the New Mexico Energy, Minerals and Natural Resources Department, focus on four main areas: the development of reliable supplies of energy and energy efficient technologies and practices, with a balanced approach toward conserving both renewable and non-renewable resources; ensuring the protection of the environment and responsible reclamation of land and other resources affected by mineral extraction; growing healthy, sustainable forests and managing them for a variety of users and ecologically sound uses; and improving the state park system so that it protects New Mexico's natural, cultural and recreational resources for posterity while contributing to a sustainable economy statewide.

This past year was no exception. As in previous years, the dedicated staff at the New Mexico Energy, Minerals and Natural Resources Department approached their jobs with vigor and clarity to implement our mission. As you examine these pages, I think you'll be impressed by their level of performance, commitment to excellence and the way their achievements highlight our department's ideals.

Public support enables us to achieve our department's mission and build on our vision, moving always toward a future of greater achievement, excellence and distinction.

I am pleased to submit the Energy, Minerals and Natural Resources Annual Report, which includes our 2007 accomplishments and our 2006 resource data and statistics.



**"New Mexicans are choosing renewable energy at home, making our state the number one per capita user of wind energy in the nation."**



Governor Bill Richardson

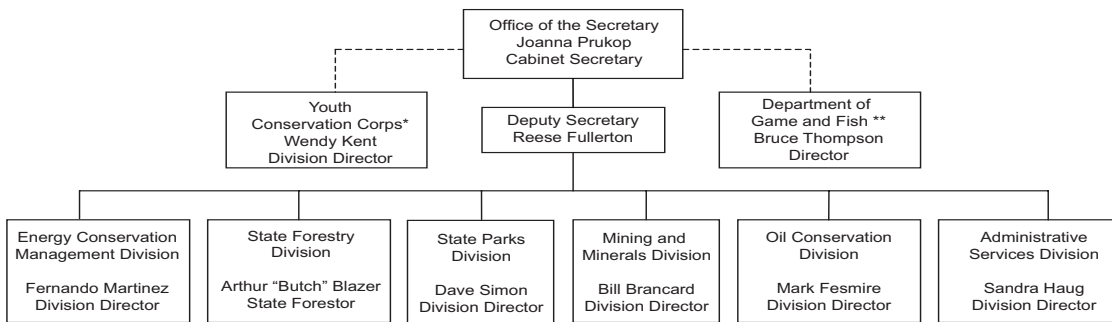
# Organization

## Charts



Photo by: Anne deLain W. Clark

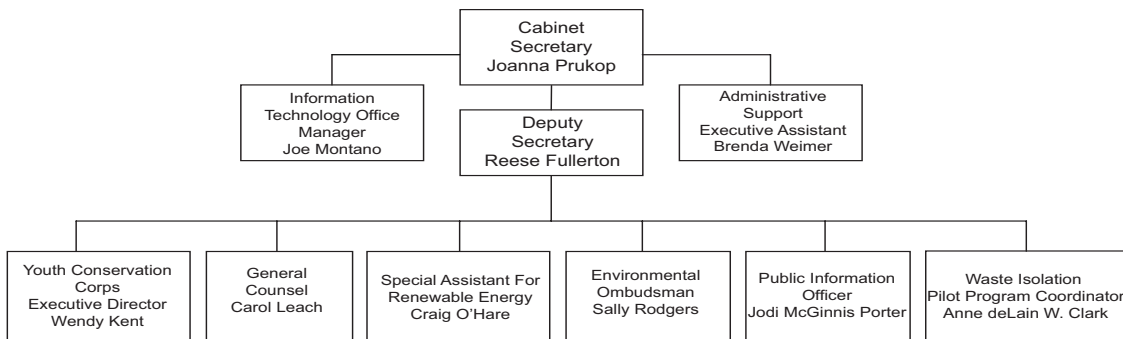
### Energy, Minerals and Natural Resources Department



\*Administratively Attached

\*\* Administratively Attached. No direct budget support from EMNRD

### Office of the Secretary



# **Energy Conservation and Management Division (ECMD)**





## Fernando Martinez

Division Director



## Energy Conservation and Management Division

### *A Message from Division Director Fernando Martinez*

For the “Clean Energy State” and the Energy Conservation and Management Division, 2007 was an especially historic year for advancing clean energy initiatives. Governor Richardson, the Legislature, state agencies, citizens, businesses and industry partnered in the passage of a dozen clean energy bills during the 2007 Legislative Session.

Our division played a key role in that legislative effort and in implementing programs in its support. Effective clean energy programs are vital in the march toward greater energy security and increased conservation and efficiency across all sectors of our state’s economy. Our programs also encourage new ways to make conventional energy sources cleaner for our homes, vehicles and businesses and reduce the amount of climate-changing greenhouse gases they produce. Successful implementation of renewable energy, energy efficiency and conservation, and efficient transportation and clean fuels programs brings economic growth and diversification that protects and conserves New Mexico’s natural resources for generations to come.

Through a combination of new standards and incentives, New Mexico has made big investments in its world-class renewable resources. From solar to wind, biomass, biofuels and green building, new standards and incentives support renewable energy and energy efficiency measures to reduce electricity costs and greenhouse gas emissions, and conserve water at the same time. Check our website at [www.CleanEnergyNM.org](http://www.CleanEnergyNM.org) for complete information and call us for assistance; we’re here to help.

In an innovative and bold move to stimulate clean energy production and create high paying jobs, capital investment, and greater economic development in rural areas, Governor Richardson and the 2007 Legislature established the nation’s first Renewable Energy Transmission Authority focused on developing new transmission projects to promote renewable energy. Our state already exports power, and the Renewable Energy Transmission Authority will lead the charge by building the energy transmission infrastructure to meet future in-state electricity demand and to export more of New Mexico’s world class renewable energy resources to neighboring states. New Mexico can and will provide clean energy to supply an even greater demand created by New Mexico and neighboring states requiring utilities to produce more power from renewable resources.

New Mexico has the resources and the potential to produce hundreds of times more clean energy than it currently produces. ECMD is committed to work diligently to help ensure that New Mexico continues to be a national leader in the “New Energy Economy” and to helping its citizens enjoy the benefits of clean energy in their daily lives. Join us on the path to environmental and economic sustainability. We can all make a difference in our energy future.



# Energy Conservation and Management Division

**Mission:** The Energy Conservation and Management Division (ECMD) develops and implements effective clean energy programs - renewable energy, energy efficiency and conservation, clean fuels and efficient transportation - and promotes environmental and economic sustainability for New Mexico and its citizens.

## Accomplishments:

New Mexico is a leader in our nation's clean energy economy. This past year our state adopted a dozen clean energy bills with innovative tax incentives and ambitious standards designed to utilize New Mexico's abundant renewable energy resources. The U.S. Department of Energy ranks New Mexico first among all states by declaring that it produces more than seven percent of its total retail electricity sales from wind farms already in place. Our state ranks second in the nation for solar resources. The Energy Conservation and Management Division worked with Governor Bill Richardson and New Mexico legislators to position our state to become a powerhouse in the rapidly evolving clean energy economy of the 21st century. This year was the most productive year in passing new legislation and accomplishing our mission to promote environmental and economic sustainability.

**Clean Energy Legislation Adopted in 2007:** New Mexico passed a dozen clean energy bills during this year's legislative session. Two bills represent landmark clean energy legislation: the creation of the Renewable Energy Transmission Authority and increases to the Renewable Portfolio Standard. This legislation positions our state to competitively develop its vast renewable solar and wind energy resources and export clean energy to other states.

The Renewable Energy Transmission Authority focuses on developing new transmission projects to promote renewable energy. It is the first of its kind in the nation. Its projects will position New Mexico to become extremely competitive in all aspects of clean energy development and the benefits that come with it.

The Renewable Portfolio Standard complements the Renewable Energy Transmission Authority by requiring New Mexico's major utilities to produce more of their electricity from diverse renewable sources. Increased use of

renewable energy not only creates jobs, stimulates the economy and protects our health and environment; it also helps protect New Mexico consumers from higher electricity rates caused by volatile natural gas prices.

Other legislation passed includes amendments to the Renewable Energy Production Tax Credit including incentives for utility-scale generation of wind, solar and biomass facilities; tax credits for "green buildings"; a new sales tax exemption for solar energy equipment; standards for biodiesel use; and incentives for biodiesel facilities and energy equipment manufacturers.





In summary, 2007 was a successful year for clean energy legislation, with passage of the following:

- Renewable Energy Transmission Authority
- Renewable Energy Production Tax Credit Amendments
- Renewable Portfolio Standard Increase
- Sustainable Building Tax Credits
- Energy Efficiency and Renewable Energy Bonding Act Amendments
- Alternative Energy Product Manufacturers Tax Credit
- “Solar-Ready Roofs” Act
- Solar Covenants Legislation
- Gross Receipts Tax Exemption for Solar Energy Systems
- Biodiesel Standards Act
- Biofuels Infrastructure Tax Incentive
- Advanced Energy Tax Credits Act



**Programs:** ECMD oversees and implements the state’s clean energy program. This is accomplished by managing and administering various plans that reduce energy use, including the Renewable Energy Program, the Energy Efficiency in Buildings Program, and the Clean Fuels and Efficient Transportation Program. These programs encourage new ways to make traditional energy sources cleaner and reduce the amount of climate-changing greenhouse gases they produce.

**Renewable Energy Program:** Renewables lessen our dependence on fossil fuels and foreign oil. This program promotes the development and production of solar, wind, biomass and geothermal energy. Tax credits, clean energy grants and energy innovation funding provide incentives for the advancement of the use of these resources. These incentives, combined with data collection, funding studies and research, all play a pivotal role in the successes and accomplishments achieved in this program as described below.

**Solar:** New Mexico boasts world-class solar energy, ranking second in the nation, with the potential to provide 1,000 times more energy than Public Service Company of New Mexico’s current demand. New transmission in



our state would allow the export of large quantities of clean energy. Advancements in solar energy production are possible thanks to strong state leadership willing to focus on solutions that provide real world incentives for citizens, businesses and schools.

New Mexico’s Solar Market Development Tax Credit benefits homeowners, businesses and agricultural entities that install solar photovoltaic (PV) or solar heating

systems. Up to \$5 million in state government tax credit support is available annually through 2015. Since its inception in 2006, \$3.4 million has been invested in solar installations; of that, \$687,000 in state solar credits was used to leverage \$303,000 in federal tax credits. Ninety-eight solar PV systems producing 253 kilowatts (Figure 1) and 70 solar heating systems generating 4.76 million British Thermal Units (BTUs) per day (Figure 2) have been installed.

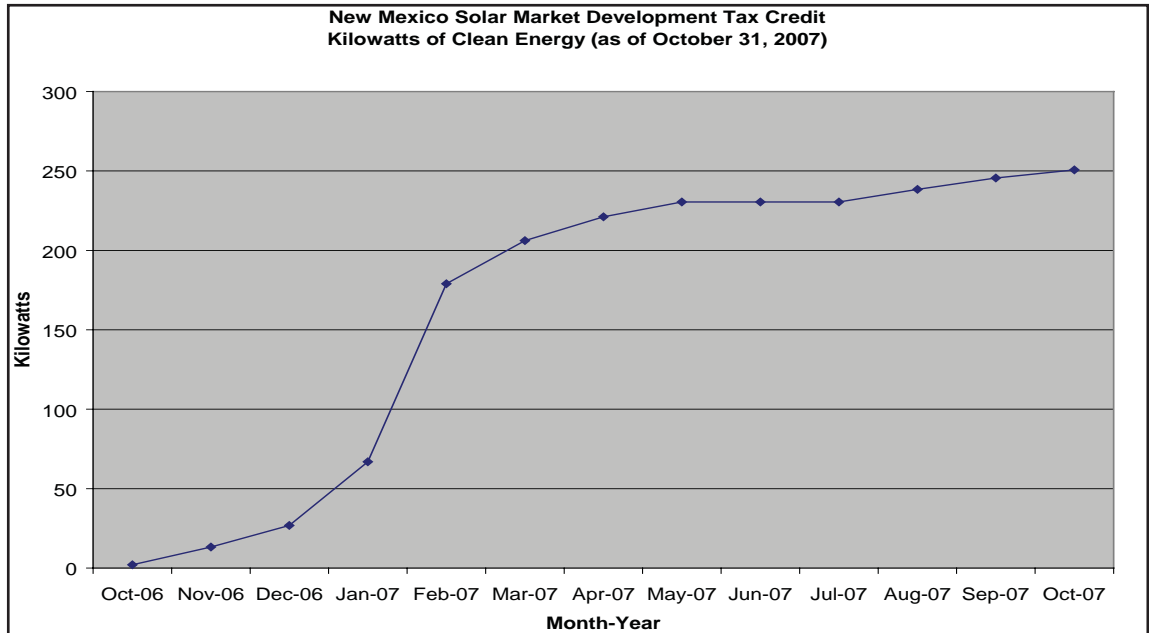


Figure 1

The Schools with Sol Program funded 25 solar systems in public schools statewide including solar water heating and solar PV systems. These systems provide teachers with additional tools to demonstrate solar energy concepts and its benefits to New Mexico's youth.

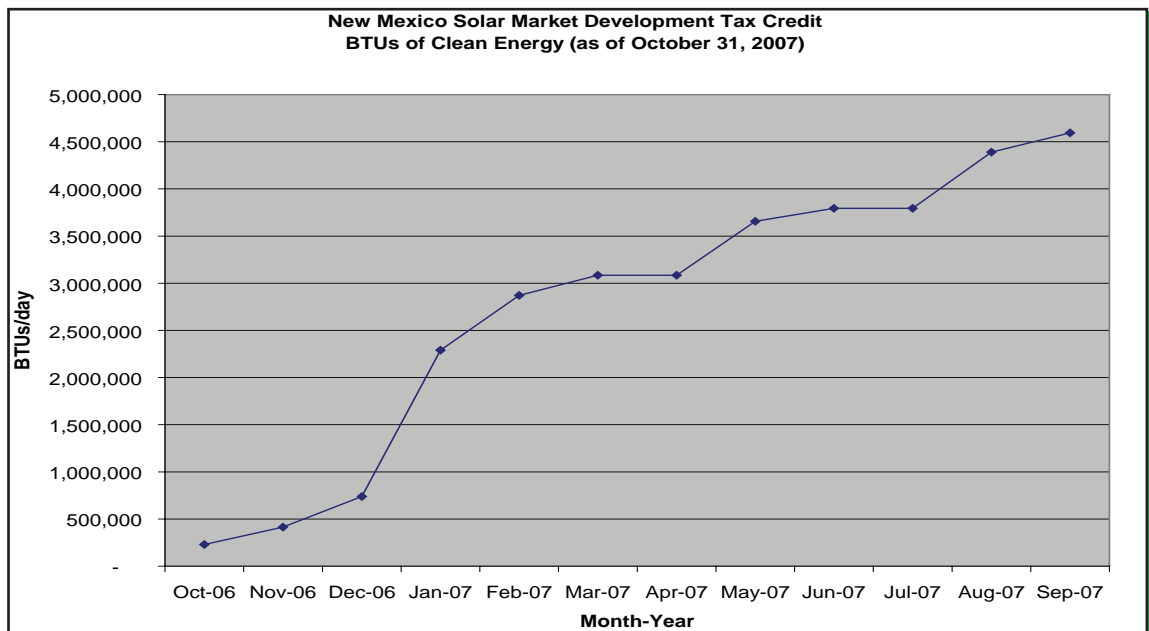


Figure 2



New Mexico State University (NMSU) built an 18-kilowatt PV parking structure for its Student Health Center. A state clean energy project grant and NMSU's Southwest Technology Development Institute provided the funding for the center. This utility grid-tied system converts the sun's energy into electricity for NMSU, with annual emission reductions of over 111 pounds of nitrogen oxides, 77 pounds of sulphur dioxide and 52,000 pounds of carbon dioxide.

The Energy Innovation Fund accelerates innovative development of clean energy technologies and provided funding for two other solar projects at the university level and one solar project at a pueblo in New Mexico. NMSU, in collaboration with HelioDynamics, Inc., and the City of Albuquerque, received \$280,000 (plus an additional \$50,000 from a clean energy project grant) to install a solar combined heat and power system at the Albuquerque Sunport to provide space cooling, space heating and electricity derived from solar energy to displace energy currently obtained from fossil fuel sources. The University of New Mexico, in partnership with SkyFuel, Inc., received \$226,000 to develop innovative and advanced parabolic trough components for utility-scale concentrating solar power projects. Also, Pueblo of Pojoaque, in partnership with Solarec, Inc., received \$363,000 for development of the SOLAREC™ process. The process uses solar energy collected with a solar concentrator dish system to split carbon dioxide into carbon monoxide and oxygen. The carbon monoxide is then used to produce hydrogen from a reaction with steam. The hydrogen can be stored and later used to power a fuel cell to produce more electricity.

**Wind:** New Mexico's potential for electricity generation from wind is enormous, especially on the eastern plains. Estimates place New Mexico's annual wind energy potential at 435 billion kilowatt-hours. Our state could produce many times its own electrical consumption, putting it in a position to export more wind power. ECMD's wind power program provides key data and funding, and participates in joint studies that perform a critical role in the development of New Mexico's wind power.

A 100-meter-tall wind monitoring tower located southwest of Tucumcari provides high quality wind data to developers. The tower, along with data collected from eight other promising sites, monitors trends in wind speed. This information is instrumental in the development of utility-scale wind farms and further commercial development.

Knowledge of wind capacity and where it is located is critical to attracting new wind developers to our state. ECMD provided valuable wind data for a study conducted by the National Renewable Energy Laboratory to determine how much wind and solar power can be integrated into the grid in the southwest. ECMD, partnered with the National Renewable Energy Laboratory, contracted TrueWind Solutions, LLC, to produce a high resolution wind map (page 15) of the state using the latest wind speed tracking techniques.

A clean energy project grant provided by ECMD helped fund a preliminary study for Mesalands Community College to evaluate the possible purchase of a 1.5-megawatt wind turbine. Thanks to this study, Governor Richardson and the legislature appropriated \$2 million to help finance the wind turbine for Mesalands and its North American Wind Research and Training Center. The turbine is expected to provide clean electricity generation using wind power, which will offset emissions that would otherwise be generated by its use of conventional electricity, as well as offset or completely pay for Mesalands' electricity requirements.

**Biomass:** Dairy manure and forest thinnings have the potential to provide affordable renewable energy. New Mexico dairies produce more than 1.1 million tons of manure annually. The potential of converting dairy manure into energy is a winning solution for reducing waste, avoiding groundwater contamination and reducing greenhouse gas emissions. Forest thinnings reduce wildfire danger and promote healthy forests, while providing a fuel resource for biomass boilers. Through funding, research and program management, ECMD saw progress in the biomass component of its renewable energy program in 2007.

NMSU received federal funds managed by ECMD to construct a two-stage anaerobic bio-fermentation unit to reduce dairy waste. The process produces methane gas to power a 40-kilowatt engine/generator, and compost for soil amendment and for use at a commercial greenhouse operation, thereby mitigating air and water pollution problems. In addition, this project received an Energy Innovation Fund award of \$120,000, in collaboration with Sierra Vista Growers and Gonzales Dairy, to address the increasing number of confined animal operations along the New Mexico-Texas border and to support gas production from dairy manure in an existing unit operating in Chamberino. The project will create a model for replication throughout the region.

ECMD manages projects that use wood biomass boilers for heating public schools, hospitals and community centers in areas where small-diameter, thinned trees can provide fuel. Wood biomass projects include the Jemez Mountain Schools and Fort Bayard Veterans Hospital projects. The Jemez Mountain Schools completed the first full year of operation of its wood biomass hot water boiler that heats a portion of its 161,000 square foot campus in Gallina. The school consumes approximately 1,500 tons of wood thinned from northern New Mexico forests per season, thereby reducing propane costs. Using wood as a fuel source lessens fossil fuel dependence, reduces wildfire danger and promotes healthy forests. The project includes forest restoration in 300 acres of the Mesa Poleo Wildland Urban Interface area in the Santa Fe National Forest. The state's first wood biomass project of its kind serves to demonstrate the feasibility of large-scale biomass plants.

Fort Bayard Veterans Hospital's 150-horsepower wood biomass steam boiler system is scheduled for completion through leveraged federal funding secured by ECMD. Located in Grant County and listed on the National Register of Historic Places, the hospital houses a long-term care facility along with other medical and social services. The steam boiler system uses wood chips and was designed to replace an existing natural gas boiler. It will provide heat for the hospital and laundry, reduce wild fire hazard by removing more than 1,000 tons of wood thinnings from the Gila National Forest annually, and save on natural gas costs.

**Geothermal:** New Mexico's geothermal resources have been used commercially for more than 100 years, originally with spas and resorts. In the last 25 years, geothermal applications were utilized for a broader range of direct use developments for water and space heating. During this time, ECMD and NMSU collaborated on a

number of geothermal development projects. NMSU constructed a geothermal research and business incubator facility to host greenhouse and aquaculture facilities. As a direct result of these efforts, New Mexico leads the nation with more than 50 acres of geothermally-heated commercial greenhouses and also has one of the largest geothermal aquaculture facilities. Recent drilling in the southwestern portion of the state has identified an electric power production geothermal resource where a 25-megawatt project is under development and is expected to produce enough renewable electric power for over 15,000 average households annually.

New Mexico is a true national leader in renewable energy development and will continue to encourage and provide incentives for further advancement. The Renewable Energy Production Tax Credit provides incentives for solar, wind and biomass power projects. Other incentives include Industrial Revenue Bond financing that provides relief from property taxes, and the Gross Receipts Tax Exemption for certain renewable energy projects.

**Energy Efficiency in Buildings Program:** When considering climate change, dependence on foreign oil and conserving energy, it is important to recognize that buildings are responsible for 48 percent of all U.S. energy consumption and related greenhouse gas emissions. New Mexico is leading the fight against global climate change at the state level by addressing energy consumption in its buildings. This program lays the foundation for the future by providing training, implementing newly enacted legislation, and stimulating interest in sustainable design and construction.

Leadership in Energy and Environmental Design (LEED®) is a nationally-recognized standard for measuring building sustainability in commercial construction. Achieving LEED® certification is the best way to demonstrate that a building project is truly “green.” LEED® certification requires building commissioning and a third-party verification process that offers compelling proof that a project has achieved environmental goals and will perform as designed. Obtaining this certification provides the opportunity to take advantage of state and local government incentives.

Training green building professionals boosts our state’s expertise and creates a professional infrastructure that is knowledgeable about sustainable design and construction. An ECMD clean energy grant provided the funding to produce a *How-To Guide to LEED® Certification for New Mexico Buildings* to assist building design project teams pursuing a LEED® project for the first time, thereby reducing the learning curve and streamlining the process for state or non-state building projects.

The groundwork for the New Mexico Sustainable Building Tax Credit began in 2004 and the legislation finally passed in 2007. It is the first tax credit in the nation that extends and expands federal tax credits that encourage private sector design and construction of energy efficient, sustainable buildings for commercial and residential use. The tax credit is based on LEED® certification and an aggressive energy reduction goal with the credit amount based on the qualified occupied square footage of the building and the sustainable building rating achieved.

This past year the New Mexico legislature awarded \$4 million to the Public School Facilities Authority for public school projects that increase energy efficiency. The High Performance (HiP) Schools task force was created to address energy efficiency in public schools. It will monitor future projects to assure the goals are pursued and the results are used to shape future school projects.



The Efficient Use of Energy Act potentially commits more than \$20 million per year in utility-provided energy efficiency incentives to residential and commercial sectors in New Mexico. Our state is living up to its emerging reputation as the Clean Energy State by embracing energy conservation and using clean energy in our homes and communities.

Energy efficiency in New Mexico's buildings is an investment in our future. Green sustainable buildings use less energy, provide better indoor environmental air quality and conserve water, and their use of sustainable materials preserves finite resources. For all of these reasons, the Energy Efficiency in Buildings Program strives to encourage New Mexicans to embrace energy conservation and efficiency measures and green building practices.

**Clean Fuels and Efficient Transportation Program:** This program strives for reduction in the use of fossil fuels and New Mexico's dependence on imported oil. The program supports ride-sharing and public transportation projects, development of clean fuels and new legislation that promotes the use of biofuels. This program helps New Mexico citizens save money by promoting public transportation efforts, researching clean fuels and working to reduce our dependence on fossil fuels.

