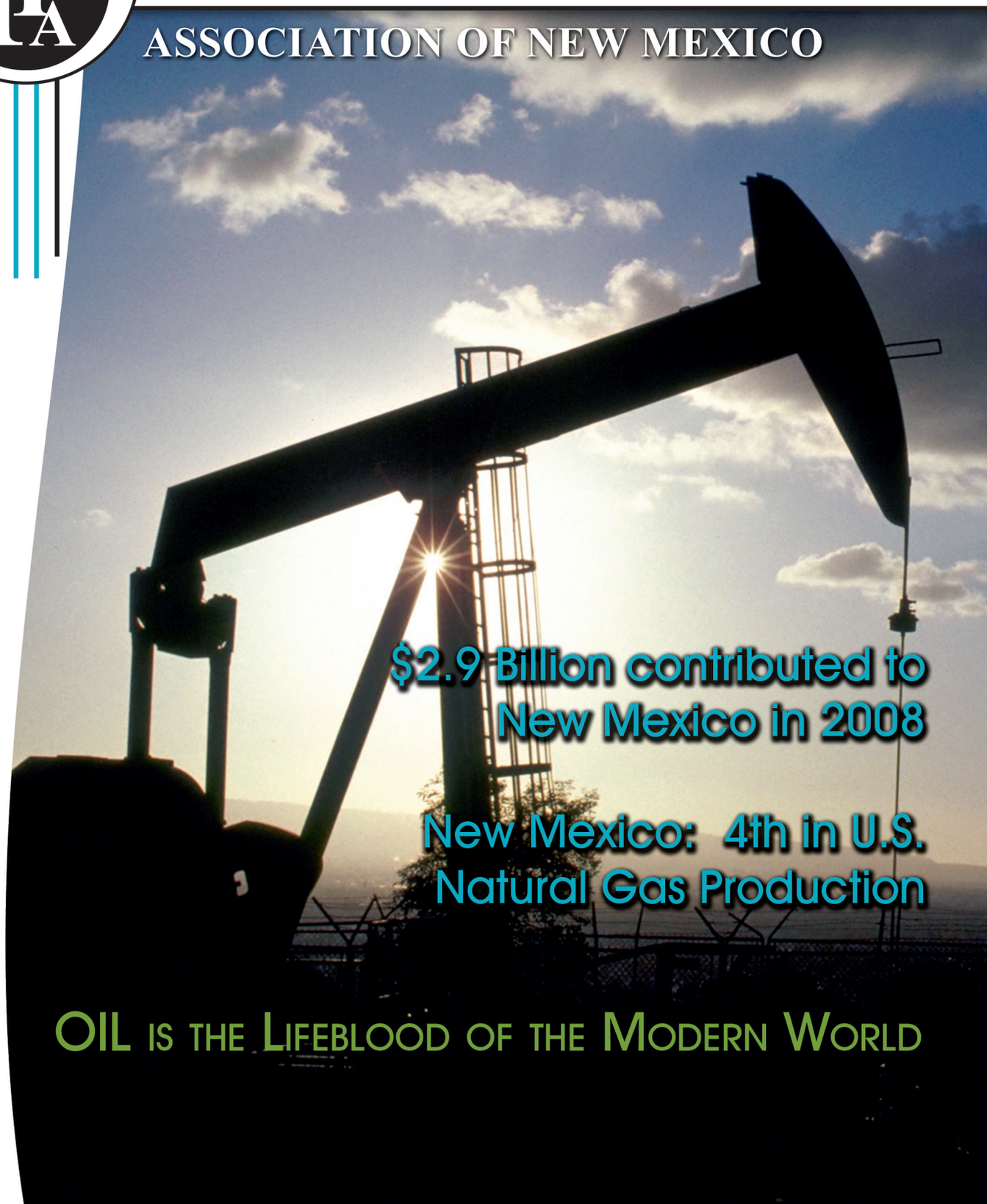
2009

Energy Production

Education Partner & Economic Perspective

INDEPENDENT PETROLEUM

ASSOCIATION OF NEW MEXICO



$2.9 Billion contributed to New Mexico in 2008

New Mexico: 4th in U.S. Natural Gas Production

OIL IS THE LIFEBLOOD OF THE MODERN WORLD

A Publication of the Independent Petroleum Association of New Mexico

The New Mexico Severance Tax Permanent Fund is worth $3.977 billion as of September 2008. More than 99 percent of the fund, which retires government bonds, has been contributed by the oil and natural gas industry.

Karin Foster
Director of Governmental Affairs

Pam Garlinger
Administrator

Publisher
Jack Swickard

Editor
Mike Bush

Content Development and Research
Melinda Allen

Creative Director
Jennifer Foster

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Wildlife is very good at adapting to habitat changes due to oil and gas production. Many animals find ways to use equipment to their advantage. See "Wildlife in the Oilfield" on Page 22.

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For more information or to request additional copies please contact:

IPANM
PO Box 1836
Roswell, NM 88202
575.622.2566
www.ipanm.org

INDEPENDENT PETROLEUM ASSOCIATION OF NEW MEXICO

We Are the Independents!

The Independent Petroleum Association of New Mexico

A Message from the 2009 Executive Committee

There has never been a better time than now to be proud of the Independent oil and natural gas producers' involvement in the state of New Mexico. In Fiscal Year 2008, the oil and gas industry was responsible for contributing $2.938 billion to the Land of Enchantment, most of which came from independent producers. This $2.938 billion is not an "economic impact" number. It is strictly the amount generated by tax, royalty, lease and investment revenue that flowed directly into state's bank accounts. To put things into perspective, consider that $2.938 billion is the equivalent of a staggering $8.05 million pouring into state coffers each and every day, or $5,590 every minute! Remarkably, this amount does not include the $1.5 million dollars New Mexico producers send to the federal government on a daily basis.

Independent petroleum and natural gas producers are pleased to make this important contribution to our state and nation and are especially gratified that our work provides such a large investment in the education of our state's children. According to the 2007 State Land Office report, nearly 94 percent of SLO revenues come from oil and gas production and 90 percent of those revenues are spent on education. The bulk of these monies comes from two main sources. The first main source comes from the state's general fund, of which the oil and gas industry is the second largest contributor at 30 percent. The second source is the Land Grant Permanent Fund, 95 percent of which is generated by the oil and gas industry.

Independent producers are not just a strong economic force in New Mexico; we are important nationally as well. Contrary to public perception, most of the oil and gas production in America is not done by the "Big Oil" companies. According to the Department of Energy, independent oil and natural gas companies currently drill 90 percent of the U.S.'s domestic oil and natural gas wells, producing 82 percent of our natural gas and 68 percent of our crude oil.

At the state or national level, oil and gas plays an important role in educating our children and funding other programs that enhance quality of life. The Independent Petroleum Association of New Mexico, with more than 200 members and the thousands of people they employ, is pleased to provide you with this publication. Our goal is to supply you with a greater understanding of the oil and gas industry's positive impact on all New Mexicans.

According to the 2007 State Land Office report, nearly 94 percent of SLO revenues come from oil and gas production and 90 percent of those revenues are spent on education.