Two biofuel bills passed in 2007 - the Biodiesel Standards Act and the Biofuels Infrastructure Tax Incentive. The Biodiesel Standards Act states that, beginning in 2012, all diesel sold in-state will be "B5," meaning five percent biodiesel blended with 95 percent diesel fuel. The Biofuels Infrastructure Tax Incentive applies two-fold: the blending of and the facility infrastructure for biodiesel. It is designed to assist the industry's preparation for the new requirements.

The Energy Innovation Fund provided \$1 million to the City of Carlsbad, partnered with the Center of Excellence for Hazardous Materials Management, for a project to introduce microalgae into test ponds to determine the potential of microalgae reproduction for biodiesel oil production and to test the quality of the oil in order to meet motor fuel standards. The project plans to assess the availability of this natural resource and the feasibility of an algae biodiesel industry in New Mexico.

Support of efficient state-wide transportation plans is one of this program's highest priorities. Ride-sharing programs increase public awareness of alternative transportation such as carpools, vanpools and public transit. Our program supports the use of biodiesel fuel in school bus fleets and our clean energy project grants program provided the Santa Fe Trails public transit system with money for the procurement of four sedans for its paratransit fleet.

The Las Cruces Rideshare Program established 502 carpools, 12 vanpools and one park-and-ride route. The state energy program and the New Mexico Department of Transportation support Las Cruces Rideshare which has established a database of carpools in southern New Mexico that covers the White Sands-Alamogordo-El Paso corridor. The program has saved 28 million vehicle miles traveled, 2.5 million gallons of fuel and \$7.8 million in fuel costs since 1990.



# Energy Conservation and Management Division

## Data and Statistics:

**Wind:** New Mexico has a total of 496 megawatts of installed wind capacity at five wind farms (Figure 3):  
 New Mexico Wind Energy Center (204 megawatts), northeast of Ft. Sumner in DeBaca and Quay Counties  
 Caprock Wind Ranch (80 megawatts), south of San Jon in Quay County  
 San Juan Mesa Wind Project (120 megawatts), west of Elida in Roosevelt County  
 Aragonne Mesa Wind Project (90 megawatts), west of Santa Rosa  
 Llano Estacado Wind Ranch (2 megawatts), near Texico in Curry County.

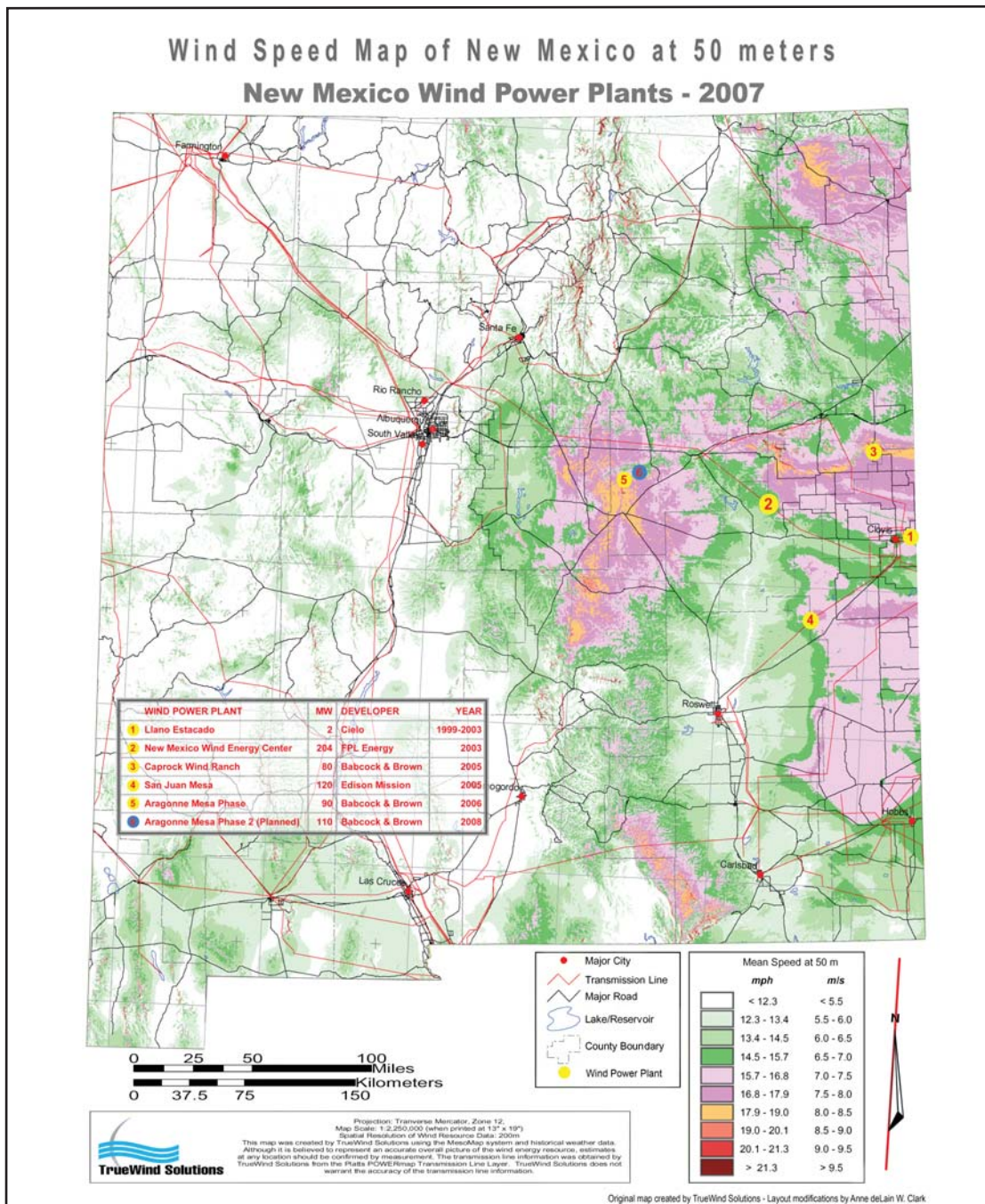


Figure 3

The New Mexico Wind Energy Center is projected to bring more than \$40 million into rural De Baca and Quay counties over 25 years. This includes \$450,000 per year in payments in lieu of taxes paid to the two county governments and school districts, about \$550,000 per year in lease payments to landowners, and an estimated \$500,000 in salaries for the permanent jobs created.

**Electricity:** Electricity affects industrial growth in both the energy and non-energy sectors of the state's economy. Electric utilities also consume substantial amounts of natural gas and coal resources extracted in the state, generating considerable revenues in the process. New Mexico's power plants have a total capacity of more than 6,000 megawatts, over 70 percent of which is located at two coal-fired plants near Farmington: the Four Corners Station and the San Juan Generating Station. Approximately one-third to one-half of the electricity generated in New Mexico is consumed in other states. Total electricity generation for the past several years is shown in Figure 4. Electricity generated in 2006 (latest data available) was 3.1 percent higher than in 2005. In 2006, New Mexico's electricity generation was 82.6 percent from coal, 13.3 percent from natural gas, 3.5 percent from wind, and 0.5 percent from hydro.

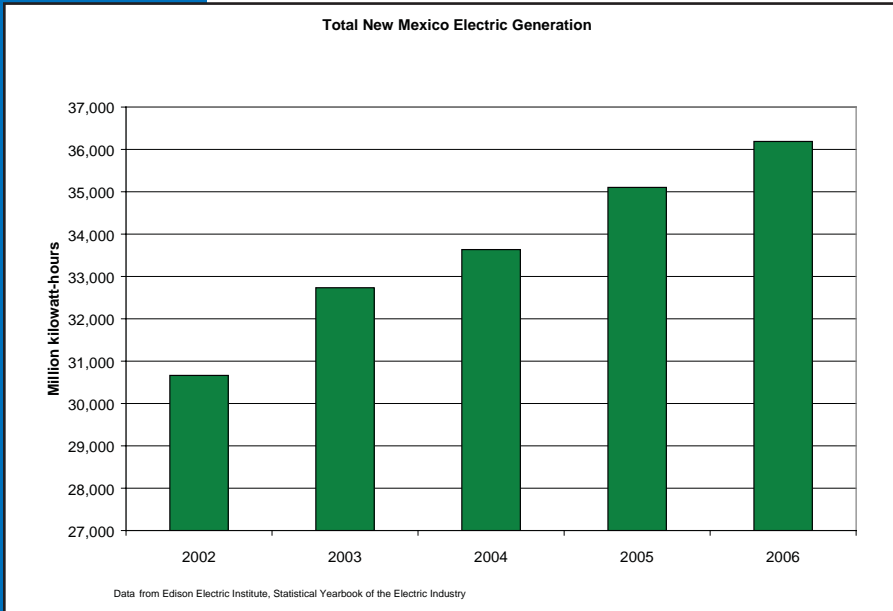


Figure 4

In 2005 (latest data available), four investor-owned utilities operated in New Mexico, serving approximately 70 percent of the state's customers (Figure 5). Twenty rural electric cooperatives served about 21 percent of the state's customers, although their service areas cover nearly 85 percent of the state's land area. Seven municipal electric utilities served the remaining nine percent of the state's electric customers. As of 2007, three investor-owned utilities operate in the state, due to the purchase of Texas-New Mexico Power by Public Service Company of New Mexico.

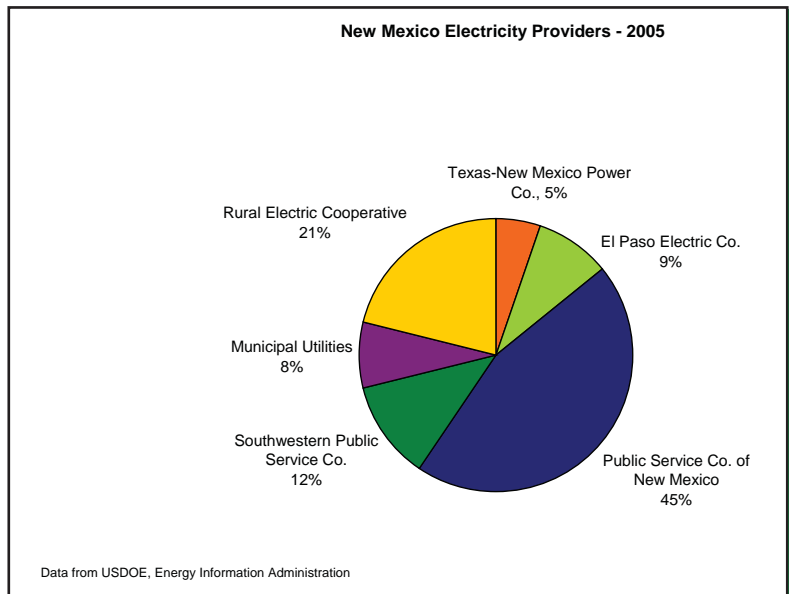


Figure 5

The number of customers buying electricity increased every year over the past four years (Figure 6). Residential sector customers increased 7.6 percent from 2002 through 2006, and the total number of customers in New Mexico increased 7.3 percent.

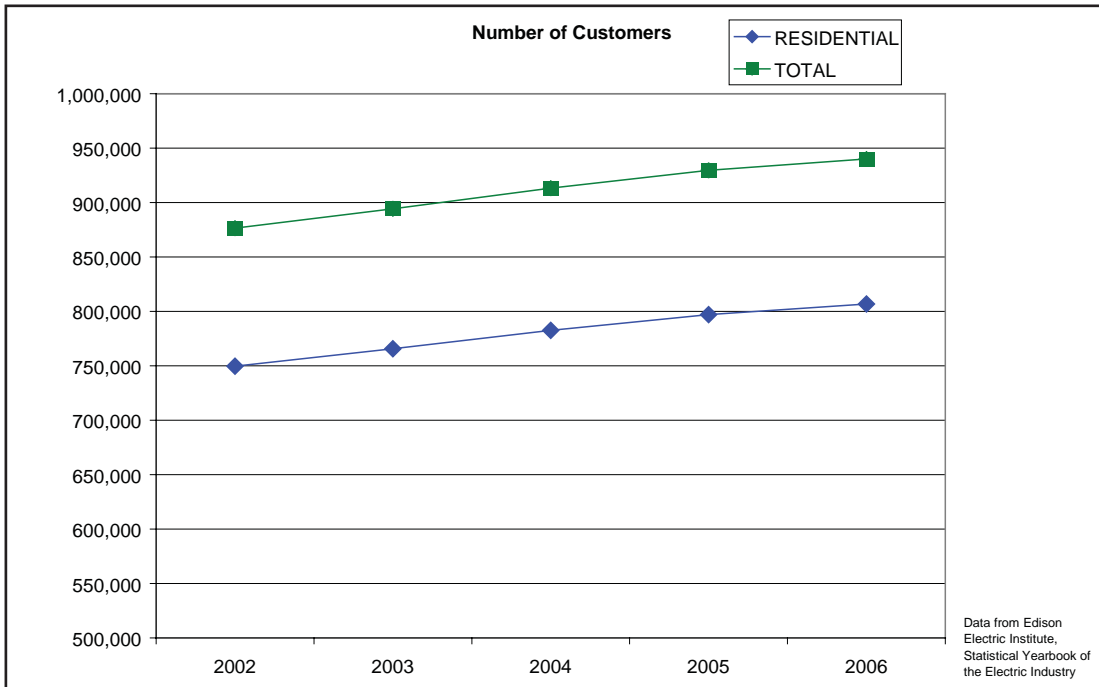


Figure 6

New Mexico's electricity consumption per customer increased 2.6 percent over the past year. Average sales per residential customer increased 2.2 percent from 7,359 kilowatt-hours to 7,517 kilowatt-hours. Total revenues from the 2006 sales of electricity in New Mexico totaled \$1.58 billion (Figure 7).

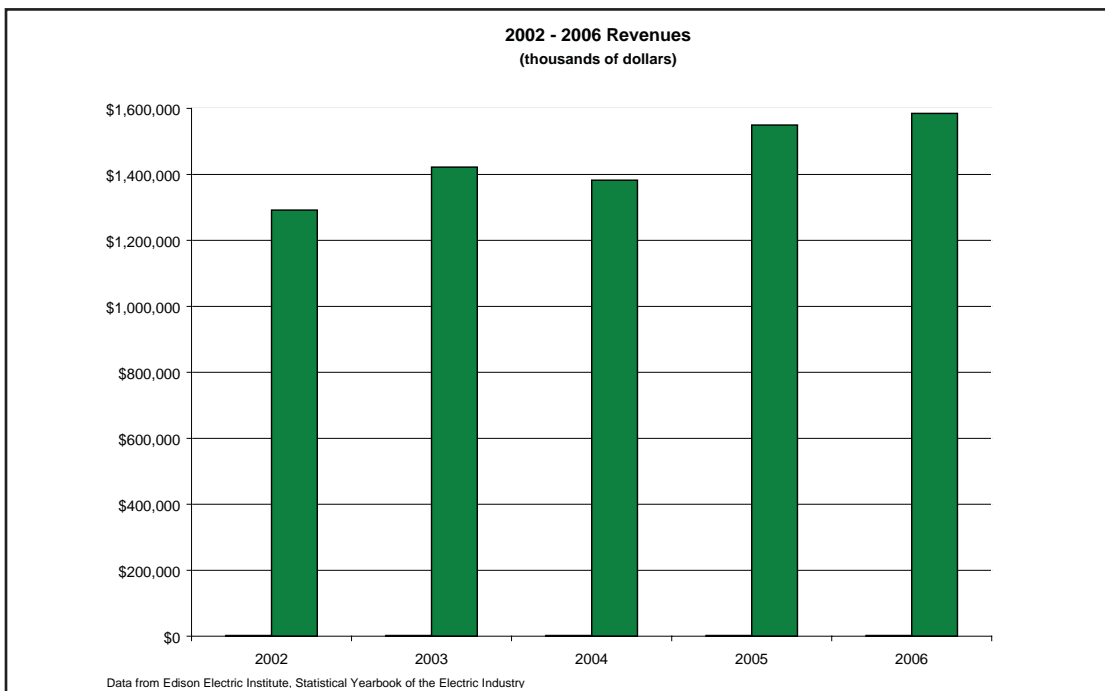


Figure 7

Figure 8 shows the total price paid per kilowatt-hour in New Mexico and the U.S. for 2002 through 2006 in the residential, commercial and industrial sectors. (Price per kilowatt-hour is derived by dividing revenue by sales.) The price paid in New Mexico increased 6.7 percent in the residential sector, 5.9 percent in the commercial sector, and 23.8 percent in the industrial sector over this four-year period. In 2006, New Mexico prices compared to average U.S. prices were 12.8 percent lower in the residential sector, 18.2 percent lower in the commercial sector, and 9 percent lower in the industrial sector.

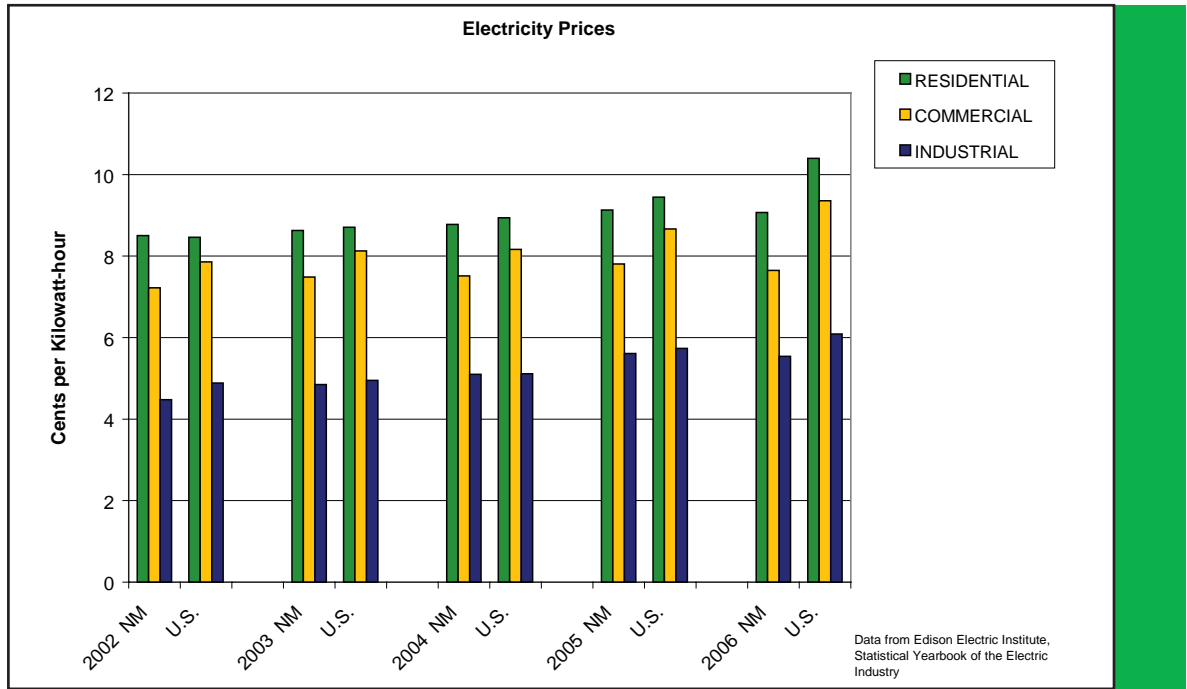


Figure 8

**Carbon Dioxide Emissions:** Carbon dioxide emissions from the consumption of energy sources amounted to 57.6 million metric tons in 2003 (latest data available). Emissions from coal were 50 percent (28.6 million metric tons), petroleum 29 percent (16.7 million metric tons), and natural gas 21 percent (12.3 million metric tons) (Figure 9). Almost all of the coal consumed generated electricity.

**Energy Consumption:** Total New Mexico energy consumption was 809.8 trillion British Thermal Units (tBTU) in 2004 (latest data available). Most of the energy consumed in the state comes from coal (309.4 tBTU), followed by petroleum (259.8 tBTU), and natural gas (230 tBTU) resources. In 2004, renewables contributed 1.3 percent or 10.4 tBTU. Wind energy provided almost half of total renewable energy due to significant growth in wind farm developments since 2003. Net energy consumption for in-state needs was actually 682.3 tBTU after subtracting the energy used for exported electricity (Figure 10).



### Energy-Related Carbon Dioxide Emissions, 2003

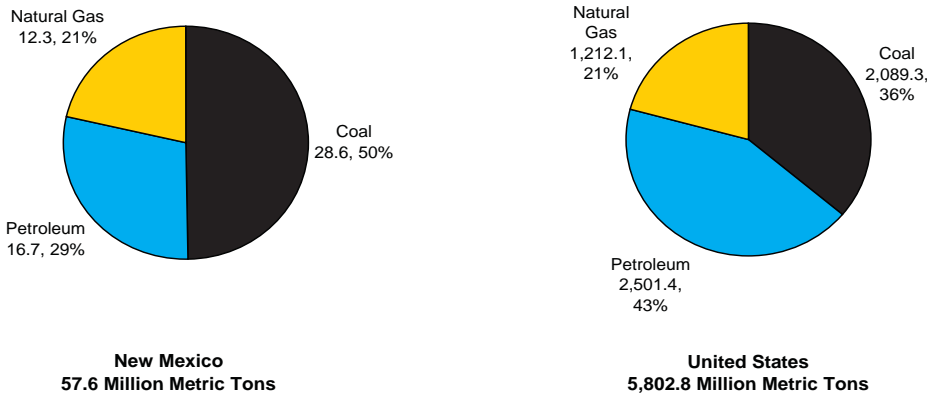
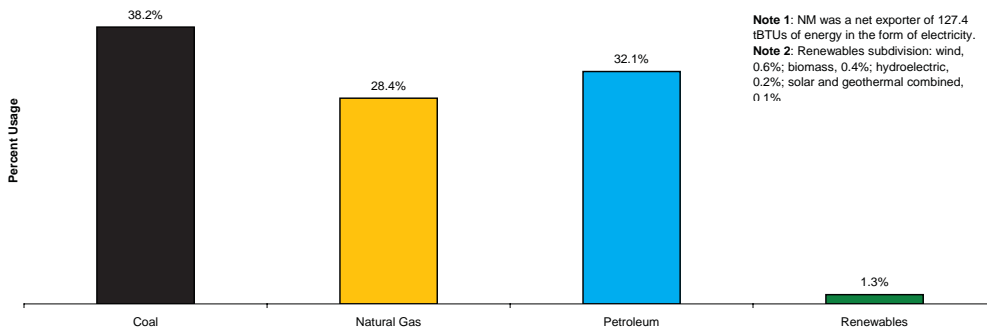


Figure 9

### New Mexico Primary Energy Consumption - 2004

809.8 trillion BTUs



**Note 1:** NM was a net exporter of 127.4 tBTUs of energy in the form of electricity.  
**Note 2:** Renewables subdivision: wind, 0.6%; biomass, 0.4%; hydroelectric, 0.2%; solar and geothermal combined, 0.1%.

**Net Instate Energy Consumption**  
 682.3 trillion BTUs  
 (0.68% of U.S. Energy Consumption)

Primary Energy Expenditures (billions)	
Coal	\$0.46 10.3%
Natural Gas	\$0.78 17.4%
Petroleum	\$3.23 72.3%
Renewables (biomass)	\$0.08 1.8%
Renewables (wind, solar, geothermal, hydroelectric)	\$0.00 0.0%
<b>Total</b>	<b>\$4.47</b>

Electricity exported	\$0.64
Retail electricity sales	\$1.38
<b>Net instate expenditures</b>	<b>\$5.22</b>

Data from U.S. Department of Energy, Energy Information Administration, 2004 Update, State Energy Data System

Figure 10

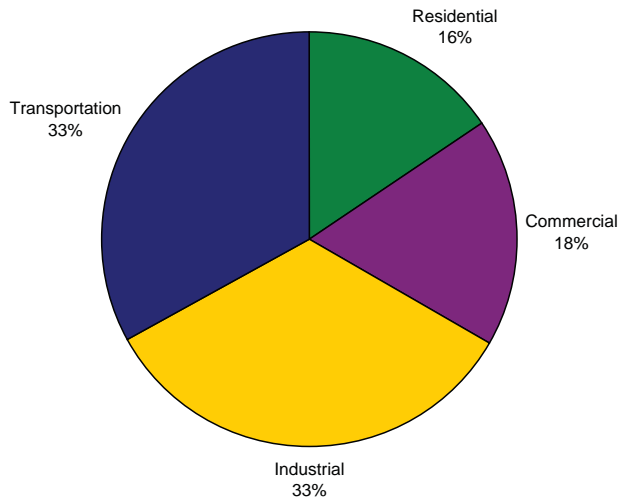
Of New Mexico's net energy consumption (based on 2004 data), the industrial sector consumed the most energy at 33.4 percent (227.8 tBTU), followed by the transportation sector 33.2 percent (226.3 tBTU), the commercial sector 17.8 percent (121.4 tBTU), and the residential sector 15.7 percent (106.8 tBTU). New Mexico's residential and industrial sectors consume less energy out of total consumption compared to the nation, whereas its transportation sector consumes more (Figures 11 and 12).