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Vice President

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Southern
Vice President

Bruce Ritter
Secretary/Treasurer

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Past President

Oil: The Master Resource

"The only thing more important to your survival than oil is oxygen."

What do you need to stay alive in this world? Oxygen, water, food, shelter, and clothing have long been considered the top five essentials for survival. However, this list should have been updated when man discovered the potential of petroleum products. Oil quickly became one of the top five necessary items for survival, and is higher on the list than one might think. The only thing more important to your survival than oil is oxygen.

Yes, you would perish within several days without water and in a couple of weeks or so without food, but in today's world consider how you would obtain food or water without oil. Food cannot be grown, fertilized, protected from pests and predators, packaged, transported, stored, or refrigerated without oil, nor can water be pumped, cleaned and delivered without petroleum. As explained in the following section, "Oil Makes the World Go 'Round," oil, and its counterpart, natural gas, are essential to every aspect of modern living.

New Mexico is currently a major player in the nation's energy market. Our state is the fourth largest natural gas producer in the continental U. S. and possesses the third most proven reserves.[1] Oil production is ranked sixth, and oil reserves are ranked fifth.[2] Production is concentrated in two areas – the San Juan Basin in the northwest region of the state and the Permian Basin in the southeast.

In New Mexico, oil and natural gas are critically important because they are the biggest contributors to the state's economy. In FY 2008, the oil and natural gas industry was estimated to generate approximately $2.938 billion in direct revenue to the state. That $2.938 billion is a big number, especially when you consider the state's entire 2008 general fund was $5.902 billion. Remove petroleum production from the Land of Enchantment and it would suffer profound economic hardships.

Oilfield operations don't seem to affect most wild animals, such as pronghorns, which are frequently seen grazing near oilfield equipment.

Summary

New Mexico's school children are the primary beneficiaries of the oil and natural gas industry, and they will be for generations to come. Since the 1920s, New Mexico has deposited money from oil and natural gas production into the Land Grant Permanent Fund (LGPF). The LGPF was valued at $9.536 billion as of September 2008 and still continues to grow. The payout from the LGPF in FY 2007 was $438.95 million [3] and provides the majority of support for today's educational system, public facilities, and government projects.

Over its lifetime, the LGPF has distributed more than $8.5 billion to the General Fund. Of that amount, $6.8 billion has gone to New Mexico's public schools.[4] Other beneficiaries include the New Mexico School for the Deaf, New Mexico School for the Blind and Visually Impaired, the University of New Mexico, New Mexico State University, and other institutions of higher education. In comparison, the New Mexico State Lottery has only raised $291 million in the past 10 years to send New Mexicans to college, averaging $29 million a year.

Oil and natural gas producers work daily for our economy, educational system, and modern way of life, with great care taken to protect and preserve the environment. Technological advances have made oil production cleaner, safer, and more efficient. Today's wells have far less impact on the land's surface than the wells of a generation ago. When a well has given up all the vital energy it can produce, the equipment is removed and the land is reclaimed. Within a few years the terrain returns to its natural state with no indication (aside from a dry-hole marker) that a well had ever been there. Producers follow strict federal and state regulations that ensure the proper use and protection of the land. Those who make a living by providing the world with oil and natural gas are greatly motivated to use the land wisely and responsibly, as it is their home and the home of their children.

The oil and natural gas industry is the largest civilian employer in the northwestern and southeastern parts of New Mexico.

— The New Mexico Department of Workforce Solutions

Every day an unsuspecting public is presented with distortions, mischaracterizations, and misinformation about the oil and gas industry and its impact on the environment. This is one of the greatest challenges faced by today's petroleum companies. Historically, producers have simply ignored these attacks; however, in recent years industry leaders have realized that this negative campaigning must be countered with a determined effort to inform the public of these misconceptions. This publication is part of that effort to educate the public about the many positive contributions oil and natural gas make to the everyday lives of all New Mexicans.

For additional data please refer to the Fast Facts on Pages 33 and 34.

More Important Than You Know

It is almost impossible to overstate the importance of oil and its powerful partner, natural gas. Without them our world would be completely different, more different than any of us could possibly imagine.

Look around and try to identify a single item that would still be there if oil were not available. When people think of oil and natural gas, they typically only consider its obvious uses — gasoline for cars, lubricant for engines, and a power source for generating electricity and heating homes. But consider the less obvious uses of petroleum-based products, such as rubber for tires, shoes, and seals on refrigerators, ovens and car doors. The large quantity of everyday items that contain some byproduct of petroleum is astonishing. What would life be like without magic markers, lipstick, pantyhose, credit cards, dental floss, toothpaste, baby bottles, telephones, TVs, asphalt, fertilizers, pesticides, glue, computers, soccer balls, paint, and synthetic fibers for today's clothing? Take these products away and our world would come to a sudden and catastrophic halt.

Oil and natural gas are essential for our survival, but also for maintaining our standard of living. If we stop producing oil and natural gas many, if not all, of the products that currently enhance our quality of life would no longer be available. It's a little unnerving to contemplate living without the previously mentioned products that sustain our daily lives.

It can be argued that the preciousness of gold can in no way compare to the worth of petroleum.

What would life be like without magic markers, lipstick, pantyhose, credit cards, dental floss, toothpaste, baby bottles, telephones, TVs, asphalt, fertilizers, pesticides, glue, computers, soccer balls, paint and synthetic fibers for today's clothing?

Historical Perspective

The only way to truly appreciate the importance of oil to the modern world would be to turn the clock back to the mid-19th century before the influence of petroleum began to take hold. At that time people burned vegetable and animal oils for light; most often whale oil was the preferred choice. With the high demand for these lubricants and illumination sources, the earth's whale population was driven to the brink of extinction.

During this difficult time in mankind's history, most people made their living through punishing physical labor, and the average life expectancy was about 35 years. Unfortunately, during these times infant mortality was high, plagues and diseases were common, and death was a frequent visitor.

Life was hard and there just were not enough workers available to get the job done. As a result, the great need for human labor created one of the biggest economic markets known to man—the slave trade. Indeed, slavery was a fixture in most of the world throughout all of human history as mankind has always had a driving need for energy and labor.

The slaves were not the only ones who engaged in hard physical labor. Most free men as well as women and children were lifting, shoveling, cutting, bailing, plowing, and shucking. Even as late as the end of the 19th century, nearly 40 years after slavery had been abolished in the United States, human labor made up 94 percent of all industrial work.[5]

Once the influence of oil had become prevalent with the introduction of automobiles, farm equipment and thousands of other modern machines, the need for physical human labor plummeted. Today it constitutes only eight percent of industrial work in the U.S.[6]

The invention of the steam engine in 1698 brought significant progress to man's need for energy, as did the discovery in 1853 that kerosene could be produced from coal. Of course, these were just a few of the many inventions and discoveries that propelled man towards a less labor-intensive life.

However, no single energy source can be compared to petroleum.

It was oil that provided an alternative to whale oil, and it was oil that lessened the reliance on human slavery. Oil replaced the vast majority of our hard, physical labor, and it gave us the ability to create many modern conveniences. It provided the foundation for progress in healthcare, enabling us in less than a century to more than double our life expectancy. And it was oil that fueled not just the industrial revolution, but the technology and information revolutions as well.