**Renewable Energy Consumption:** Total New Mexico renewable energy consumption was 10.4 tBTU in 2004. Of that amount, wind accounted for 49 percent (5.1 tBTU), residential wood/waste 21 percent (2.2 tBTU), hydropower 13 percent (1.4 tBTU), and nonresidential wood/waste 6.7 percent (0.7 tBTU). Other renewables such as solar PV, solar thermal and geothermal accounted for 9.6 percent (1.0 tBTU). A major change compared to previous years was that wind energy leapt to the top spot in renewable energy consumption in the state and also was the major factor contributing to a 42 percent increase in total renewable energy consumption in the state from the previous year.

**Energy Expenditures:** New Mexico's 2004 (latest data available) primary source energy expenditures were \$4.47 billion. Most expenditures were for petroleum at \$3.23 billion (72 percent). Natural gas expenditures were \$779 million (17 percent), coal \$457 million (ten percent), and renewable energy \$7.6 million (two percent, all biomass). For other renewable energy forms – wind, solar, hydroelectric and geothermal – there were no fuel expenditures. Of the coal-fired power generation, electricity valued at \$639 million was exported, while in-state retail electricity sales were \$1.38 billion.

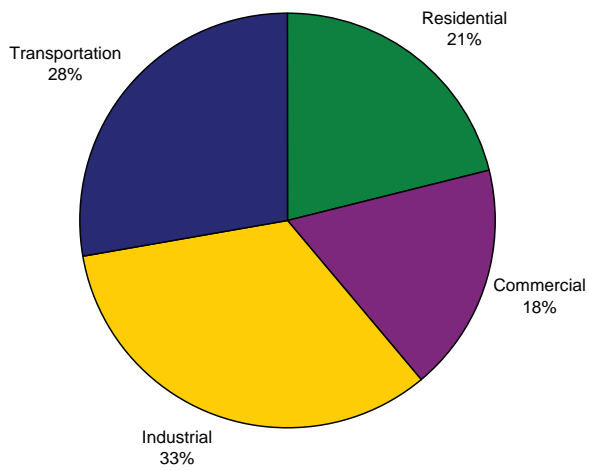


**Energy Consumption by Sector - 2004**  
New Mexico - 682 trillion BTUs



*Figure 11*

**Energy Consumption by Sector - 2004**  
United States - 100,279 trillion BTUs



*Figure 12*

# Forestry

State

Forestry

Division



## Arthur “Butch” Blazer

State Forester



## State Forestry Division

### *A Message from New Mexico State Forester Arthur “Butch” Blazer*

For years, New Mexico State Forestry has been the state’s leader in protecting our magnificent forests from catastrophic wildfire and promoting healthy sustainable forests for the benefit of current and future generations. Over the past year, our accomplishments have been dramatic and the credit is widely shared. Through our partnership approach working with tribal, federal and local government fire departments, our state is well equipped to protect forested communities and at-risk watersheds.

The fire season in New Mexico this past year was minimal compared to previous years. As a result, we were able to help other states that were not as fortunate. Our years of training and equipping local government fire departments paid great dividends; State Forestry was able to mobilize fire department resources to help fight fires in several states, including California, Georgia, Idaho and Montana.

We look at 2007 as the year that State Forestry “came into its own” with the successful implementation of several important initiatives. Our new Forest and Watershed Health Office, saw great achievements by working with partners and stakeholders to further the implementation of the New Mexico Forest and Watershed Health Plan that promotes and supports true collaboration based upon improving communications and leveraging resources. One significant result of this effort is the New Mexico Forest and Watershed Restoration Institute which is working to create and maintain a clearinghouse for ecological restoration information.

The New Mexico Forest Worker’s Advisory Group played a key role in reducing worker’s compensation insurance premiums for forest industries. This action will result in lower treatment costs and make New Mexico’s forest workforce safer and more effective.

The New Mexico Fire Planning Task Force, which I chair, had its most productive year in 2007. With a goal to identify areas most vulnerable to danger from wildfire across the state, we placed 234 communities on our “Communities at Risk” list and are working with them to develop Community Wildfire Protection Plans to assess and reduce the threat of forest fires. We are partnering with New Mexico Association of Counties to generate Community Wildfire Protection Plans across the state.

Despite our successes, much remains to be done. Each year New Mexico faces the threat of wildland fire. We will continue to regulate commercial forest harvests on state and private lands. Our work to promote healthy, sustainable forests in New Mexico for the benefit of current and future generations will carry on.

Thanks to the dedication of our wildland firefighters, partners and stakeholders we will leave a sustainable forest legacy for our children and grandchildren to inherit. We are grateful to all New Mexicans for their work in helping us prevent forest fires.





## New Mexico State Forestry Division

**Mission:** The State Forestry Division (Forestry) has the responsibility for wildland fire management on non-federal and non-municipal lands, maintaining fire suppression capacities and emphasizing firefighter and public safety. Forestry promotes healthy, sustainable forests in New Mexico for the benefit of current and future generations.

Forestry assists New Mexico communities by evaluating those most at risk for wildfire and insect infestation by developing appropriate management programs and implementing mitigation projects. The division also contributes to the growth of sustainable forestry, which enhances the quality of life by providing tree care training, distributing low-cost seedlings, developing resource management plans, and delivering forest health project funding.

**Programs:** Forestry works to develop forest product industries (e.g., landscaping, construction, woody biomass) that use thinning by-products. In addition, the division oversees two inmate work camps that utilize trained minimum-security inmate crews to work on conservation projects and wildland fire suppression.

Forestry regulates the harvest of forest products on private forestland and conducts habitat protection projects by studying plant species abundance, defining ecosystems, acquiring easements and purchasing key properties.

The New Mexico Forest and Watershed Health Office operates as a centralized clearing house for local, state, federal and tribal activities to improve forest and watershed health. Its plan includes enhanced wildlife habitat, reduced susceptibility to pathogens and wildfire, improved water quality and reduced wildfire risk for communities.

Forestry assists landowners and communities with fire prevention planning; forest management; urban and community tree development and management; low-cost seedlings for individuals and larger community projects through the Forest Re-Leaf and Tree New Mexico programs; conservation easements through the Forest Legacy Program; and numerous educational presentations on these topics.

## New Mexico State Forestry Division Accomplishments

**Forest and Watershed Health:** Forestry's Forest and Watershed Health Office convened a coordinating group to facilitate open dialog between major agency and public sector representatives and provide input to staff on a wide range of natural resource issues. With two other state departments it initiated an interagency planning committee to organize a 2008 statewide watershed forum for project managers, planners and stakeholders.

The Forest and Watershed Health Office created the [www.nmwatersheds.org](http://www.nmwatersheds.org) website. It serves as a comprehensive clearinghouse of information on forest and watershed health in New Mexico. The office also provides assistance to local collaborative groups working on forest and watershed projects.

The Forest and Watershed Health Office manages Forestry's Community Wildfire Protection Plan program and works in tandem with the New Mexico Association of Counties and the Bureau of Land Management on their parallel CWPP grant program. It also assists Forestry's district offices with support in planning and overseeing on-the-ground efforts.

***Biomass Utilization:*** The Southwest Sustainable Forest Partnership is a unique partnership consisting of local, state, federal and tribal agencies as well as private organizations and businesses in New Mexico and Arizona. It is dedicated to addressing the ecological, economic and social effects of creating sustainable community- and tribal-based forest and wood products enterprises associated with wood removed from forests.

Forestry administrates Southwest Sustainable Forest Partnership activities in New Mexico, providing technological, business and marketing expertise to community-based wood product enterprises. Southwest Sustainable Forest Partnership also helps these businesses identify funding opportunities for technology development and facility construction.

Fort Bayard Medical Center is Forestry's most ambitious biomass project. It will convert the existing gas powered heating system to a system fueled by woody biomass. Thanks to the department's Energy Conservation and Management Division, the project received a \$225,000 grant from the U.S. Environmental Protection Agency. The new heating system is expected to be operational by fall 2008.

***Fire Planning Task Force:*** The Task Force distributes Wildland-Urban Interface Community Planning Tool Kits to New Mexico communities working on developing or updating their Community Wildfire Protection Plans. The Tool Kit includes a copy of the 2006 International Wildland-Urban Interface Code, examples of wildfire protection plans, a guide for developing protection plans, a list of at-risk communities and other pertinent information.

A Community Wildfire Protection Plan is a community-based planning and prioritization process that identifies hazardous fuels treatment areas and recommends measures to improve building codes so that communities are better protected against wildfire. These plans are created collaboratively among community residents, their leaders and government agencies.

Comprehensive, county-wide Community Wildfire Protection Plans were approved by the Task Force for Rio Arriba and Taos counties. The Task Force has approved thirteen new Community Wildfire Protection Plans for New Mexico communities including the Pueblo of Santa Clara. Two hundred and seventy-one (271) New Mexico communities have been identified as being "at-risk" for wildfire. Community Wildfire Protection Plans help identify these communities and improve their ability to save lives and property if wildfire occurs. For more information on fire prevention and the Community Wildfire Protection Plan program visit [www.nmforestry.com](http://www.nmforestry.com).

***Joint Powers Agreements:*** These agreements allow Forestry and municipal fire departments in New Mexico communities to provide assistance for fire protection on municipal, state and private lands. By the end of 2007, Joint Powers Agreements were sent to 98 New Mexico municipalities for approval.

**Fire Management:** Wildland fire occurrence for 2007 was below average when compared to each of the previous ten seasons. Fires burned more than 75,300 acres of state and private lands. The State of New Mexico had an emergency expenditure of more than \$4.3 million and more than \$1.5 million in emergency funds for pre-positioned resources.

**Resource Rehabilitation and Protection:** During 2007, Forestry's Rare and Endangered Plant Program used Inmate Work Camp crews to remove Russian-olive trees from 100 acres of Forestry's Blue Hole Cienega conservation easement in Santa Rosa to restore habitat for the endangered Pecos Sunflower and Wright's Marsh Thistle.

Forestry granted \$32,210 through its Forest Re-Leaf program to assist Albuquerque, Carlsbad, Clovis, Las Cruces and Rio Rancho in tree planting and beautification efforts. Funds granted through the program come solely from private and corporate donation.

### *Additional Forestry Accomplishments for 2007:*

- Conducted 1.4 million acres of aerial survey to map insect and disease effects on state and private lands. From that observation and on-the-ground surveying, it was apparent that the piñon bark beetle devastation, so prevalent from 2000 to 2004, continued to subside. This was due to more abundant rainfall in recent years as well as to a lack of sustainable food on which the beetle could survive.
- Provided resource management technical assistance and developed 11 forest stewardship plans for approximately 1,740 acres to guide management and protection of forest resource.
- Oversaw the treatment of 2,382 acres of land for fuels reduction, erosion control, reforestation and wildlife habitat improvement.
- Distributed 173,398 seedlings through Forestry's Conservation Seedling Program and through sales during the New Mexico and Southern New Mexico State Fairs.
- Provided Los Lunas Inmate Work Camp crews to work on 21 projects for 12 different local, state, federal and private cooperators. Crews were dispatched to numerous wildland fires and participated in prescribed fires for our cooperators. One of the projects involved clearing non-native species from Forestry Division property near Santa Rosa to improve habitat for three endangered species, improving the bosque trail near Socorro, and creating a fuel break in the Santa Fe National Forest to protect homeowners on Thompson Ridge. Other projects involved wildlife habitat improvement for the Bureau of Land Management and soil and water conservation district properties.



Photo by: Dan Ware

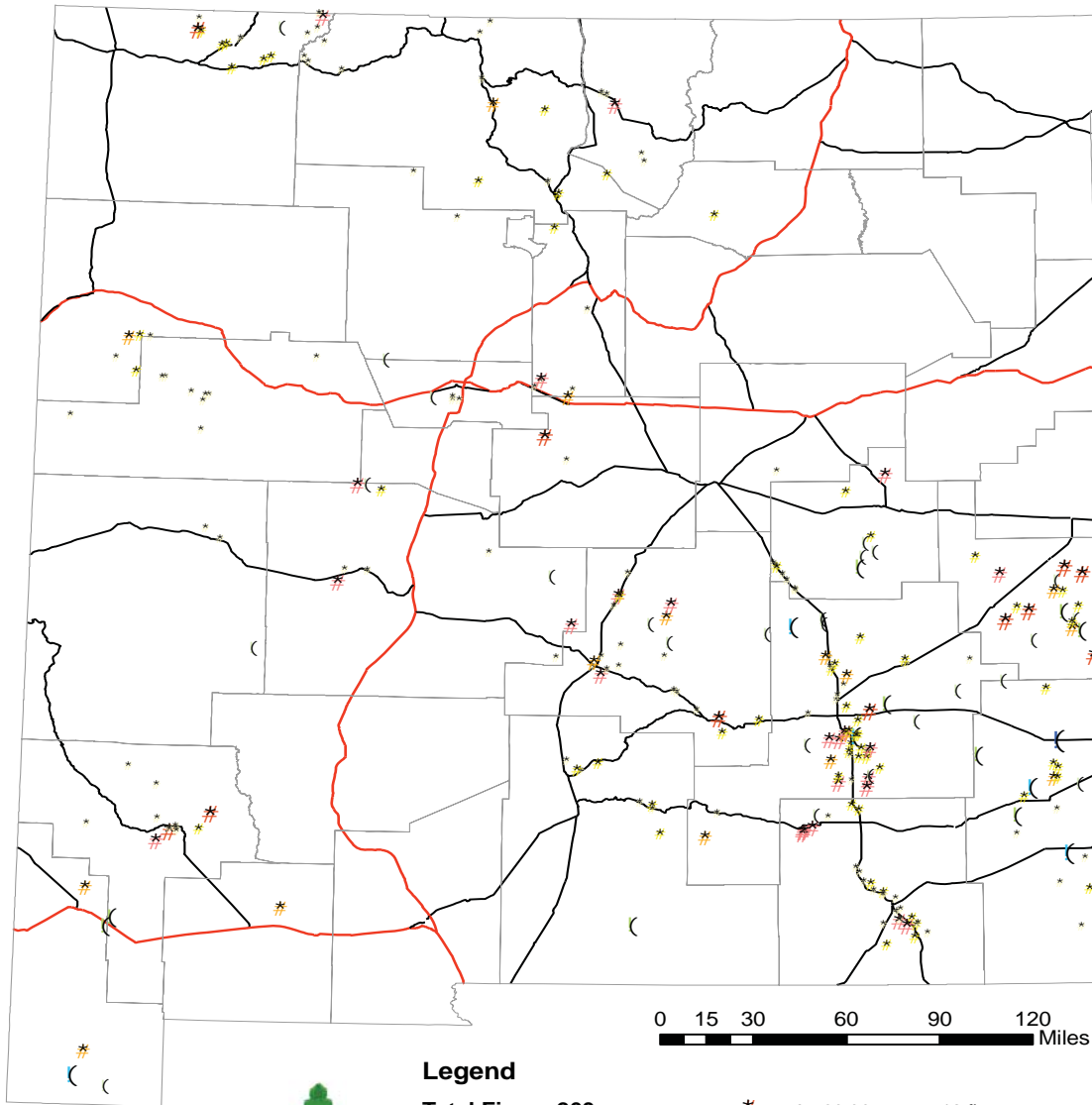
A Type I (heavy) helicopter douses a hot spot during the Rattlesnake Fire that burned near Bloomfield in July, 2007.

# New Mexico State Forestry Division Data and Statistics

Thanks to abundant rain and snowfall during winters 2006/2007, the preceding winter, there were fewer fires in 2007, when compared to each of the previous ten years. Forestry responded to 589 fires that burned approximately 82,106 acres on state and private land. Forestry continues an aggressive collaborative fire prevention campaign to increase awareness that wildfires in New Mexico can happen at any time.

## NEW MEXICO STATISTICAL FIRES

Private and State Lands  
Calendar Year 2007



### Legend

#### Total Fires - 260

- |                                |                                  |
|--------------------------------|----------------------------------|
| * less than 1 acre - 105 fires | # 50 - 99.99 acres - 12 fires    |
| * 1 - 4.99 acres - 62 fires    | ( 100 - 499.99 acres - 25 fires  |
| * 5 - 9.99 acres - 16 fires    | ( 500 - 999.99 acres - 9 fires   |
| * 10 - 49.99 acres - 25 fires  | ( 1000 - 4999.99 acres - 5 fires |
|                                | ( over 5000 acres - 1 fire       |

#### Highways

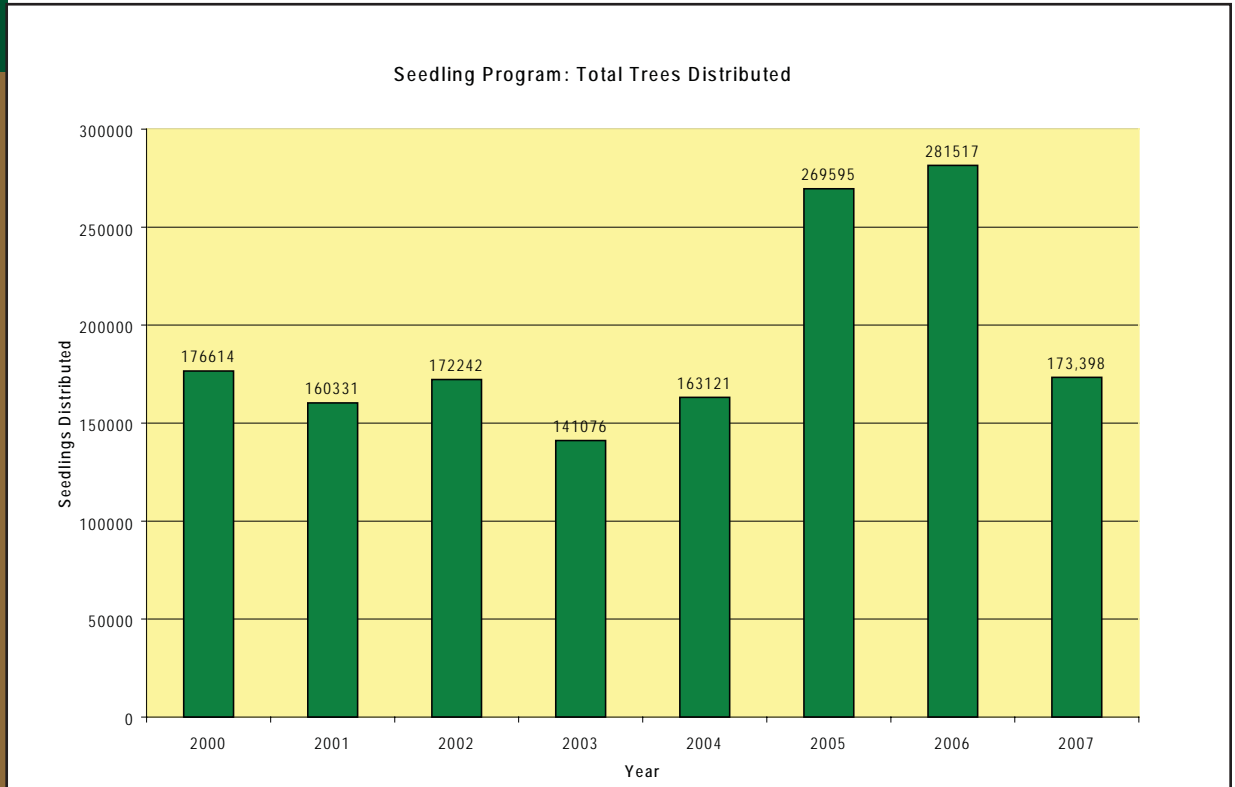
- Interstate
- U.S.



Datum: NAD83 Projection: UTM Zone 13N  
 No warranties are made regarding the accuracy of this data.  
 Produced by NM EMNRD Forestry Division, GIS Fire Staff 10/2007

## 2007 Seedling Chart

Forestry's Conservation Seedling Program enjoyed another successful year. In 2005 and 2006, two separate large purchases pushed the program's numbers to over 200,000 seedlings placed. In 2007, approximately 173,398 seedlings were distributed through annual program sales, promotional sales at the New Mexico State Fair, and through educational programs.



Inmate work crew supervisor Robert Brown sets a slash pile on fire during a prescribed fire in the Manzano mountains.

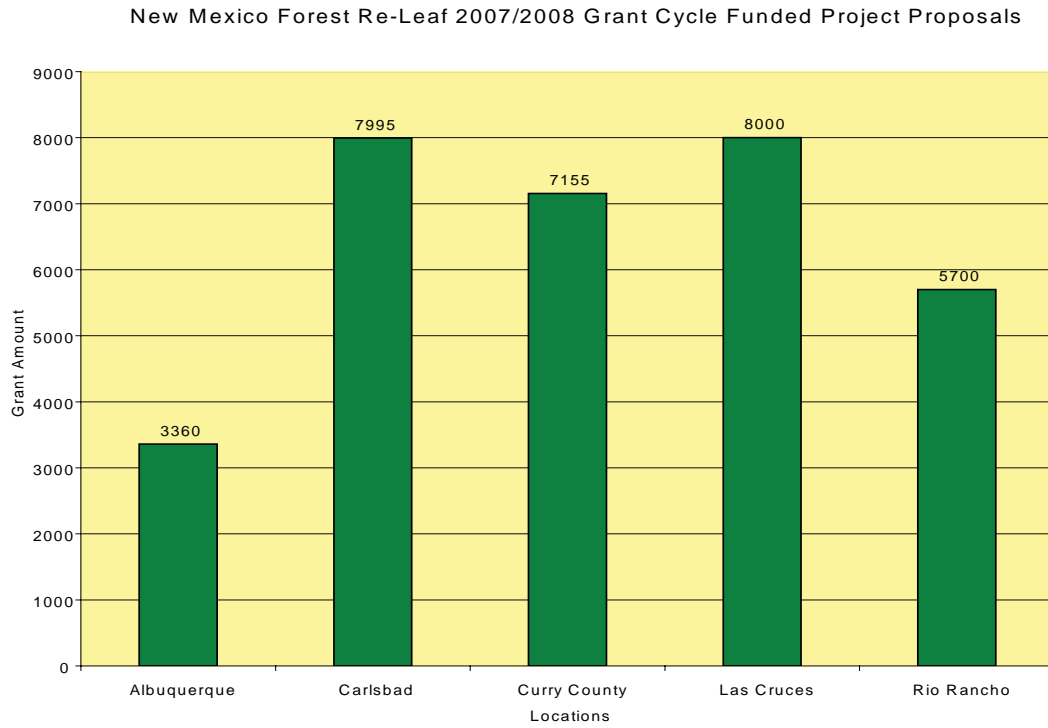


Photo by: Dan Ware



## 2007 Re-Leaf Grants

Forestry's New Mexico Forest Re-Leaf Program awarded \$32,210 in grant funding to Albuquerque, Carlsbad, Curry County, Las Cruces and Rio Rancho. Purchasing trees to plant for conservation purposes, windbreak establishment and general beautification was made possible through this program. Re-Leaf grants are funded through donations from corporate and private entities. Since 1990, more than \$440,000 has been distributed to New Mexico communities for tree planting.





**Mining**

**and**

**Minerals**

**Division**

**(MMD)**



## Bill Brancard

Division Director



## Mining and Minerals Division

### *A Message from Division Director Bill Brancard*

In a state where mineral production has long played, and continues to play, a significant role in our economy, the Mining and Minerals Division seeks to serve the public by ensuring the responsible use and reclamation of land impacted by mining. We also encourage innovative approaches to mine reclamation and promote the involvement of the public in mining issues.

2007 was a landmark year for the Mining and Minerals Division. While mineral production in New Mexico continues to set records, mine reclamation also continues to collect awards and make further advances. This year, MMD received the highest reclamation award given by the federal government for an abandoned mine project. The U.S. Department of the Interior recognized the Division for its innovative work on the Real de Dolores Mine Safeguard Project in the Ortiz Mountains south of Santa Fe. Other mine reclamation projects near Farmington and Albuquerque also received awards for innovative approaches.