In a true sense of the word, oil is our servant. It is estimated that the energy we use today (which comes directly from or is generated by oil) has given every American access to the energy equivalent of the labor generated by 300 humans. Western Europeans, on average use the energy equivalent to 150 humans, and even the people in the developing countries, such as India, use the energy equivalent of 15 humans.[7]

It was not long after people discovered the great power and utility of oil that they began calling it "Black Gold," because of its tremendous value. Today that term is a quaint expression with very little meaning. Those who truly understand the industry and the value of oil and natural gas argue that the preciousness of gold can in no way compare to the worth of petroleum.

It was oil that replaced the vast majority of our hard, physical labor and gave us the ability to create every modern convenience. It was oil that provided the foundation for progress in healthcare, enabling us in less than a century to more than double our life expectancy.

Petroleum Makes the World Go Round

The World Drinks a Lot of Oil

It takes an enormous amount of oil to run a modern civilization. The world consumes more than 86.1 million barrels of oil per day—20.7 million barrels in the U.S. alone. That's 869.4 million gallons consumed just in America! The U.S. has only 4.7 percent of earth's population, yet consumes 24 percent of its petroleum (390 million gallons of gasoline per day).[8] Other nations have been critical of our voracious thirst for oil. However, America is the world's most productive and innovative country, blessing all other nations with life-improving advancements.

Petroleum production and distribution make up the world's largest industry, employing approximately 1.2 million workers in the United States alone, and comprising 1.8 percent of the global gross domestic product (GDP). Oil is by far the most important and valuable commodity in international trade.[9]

Petroleum is everywhere, and in one form or another, plays a role in everything. For example, it takes more than 280 gallons of oil to raise a single 1,250-pound steer. Fuel usage includes everything from fertilizer for the corn to feed the cows to the fuel that runs the farm equipment. For every pound of beef in your supermarket, three-quarters of a gallon of gasoline were used in its production.[10]

U.S. petroleum reserves come from thirty-one U.S. states and the federal offshore coastline. U.S. production as of 2007 was 5.064 million barrels a day. Crude oil imports equal 10.031 million barrels daily, with 5.98 million of those barrels, or about 59.6 percent of our imported supply, coming from countries that are members of OPEC.[11]

Lest We Forget: Oil and National Defense

Oil and other energy sources are directly tied to the success and survival of a country, including the United States of America. Fundamentally, no society can endure—let alone prosper—without two things: an adequate and affordable food supply and the availability of affordable energy. Because our food supply is almost completely dependent on oil, petroleum is the most important commodity we have.

While it is clear that our economy and standard of living are dependent upon oil, it may be less clear that petroleum is also a key ingredient to our freedom. Without adequate fuel supplies for fighter jets, battleships, tanks, and other armored vehicles, America would be vulnerable to any nation that wished to take what we have as its own, including our liberty.

Allied forces defeated the Axis powers in World War II with the help of brave men and women, intelligent military leaders, and a home-front that made great sacrifices to give the military all that it needed while still running a nation. However, no level of bravery or sacrifice would have mattered if the United States did not have sufficient oil supplies to fuel its victory.

Agriculture

In America, almost everyone has access to abundant food supplies in amounts and quantities that would have been unheard of just a few generations ago. This is evidenced by the vast quantities of food that are available, especially in the produce and meat aisles in any grocery or warehouse store. Oil and natural gas play a large role in the abundance and variety of food products that are available to the public.

From start to finish, petroleum products are used in the planting, cultivation and transportation of our food products. Petroleum is used to make fertilizers and pesticides that nourish the plants and keep them pest-free. Gasoline and diesel run the tractors, planters, cultivators, hay balers, threshers, reapers and other machines that plant, cultivate and harvest our crops. Furthermore, food processing plants are heated with oil and natural gas. The trucks, trains, planes, ships and barges that get the food from the processing plants to the warehouses and then to grocery stores are fueled with oil. Imagine how difficult it would be to provide an adequate food supply if there were no oil and farmers had to work their fields with horses and oxen instead of tractors and other modern labor-saving machines.

In colonial days, when farmers used horses and oxen to work fields, nine out of ten working people were employed on farms. By the early 1900s tractors were becoming available that could do the work of 17 men and 50 horses.[12] It wasn't until 1953 that there were more tractors than horses on U.S. farms. Because of these advancements, today just three percent of our labor force supplies all the food we need here in the U.S. and ten percent of the food that is consumed overseas.[13]

That mechanization, along with better fertilizers, pesticides, and plant varieties, produced great increases in crop yields. In 1939 the average yield per acre of corn in the U.S. was 20 bushels. By 1970 that had increased to 70 bushels and by the mid-1990s to 140 bushels. Likewise, in 1930 the average soybean yield was 13 bushels per acre. By the mid-1990s that number had grown to 40 bushels per acre. [14]

Cheap and abundant oil and gas have helped make food productivity increases possible. In 2008 agricultural energy costs in the U.S. totaled $44.2 billion, which equates to15 percent of the nearly $294.8 billion total production costs.[15] According to a report by the Congressional Research Service, "Unexpected changes in energy prices or availability can substantially alter farm net revenues, particularly for major field crop production." It is, therefore, imperative that we keep energy costs low.

The good news is that agriculture uses very little energy, compared to other U.S. industries. Total agricultural use of energy has fallen by 28 percent since the late 1970s because of improved machinery, equipment, and production practices.[16] In 2006, agriculture's share of total U.S. energy consumption was only one percent.

The oil and gas industry, through its ability to help modernize agricultural technologies, has increased our ability to provide an abundant variety of food products to people all over the world. The process to make this a reality requires oil and natural gas at every step. Without the oil and natural gas industry, it would be very difficult, if not impossible, to provide fresh and reasonably priced foods to your local grocery.

Benefits to New Mexico

Enchanting Petroleum

When New Mexico became the 47th state in the union in 1923, it was appropriately proclaimed the Land of Enchantment. With the state's gorgeous mountains, expansive plains, dramatic skyline, and hospitable, multi-cultural population, New Mexico easily captures the hearts of its visitors. In many cases those visitors have been so moved by our state's uniqueness that they have decided to come back permanently and make this their home. What many transplant and native citizens do not know is how big a role the oil and gas industry plays in making the state an enchanting place to live.

2008 Average State Wage: $37,232

Average Industry Wage: $66,716

(Source: New Mexico Department of Workforce Solutions)

The state's well-being is directly tied to that of the oil and natural gas industry.

Economic Muscle

Oil and natural gas production is the single biggest driving force in New Mexico's economy. Direct revenue from oil and gas provides more than half of what the state spends on general-fund obligations.[17] Considering this and other factors, such as the impact of thousands of high-paying jobs and the significant amount of money oil and gas sales bring into New Mexico from outside its borders, it is easy to see that the state's well-being is directly tied to that of the oil and natural gas industry.

Taxable sales on oil and natural gas were $13.7 billion in FY2007.[18] All of that production translates into a huge amount of revenue for the state government. The total in tax, royalty, lease, rent, and investment collections for the state in FY2008 was $2.938 billion, or $8.05 million a day. That $2.938 billion constitutes a large contribution to our state's prosperity, especially when you consider the state's entire 2008 general fund was $5.902 billion.

This enormous contribution to the state's economy is, of course, nothing new. Oil and natural gas producers have been New Mexico's dependable revenue generators for many decades. Production of these valuable resources in just nine of the state's 33 counties pumps hundreds of millions of dollars into education, roads, public facilities construction and the operation of our state government.

Jobs

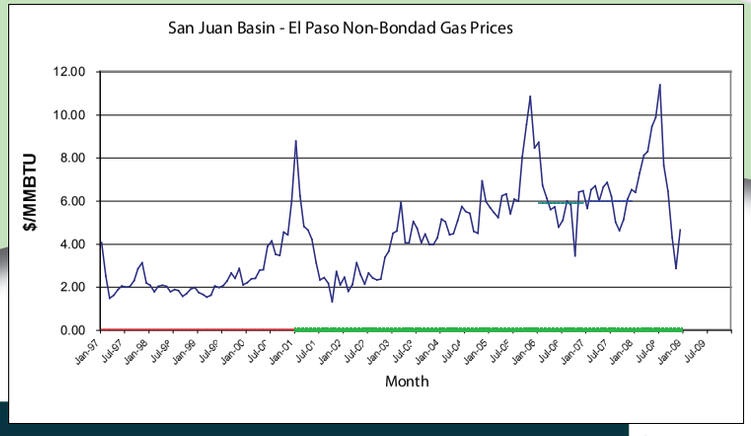
The oil and natural gas industry is a large contributor to the state's employment base. According to the U.S. Department of Labor, more than 15,000 people work in the areas of exploration and production, and another 13,000-17,000 people are employed in service companies, transportation, retail, and other industry-related work. The exploration and production jobs are particularly valuable to the state because they pay well by New Mexico standards.

In 2008 the average private-sector wage in the state was $37,232, while the average income for a worker in the petroleum industry was $66,716. It's also significant to note that these jobs are in predominately rural counties that would otherwise have a difficult time attracting industry from another sector.

Without question the oil and natural gas industry shoulders a significant majority of the economic burden in the nine counties where production takes place. Equally as important, these rural counties provide a big economic contribution to the state rather than a drain, which is common for non-resource producing rural areas.

State Revenues

State revenues are dependent upon the price of oil and natural gas.



State Revenues from Oil and Gas Production*

State General Fund:	2004	2005	2006	2007	2008**
Oil and Gas Emergency School Tax	$297,070,343	$386,785,907	$491,657,374	$431,800,000	$557,300,000
Oil and Gas Conservation Tax	$14,931,771	$19,514,983	$24,819,553	$19,800,000	$27,100,000
Natural Gas Processors Tax	$13,477,994	$24,321,786	$27,268,027	$35,627,328	$30,600,000
Federal Mineral Leasing Royalties	$308 ,108,000	$391,000,000	$544,880,000	$501,000,000	$564,200,000
State Land Office Rents, Bonuses, Etc.	$22,060,805	$42,044,343	$52,695,563	$56,440,370	$46,100,000
Gross Receipts Tax	$42,941,465	$55,867,203	$124,794,894	$103,109,028	$100,911,426
Subtotal – Revenue from Current Production	$698,590,378	$919,534,222	$1,266,115,411	$1,147,776,726	$1,326,211,426
Earnings on Land Grant Permanent Fund	$274,700,492	$339,791,000	$343,380,000	$364,700,000	$390,500,000
Earnings on Severance Tax Permanent Fund	$137,947,286	$166,272,000	$168,384,000	$171,000,000	$177,200,000
Total – General Fund Revenue	$1,111,238,156	$1,425,597,222	$1,777,879,411	$1,683,476,726	$1,893,911,426
Oil and Gas Severance Tax	$293,087,714	$384,561,385	$488,952,323	$513,539,302	$583,905,531
Land Grant Permanent Fund:					
State Land Office Royalties	$236,277,777	$312,251,910	$405,343,063	$390,449,483	$460,456,308
Grand Total All Funds	**$1,640,603,647**	**$2,122,410,517**	**$2,672,174,797**	**$2,587,465,511**	**$2,938,273,265**

Source: NM Taxation and Revenue Department, State Land Office, UNM's Bureau of Buiness & Economic Research, and the State of New Mexico's ONGARD Service System Website.

*These figures do not include the millions of dollars contributed by corporate income tax or personal income tax paid by employees.
**2008 Numbers are estimated values and are subject to change.

A Taxing Equation

It is impossible to know what would happen to New Mexico's economy if oil and natural gas production suddenly came to a halt. There is no good way to calculate the severity of the waves of impact resulting from the loss of thousands of industry jobs that would in turn eliminate thousands more non-related service-sector jobs, or the loss of millions of dollars flowing into New Mexico from outside the state.

In 2005 officials from the New Mexico Taxation & Revenue Department calculated what it would take to simply replace the tax dollars generated from oil and natural gas production. At that time they estimated that in order to reproduce oil and natural gas revenue, the state would have had to raise its gross receipts tax by three percent or to double the state income tax rate, effectively increasing the average taxpayer's bill by $2,000.

Since that time, however, oil and natural gas revenues have increased by a staggering 70 percent! The numbers are now so large they defy any sort of economic replacement modeling. To put it simply, if the oil and natural gas industry suddenly disappeared from New Mexico, the state's economy would be so devastated that the federal government would have to support us as an orphan state for a very long time.

Motor gasoline tax in New Mexico is 36.4 cents per gallon, including 18.4 cents per gallon of federal tax.

Land Grant Permanent Fund

The Land Grant Permanent Fund (LGPF) has been in existence since 1898. It came about when the U.S. government transferred 13.4 million acres of federal land to New Mexico. The state leases that land and sells its mineral rights. The proceeds from those sales and leases are transferred into the LGPF.

The interest earnings and royalties from oil, natural gas, and minerals and the proceeds from land sales are held in trust for the benefit of 21 public entities including public schools, universities, hospitals, the capitol buildings, water reservoirs, the state penitentiary, public roads, buildings, state parks, and state government. New Mexico earns interest on the fund's principal and distributes a portion of that interest every year to the beneficiaries throughout the state.