We look forward to the challenges and opportunities that 2008 will bring. MMD will be expanding its effort to inventory and reclaim abandoned uranium mines in New Mexico. That project has allowed the State to work cooperatively with the Navajo Nation and the federal government. The Division is also preparing to meet the demands of potential new uranium development in the State.

None of these advances would be possible without the dedicated and resourceful efforts of the MMD staff. Their hard work and creative solutions has made New Mexico a leader in the field of mine reclamation.



## Mining and Minerals Division

### Accomplishments:

**Mission:** The Mining and Minerals Division (MMD) seeks to promote the public trust by ensuring the responsible utilization, conservation, reclamation and safeguarding of land and resources affected by mining. MMD also strives to make New Mexico a leader in responsible mine operation and reclamation. New Mexico remains a leading mining state with significant production of coal, copper, potash and molybdenum.

**Programs:** Four MMD programs implement state and federal laws that regulate the operation and reclamation of both coal and non-coal (hard rock) mining facilities, support the reclamation of abandoned mine sites and provide for the collection and dissemination of data on mining.

**Mine Reclamation:** MMD strives to protect the public through effective and innovative reclamation of land disturbed by mining. In 2007, MMD oversaw the reclamation of over 1,000 acres of mine disturbed land. Reclaimed lands are returned to the landowner for a beneficial use, whether it is grazing, commercial use or wildlife habitat. These efforts included a number of large ongoing reclamation projects at coal and hard rock mines, along with MMD completing mine safeguarding and reclamation projects at abandoned mine sites across the state.

MMD pursues effective reclamation through innovative ideas and techniques in reclamation science. In recent years, most of New Mexico's coal mine operators have begun to use geomorphic designs in their reclamation. This technique attempts to mimic natural drainage patterns on reclaimed slopes and, therefore, creates more stable landforms and reduces erosion. BHP Billiton's San Juan and La Plata Mines in northwest New Mexico have received awards for their pioneering use of geomorphic reclamation and this year also received an MMD Excellence in Reclamation Award for their weed management programs.

This new reclamation strategy is beginning to be used by hard rock mine operators who sometimes face difficult reclamation challenges due to steep slopes and poor soil covers. In 2007, the Questa, Tyrone and Tijeras mines all utilized some form of geomorphic reclamation at their mines. MMD plans to encourage more mine operators to use this new technique in the future, not only to improve reclamation success, but also to return the land to a more stable and natural condition. Geomorphic reclamation is also being used at aggregate mines. The Pueblo of Sandia and Wacor Materials, Inc. received an MMD Excellence in Reclamation Award for implementing geomorphic techniques at the ARP North Aggregate mine.

MMD's Abandoned Mine Land Program completed several major abandoned mine reclamation projects across the state in 2007 and received recognition for their past work. This year, MMD received the highest reclamation award given by the U.S. Department of Interior's Office of Surface Mining for the Real de Dolores Mine Safeguard Project, located south of Santa Fe. The award was given for outstanding performance and exemplary abandoned mine land reclamation. The award recognized the use of innovative mine closure techniques, such as the use of polyurethane foam plugs to seal large mine shafts and the construction of steel bat cupolas to preserve bat habitat in the underground mine voids, and protecting historical mining features.

MMD is pioneering the use of new mine safeguarding techniques in the United States. Developed in Canada, toroid tire plugs make use of spent tires from large earthmoving equipment to plug shafts, stopes, and declines. A large excavator wedges these tires into the mine openings, which are then covered with a mat of spent highway truck tires cabled together, geotextile cloth and a geogrid mesh to reinforce the fill above the plug. The first toroid tire plugs in New Mexico were installed in September 2007 at the Lake Valley Mine Safeguard Project, near Las Cruces.

There are still thousands of abandoned mines across the state that need to be safeguarded to protect the public and the environment. These include uranium mines abandoned after the uranium mining boom of the 1950's, 60's and 70's. At that time, very few regulations were in place to ensure mine clean-up. MMD is developing a comprehensive database of abandoned uranium mines to determine the need for addressing the legacy of the past uranium mining activity. MMD is partnering with the Navajo Nation Abandoned Mine Land Program to work together to address abandoned uranium mines on or near Navajo Lands. MMD is also partnering with state and federal agencies to leverage funds and resources to address unreclaimed uranium mines on federal and state lands.

**Regulatory matters:** For the second straight year, the value of mineral production in New Mexico reached a record level in 2006. As a result, MMD is seeing an increase in permit applications, particularly for exploration. Much of the increased activity has centered on potential uranium mining. While no uranium mining has begun yet in New Mexico, uranium exploration activity has expanded across the Grants Uranium Belt. Companies interested in uranium mining development continue to buy and lease lands containing uranium reserves, setting the stage for a possible comeback of uranium mining.

In anticipation of an increase in permit applications for uranium exploration and possible mining, MMD has initiated communication with other states to learn about their experiences with permitting of uranium mines. MMD is also in communication with tribal governments who have expressed an interest in discussing concerns about possible impacts to tribal lands. MMD will continue to be proactive in its efforts to communicate with the public about any regulatory activities across the state.

In 2007, MMD initiated a process to update public notice provisions in the Coal Surface Mine Rules. In late fall, the Coal Surface Mining Commission unanimously approved the proposed changes and the new rules are expected to be published in the New Mexico Register by the end of the year. MMD worked cooperatively with the coal mining industry to make the changes, which include an expansion of public notice when a new coal mine application is submitted or when there is a major revision to a mine plan. The changes also clarify that tribal governments should be recipients of any notices intended to go to affected government agencies.

**Public outreach and Partnerships:** MMD is in the process of updating the Permit Requirements Guidebook. The guidebook summarizes permits issued by the State of New Mexico that are required for energy and mineral resource exploration, development, production, and reclamation. The new guidebook will not only be published in hard copy, but also electronically as requested by users. It is expected to be published in spring 2008.

MMD staff have authored articles and publications about New Mexico's mineral industry and the use geographic information systems in the field. MMD continues to attend the annual Museum of Natural History Teacher Open House and Dig It Conference so that educators across New Mexico will have an opportunity to incorporate concepts of mine reclamation science into their curricula.

MMD is partnering with the Navajo Nation and Hopi Tribe to support the development of each tribes own Coal Regulatory Programs. Recent passage of legislation amending the Surface Mine Control and Reclamation Act enabled tribal governments to apply for primacy of their own programs to regulate coal mines within Reservation boundaries. Both Navajo and Hopi have met with MMD on several occasions to learn about our regulatory and enforcement program in preparation of their applications for primacy to the federal Office of Surface Mining.



# Mining and Minerals Division Data and Statistics:

**Mineral Resources Overview:** Over \$2.1 billion worth of minerals were extracted in New Mexico during 2006 (Figure 1), breaking the previous production value record of \$1.8 billion in 2005.

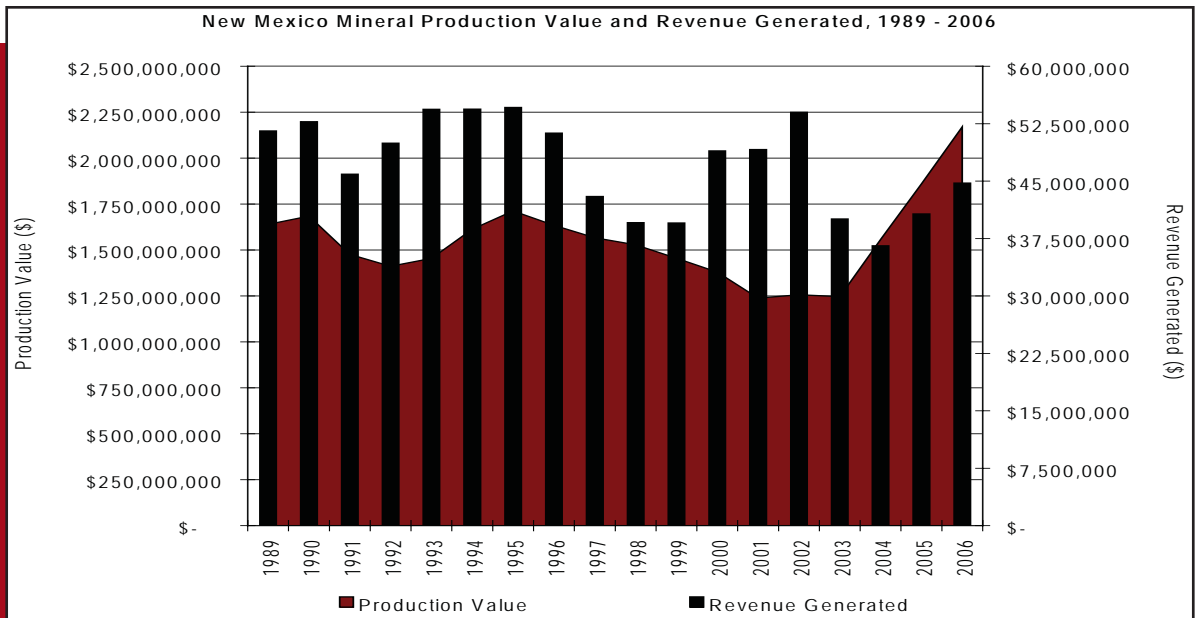


Figure 1

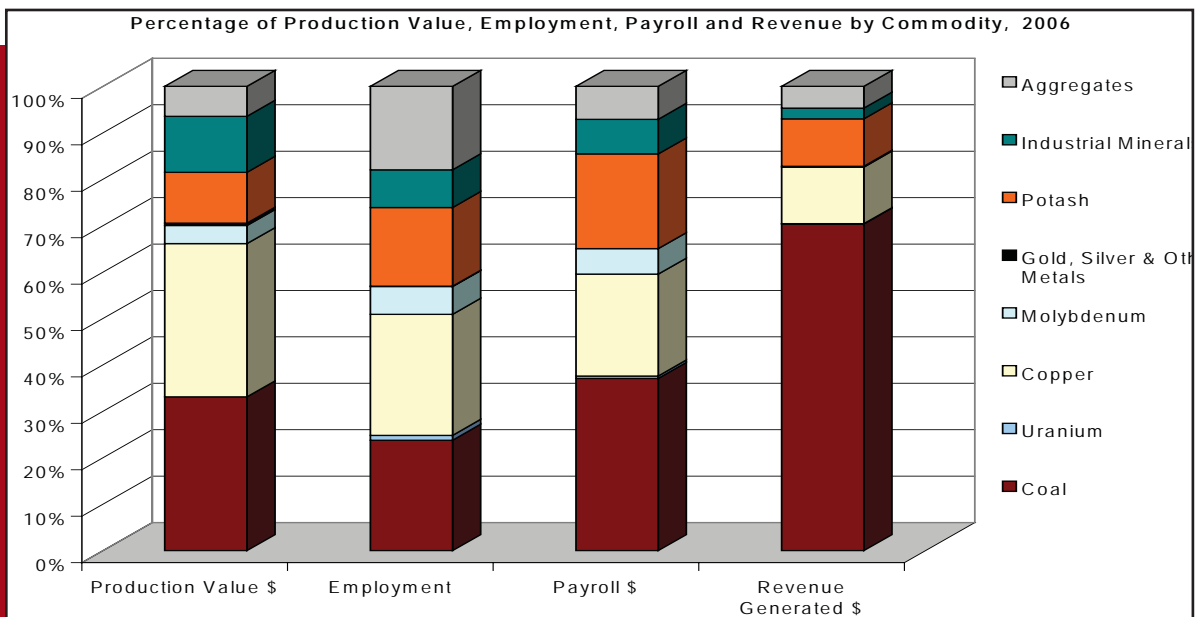


Figure 2

Higher commodity prices have driven a 75 percent increase in mineral production values from 2000 to 2006. New Mexico remains a leading producer of many mineral commodities, ranking first in potash, perlite and zeolite; third in copper; sixth in molybdenum; tenth in gold and silver; and twelfth in coal production value. Figure 2 and Table 1 provide summary information on all mineral commodities produced in New Mexico in 2006.

New Mexico Summary of Commodity Production, Production Value, Employment, Payroll, Revenue and Ranking, 2006								
Mineral	Production <sup>1</sup>	Production Rank <sup>2</sup>	Production Value \$	Employment <sup>3</sup>	Reclamation Employment <sup>4</sup>	Payroll \$ <sup>5</sup>	Revenue Generated \$ <sup>6</sup>	
							State	Federal
Coal	26,118,082	12	\$ 718,486,289	1,512	92	\$ 98,369,535	\$ 26,503,673	4,979,092.08
Copper	249,392,535	3	\$ 716,130,354	1,659	189	\$ 68,345,437	\$ 5,451,122	-
Gold	13,488	10	\$ 8,146,685	4	4	\$ 128,500	\$ 63,218	-
Industrial Minerals <sup>7</sup>	2,285,585	-	\$ 261,668,905	517	12	\$ 21,287,403	\$ 926,830	\$ 104,303
Aggregates <sup>8</sup>	19,317,521	-	\$ 140,022,212	1,143	83	\$ 20,653,051	\$ 2,100,058	-
Other Metals	50,032	-	\$ 546,000	0	0	-	-	-
Molybdenum	4,057,024	6	\$ 84,706,672	380	25	\$ 14,814,589	-	-
Potash <sup>9</sup>	825,540	1	\$ 237,603,468	1,078	2	\$ 61,205,363	\$ 2,282,239	\$ 2,290,306
Silver	209,254	10	\$ 2,420,975	0	0	-	\$ 16,756	-
Uranium <sup>10</sup>	-	-	\$ -	67	60	\$ 1,260,000	\$ 28,614	-
<b>TOTAL</b>			<b>\$ 2,169,731,560</b>	<b>6,360</b>	<b>467</b>	<b>\$ 286,063,879</b>	<b>\$ 37,372,510</b>	<b>\$ 7,373,701</b>

Source: Mining and Minerals Division, unless otherwise noted.

<sup>1</sup> Production for coal, industrial minerals, aggregates, magnetite and potash is reported in short tons; copper and molybdenum in pounds; gold and silver in troy ounces.  
<sup>2</sup> Production rank is based on 2006 production value in relation to other U.S. states.  
Sources: Metals, potash, industrial minerals and aggregates, Mineral Resources Program, United States Geological Survey (<http://minerals.er.usgs.gov/>)  
Coal, Energy Information Administration, United States Department of Energy ([www.eia.doe.gov](http://www.eia.doe.gov))  
<sup>3</sup> Category includes direct and contract employees.  
Gold, silver and other metals are co-products of copper production. Production-related employment and payroll for these commodities are reported in the copper numbers.  
Gold employment and payroll is for reclamation activities at closed mines.  
<sup>4</sup> Reclamation employment is included in total employment numbers.  
<sup>5</sup> Payroll is for direct employment and does not include contract employees. Payroll does not include benefits.  
<sup>6</sup> State revenue includes state trust land mineral lease royalties, rentals and bonuses and severance, resource excise and conservation tax revenues.  
Federal revenue (fiscal year 2006) includes 50% state share of federal royalties.  
Sources: State data, the New Mexico Taxation and Revenue Department (<http://www.state.nm.us/tax/>) and the New Mexico State Land Office (<http://www.nmstatelands.org/>)  
Federal data, Minerals Management Service (<http://www.mms.gov/>)  
<sup>7</sup> Category includes gypsum, perlite, salt, limestone, calcite, dimension stone, silica flux, clay, humate, scoria, pumice, mica and zeolites.  
<sup>8</sup> Category includes base course, caliche, clay and shale, crushed rock, dimension flagstone, fill dirt, gravel, limestone, red dog, rip-rap, sand, scoria, topsoil and travertine.  
<sup>9</sup> Production is K<sub>2</sub>O mill production.  
<sup>10</sup> Employment and payroll numbers are for permitting, care and maintenance and reclamation activities.

**Table 1**

The principal minerals, in descending order of value, are coal, copper, potash, construction sand and gravel, molybdenum and cement (limestone). New Mexico's national rank jumps to eighth for per capita production value - nearly \$500 worth of minerals is produced annually for every New Mexican. According to the U.S. Geological Survey (USGS), New Mexico ranked fourteenth in 2006 when ranking states by the production value of non-energy minerals. This is a sharp increase from previous years: New Mexico was ranked twenty-fifth in 2003. Our state produces 2.27 percent of the U.S. total non-energy minerals production value.

Coal, which set a record high for production value in 2006, remained the leading commodity for production value, revenue generation and payroll. Copper, industrial minerals and aggregates continued the recent trend of increased production value.



Payroll exceeded \$286 million in 2006, a 5.6 percent increase over 2005 (Figure 3). Copper retained its lead over coal for highest employment numbers in 2006. The total number of employees in the mining industry topped 6,350 in 2006, a 5% increase from the previous year. Reclamation employment increased 17 percent to 467, the highest reported reclamation employment on record. The recent trend of increased contract employment reversed in 2006: direct employment rose 6.3 percent to 5,277 workers and contract employment dropped 13.3 percent to 1,083 workers (Figure 4).

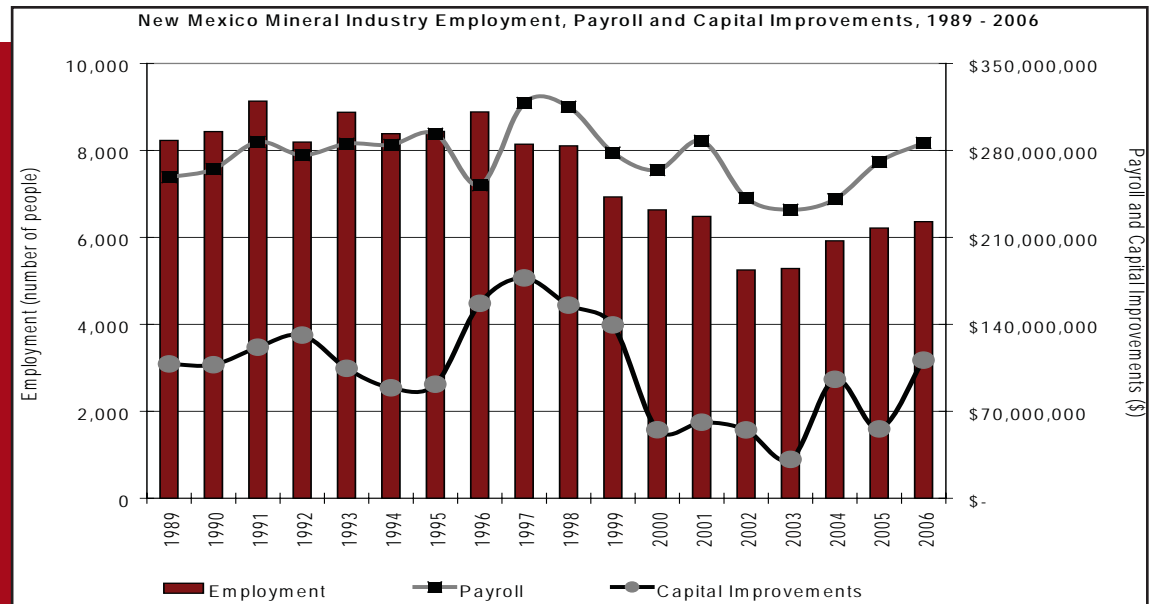


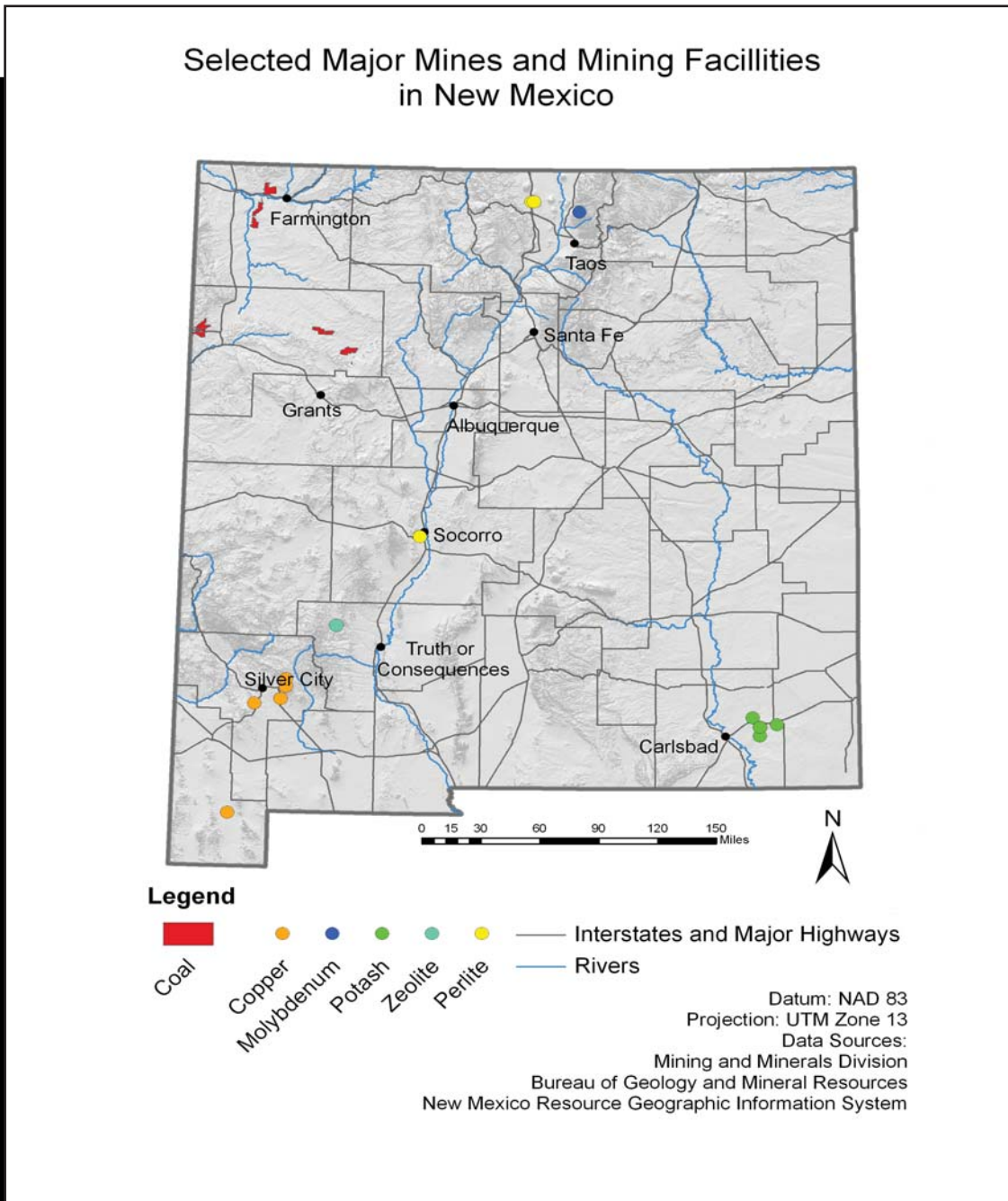
Figure 3



Figure 4

There have been an average of 225 registered active mining operations in the State of New Mexico in recent years. In 2006, active operations included five coal mines, three potash mines and four potash mills, one molybdenum mine and mill, three major copper mines and related concentrators and solvent extraction/electrowinning (SX/EW) plants, 41 industrial mineral mines and mills, and 189 stone and aggregate operations (Figure 5). Since 1998, the number of registered operations has increased by about 60, almost all in the industrial mineral and aggregate sector. New Mexico mining companies spent \$111 million on capital improvements and equipment in 2006, double the 2005 spending.

Further information and longer statistical trend data on New Mexico's mineral industry can be downloaded from the Mining and Minerals Division website at [www.emnrd.state.nm.us/mmd/MRRS/Prelim2006ProdData.htm](http://www.emnrd.state.nm.us/mmd/MRRS/Prelim2006ProdData.htm).