As of September 2008 the market value of the LGPF was approximately $9.5 billion.[19] The State Land Office reports that $545 million (more than 95 percent of which was generated by oil and natural gas development) flowed into the fund in FY 2008. The total distribution to the beneficiaries in 2007 was $438.9 million.[20]

Severance Tax Permanent Fund

The Severance Tax Permanent Fund (STPF), a second permanent endowment trust, is funded by the Oil and Gas Severance Tax. Funds from the STPF are used to retire bonds that pay for government projects. More than 99 percent of the money going into the STPF comes from oil and natural gas exploration and production. Add the STPF to the LGPF, and the money generated by oil and gas operations on public lands creates the third-largest educational endowment in the world. The STPF assets of slightly less than one billion dollars tripled between 1984 and 1998 to more than $3.3 billion. As of September 2008, the value of the severance tax permanent fund was approximately $3.97 billion.[21]

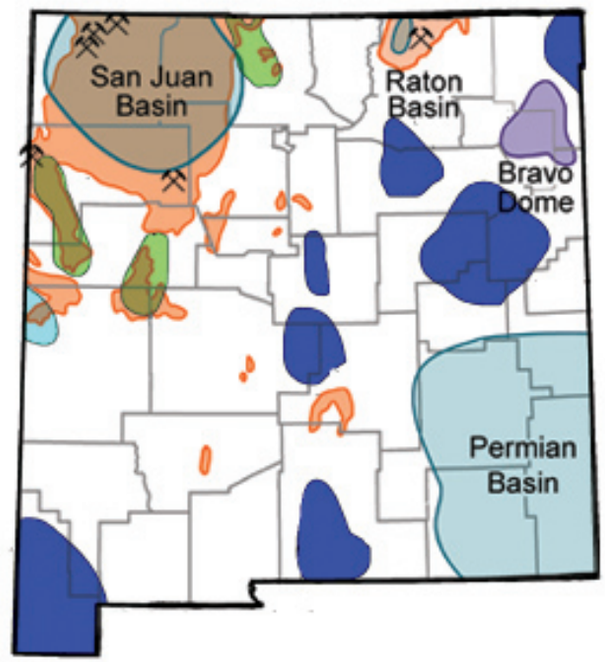
New Mexico Oil & Natural Gas: Northwest and Southeast

Land of Discovery

The great economic benefits New Mexico reaps from the oil and natural gas industry were created hundreds of millions of years ago when the sea that covered and withdrew from North America deposited marine plants and animals, minerals, and marine sedimentary rocks. Then the collision of massive tectonic plates forced the Rocky Mountains to rise thousands of feet. The basins that remained captured the decaying organic matter and eventually became hydrocarbon source rocks.

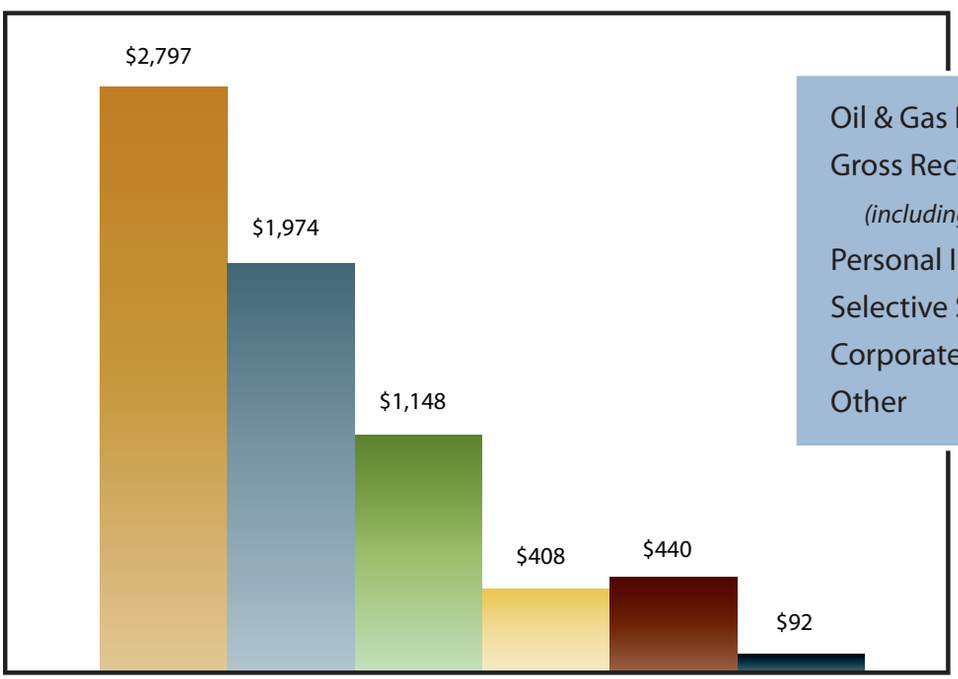
New Mexico has more than 50,000 active oil and natural gas wells in its basins in the northwestern and southeastern sections of the state. More than 6,000 have already been plugged and abandoned to date. The San Juan and Permian Basins are by far the most productive. (The Permian Basin has two sub-basins, the Pecos Slope and the Delaware Basin.) The Raton Basin, which encompasses 2,200 square miles in Colfax and Taos counties and southeastern Colorado, is another small, but important, contributor of coal bed methane.

Existing Producing and Frontier Areas



Source: NM Bureau of Geology and Mineral Resources

New Mexico Revenue Comparison (FY 2008 dollars in millions)



Oil & Gas Revenue	$2,797
Gross Receipts Tax	
(including Compensating tax)	$1,974
Personal Income Tax	$1,148
Selective Sales Tax	$408
Corporate Income Tax	$440
Other	$92

Source: NM Legislative Finance Committee. 2008 Numbers are estimates and may change.

Permian Basin

The Permian Basin is an ancient seabed underlying an area approximately 250 miles wide and 300 miles long that New Mexico shares with Texas. In 1924 New Mexico hit the petroleum jackpot in the Dayton-Artesia field, about eight miles south of Artesia. Not long after its discovery, the Permian Basin quickly became one of the major oil-producing areas of the world. Natural gas flowed by pipeline to heat Santa Fe and Albuquerque by 1931.

The Permian produces oil and natural gas from approximately 53,500 wells (including Texas). Based on recent trends, it's expected that another 10,000 wells will be drilled in southeast New Mexico over the next decade.[22] There are 27 major formations producing in the Permian Basin at depths from as shallow as 200 feet to more than 20,000 feet.[23] The most recent U.S. Geological Survey estimated that an additional 41 trillion cubic feet (Tcf) of natural gas and 1.3 billion barrels of oil lie undiscovered in the Permian Basin Province.

Illinois #3 hit oil in 1924. It was the first commercial well in New Mexico drilled on state land by Martin Yates, Van Welch, William Dooley and Tom Flynn.

San Juan Basin

Natural gas was discovered in two wells drilled in Eddy County in 1908 and 1909, but it wasn't until 1921 that New Mexico's largest store of the clean-burning fuel was discovered in San Juan County, just south of Aztec. Natural gas flowed by pipeline to heat Santa Fe and Albuquerque by 1931.

When natural gas advanced as an energy commodity through the mid-20th century, the San Juan Basin became increasingly important to the nation's economy. San Juan overtook the Permian Basin as the leading producer of natural gas in the 1990s due to the production of coal bed methane. There are currently 20,000 producing wells in the San Juan Basin extracting mostly natural gas. Approximately 10,000 more wells are slated to be drilled in the next two decades if economic conditions permit. The new wells will produce as the existing wells do, primarily from five sandstone formations that range in depth from 200 to 8,000 feet.

The San Juan Basin has produced more than 370 million barrels of oil and nearly 38 Tcf, of natural gas. Giant Industries, based in Arizona, purchases almost all of the basin's oil, refining it into gasoline and diesel at facilities in Bloomfield and Thoreau. Most of the natural gas is gathered and transported via pipeline to California.

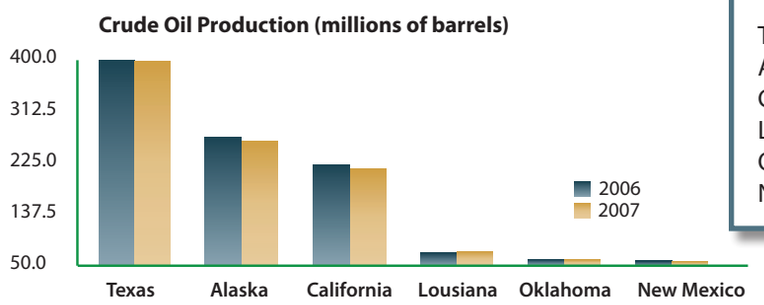
The newest U.S. Geological Survey projections for the San Juan Basin calculate possible undiscovered resources at more than 50 Tcf of natural gas, 148 million barrels of natural gas liquids, and between 7 and 35 million barrels of oil. The nation uses about 20 Tcf of gas a year; therefore, the natural gas reserves of the San Juan Basin would supply about two years of natural gas needs for the entire nation.

With such reserves available, New Mexico will continue to be a major player in the oil and natural gas industry for decades to come.

New Mexico: A National Player

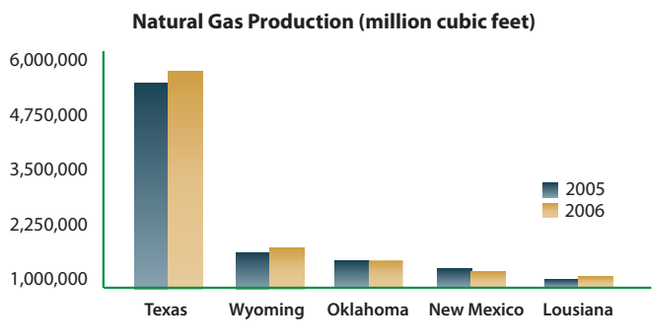
Because New Mexico is a relatively small (by population) and poor state, the lament can often be heard, "We're always near the bottom in every national ranking." Oil and natural gas production is one area in which New Mexicans can hold their heads up high and declare to the nation, "We're a player!"

New Mexico is currently the fourth largest producer of natural gas in the United States (very close in production behind Oklahoma and Wyoming) and has the third largest amount of proven natural gas reserves. The state is ranked sixth in oil production and fifth in oil reserves. New Mexico rivals Colorado in leading the nation in the production and reserves of coal bed methane.



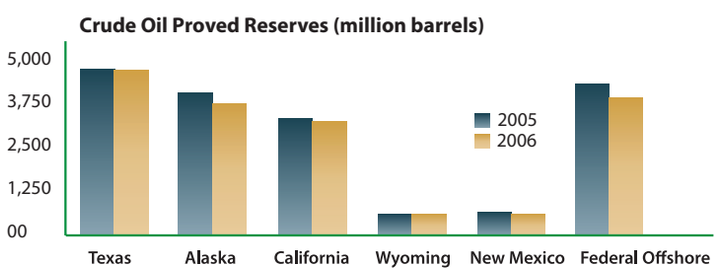
Crude Oil Production (millions of barrels)

	2006	2007
Texas	397.22	396.89
Alaska	270.49	263.60
California	223.45	216.78
Louisiana	73.88	76.65
Oklahoma	62.84	60.95
New Mexico	59.82	58.83



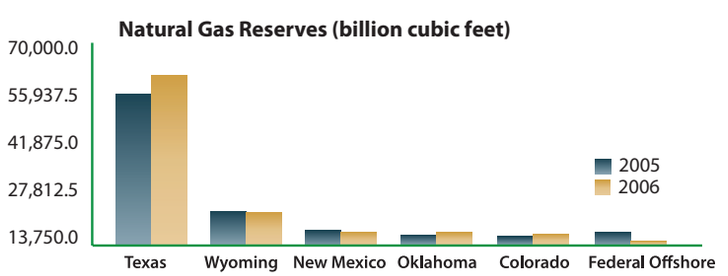
Natural Gas Production (million cubic feet)

	2005	2006
Texas	5,331,776	5,607,013
Wyoming	1,803,443	1,900,589
Oklahoma	1,592,524	1,640,389
New Mexico	1,408,499	1,376,540
Louisiana	1,212,453	1,282,075



Crude Oil Proved Reserves (million barrels)

	2005	2006
Texas	4,919	4,871
Alaska	4,171	3,879
California	3,435	3,389
Wyoming	704	706
New Mexico	690	705
Federal Offshore	4,483	4,096



Natural Gas Reserves (billion cubic feet)

	2006	2007
Texas	56,507	61,836
Alaska	23,774	23,549
California	18,201	17,934
Wyoming	17,123	17,464
New Mexico	16,596	17,149
Federal Offshore	17,831	15,360

Source: Energy Information Administration (EIA) -- Official Statistics from the U.S. Government.

Pitfalls of the Pit Rule (OCD Rule 17) — why it's bad for New Mexico

The "Pit Rule," or OCD Rule 17, is the most recent regulation passed by the Oil Conservation Division. This rule has undergone three versions since 2002; however, the newest version of the rule also regulates the use of "pits, closed-loop systems, below-grade tanks and sumps." A ***pit*** is defined as "a surface or sub-surface impoundment, or a man-made or natural depression or diked area on the surface." In other words, when a well is drilled through the earth's surface with the use of water, that water, mixed with the ground-up pieces of earth, called "cuttings," is generally discharged into a "pit"(Figure 1). That water is recirculated to be reused over and over again in the drilling process. This excess water is also available for emergencies, for example the loss of pressure down-hole. The size of the pit varies depending on the depth of the well and site restrictions. When an operator drills a well, his "pit" will hold the water with cuttings for the period of drilling, which, depending on the depth of the well, could be weeks. After the drilling is completed, the earthen material in the pit needs to dry out and then, *under the old pit rule*, the operator could cover up the drill cuttings and re-seed the area. When the pit is lined with thick 20-mil plastic and bentonite clay, the drill cuttings stay in that location for several hundreds of years. Impact from the cuttings or from materials with the same properties between the surface and the groundwater is very speculative.[a]

Under the new pit rule, depending on how much chloride there is in the materials, the operator may have to dig out the cuttings and haul everything to an approved landfill. For every well drilled in the southeast, it will mean the operators will have to haul away dozens of truckloads of dirt. In the northwest, where there are lower naturally occurring chlorides, an operator might be able to use the old method in very limited circumstances. Since there are only four landfills in the entire state that are approved to take oil field "waste," the rule forces an operator to put an increased number of trucks on the roads. In fact, the excavation of the pit and transport of the cuttings will result in approximately 25 million additional driving miles per year — at a cost of 3.5 million gallons of diesel fuel and an increase in drilling costs of more than 10 percent per well.[b]

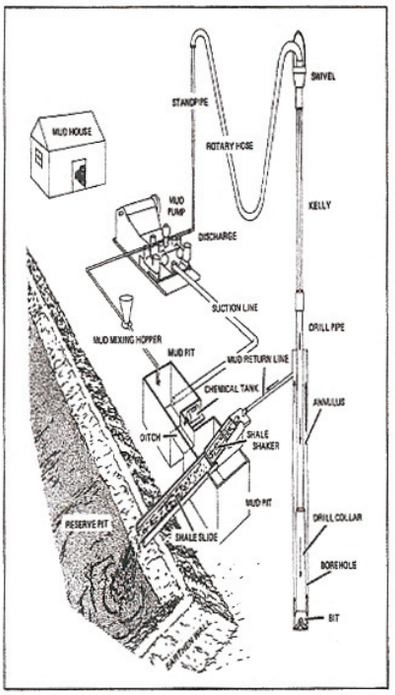


Figure 1. Route of circulating fluid

The closed-loop system requires an around-the-clock trucking operation, a larger surface area for operations, significantly increased costs and very little additional protection for the environment.