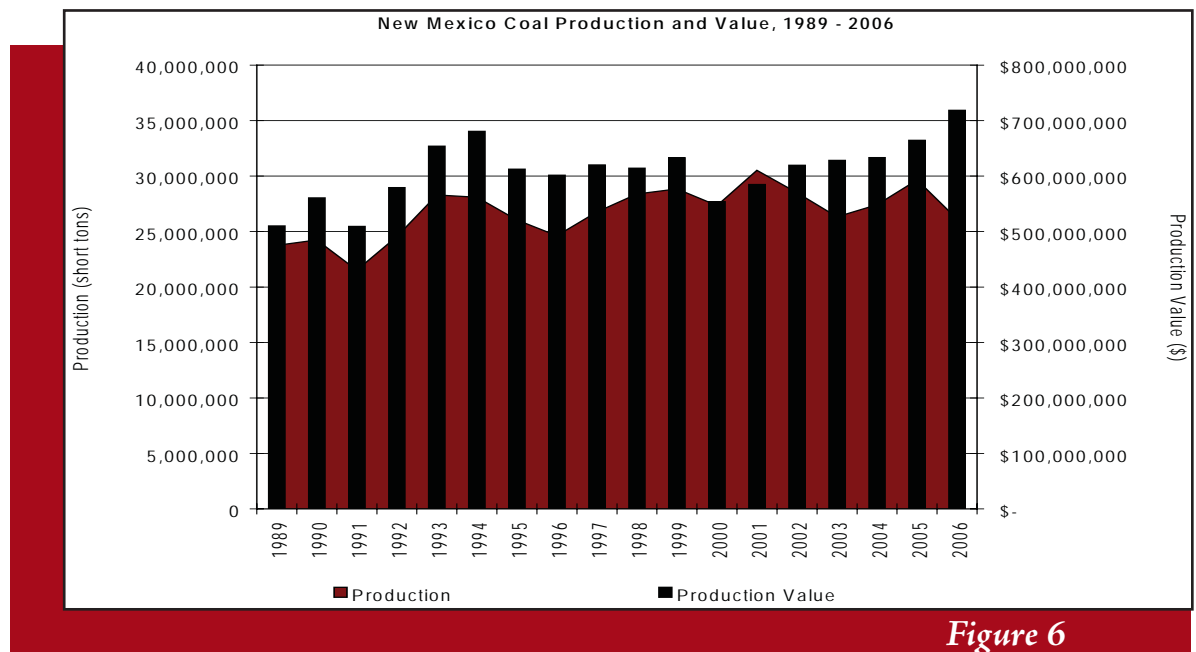


*Figure 5*

**Coal:** New Mexico coal production value exceeded \$700 million in 2006, a new record high. Coal remains New Mexico's most significant mineral commodity, leading all other commodities in production value, payroll and revenue generation. New Mexico ranked twelfth in U.S. coal production for 2006 according to the Energy Information Administration (EIA). The majority of New Mexico's coal reserves are located in the San Juan basin of San Juan, McKinley and Cibola counties, and the Raton Basin of Colfax County. Smaller coalfields are dispersed throughout the state.

During calendar year 2006, five mines produced coal in New Mexico. Four surface coal mines were active: BHP Billiton's Navajo, Chevron's McKinley (North and South) and Peabody Natural Resources' Lee Ranch mines. BHP Billiton's San Juan Mine is the only active underground mine. The Navajo Mine was the fourteenth highest producing surface coal mine in the U.S. in 2006; the San Juan Mine was the eighth highest producing underground mine. After 45 years of operations, the McKinley Mine is closing. Active mining operations in the McKinley South permit area ceased in 2007; operations in the McKinley North permit area are scheduled to cease in 2008.

While production value rose 8.1 percent in 2006, coal production decreased 11.1 percent to 26.1 million short tons. New Mexico coal production reached an all-time high in 2001; production and value have fluctuated within a narrow range over the past fourteen-year period (Figure 6). The winding-down of mining at the McKinley Mine and mechanical equipment issues at the San Juan and Navajo mines caused the production decreases. The rise in production value is a result of rising delivered coal costs. Coal is the only fossil fuel that has continued to increase in cost at electric plants each year since 2000. According to the EIA, increasing delivered coal costs resulted from new safety regulations requiring mining equipment retrofitting, higher coal extraction taxes and higher diesel fuel costs.



While coal employment remained stable at 1,500 workers, the recent trend of increased contract employment and decreased direct employment reversed in 2006. The number of coal direct employees increased 3 percent to 1,407 in 2006, the number of contract employees fell 23.9 percent to 105. Due to the closure of the McKinley Mine, coal employment is expected to decrease in 2007 and 2008.

Lee Ranch Coal Company has begun work on the El Segundo Mine. Activities at the new coal mine focused on the construction of rail transportation, haul roads and facilities in 2006 and 2007. The mine, located north of Milan in McKinley County, is forecast to produce 102 million short tons of coal over 30 years. Lee Ranch will add approximately 150 employees to its workforce when mining commences in 2008.

Grupo Cementos de Chihuahua continued to develop the mining plan and permit application for the proposed surface coal mine near Carrizozo in Lincoln County. Although the permit application has not been completed, Grupo Cementos has gathered baseline ecologic data and has met with Mescalero Apache tribal representatives to formulate a list of the tribe's concerns for consideration in the mining plan.

According to the EIA, 80 percent of all power generation in New Mexico is from coal-powered plants. The primary customers for New Mexico's coal are four power plants located in the Four Corners region. Lee Ranch Mine provides coal for the Plains Electric Generating Station in Prewitt; San Juan Mine, the San Juan Generating Station in Waterflow; Navajo Mine, the Four Corners Generating Plant in Fruitland; and McKinley Mine, the Cholla Power Plant in Joseph City, Arizona. The proposed Desert Rock Generating Plant, planned for start-up in the early 2010s on the Navajo Reservation near Shiprock, is currently in the planning and permitting process. A draft Environmental Impact Statement for the project was released during summer 2007.

The Coal Mine Reclamation Program of the Mining and Minerals Division focuses on promoting successful and innovative approaches to reclaiming areas disturbed by coal mining. Approval of final reclamation is a difficult achievement. Within the past five years, eight coal mines have successfully met their final reclamation criteria and attained final bond release. The most recent final release, approved in January 2007, was for BHP Billiton's Black Diamond Mine, located near La Plata in San Juan County.

**Uranium:** Rising market prices are leading to renewed interest in uranium recovery and production. The spot price of yellow cake ( $U_3O_8$ ) rose from \$6.50 per pound in fall 2000 to \$56.00 per pound in fall 2006 and peaked at \$138 per pound in July 2007. As of December 2007, the spot price of yellow cake was \$89 per pound.

According to the EIA, New Mexico ranks second, behind Wyoming, in domestic uranium reserves with 341 million tons of  $U_3O_8$  at \$50 per pound. The Grants Uranium Belt, the most prolific producer of uranium in the United States, started production in the late 1940s. During the boom years (1953-1980), approximately 350 million pounds of yellow cake were produced. All uranium recovery in New Mexico ceased in December 2002.



The inactive Section 12 Uranium Mine, located north of Grants in Ambrosia Lake.

There are only two uranium mine operations permitted by MMD in the state: Rio Grande Resources' Mt. Taylor Mine and Rio Algom's Old Stope mining properties. The Mt. Taylor Mine, a flooded underground mine in Cibola County, remains on standby status and must amend its permit before mining can commence. The Old Stope Mines are undergoing reclamation.

New Mexico has experienced a significant increase in uranium exploration activity in the past two years. In January 2006, the Mining and Minerals Division received the first uranium exploration application since 1998. Sixteen uranium exploration applications were submitted in 2006 and 2007. As of November 2007, six applications have been approved, three are pending, five have been denied and two were withdrawn (Table 2 and Figure 7).

Uranium Exploration Applications, 2006 - 2007 \*

**Approved Applications**

Project Name	Operator	Surface Ownership	Number of Holes	Drilling Completion
Ambrosia Lake	Neutron Energy	State	6	summer 2007
La Jara Mesa	Laramide Resources	U.S. Forest Service	10	fall 2006, winter 2007
Lily	Uranium Company of New Mexico	Bureau of Land Management	10	fall 2007
Riley	Max Resources	U.S. Forest Service	14	spring 2007
Roca Honda	Strathmore Mineral Resources	State	4	summer & fall 2007,
Treeline	Western Energy Development	Private	6	spring 2008 summer 2006

**Pending Applications**

Project Name	Operator	Surface Ownership	Number of Holes
La Jara Mesa Extension	Urex Energy Corp.	U.S. Forest Service	21
San Mateo Mesa	United Energy	U.S. Forest Service	10
Section 11	Southwest Resources	Private	1

**Denied Applications**

Project Name	Operator	Surface Ownership
Crownpoint	Quincy Energy	Indian Trust
Hosta Butte Section 3	Quincy Energy	Indian Trust
Section 12	Southwest Resources	Private
Treeline II	Western Energy Development	U.S. Forest Service
Treeline III	Western Energy Development	Private

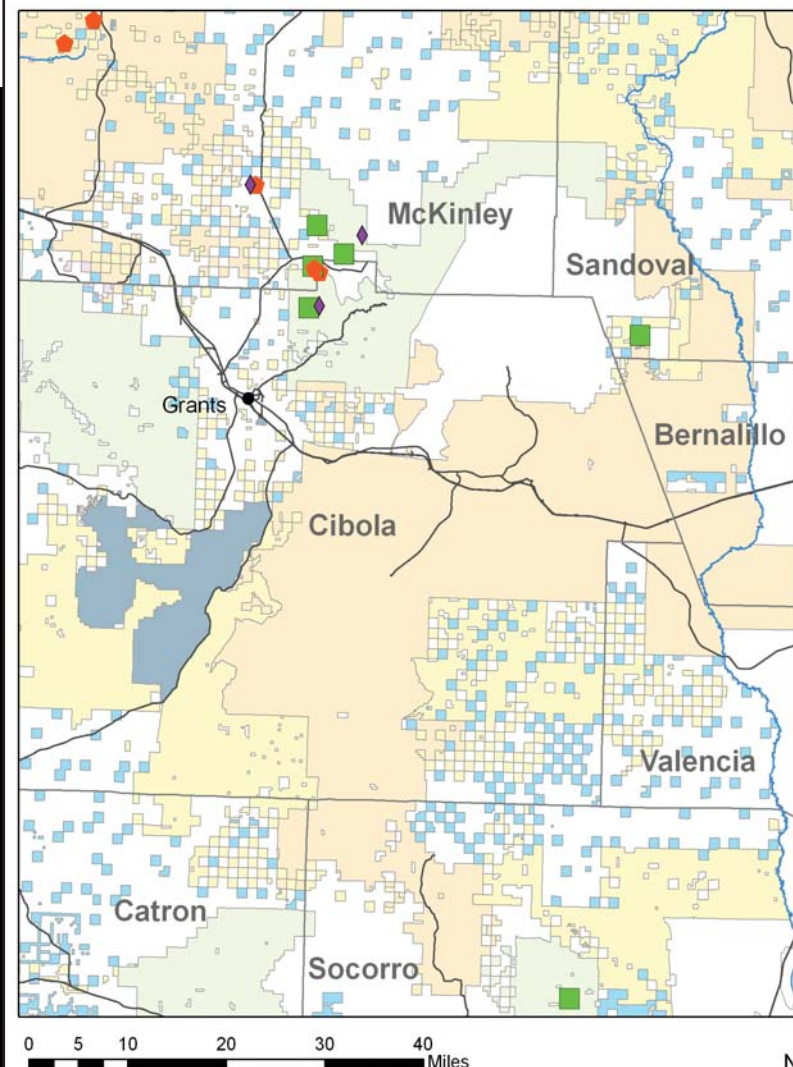
\* Status current as of November 16, 2007

**Table 2**

While uranium mining companies are eager to move forward, several significant obstacles lay in the path of large-scale uranium development in the near future. First, all of New Mexico's uranium mills have been demolished and new infrastructure is needed. Second, the Navajo Nation, which overlays a major portion of the uranium deposits in New Mexico, declared a moratorium on uranium production on Navajo lands in April 2005. Third, the All Indian Pueblo Council passed a resolution in June 2007 calling for the protection of Mount Taylor and the cultural properties of the Pueblos of Acoma and Laguna.

Currently, activity focuses on the reclamation of the mines and mills left over from the boom years. New Mexico uranium employment is near the ten-year high due to reclamation activities at Rio Algom's Ambrosia Lake/Old Stope Mine properties. Both the United Nuclear Corporation Mill in Church Rock and the Homestake Mill in Milan are also undergoing reclamation. United Nuclear Corporation continues work towards approval of closeout and reclamation plans, as required by the New Mexico Mining Act, for its Section 27 and St. Anthony Mines. Kennecott Energy Company is also working towards closeout and reclamation plan approval for the Sohio JJ No. 1 Mine.





## Uranium Exploration Permits: Location & Status

### Legend

#### Uranium Exploration Applications

- ◆ Pending
- ⬠ Denied
- Approved

- Cities
- Rivers
- County Boundaries
- Highways and Roads

#### Surface Ownership

- U.S. Bureau of Land Management
- U.S. Department of Defense
- U.S. Forest Service
- Tribal
- National Park Service
- Private
- State
- State Parks



Sources:  
New Mexico Mining and Minerals Division  
Bureau of Land Management  
New Mexico Resources Geographic Information System

*Figure 7*

HRI Energy continues to pursue permitting and licensing from the Nuclear Regulatory Commission and Environmental Protection Agency to mine uranium by in-situ leach at locations in Church Rock and Crownpoint. These permits are the subject of pending litigation before the Tenth Circuit Court of Appeals.

In June 2006, the Nuclear Regulatory Commission issued a license to Louisiana Energy Services to construct and operate a gas centrifuge uranium enrichment plant in Lea County. The license is the first issued by the Nuclear Regulatory Commission for a full-scale uranium enrichment plant. It authorizes Louisiana Energy Services to enrich uranium up to 5 percent of the fissile isotope uranium-235 for use in the manufacture of nuclear fuel for commercial power plants. Construction of the plant began in fall 2006. When operations commence in 2009, approximately 350 workers will be employed.



**Copper:** For the third straight year, New Mexico has seen a significant increase in production value in the copper mining sector. While copper production value increased 51.3 percent in 2006, copper production decreased 14.1 percent (Figure 8). Copper continues to be the largest employer in the New Mexico mining industry. Copper employment remained stable in 2006; payroll increased 28.7 percent. Reclamation employment in the copper sector more than doubled to 189 workers due to ongoing reclamation projects at Tyrone and Chino. These employment trends are likely to continue through 2008 as copper spot prices have continued to remain at historically high levels — an average of over \$3 per pound in 2006 and 2007.

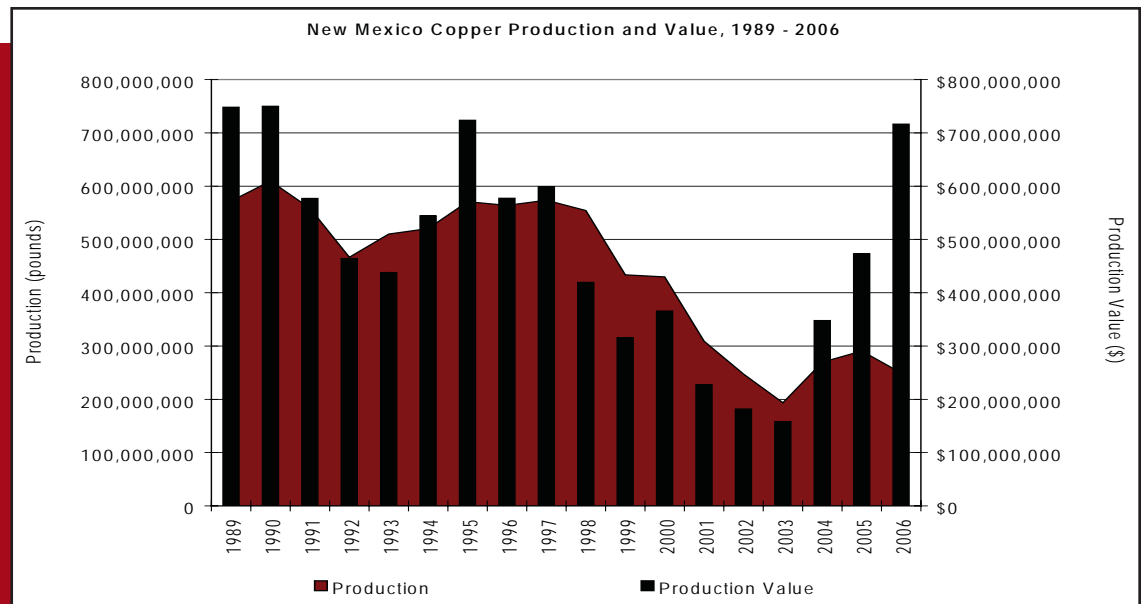


Figure 8

New Mexico ranks third in domestic copper production after Arizona and Utah. Copper is the third most widely used metal, after iron and aluminum. New Mexico-produced copper is used in the manufacture of electrical components and wire. Phelps Dodge Mining Company subsidiaries produce copper and byproduct base metals in Grant County in southwest New Mexico. Base metals include gold, silver and molybdenum. On March 19, 2007, Phelps Dodge Corporation became a wholly owned subsidiary of Freeport-McMoRan Copper & Gold Inc.

The two active Phelps Dodge operations in New Mexico are the Chino and Tyrone mines. The Chino Mine consists of the Santa Rita Pit, the 43,000 ton per day Ivanhoe Concentrator, and a 150 million ton per day SX/EW plant. The Tyrone Mine consists of a SX/EW plant and large open pit operations. The third Phelps Dodge operation, Cobre Mining Company's Continental Mine, has been on standby since 1999 and is not currently producing copper. Cobre is currently proposing to bring the Continental Mine off standby status and resume mining. Continental includes a 20-acre tailings pond that contains magnetite recovered during the milling process by previous operators. Cobre has been reducing the pond volume by selling magnetite to offsite buyers.

Reclamation efforts at the Continental Mine have focused on the closure of historic shafts and adits of the abandoned metal, industrial mineral and gemstone mines in the Fierro, Hanover and Bayard areas. Over 40 historic mine openings have been safeguarded and closed at the Pearson-Barnes, Hanover-Empire Zinc, Copper Flats, Cupola, Gooseneck, Hate, Malachite, Monahan, Republic, Silver King, Summit and Thunderbolt Mines.

Phelps Dodge is developing engineering designs and work plans for the reclamation of a majority of the inactive tailings impoundments at the Chino Mine. Phelps Dodge has constructed test plots on the waste rock stockpiles at the Chino Mine. Test plot objectives include determining optimum soil-cover thickness, textural suitability, soil amendments and slope angle for revegetation success.

Reclamation continues for portions of the Tyrone Mine property: 982 acres of disturbed mine lands were reclaimed in 2006. Reclamation activities have focused on the tailing impoundments, stockpiles and the mill/concentrator site. Reclamation activities at Tyrone are scheduled to continue into 2010.

Phelps Dodge plans to construct the world's first commercial-scale concentrate leaching plant in Morenci, Arizona, reducing their need for smelter capacity. Currently, Chino's copper concentrate production is sent to Phelps Dodge's smelter in Miami, Arizona. The Hurley and Hidalgo Smelters were demolished in 2006. The skyline of southwestern New Mexico was permanently altered when the smokestacks at both the Hidalgo and Hurley Smelters were razed in May and June of 2007. Remediation of contaminated soils at the smelters and the town of Hurley is continuing.

**Gold and Silver:** The only gold and silver currently produced in New Mexico is a byproduct of copper processing at Phelps Dodge copper operations in Grant County. Production and production value of these commodities peaked in the 1980s and has steadily declined since that time.

Gold production in 2006 increased 38.1 percent to 13,488 troy ounces, production value rose 87.5 percent to \$8.1 million. Silver production remained stable, rising just 2.7 percent to 209,254 troy ounces; production value increased 63.0 percent to \$2.4 million. According to USGS statistics, New Mexico ranked tenth in the United States for gold and silver production in 2006.

Two new minimal impact gold mines are under development: the Northstar Mine in Rio Arriba County and the San Lorenzo Claims Mine in Socorro County. Production has not started at either mine. In May 2006, Santa Fe Gold Corporation, formerly Azco Mining Company, purchased the Summit Mine in Grant County and Lordsburg Mill in Hidalgo County. Santa Fe Gold is currently working on the mining permit transfer and securing capital for project development. Exploration for gold, silver and other precious metals continues in New Mexico. In 2006 and 2007, the Mining Act Reclamation Program permitted eleven precious metal exploration projects in Catron, Grant, Luna and Socorro counties.

LAC Minerals continues to perform reclamation and groundwater remediation work at the closed Cunningham Hill Gold Mine, located in the Ortiz Mountains in Santa Fe County.

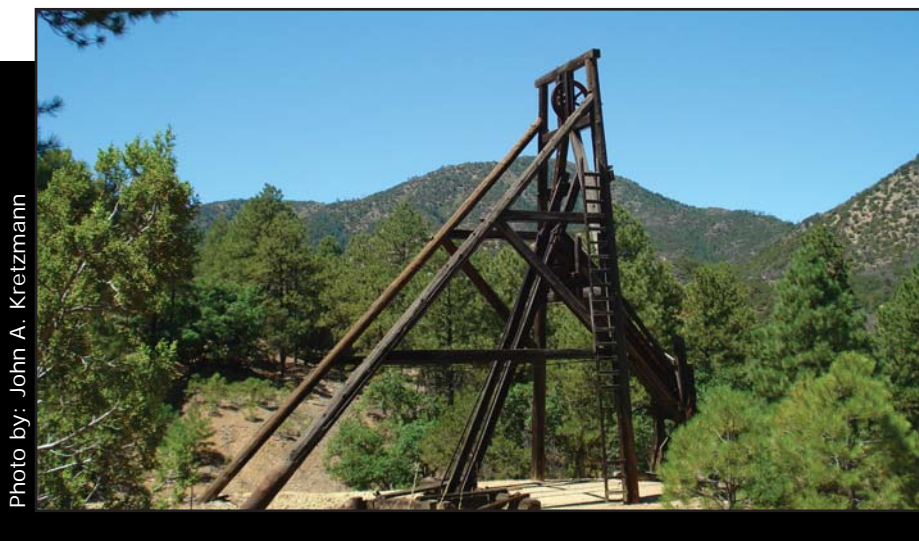


Photo by: John A. Kretzmann

Headframe at the Benton gold mine in the Ortiz Mountains, active between the 1880s and 1930s"

**Molybdenum:** New Mexico remains a major producer of molybdenum, ranking sixth in domestic molybdenum production. Molybdenum is used primarily in the manufacture of steel and other alloys. Continued high levels of steel production and consumption in China and India created a stable demand for molybdenum.

The state's primary molybdenum producer is Chevron Mining Inc. - Questa Mine in northern Taos County. In August of 2007, the Pittsburg & Midway Coal Mining Co. officially changed its name to Chevron Mining Inc., then merged with Molycorp, Inc. one month later. Chevron Mining Inc. is a wholly-owned subsidiary of Chevron Corporation and is headquartered in Englewood, Colorado. The Questa Mine, an underground block cave mine and mill operation, produces molybdenite concentrate (MoS<sub>2</sub>) and is one of three primary producing molybdenum mines in the U.S. The Questa Mine is currently developing a new ore body and is evaluating other development opportunities to sustain long-term production.

Molybdenum is also produced as a by-product of copper production at Phelps Dodge operations in Grant County. Strong copper prices and a deficit of refined copper allowed New Mexico copper mines to increase byproduct molybdenum production.

While New Mexico molybdenum production remained stable at 4.0 million pounds in 2006, production value decreased 18.0 percent to \$84.7 million. The drop in production value is due to a decrease in molybdenum prices. After rising dramatically from an average \$2.35 a pound in 2001 to an average \$32.69 per pound in 2005, molybdenum spot prices stabilized at \$24.75 per pound in 2006. Employment numbers and payroll have increased during the same period. Since 2001, direct employment increased 86 percent, contract employment rose 150 percent and payroll increased 50 percent. Reclamation employment increased to 25 workers in 2006, a 66.7 increase from 2005.

In April 2006, the Questa Mine closeout plan, with specific reclamation criteria for the subsidence zones at the mine, was approved. Recent efforts at the Questa Mine have focused on the long-term stabilization of the several hundred million tons of waste rock in nine rock piles at the site. In 2006, reclamation activities focused on the stabilization of the base of the rock piles located near Highway 38. Analysis of the stability of the other rock piles at the mine continues.

Overview of the stockpile area at the Questa Mine in northern Taos County. The Questa Mine has been in operation since 1918.