In several counties in the state, and in areas where the groundwater is less than 50 feet from the surface, the OCD requires the use of a "closed-loop system." (Operators may also opt to use the closed-loop system, rather than haul materials to an approved dumping site, if the drill cuttings have high chloride levels.) Figure 2 shows the closed-loop system that is preferred by the OCD. These systems require the use of motors for centrifuges, augers, deshalers and dewatering systems, in addition to having a front-end loader or

a. Ed Hanson testimony, OCD hearing Fall 2007, "dependant on the quality of the liner and the level of initial concentration of chloride of the cuttings material, the migration of chlorides could take anywhere from 270 to 4,000 years to reach groundwater."

b. IPANM comments on 2006 proposed Pit Rule, citing Collins, G., for Citizens Alliance for Responsible Energy, "It's the pits" comments on N.M. proposed drilling pit closure rule, March 2006, pg. 2.

bobcat permanently on location to move the wet cuttings. The "drying pad" has the same surface size of the old pit, but now its 20-mil plastic liner on the ground is surrounded by a dirt berm. Because there is no excess reusable water from a pit, more surface area needs to be used for storage tanks of water, which need to be brought in on a regular basis. When the cuttings on the surface pad are dry, they need to be hauled off immediately so that additional wet material is not placed on top. The closed-loop system requires an around-the-clock trucking operation, a larger surface area for operations, significantly increased costs, and very little additional protection for the environment.

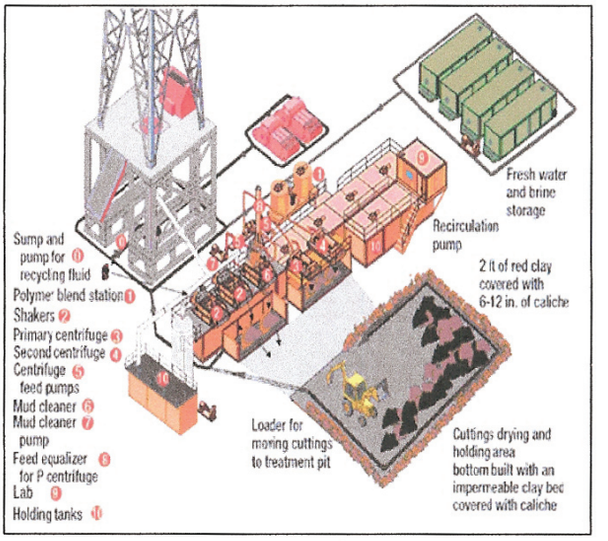


Figure 2. Closed-loop system

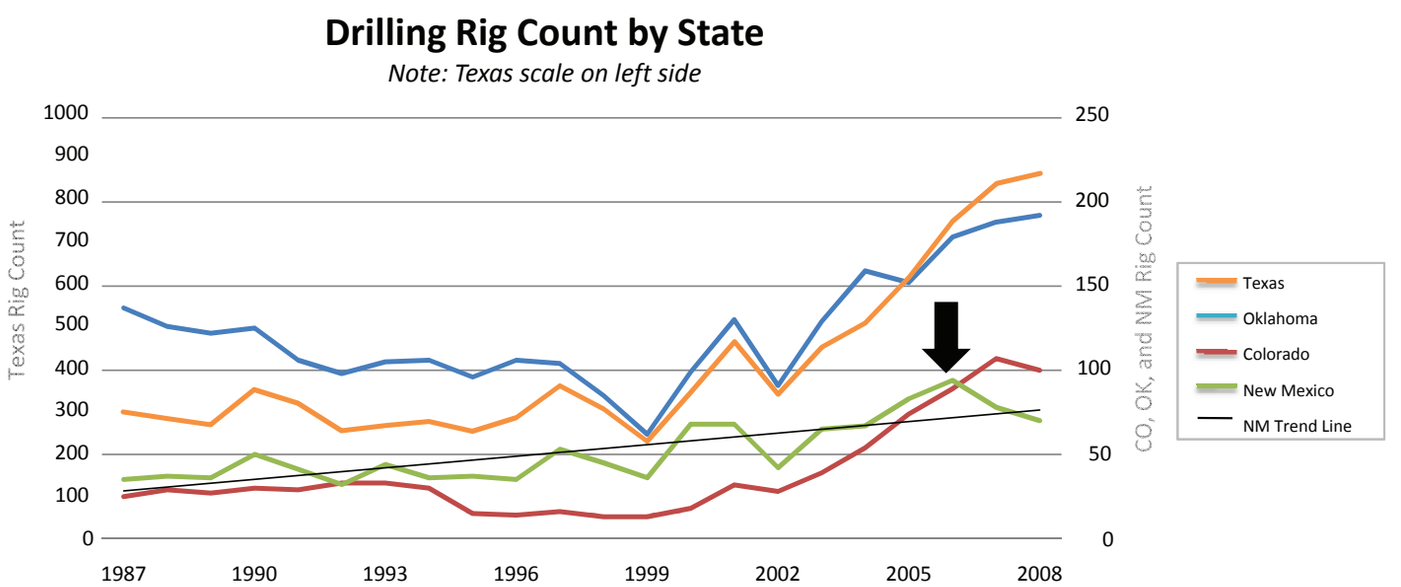
Rig Counts

New Mexico followed the same rig-count patterns as Texas, Colorado, and Oklahoma until mid-2006, at which time New Mexico started to fall behind the others. If New Mexico had followed the pre-2006 trend, we would now have close to 125 rigs a month. Baker-Hughes rig counts show that in 2008 New Mexico only averaged 70 rigs per year, more than 50 short from where we should be.

According to IPANM, a typical rig can drill 15 wells per year at approximately $700,000 per well. This means that each year we did not follow the rig trends, New Mexico's oil and natural gas companies did not drill 450 wells, or spend $440 million that could have been contributed to our state's economy. In Gross Receipts Tax alone, the state lost out on more than $30 million per year.