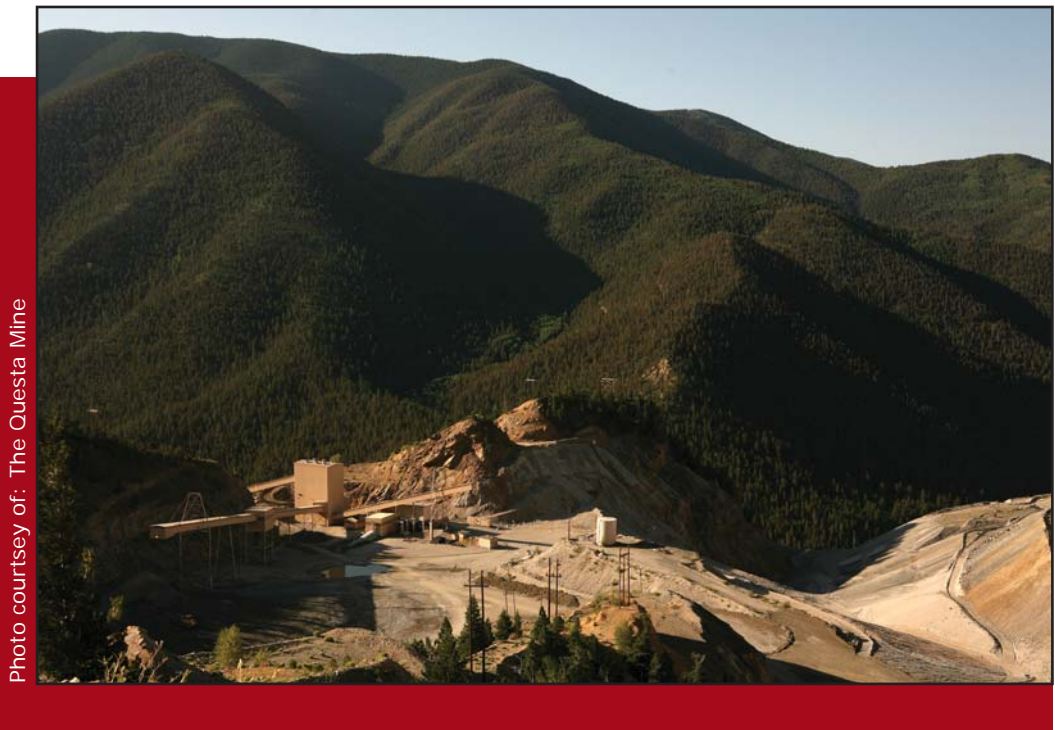


Photo courtesy of: The Questa Mine

**Potash:** New Mexico ranks first in the nation in potash production. After reaching a record high production value in 2005, New Mexico's 2006 production value fell to \$237.6 million, a 16 percent decrease (Figure 9). Potash mill production decreased 16.5 percent to 825 thousand pounds K<sub>2</sub>O equivalent. Payroll increased 6.3 percent and employment increased 16.4 percent. Lower potash production is a result of deadlocked contract negotiations with the major potash importers (China, India and Brazil) during the first half of 2006.

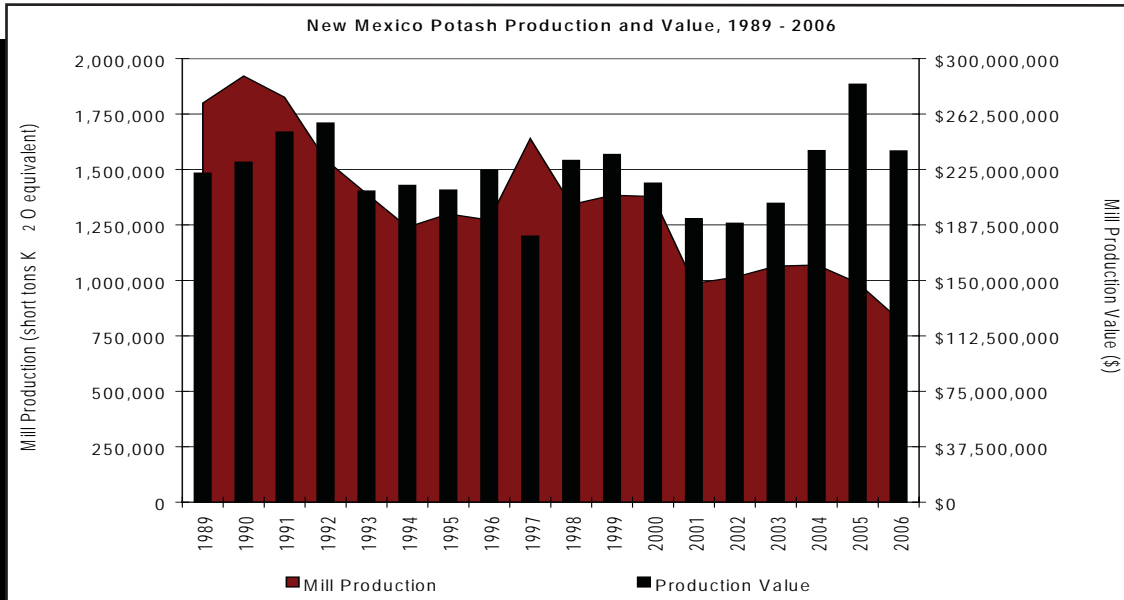


Figure 9

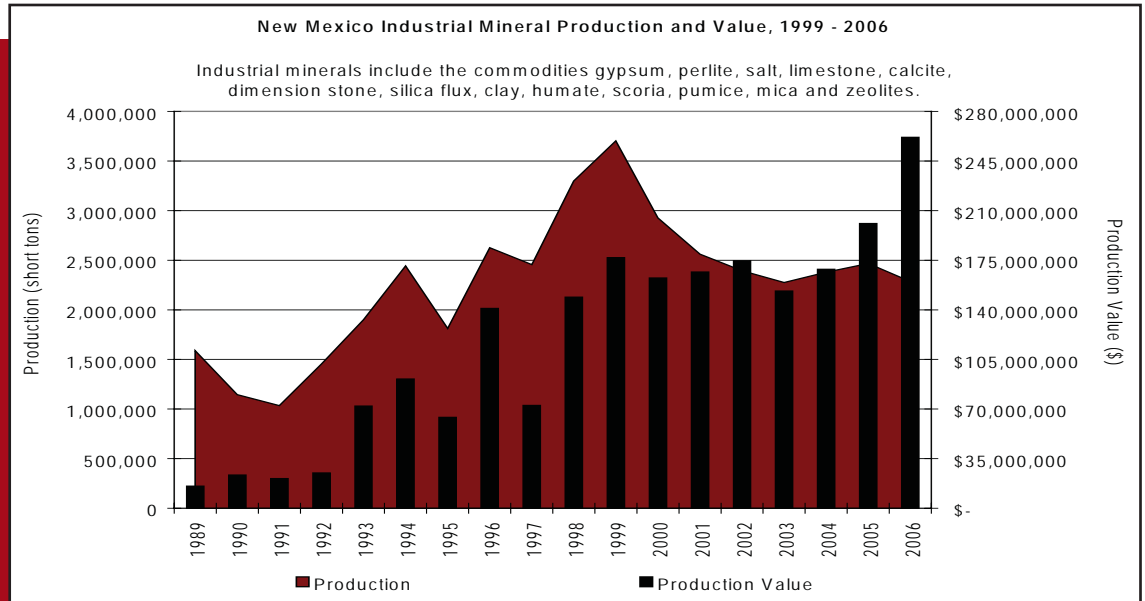
Potash is a mined salt containing water-soluble potassium. Two companies operate three mines and four mills in Eddy and Lea counties in southeastern New Mexico. Intrepid Mining New Mexico LLC operates the Intrepid East, Intrepid West and Intrepid North facilities. Interpid's East facility consists of an underground mine, refinery and compaction plant; the West facility, an underground mine and refinery; and the North, a compaction plant and product storage facility. Mosaic Potash Carlsbad, Inc. operates the Mosaic Mine and Mill, consisting of an underground mine, refinery, compaction plant and storage facility.

The Carlsbad potash district represents 2 percent of worldwide potash production and more than 77 percent of all domestic potash production. Both potassium chloride (sylvite) and potassium-magnesium sulfate (langbeinite) are mined by underground methods and are beneficiated by flotation, heavy-media separations or dissolution-recrystallization methods. New Mexico-produced sylvite is used primarily as an agricultural fertilizer or animal feed supplement and in drilling muds. Langbeinite products have a high potassium, magnesium and sulfur content and are marketed as a special-use fertilizer to chloride sensitive crops such as tobacco, citrus fruits and vegetables. Farmers in nearby states use most New Mexico-produced potash; approximately a quarter is exported to Central and South America, the Caribbean and Asia.

Potash consumption has steadily increased since 2004 as world crop production has increased, especially in Brazil, China and India. High oil prices have increased fertilizer demand by spurring ethanol and biodiesel production. Industrial demand for potash for use in drilling muds has risen with increased oil and gas exploration.

Intrepid is also working on reopening the Eddy Potash Mine, closed in 1997, as a solution mine. The project is currently in the permitting phase with the New Mexico Environment Department. Intrepid has decommissioned and dismantled the old mill at the Eddy Mine.

**Industrial Minerals:** The \$261.7 million production value of 2006 is a new record for industrial minerals in New Mexico (Figure 10). Although production value increased, total industrial mineral production decreased 7.3 percent to 2.2 million short tons, employment decreased 13.8 percent to 517 workers, and payroll decreased 12.6 percent to \$21.2 million. Reclamation employment remained stable at 12 workers.



**Figure 10**

Industrial mineral resources are widely dispersed across the state. In New Mexico, the more important industrial mineral resources include gypsum, perlite, salt, limestone, dimension stone, silica flux, clay, humate, scoria, pumice, mica and zeolite. In 2006, there were 22 mines and 19 mills producing industrial minerals in the state. In addition, one humate mine and one silica mine were on standby status. Two industrial mineral mines were under development: one garnet and one zeolite. Table 3 details location, employment and the production rank for industrial mineral commodities in the state.

Commodity	Production Rank <sup>1</sup>	County	Employment <sup>2</sup>	Reclamation Employment <sup>3</sup>
Clay <sup>4</sup>	-	Bernalillo, Doña Ana	4	0
Dimension Stone <sup>4</sup>	8	Valencia	24	0
Gypsum	13	Bernalillo, Doña Ana, Sandoval	166	0
Humate	-	Sandoval, San Juan, McKinley	28	0
Limestone <sup>4</sup>	-	Bernalillo	78	0
Perlite	1	Socorro, Taos	68	5
Pumice	5	Bernalillo, Sandoval, Santa Fe, Rio Arriba	50	4
Salt	11	Eddy	68	0
Silica Flux	-	Grant	1	1
Silica Sand	-	Santa Fe	1	0
Zeolite	1	Sierra	29	2
<b>TOTAL</b>			<b>517</b>	<b>12</b>

<sup>1</sup> Source: USGS 2006 Ranking  
<sup>2</sup> Includes both direct and contract employees.  
<sup>3</sup> Reclamation employment is included in the employment number.  
<sup>4</sup> Location and employment is for mills only. Mine employment included in aggregates.

**Table 3**



New Mexico remains the leading state for the production of perlite and zeolite and is one of the main producers of pumice. Zeolite is produced at St. Cloud's Zeolite Mine and Greg Richards' Coyote Cliff No. 1 Mine. Active perlite operations include Dicaperl Minerals' El Grande and Socorro properties, and Harborlite's No Agua facilities. Pumice operations include Copar Pumice's South Pit, El Cajete and Guaje Canyon mines, and San Ysidro and Espanola plants; CR Minerals' Rocky Mountain Mine and Santa Fe Plant; and Utility Block's U.S. Forest Service Mine and Utility Block Mill. Humate mines include Rammsco's Eagle Mesa Mine; Morningstar's Morningstar Mine and Mill; Horizon Ag-Products' San Luis Mine; Mesa Verde Resources' Pueblo Alto and Star Lake mines, and San Ysidro Mill; and Menefee Mining's Star Lake Mine and Menefee Mill. Other major industrial mineral properties in New Mexico include Eagle Materials' White Mesa Gypsum Mine Albuquerque Plant and Bernalillo Plant; GCC Rio Grande's Tijeras Limestone Quarry and Cement Plant; New Mexico Travertine's Lucero Quarry and Belen Plant; Oro Blanco's Silver Silica Mine; and United Salt's Lake Mine and Carlsbad Plant.

During 2006 and 2007, the Mining Act Reclamation Program approved five exploration permits for garnet, agate and specimen fluorspar.

**Stone and Aggregate Industrial Minerals:** Stone and aggregate, which includes sand and gravel, is a subset of industrial minerals. Construction sand and gravel is one of the most accessible natural resources and a major basic raw material. Despite the low unit value of its products, the construction sand and gravel industry is a major contributor to, and an indicator of, economic well-being and growth.

There were 189 active and 16 standby stone and aggregate operations in New Mexico in 2006, a 2.7 percent increase from 2005. Production value for stone and aggregate set a new record high of \$140 million. While production value increased 8.8 percent, aggregate and stone production decreased 3.5 percent from 2005 record high to 19.3 million short tons (Figure 11). Payroll and employment decreased 1.6 percent in 2006. Reclamation employment at aggregate and stone operations dropped by 25 percent from 2005 numbers, although it is still double the historical average of 40 employees. (Table 4) details the production and production value of the different stone and aggregate commodities produced in the state.

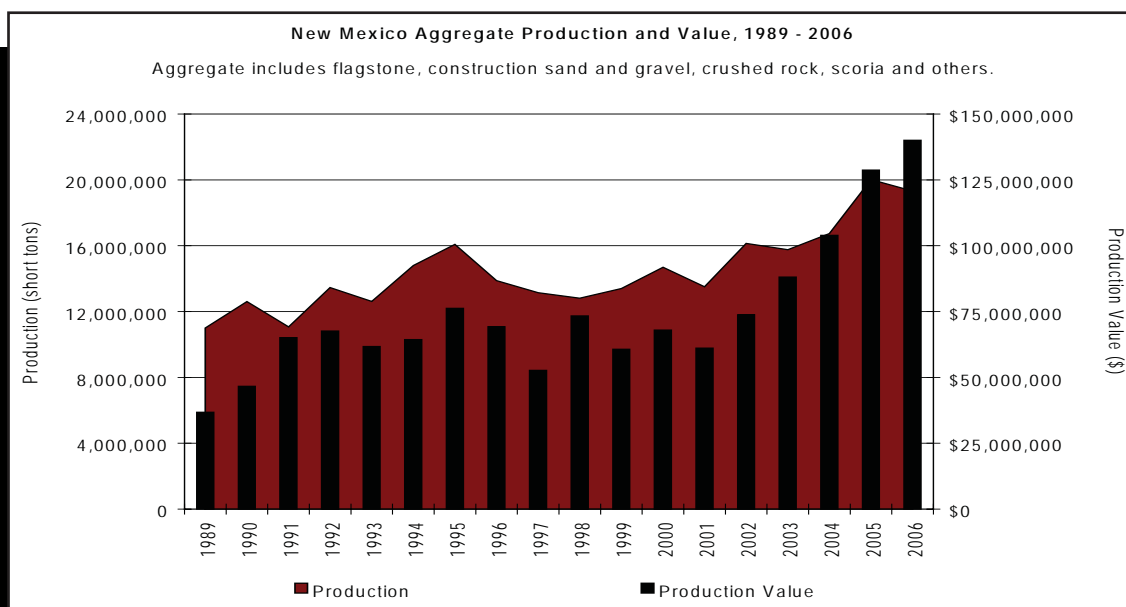


Figure 11



### New Mexico Aggregate and Stone Production, 2006

Commodity	Production (short tons)	Value (\$)
Base Course	4,209,635	\$ 26,802,921.11
Caliche	69,947	\$ 159,795.38
Clay & Shale	35,751	\$ 192,917.56
Crushed Rock	338,066	\$ 2,300,916.32
Fill Dirt	2,018,124	\$ 6,458,135.64
Flag & Dimension Stone	8,087	\$ 573,290.21
Gemstone	W	W
Gravel	6,707,006	\$ 51,480,419.08
Limestone	683,567	\$ 3,799,372.10
Other	2,006,054	\$ 22,234,677.96
Red Dog	W	W
Riprap	117,872	\$ 1,886,010.04
Sand	2,503,379	\$ 18,596,434.43
Scoria	603,717	\$ 5,411,068.00
Top Soil	15,899	\$ 92,389.09
Travertine	W	W
<b>TOTAL</b>	<b>19,317,521</b>	<b>\$ 140,022,212</b>

*Table 4*

Aggregate production value increases can be attributed to increased transportation costs due to both longer shipment distances and rising fuel surcharges. The decrease in aggregate production can be attributed to the stagnation in demand for construction aggregates and dimension stone by the road, railroad and home building industries. Aggregate production and consumption for residential and business construction is expected to decrease in 2007 and beyond. With funding shortfalls predicted for highways and road construction, the road and infrastructure sector is also expected to experience decreased demand in the next several years. It remains to be seen if Governor Richardson's Investment Partnership (GRIP) and the Spaceport America projects will maintain infrastructure aggregate demand.

Increased rail traffic and the construction of dual rail lines in southern New Mexico by Union Pacific Railroad has led to increased demand for railroad ballast and construction materials. This trend is expected to continue as Union Pacific plans to begin construction of a new terminal facility near Santa Teresa in 2008 and the New Mexico Department of Transportation plans to extend Rail Runner service between Albuquerque and Santa Fe in 2008.

The aggregate industry continues to move operations and place new operations away from densely populated centers, where zoning, environmental and land development regulations discourage sand and gravel operations. Consequently, shortages of construction sand and gravel in urban and industrialized areas are expected to increase, as are transportation costs associated with sand and gravel commodities. Increasingly, sand and gravel operations are being included in master zoning and planning documents for regional areas.

Photo by: John A. Kretzmann



A bat cupola at the Old Ortiz Mine, Real de Dolores Mine Safeguard Project in Santa Fe County, allows Townsend big-eared bats to continue to use the abandoned underground mine workings for summer maternity and winter hibernation. MMD was awarded the 2007 National Award for Excellence in Abandoned Mine Land Reclamation for this project.

Photo by: Mickey Ginn, San Juan Coal Company



San Juan Coal Company was awarded the 2007 Excellence in Reclamation Award for development and implementation of an aggressive and comprehensive weed management program at the San Juan Coal Mine.

**OIL**

**Conservation**

**Division**

**(OCD)**





## Mark Fesmire, PE

Division Director



## Oil Conservation Division

### *A Message from Mark Fesmire*

The Oil Conservation Division experienced a successful and challenging year for 2007. We conducted our ongoing oil field work, hit our stride on newer projects such as our inactive well management program and our partnership with the Bureau of Land Management, and we started work on some major new projects that will carry into 2008.

The Oil Conservation Division regulates oil, gas and high temperature geothermal activity in New Mexico. We work to prevent the waste of these resources, to protect the rights of the owners of the resources, and to protect human health and the environment from the effects of development of these resources. We concentrate on the prevention of future contamination of New Mexico's water and soil from oil and gas operations, and the identification and remediation of historical conditions caused by oil and gas operations that threaten our water or soil.

We inspect wells, make sure violations are corrected, permit drilling and other oil field activities, collect and publish well information, conduct hearings and review requests for exceptions.

The new projects we began in 2007 include the diversion of water produced from wells to productive use, the study of how regulations can reduce carbon dioxide emissions, and the revision of the rules about pits. Pits hold the waste that comes out of the ground during oil and gas well drilling operations, so their contents need to be isolated from ground water and vegetation. We are excited about our role in these opportunities to reduce contamination and emissions and to find uses for water that has been a waste product until now.

Our challenge is to implement regulations of oil and gas operations that protect New Mexico's water and soil at a reasonable cost, because we see every day that the cost to remediate contamination decades later is not at all reasonable, and that toll reduces the services that can be provided to every New Mexican.

I hope you enjoy reviewing our initiatives, accomplishments and statistics.



## Oil Conservation Division:

**Mission:** The Oil Conservation Division (OCD) administers laws and regulations relating to the oil, gas and geothermal industry of New Mexico. The Oil and Gas Act, the Water Quality Act and the Geothermal Resources Conservation Act authorize the division to enforce primary statutory mandates.

**Programs:** The division is organized into four district offices and five bureaus responsible for different aspects of regulating the oil and gas industry. The district offices issue drilling permits, inspect wells and associated facilities, respond to spills, investigate violations and institute enforcement actions.

The Engineering and Geological Services Bureau processes administrative applications for exceptions to OCD rules and the staff serves as division-appointed hearing examiners for OCD hearings. The Environmental Bureau develops and enforces environmental regulations and programs in the oil and gas industry for the protection of New Mexico's environment. The Legal Bureau provides legal advice and support, works with well operators to implement and manage Agreed Compliance Orders and participates in the formulation of OCD rules and proposed legislation. The Automation and Records Bureau is responsible for collecting and dispersing monthly well production and injection data, information about wells, completions, spacing, pools, operators, inactive wells and orphan wells. It also manages data systems including OCD Online Electronic Permitting and OCD Online Imaging as well as the OCD website. This bureau also tracks statistics and oversees the division's budget and procurement needs. The Administrative Bureau provides administrative support for the division, manages the plugging bond program and the hearing process, and maintains records of cases and orders. The Oil Conservation Commission is a three-member commission that makes rules governing oil and gas production in New Mexico.

The division works with representatives from diverse groups to consistently enforce its regulations and identify areas where regulations can be improved. OCD is actively involved in nationwide federal, state and industry organizations that share information on new technologies and discuss best practices and success stories in areas such as web-based deliverables, carbon sequestration, beneficial uses of produced water and the protection of ground water.

OCD employees also participate in and lead committees involved in the development of municipal oil and gas regulations, oil and gas workplace safety programs, youth seminars and emergency response planning.



Photo by: Mikal Altomare

## Accomplishments:

**Enforcement:** The division refined its enforcement rules in 2005 with changes that went into effect throughout 2006 and 2007. These new enforcement rules provide a means for well operators and OCD to consistently determine whether an operator is compliant or non-compliant with division rules in the areas of well inactivity, financial assurance, operatorship and meeting the requirements of division orders. Information that determines current and future non-compliance is displayed on the division's web site and updated daily to allow all parties to take early action and to provide assurance that enforcement is equitable.

During the two years that the new enforcement rules have been in place, OCD and the well operators have worked successfully to develop plans to increase each operator's level of compliance.

**Financial Assurance:** The division and the well operators prepared throughout 2007 for the new rule requiring additional financial assurance for wells that meet certain criteria for inactivity. The amount of the financial assurance is based on the depth of the well. Whether or not a well requires the additional financial assurance changes over time; a complete list of wells and the amount of assurance that must be obtained is on the division's web site and updated daily.

In the past, if a well operator did not have adequate funds to properly plug inactive wells, the only option to address the environmental risk was for the state to plug the well using funds from the Oil and Gas Reclamation Fund. The new additional financial assurances received for inactive wells will be applied against the cost of plugging these wells if the well operator does not have adequate funding to return them to production, properly temporarily abandon them or plug them.

**Inactive Well Management:** When the new enforcement rules went into effect in 2006, there were 2,786 inactive wells that were identified as out of compliance with the new enforcement rules. Near the end of 2007, the number is down to 1,630 due to the return of wells to production, well pluggings, entrance into agreements to manage the wells on a defined schedule, and the temporary abandonment of wells after successful testing of the mechanical integrity of the well. The Agreed Compliance Order process provides well operators who do not have the financial resources to take immediate action on every one of their inactive wells the ability to address each inactive well in an agreed-upon time frame.

**BLM Partnership:** The Bureau of Land Management (BLM) is a key partner to OCD due to New Mexico's very high percentage of wells and drilling activity on federal land. OCD and BLM have entered into a formal partnership that includes the assignment of OCD employees to BLM offices, implementation of a shared computing system and the consolidation of inspections. This is a successful partnership and further integration of practices and business processes is in process.



**Orphan Wells:** As mentioned above, beginning on January 1, 2008, well operators must obtain additional financial assurance for inactive wells to be used if the well needs to be plugged and if the operator cannot meet the cost. This will leave fewer “orphan wells” in the future, but there may be one hundred to two hundred wells for which no party obtains the newly required financial assurance. At this time the number of orphan wells is approximately 80, but this number is expected to grow dramatically when the companies that do not comply with the new financial assurance requirements become known.

The division plugs orphan wells with funds from the Oil and Gas Reclamation Fund which is funded by a percentage of the severance taxes paid by the well operators and by forfeited financial assurances. Depending on the depth of the well, the complexity of the plugging operation, the competition for rigs and the availability of oil field hands, the cost can be double to quadruple the amount of the financial assurance, if there is any financial assurance. New Mexico has made great strides in limiting the number of future orphan wells to be remedied, but it will take several years to plug those wells already identified. More orphaned wells are expected to surface with the January 1, 2008, additional financial assurance requirement mentioned above.

**Use of Produced Water:** OCD led several stakeholder meetings to explore increasing the diversion of water produced during oil and gas operations into productive use, as requested by a Senate Memorial from the 2007 legislative session. This team continues to explore the reclamation of this significant source of produced water and options for its re-use.

**Carbon Sequestration:** Geologic sequestration of carbon dioxide has been identified as a technically viable means to significantly reduce anthropogenic emissions of the greenhouse gas carbon dioxide (CO<sub>2</sub>) over long time scales. OCD leads a stakeholder group to explore and identify statutory and regulatory requirements needed to accomplish this. In 2007, the team identified many statutory and regulatory issues related to CO<sub>2</sub> sequestration and is in the process of finalizing a recommendation to further this activity in New Mexico.

**Rule Enhancement:** The Surface Owners’ Protection Act was adopted in 2007. This act made the responsibilities of land owners and of the oil and gas well operators clearer and provided a vehicle for more effective communication.

OCD’s Environmental Bureau led a task force of members from the industry, the public, other government entities and other interested parties to create a proposed rule to replace the existing pit rule. Pits are used to contain fluids resulting from drilling and other oil and gas operations to prevent those fluids from contaminating ground water or harming wildlife. Topics considered included standards for pit installations and closures, the lining of pits, soil testing, fencing and netting, and best practices.

**Electronic Systems Leadership:** OCD is a leader among oil and gas states in web-based permitting and delivery of information. Its imaging system delivers approximately six million pages of permits, orders, maps, tests, charts, diagrams, photographs and supporting information via the web. This system is applauded by users all over the world as the most comprehensive and responsive public sector deliverable of petroleum information. In 2007, all discharge permits ever approved by the Environmental Bureau were scanned into this system, an increase of approximately one million pages of documents. The Information Technology Bureau

rewrote the imaging system in 2007 and upgraded the servers that host the application; this resulted in faster response time and increased security.

OCD's online electronic permitting system allows well operators to submit applications for permits to drill, plats, sundry notices, tax incentives, monthly well production, change of operatorship requests and reports via the web. The system automatically supplies information that reduces keying, omissions and errors, and allows OCD staff to approve permits much more quickly than paper forms. Both the imaging system and the electronic permitting system are easy to use, responsive and very well received, and the number of permits available is increasing.

***Community and Industry Involvement:*** New Mexicans have been involved in the oil and gas industry for over 80 years. The industry currently provides approximately one-quarter of the state's revenue. OCD district offices are located in the cities with the greatest oil and gas activity, so the division and the industry are truly good neighbors.

OCD staff participates in ongoing forums with other states, the petroleum industry, technology researchers, municipalities and the community. Some organizations in which the division is active include the Ground Water Protection Council, the Hobbs Energy Committee, the Four Corners Safety Council and the Interstate Oil and Gas Compact Commission. The division and industry share training opportunities on topics such as maintaining safe working conditions in the oil field, and conducts training for youth organizations and schools about the future of energy and the need to protect ground water.



Photo by: Mikal Altomare

## Oil Conservation Division Data and Statistics:

**Overview:** New Mexico is ranked fourth in marketed natural gas production (behind Texas, Wyoming and Oklahoma) and third in proven gas reserves (ahead of Colorado and Oklahoma, behind Texas and Wyoming) among all producing states in the United States. A portion of the gas is coalbed methane, for which New Mexico is the first in production and second in reserves.

New Mexico is ranked sixth in crude oil production and fourth, with Wyoming, after Texas, Alaska and California, in proven onshore oil reserves. The U.S. Energy Information Administration of the Department of Energy is the source of this ranking information.

New Mexico is a national leader in both production and reserves of carbon dioxide (CO<sub>2</sub>).

As of November 2007, there were 23,181 active oil producing wells, 27,481 active gas producing wells, 497 active CO<sub>2</sub> injecting wells, 3,898 active enhanced recovery injection wells and 685 active salt water disposal wells.

Most of today's oil production occurs in the New Mexico portion of the Permian Basin in southeast New Mexico and most of the natural gas production occurs in the New Mexico portion of the San Juan Basin in northwest New Mexico.

Record and near record prices for oil and natural gas continued in 2007 sustaining the oil and gas activity in the state. As of November 16, 2007, West Texas Intermediate Crude oil prices were \$95.10 per barrel and gas prices averaged nearly \$8.001 per MMBtu (Million British Thermal Units).

Total New Mexico crude oil production, including condensate, in 2006 was 59.9 million barrels. New Mexico natural gas production in 2006 was 1,591 billion cubic feet (BCF).

**New Mexico State Revenues from Oil and Gas Production**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
<b>State General Fund:</b>					
Oil and Gas Emergency School Tax	229,638,624	297,070,343	386,785,907	491,657,374	426,780,461
Oil and Gas Conservation Tax	10,888,867	14,931,771	19,514,983	24,819,553	22,318,514
Natural Gas Processors Tax	21,077,023	13,477,994	24,321,786	27,268,027	34,844,116
Federal Mineral Leasing Royalties	258,365,730	308,108,000	391,000,000	544,880,000	501,000,000
State Land Office Rents, Bonuses, etc.	18,727,187	22,060,805	42,044,343	52,695,563	47,570,556
Gross Receipts Tax	36,474,526	42,941,465	55,867,203	124,794,894	103,109,029
<b>Subtotal -- Revenue From Current Production</b>	<b>575,171,957</b>	<b>698,590,378</b>	<b>919,534,222</b>	<b>1,266,115,411</b>	<b>1,135,622,676</b>
Earnings on Land Grant Permanent Fund	259,142,844	274,700,492	339,791,000	343,380,000	348,945,144
<b>Total -- General Fund Revenue</b>	<b>834,314,801</b>	<b>973,290,870</b>	<b>1,259,325,222</b>	<b>1,609,495,411</b>	<b>1,484,567,820</b>
<b>Severance Tax Bonding Fund:</b>					
Oil and Gas Severance Tax	221,446,421	293,087,714	384,561,385	488,952,323	426,206,903
<b>Land Grant Permanent Fund:</b>					
State Land Office Royalties	218,385,341	236,277,777	312,251,910	405,343,063	390,449,484
<b>Grand Total of All Funds</b>	<b>1,274,146,563</b>	<b>1,502,656,361</b>	<b>1,956,138,517</b>	<b>2,503,790,797</b>	<b>2,301,224,207</b>

Source: New Mexico Taxation and Revenue Department and State Land Office

*Table 1*

FY 2007 State General Fund Revenue from Oil and Gas Sales

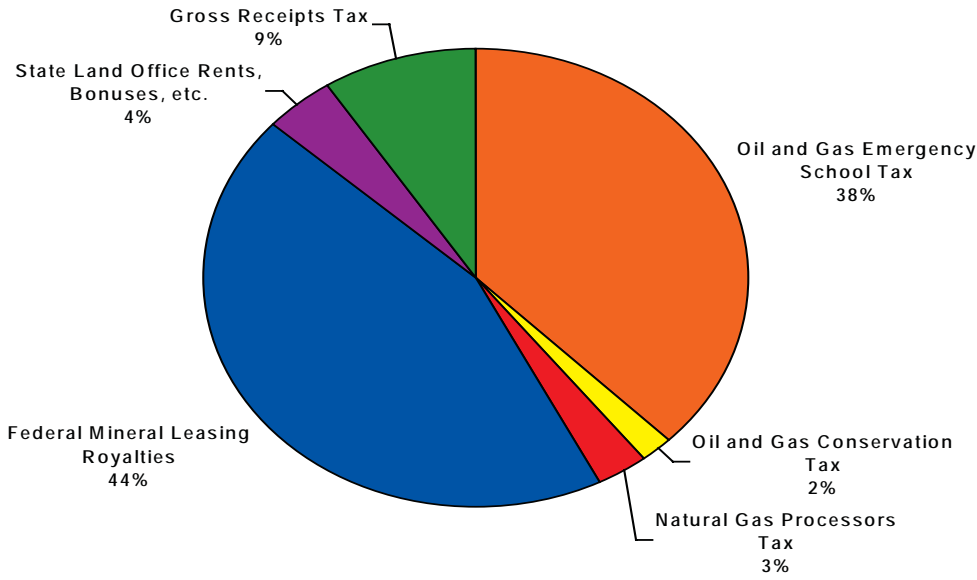


Figure 1

Natural Gas Production by Year

Year	SE Casinghead	SE Dry Gas	NW Casinghead	NW Dry Gas	Total Natural Gas (Includes NE)**	Coalseam Gas (Included in Total)
2002	206,453,128	380,735,967	14,928,735	1,015,215,823	1,627,583,333	496,653,035
2003	210,912,295	362,777,345	15,194,438	994,037,538	1,597,782,134	479,715,095
2004	227,780,878	340,226,229	13,320,430	1,011,229,222	1,612,066,867	504,862,369
2005	225,795,254	326,144,623	12,772,973	1,003,379,936	1,592,846,243	520,147,628
2006	228,424,945	317,218,045	12,891,097	1,006,711,102	1,591,644,163	524,844,826

\*Volumes are adjusted to reflect amended production reports filed with the Oil Conservation Division  
 \*\*Totals include gas produced in northeast New Mexico, which is not displayed in a separate column  
 Source: Oil Conservation Division

Table 2

### 2006 Oil and Gas Production by County

Rank	Oil (Barrels)	Rank	Gas (Thousand Cubic Feet, MCF)
1	Lea 35,627,489	1	San Juan 630,411,788
2	Eddy 20,765,797	2	Rio Arriba 387,961,000
3	Rio Arriba 1,346,409	3	Eddy 268,718,251
4	San Juan 1,195,450	4	Lea 249,057,613
5	Chaves 532,011	5	Colfax 26,398,974
6	Roosevelt 332,224	6	Chaves 25,121,311
7	Sandoval 80,731	7	Roosevelt 2,701,377
8	McKinley 4,873	8	Sandoval 1,247,637
	Total 59,884,984	9	McKinley 26,212
		Total	1,591,644,163

Source: Oil Conservation Division

Table 3

### Wells Drilled and Completed by Year by Well Type First Reported Completion per Well

Year	Gas	Oil	Other	Total
2002	816	346	77	1,239
2003	1,142	653	92	1,887
2004	1,317	602	90	2,009
2005	1,451	726	95	2,272
2006	1,327	841	134	2,302

Source: Oil Conservation Division

Table 4

### 2006 Oil and Gas Prices vs. Rig Count

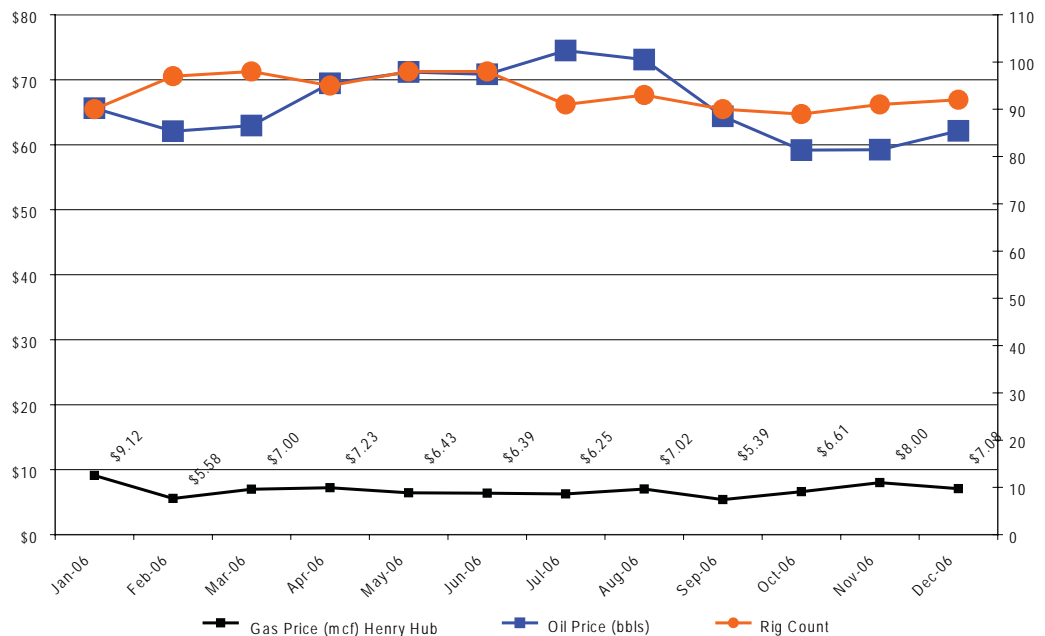


Figure 2

2006 Oil Production by Land Type

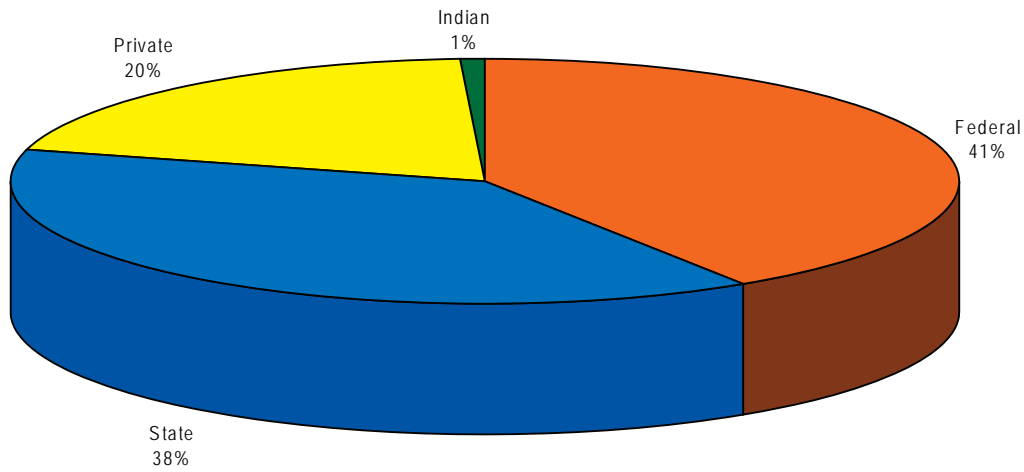


Figure 3

2006 Gas Production by Land Type

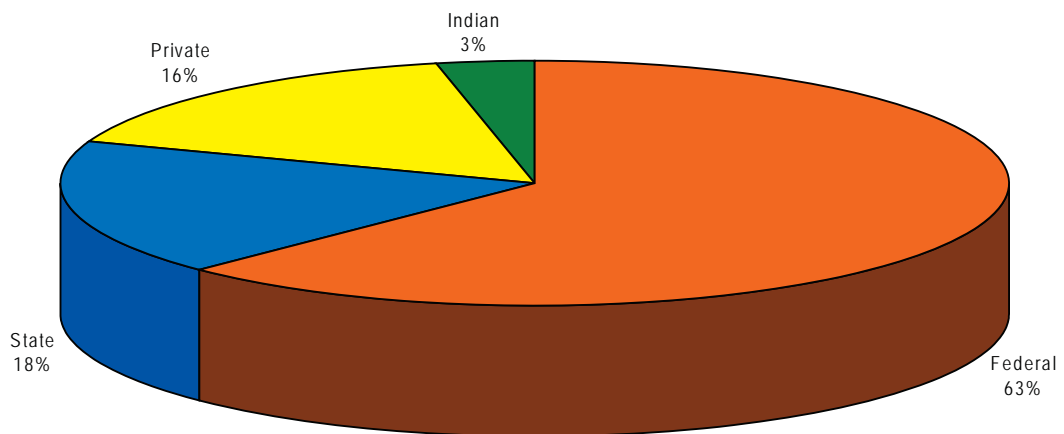


Figure 4



**Parks**

**New Mexico**

**State Parks**

**Division**



## David J. Simon

Division Director



### *A Message from State Parks Director Dave Simon*

Snow falls in Santa Fe, drawing 2007 to a soft and chilly close. The ever-present sun, the warmth, the time spent outdoors in the woods and on the lakes, the sounds and sweet smells of Spring and Summer in New Mexico—all seem distant. But looking back through the curtain of snowflakes, it was a wonderful year for state parks.

New Mexico was favored with just enough winter and spring precipitation to keep good recreational conditions afloat, and over 4 million visitors enjoyed our lakes, campgrounds, and trails—connecting and re-connecting with nature, and with each other. The Governor and the Legislature favored State Parks, too, teaming up to provide a significant, sorely-needed budget increase.

Throughout 2007, New Mexico State Parks gave new meaning to venerable ideas and invested time and energy into cherished places. We renewed leases so that parks would remain open, fixed campgrounds, restored historic structures, sponsored youth conservation projects, and honored America's veterans with new park benefits. Volunteerism—that hallmark of America—reached an all-time high in State Parks this year. And, blessedly, it was a safe year, with zero boating-related fatalities in state parks.

State Parks also gave birth and energy to exciting new ideas. Facilities at Mesilla Valley, our newest state park, rose from the earth. State Parks launched the Outdoor Classroom Program—a partnership with schools that has placed New Mexico in the forefront of states active in a nationwide movement to “Leave No Child Inside.” Our dedicated State Park employees remain committed to the goal of having the best state park system in the nation.

To New Mexicans who know and love New Mexico State Parks—and to our many visitors from afar—thank you for your interest and support. The warmth will return and we look with excitement toward our Diamond (75th) Anniversary in 2008 and the chance to celebrate and share some of our state's most cherished places with more people. My wish for you in 2008 is simple:

**LIVE WELL...BE HEALTHY...PLAY MORE...EXPERIENCE PARKS!**



A remnant of riverside woodland and restored wetland along the Rio Grande, Mesilla Valley Bosque State Park is a haven for migratory birds and for people seeking walking trails and quiet enjoyment of nature.

## New Mexico State Parks Division

**Mission:** To protect and enhance natural and cultural resources, provide recreational facilities and opportunities, and promote public safety and education to benefit and enrich the lives of our visitors.

**History:** New Mexico State Parks (Parks) was founded in 1933 in conjunction with the Civilian Conservation Corps efforts during the Great Depression. Today, there are 33 parks encompassing 19 lakes and 182,978 acres of land, and the upcoming addition of the Cerrillos Hills State Park brings the total acreage to 184,094.

### Accomplishments:

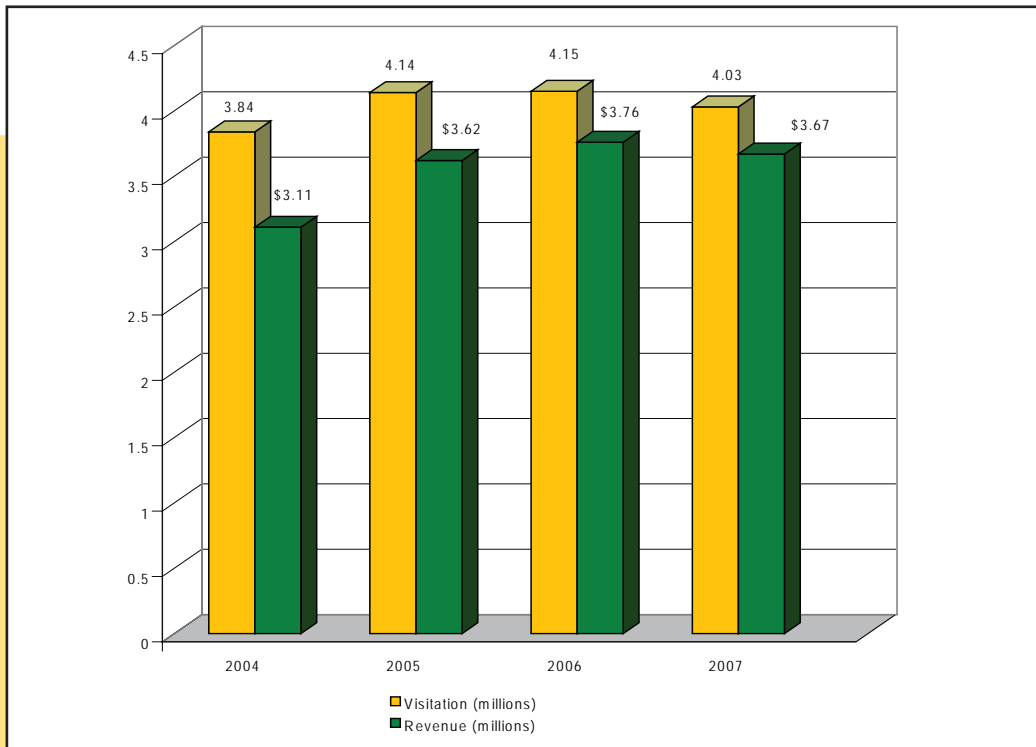
New Mexico's state parks offer spectacular scenery, outstanding land- and water-based recreational areas, and provide educational programs for visitors of all ages. This past year we celebrated four million visitors for the third consecutive year. Thanks to Governor Bill Richardson and New Mexico legislators, Parks received funding for programs that promote outdoor education, for disabled veterans to enjoy an Annual Day Use Pass and receive a free three-night camping pass, and for improvements to our trails. We have signed new leases, upgraded new exhibits, and our boating safety program reached 2,000 students. We proudly boast 3,700 volunteers that contributed 307,555 hours to Parks operations in FY07 – a 42 percent increase over last year.



Photo by: Marti Niman

*Mesilla Valley Bosque State Park*

Visitation, Revenue and Improving Value for Park Visitors: New Mexico state parks welcomed 4.03 million visitors in 2007. Self-generated revenue from entrance and camping fees totaled \$3.6 million. State park entrance, camping and boating fees remained stable throughout 2007. Camping fees have not changed since 1998, boat registration fees have not increased since 1984, and the Annual Camping Permit is now valid for one full year from the month of purchase.



*Figure 1*

New Mexico’s armed forces veterans with a 50 percent or more service-connected disability now receive a free Annual Day Use Pass and a free three-night camping pass. Parks worked with the Department of Veterans Services to implement the new changes effective July 1, 2007.

Parks’ operating budget increased by approximately \$1.8 million. This was one of the largest single-year increases and provided funding to cover increased park operating costs, staff training, and to fill vacancies.

Partnerships, Expansions and New Parks: New public and private partner agreements ensure continued operation and improvements to several well loved state parks for years to come.

Parks signed a new 20-year lease agreement with the City of Albuquerque for Rio Grande Nature Center State Park. Among other provisions, the new lease provides opportunities for Parks to expand education and restoration programs on city-owned lands adjacent to the Nature Center.

Parks acquired 1,000 acres that expand City of Rocks State Park. The addition will protect more Chihuahuan grasslands while providing greater options for trail recreation and education at the park.



A new five-year lease agreement with the New Mexico State Land Office covers state trust lands within five state parks: Bottomless Lakes, City of Rocks, Clayton Lake, Oasis, and Rockhound. The State Land Office is a strong and valuable partner with Parks ensuring state trust lands are available for conservation and public recreation.

Parks completed construction of the access road at the new Mesilla Valley Bosque State Park along the Rio Grande in Las Cruces. A new visitor center will be completed in early 2008. The new facility will become a premier environmental learning center in southern New Mexico.

Parks is working with the County of Santa Fe to establish the Cerrillos Hills State Park on a 1,116-acre open space property owned by the county. A 0.67-acre site in the Village of Cerrillos was purchased for the future location of the park's visitor center. The park will protect and interpret the natural and cultural heritage of the area, including the area's rich mining history; and the visitor center will be a gateway to the greater Galisteo Basin.

***Boating Safety:*** Parks oversees boating safety on waters across the state in accordance with the New Mexico Boat Act. By state law effective January 1, 2007, all motorboat operators who are not 18 years old are required to pass a boating safety education course. Parks worked throughout 2007 to implement the new law. Recreational boating safety is the ultimate goal of this program. In 2007 there were no boating-related fatalities in state parks, and only one boating-related fatality statewide.

At 8,300 feet in elevation, the Eagle Nest Lake State Park offers a cool retreat from the summer heat for fisherman, boaters and wildlife enthusiasts.

Photo by: Marti Niman



*Eagle Nest Lake State Park*

**Outdoor Education and Resource Protection:** The New Mexico Outdoor Classroom Program is a Parks partnership with the Public Education Department and other state agencies and numerous non-profit organizations to increase outdoor education and learning. The New Mexico State Legislature appropriated \$270,000 to launch the pilot phase of the program, as part of a nationwide “No Child Left Inside” movement. During the 2007/2008 school year, Parks will work with its diverse partners to implement the Outdoor Classroom Program, which has three main components: teacher training institutes/curriculum development, transportation grants, and educational materials for students.

In March 2007, Parks also disbursed the first funds provided by the “Kids to Parks” program, which is supported by a voluntary check-off option on the New Mexico Personal Income Tax form. Parks gave transportation grants totaling \$6,000 to nine schools enabling over 1,000 kids to have an outdoor learning experience they otherwise would not have enjoyed.

Parks made progress on several projects to protect and restore natural resources. At the Rio Grande Nature Center, trees were trimmed and new trees were planted to replace the aging cottonwoods within the bosque.

Parks also worked with the Army Corps of Engineers to start a Rio Grande silvery minnow habitat enhancement project by constructing a new flow channel at the Nature Center. At Percha Dam State Park, a wetlands restoration project in the campground that will improve bird habitat and provide outstanding wildlife observation opportunities was completed. Percha, Caballo and Elephant Butte were designated “Important Bird Areas” by Audubon New Mexico because of their significance for resident and migratory birds. Park’s project to restore wetlands along the Pecos River at Bottomless Lakes State Park received grants totaling nearly \$650,000 to help cover the cost of the state match required by the Army Corps of Engineers.

**Facility Improvements:** Parks strives to improve facilities by: upgrading campgrounds and water/wastewater systems; repairing and renovating park buildings, roads and historic structures; addressing safety issues; expanding boat access and boat ramps; improving access for disabled visitors; and enhancing interpretive exhibits.

New interpretive exhibits were installed at Sumner Lake State Park; and work began on designing and installing other new exhibits in visitor centers in Brantley Lake State Park, Rio Grande Nature Center State Park, and Mesilla Valley Bosque State Park.

Parks’ projects stress energy conservation and efficiency, as well as active and passive solar energy features. New state-of-the-art comfort stations at Ute Lake State Park and Conchas Lake State Park use passive solar heat and solar hot water. The only expected energy consumption will be for lighting and back-up hot water.

A new campground loop was built at Ute Lake State Park, and the El Cerro Campground at Villanueva State Park was upgraded. Parks worked with the Federal Highway Administration on a significant road project and entrance reconfiguration at Fenton Lake State Park; and partnered with the Federal Emergency Management Agency to repair extensive damage from 2006 floods at Oliver Lee Memorial State Park, Rockhound State Park, Leasburg Dam State Park, and Elephant Butte Lake State Park.



Photo by: Marti Niman

**Butterfly net demonstration.**





*Vietnam Veterans Memorial State Park*

The Vietnam Veterans Memorial provides veterans, and those who honor them, a refuge in which to reflect and heal.

Phase I upgrades at Vietnam Veterans Memorial State Park in Angel Fire were completed, including a total renovation of the Peace and Brotherhood Chapel, construction of a new amphitheater, and improvements to the park grounds. The project was dedicated on Veteran's Day, 2007. Phase II at the memorial will include major renovations to the park museum/visitor center. Parks worked with local veterans on an interpretive master plan for the visitor center, which will serve as the blueprint for the future of the park and guide the museum project.

Work began on the replacement of two sewer lift stations and the drinking water treatment plant at Navajo Lake State Park. The original infrastructure was constructed in 1964.

Elephant Butte Lake State Park is upgrading the main entrance and the historic dam site. The Dam Site Restaurant, originally constructed in the 1930s, had its patio area renovated and new Americans with

Disabilities Act compliant restrooms completed. Rock walls and railings were rebuilt and new landscaping added. The Dam Site area has been added to the National Register of Historic Places. As a result, a historic preservation plan has been developed which will serve as a model for other historic structures. Parks is also planning to reconfigure the main park entrance area and add a new visitor center.

Oasis State Park's pond was re-lined, ensuring years of enjoyment for the public at one of the most popular fishing spots in eastern New Mexico.

**Recreational Trails:** The Recreational Trails Program awarded nine trail project grants in 2007 to various organizations totaling more than \$1 million. Heron Lake State Park, Leasburg Dam State Park, Navajo Lake State Park, and Elephant Butte Lake State Park have new trail projects planned that will be supported by these funds. Parks also plans to host a statewide trails conference in 2008.

Parks signed a Memorandum of Agreement with the Bureau of Land Management, U.S. Forest Service, Acoma Pueblo, National Park Service and the State Land Office pledging to increase cooperation in completing the Continental Divide National Scenic Trail in New Mexico.

Another visionary trails project is the Rio Grande Trail. Land acquisition, planning and construction are possible thanks to money from two memorials passed during the 2007 legislative session. A major trail corridor study for the sections of the Rio Grande Trail between Belen and Sunland Park should be completed in mid-2008. In the meantime, Parks proceeded with construction of several Rio Grande Trail segments within Elephant Butte and Caballo Lake state parks, with the Youth Conservation Corps program assisting with two large grants for the Elephant Butte project.

**Dedicated Staff, Incredible Friends:** Volunteers are an essential component of Parks operations. They assist staff, enhance visitors' experiences, and bring communities and parks together. More than 3,700 volunteers contributed 307,555 hours to Parks operations in FY07 – a 42 percent increase over last year. Volunteer effort translates into 147 full-time employees and a savings of \$4.1 million. Volunteers are a valuable member of the New Mexico State Parks team.

State Parks friends groups provide hours of dedicated and talented effort, helping to staff visitor centers, operate gift shops, complete park projects, and raise funds to supplement park budgets. Five new cooperative agreements with friends groups were signed in FY07, bringing the total to 16 formally-established friends groups with five more groups working toward formalization. Three friends groups - Friends of Rockhound, Friends of Heron/El Vado Lakes, and Friends of Living Desert - were recognized with Partnership Awards for their incredible support.

**Marketing and Enterprise:** State Parks offered more than 60 "signature events" in 2007 and countless additional programs featuring star parties, festivals, guided walks, live concerts, triathlons, boat races and fishing derbies. Many of these events served as fundraisers for local non-profits as well as for State Parks, enhancing community relations and park visibility and enticing new visitors. Parks teamed with the New Mexico Tourism Department on radio ads throughout the year. Promotional discount camping and day-use coupons were distributed in 2007 in an effort to encourage visitation to our state's parks.

**Park's Diamond Anniversary:** In 2008, New Mexico State Parks will celebrate its 75th Anniversary. This is an opportunity to promote and share the magic of parks with the public, thank state park visitors, and lay the groundwork for other historic accomplishments that will benefit the parks for generations to come. The celebration will include special discounts, programs, events, and park improvements that will make New Mexico State Parks better than ever.



Photo by: Marti Niman

**Cimarron Canyon State Park**

Set in New Mexico's high country, where spectacular palisade cliffs and clear running waters dominate the landscape, Cimarron Canyon State Park is part of the 33,116-acre Colin Neblett Wildlife Area -- the largest wildlife area in the state.

**New Mexico  
Radioactive Waste  
Consultation  
Task Force/WIPP  
Transportation  
Safety Program**



## Anne deLain W. Clark

Coordinator



### *New Mexico Radioactive Waste Consultation Task Force/WIPP Transportation Safety Program*

**Mission:** To represent the interests of the state of New Mexico regarding the safe and uneventful transportation of nuclear waste through the state.

**Programs:** Under the Energy, Minerals and Natural Resources Department's leadership, and through the New Mexico Radioactive Waste Consultation Task Force, six other state agencies collaborate on the WIPP Transportation Safety Program:

Department of Public Safety  
Department of Homeland Security and Emergency Management  
Department of Health  
Environment Department  
Department of Transportation  
State Fire Marshal's Office

The task force coordinator, through the WIPP Working Group, manages and implements the WIPP Transportation Safety Program. The WIPP Working Group is comprised of operations management staff in each of the participating agencies. The program includes the setting and updating of policies and operating procedures; training and equipping emergency responders along all New Mexico's WIPP shipping routes; keeping the public informed on radioactive materials issues; monitoring and maintaining highway safety; and inspecting all WIPP shipments at their point of origin or at the New Mexico ports of entry.

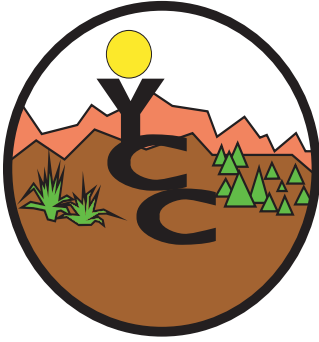
### *Accomplishments:*

In 2007, the WIPP Transportation Safety Program:

- Maintained 17 joint powers agreements with city and county fire departments along WIPP routes to support ongoing training and equipment maintenance related to radioactive and hazardous materials emergency response;
- Provided new and recalibrated radiological emergency response equipment to 36 agencies in 13 New Mexico counties;
- Trained more than 500 emergency responders in 23 New Mexico communities; and
- Trained over 500 state police officers in the National Incident Management System (NIMS) communication requirements and in the introductory level of the Incident Command System.







## Wendy Kent

Executive Director



### *New Mexico Youth Conservation Program*

**Vision:** A New Mexico where Youth Conservation Corps members contribute to the quality of life of all New Mexicans.

**Mission:** Promote the education, success and well-being of the youth of New Mexico through the conservation and enhancement of the state's natural resources creating lasting community benefits.

**Goals:** Together we strive for . . .

- ✦ Healthy natural resources and lasting community benefits
- ✦ Instilling values of hard work and accomplishments
- ✦ Promotion of education and training

**Values:** We strive to be . . .

- ✦ Responsible stewards of the state's resources
- ✦ Positive role models for New Mexico's youth

New Mexico Youth Conservation Corps (YCC) positively impacts young people from diverse backgrounds ages 14 through 25 throughout New Mexico with its long-standing youth development program. YCC fulfills its legislative mandate by providing education and employment opportunities that conserve and enhance the natural resources of our beautiful state. Through these projects, YCC enables hard-working youthful citizens to improve the rural and urban communities in which they live while instilling an appreciation for the merits of diligent work to overcome physical and emotional challenges. In 2006 YCC employed over 700 youth.

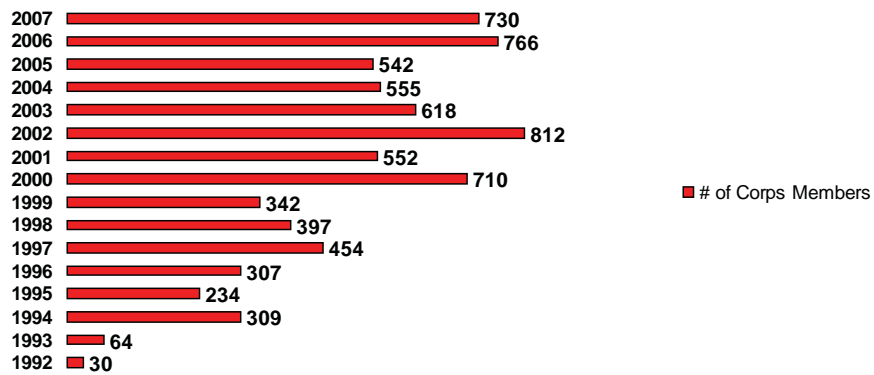




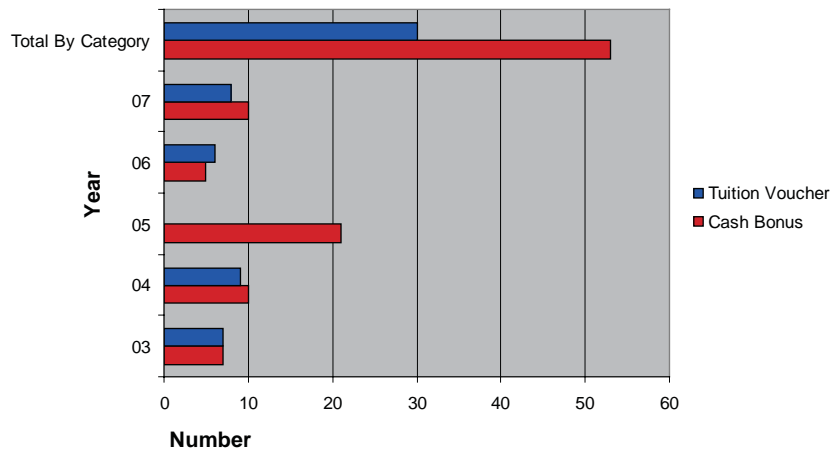
## Youth Conservation Corps

The Youth Conservation Corps (YCC) Commission has a legislative responsibility to provide a process to employ young people in public projects that conserve New Mexico's natural resources and provide community benefits of lasting value. Since the inception of the program in 1992, YCC has employed over 6,000 New Mexico youth. Based on the YCC Act, the Commission has used its authority to design a system they feel best meets the needs of New Mexico's youth and communities. The focus of the program has always been on providing the greatest number of youth the ability to have a positive work experience. New Mexico benefits by having its natural and urban environments improved and enhanced and its youth instilled with an appreciation of natural resources, cooperation, hard work and accomplishment. The Commission believes the YCC Act, rules, policies and systems can be used as a model for other youth employment programs. YCC demonstrates the "best practices" to enable employment organizations to set high standards and implement effective programs with positive results.

### History of Corps Members Employed

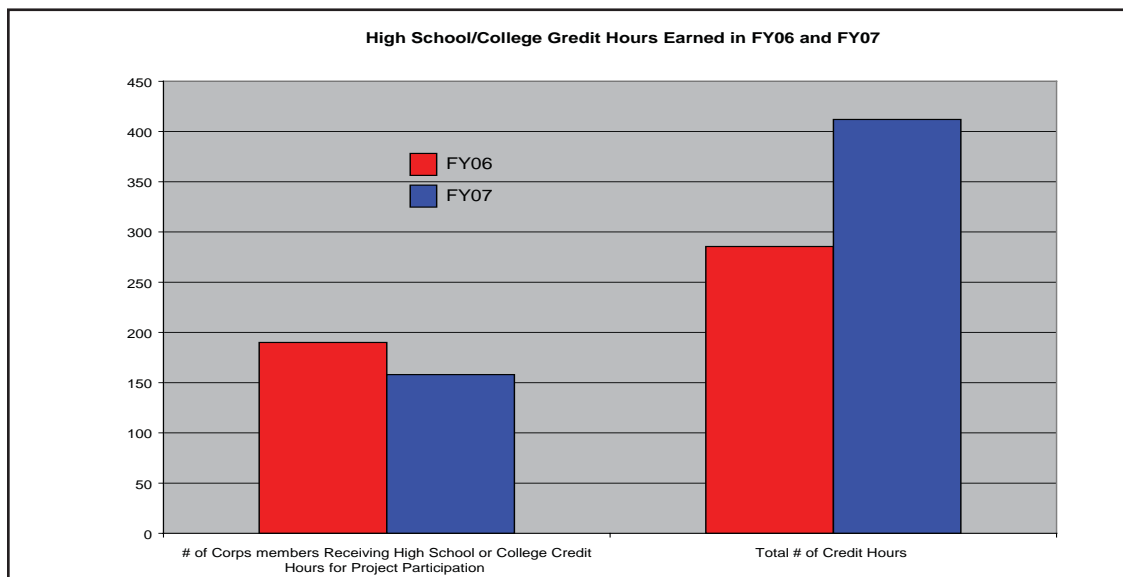
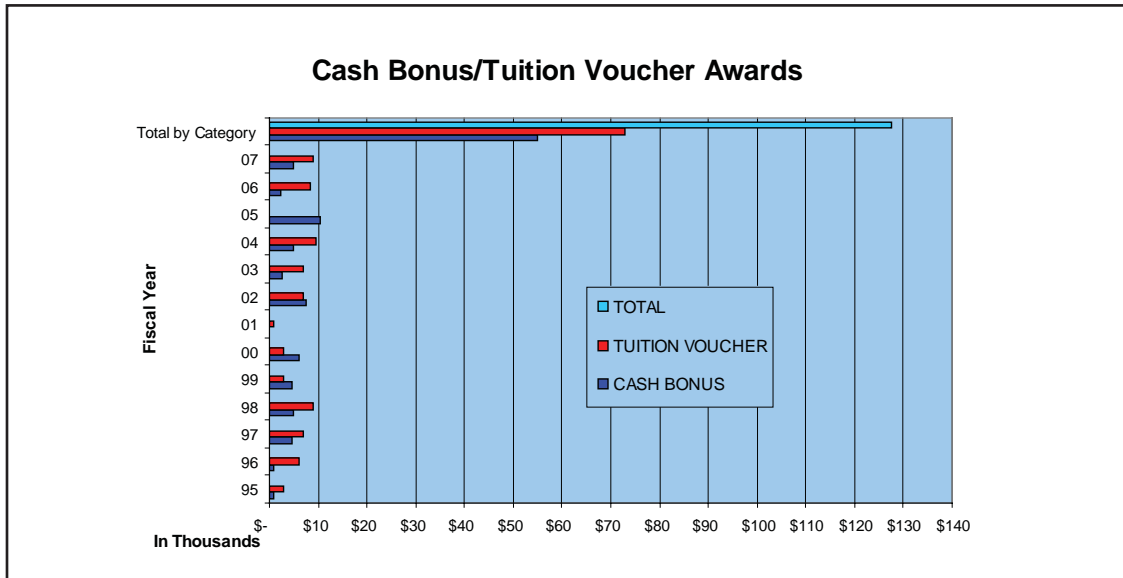


### Scholarship Awards from 2002 to July 2007



In the last few years, the YCC program has been encouraging Project Sponsors to work with local school districts and colleges to develop curriculum (based on New Mexico Public Education Department's Benchmarks and Standards) around the work experience and training Corps members receive while participating in a YCC project (service learning). The Commission is very pleased to report more high school, college and/or concurrent credit hours are being earned by Corps members.

The YCC Act allows for Corps members who have served in YCC for 12 months in a 48 month period to earn either a \$500 cash bonus or a \$1,500 tuition voucher. Since the inception of the scholarship program in 2002 to July 1, 2007, \$127,700 has been distributed to 83 Corps members.



*Projects funded in 2006  
(Performance Measures FY07)*

<b>Project Sponsor</b>	<b>County</b>	<b>Youth Employed</b>	<b>Expended</b>
Alamo Navajo School Board, Inc.	Socorro	24	\$ 43,036.04
Aldo Leopold High School	Grant	44	\$ 24,865.15
Appletree Educational Center	Sierra	20	\$ 130,224.82
Bloomfield, City of	San Juan	7	\$ 20,696.78
Chimayó Youth Conservation Corps	Rio Arriba	61	\$ 133,815.12
City of Rocks State Park	Grant	10	\$ 41,962.03
City of Tucumcari	Quay	6	\$ 22,351.07
Cuba Independent Schools	Sandoval	13	\$ 33,308.27
EcoServants dba Sierra Blanca Service Corps	Lincoln	16	\$ 55,823.00
EMNRD, Coyote Creek/Morphy Lake State Park	Mora	7	\$ 23,676.42
EMNRD, Santa Rosa State Park	Guadalupe	10	\$ 13,254.20
EMNRD, Storrie Lake State Park	San Miguel	8	\$ 19,801.07
EMNRD, Sugarite Canyon State Park	Colfax	5	\$ 16,384.20
Espanola Public Schools	Rio Arriba	24	\$ 68,321.80
Estancia, Town of	Torrance	17	\$ 55,528.47
Farmington Municipal Schools	San Juan	48	\$ 130,357.08
Gallup, City of	McKinley	80	\$ 161,126.55
Hardwood Art Center	Bernalillo	17	\$ 49,754.64
Help New Mexico, Inc	Luna	21	\$ 78,835.12
Heron Lake State Park	Rio Arriba	6	\$ 23,432.68
Mountainair Public Schools	Torrance	12	\$ 33,006.75
Navajo Prep School	San Juan	15	\$ 19,499.64
New Mexico Wildlife Association	Santa Fe	26	\$ 108,172.50
Rio Grande Educational Collaborative	Bernalillo	40	\$ 71,715.01
Rocky Mountain Youth Corps	Taos	34	\$ 116,239.13
Roswell, City of	Chaves	3	\$ 24,183.29
Santa Fe Children's Museum	Santa Fe	11	\$ 50,160.21
Santa Fe Community College	Santa Fe	18	\$ 85,745.40
Silver City, Town of	Grant	21	\$ 89,905.90
Talking Talons Youth Leadership	Bernalillo	35	\$ 166,296.88
United South Broadway	Bernalillo	36	\$ 161,130.71
Village of Maxwell	Colfax	15	\$ 51,378.10
Wellness Coalition	Catron	13	\$ 63,077.28
YouthWorks	Santa Fe	43	\$ 185,934.50
<b>Totals</b>		766	\$ 2,372,999.81
<b>Number of Project Sponsors</b>	34		

**Projects funded for 2008  
(Performance Measures FY09)**

<b>Project Sponsor</b>	<b>County</b>	<b>Youth Employed</b>	<b>Grant Award</b>
Alamo Navajo School Board	Socorro	15	\$ 123,680.07
Aldo Leopold High School	Grant	58	\$ 62,008.53
Aldo Leopold High School	Grant	58	\$ 40,084.23
Aztec, City of	San Juan	12	\$ 64,172.97
Bernalillo, Town of	Sandoval	12	\$ 141,268.38
Bloomfield, City of	San Juan	6	\$ 32,800.13
Chimayó Youth Conservation Corps	Rio Arriba	33	\$ 147,920.85
Cimarron, Village of	Colfax	8	\$ 35,501.34
Clinicia del Pueblo	Rio Arriba	8	\$ 35,523.04
Columbus, Village of	Luna	21	\$ 124,888.65
Cuba Independent Schools	Sandoval	15	\$ 58,669.00
Dept. of Cultural Affairs, NM State Monuments, Jemez State Monument	Sandoval	7	\$ 69,476.74
EcoServants	Lincoln	32	\$ 142,445.99
Edgewood Soil & Water Cons. Dist.	Torrance	17	\$ 86,343.20
Eight Northern Indian Pueblos Council	Rio Arriba, Santa Fe, Taos	24	\$ 149,144.26
EMNRD, Elephant Butte Lake State Park	Sierra	10	\$ 141,479.34
EMNRD, Rockhound State Park	Luna	6	\$ 91,520.86
Encino, Village of	Torrance	4	\$ 6,016.57
Farmington Municipal Schools	San Juan	31	\$ 139,564.17
Forest Guild	Grant, Mora, Rio Arriba, San Miguel, Sandoval, Taos, Torrance	36	\$ 149,998.15
Future Foundations Family Center	Cibola	8	\$ 35,212.76
Gallup, City of	McKinley	50	\$ 149,994.37
Luciente, Inc.	Rio Arriba	8	\$ 35,212.04
Mesalands Community College	Quay	18	\$ 137,517.09
Mountainair Public Schools	Torrance	11	\$ 41,858.00
Navajo Preparatory School	San Juan	16	\$ 63,902.80
NM Institute of Mining and Technology	Socorro	8	\$ 76,382.82
NM Wildlife Association	Santa Fe	18	\$ 115,528.79
Pueblo of Pojoaque	Santa Fe	19	\$ 101,982.42
Rocky Mountain Youth Corps	Taos	30	\$ 133,205.40
Roswell, City of	Chaves	4	\$ 42,231.46
Santa Fe Children's Museum	Bernalillo, Santa Fe	8	\$ 56,686.34
Silver City, Town of	Grant	16	\$ 142,882.43
Southwest Conservation Corps	Cibola	36	\$ 103,802.40
Southwest Youth Services, Inc	Bernalillo, Sandoval, Valencia	10	\$ 53,003.76
Tucumcari, City of	Quay	6	\$ 34,016.60
Union County	Union	7	\$ 27,407.23
United South Broadway Corporation	Bernalillo	44	\$ 148,558.29
Wagon Mound Public Schools	Mora	8	\$ 35,459.10
YouthWorks	Rio Arriba, Santa Fe	16	\$ 149,998.04
<b>Totals</b>		<b>754</b>	<b>\$3,527,348.61</b>
<b>Number of Project Sponsors</b>	<b>40</b>		

# Energy, Minerals and Natural Resources

## Department



Photo by: Mikal Altomare

Data and Statistics: Collected and published pursuant to the authority of the New Mexico Energy, Minerals and Natural Resources Department:

NMSA 1978, Sections 69-5-7 (1933, as amended through 1989)  
69-11-1 (1933, as amended through 1989)  
69-11-2 (1933, as amended through 1989)  
69-11-3 (1933, as amended through 1989)  
69-25A-10 (1979)  
69-26-1 (1933, as amended through 1989)  
69-26-2 (1933, as amended through 1989)  
69-26-3 (1933, as amended through 1989)  
70-2-12 (1978, as amended through 1996)

For more information on the Energy, Minerals and Natural Resources Department, or to view an electronic version of this report, visit our web site at [www.emnrd.state.nm.us](http://www.emnrd.state.nm.us)

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Editor's Note: If you have any questions or comments regarding this document, please contact Jodi McGinnis Porter, Public Information Officer, at:

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