Important Balancing Act

Protection of the environment and our natural resources and allowing operators to safely and productively extract minerals are two responsibilities that must be fairly balanced in order to support New Mexico's economy. If regulators want only to protect the environment without any concern for balancing the economic costs of a rule, then companies will simply redirect their operations to more business-friendly states. The Pit Rule should to be revised and rewritten to balance the protection of the environment with the cost to our state's economy and industry operators.



Source: Baker Hughes

Environmental Stewardship

Anyone who listens to the rhetoric of environmental activist groups would likely be convinced that oil companies only care about making a profit and that "destroying" the environment is simply a necessary casualty; however, nothing could be further from the truth. The men and women who are dedicated to producing oil and natural gas for an energy-reliant nation take their job and the environment very seriously. Safely producing the fuels that power our state and nation and protecting the land that provides us with these valuable fuels are essential elements of the job.

It is interesting to note that those who feel that the oil and gas industry compromises the environment most often live in cities such as Santa Fe, New York, and Boston, where very little oil and gas production is occurring. Those communities which have oil and gas producers in their "backyard," such as Artesia, Farmington and Hobbs, support, appreciate, and understand this tightly regulated industry.

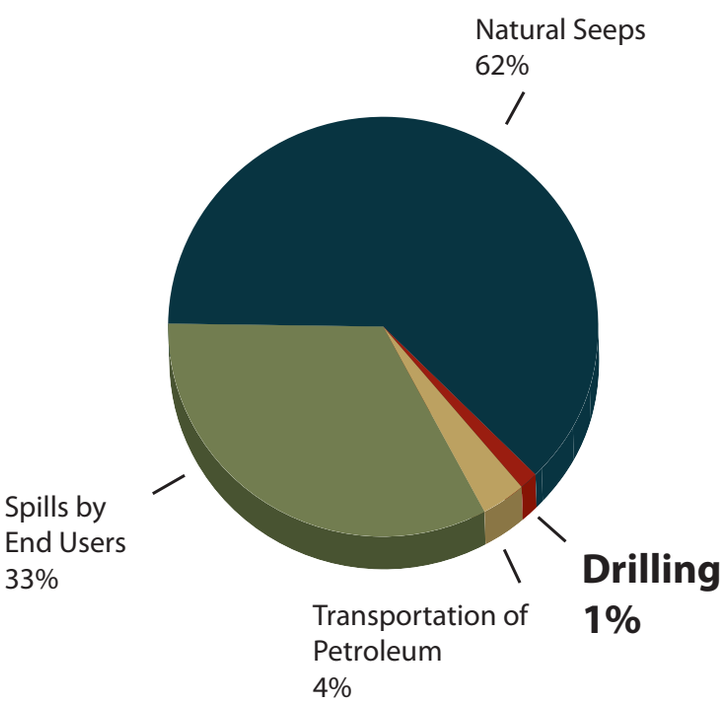
New Mexico oil and natural gas producers are continually developing and implementing advanced technologies that improve both efficiency and environmental safety. Their record for the safe and clean production of energy is excellent, and it must stay that way. Strict federal, state, and local environmental regulations require that producers protect the environment from groundwater contamination, air pollution, and unnecessary surface damages. The Oil Conservation Division Rule Book on the state Energy, Minerals and Natural Resources Website lists 184 sections that detail nearly 2,000 rules, regulations and procedures.[24]

Naturally Occurring Hydrocarbons with Water

Today there is a tendency for people to blame mankind for any kind of environmental pollution. They may not realize that the world naturally creates unfavorable conditions, without help from humans.

While oil, natural gas, and water are typically contained within rock formations well below fresh water reserves, it is not uncommon for hydrocarbons to naturally find their way into fresh water supplies. In fact, in the early days of oil production, petroleum was sometimes discovered while drilling water wells. A sheen of oil on the surface of the water sometimes indicated that the land in that location was better suited for oil production than for any other purpose.

Scientists also have discovered other forms of naturally occurring contamination. Mexico's largest oil reserve was discovered when a fisherman noticed oil in the water around his dinghy and reported the "problem." Seabed oil seeps are not a problem because microbes use them as a food source. There are also land-based microbes that feast on oil when it is spilled on the ground. Surprisingly, 60 percent of oil that finds its way into U.S. waterways does so through natural seeps.[25] An example of a naturally occurring water contamination can be found in wells from Aztec to Durango, Colorado, where methane seeps into the groundwater supplies.



Source: The National Academies Report in Brief (2002). Oil in the SEa III: Inputs, Facts and Effects.

Nationally, two-thirds of the methane gas found in domestic water wells has nothing to do with natural gas development. The methane in domestic wells is two-thirds biogenic gas, caused by bacteria, and one-third thermogenic, which can be related to natural conditions, development, or both. Other contaminants found in producing areas include selenium, fluorine, sulfate, or iron.

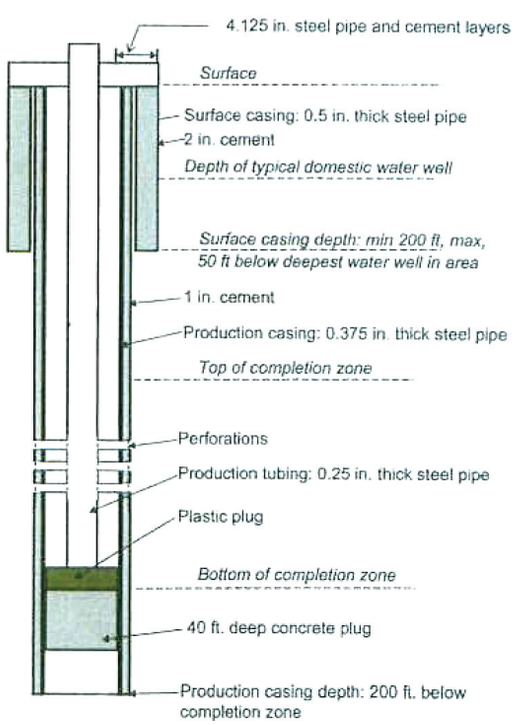
The tendency to assume man's activities are to blame for environmental impacts is common. Oil and natural gas producers have grown accustomed to occasionally taking blame for damage not of their doing. In one case, the City of Carlsbad accused the industry of polluting a water well with hydrocarbons. The New Mexico Oil Conservation Division (NMOCD) investigated and discovered the city was actually drilling beyond its aquifer. City officials were unaware that they had been drilling in an adjacent oil field.

Standard procedures for drilling the well include a multitude of safety precautions to protect groundwater.

Multiple Protections for Groundwater

When any oil or natural gas well is drilled, great care is taken to protect groundwater that lies between the surface and the minerals below. Groundwater is an issue only some of the time because it is not always present where minerals are found.

Since the first commercially viable oil well was drilled by Edwin Drake in 1859, many technological advances have made the drilling process more efficient and safer for humans as well as the environment, especially where groundwater is concerned. During the drilling process, multiple steps are taken to ensure that fresh groundwater reserves are not compromised by the mineral deposits that lie below.



There are many ways to complete wells with various sizes of tubing and casing. This diagram is a basic configuration.

Standard procedures for drilling the well include a multitude of safety precautions to protect groundwater, which include standard procedures for drilling the well. First, a hole is drilled to a minimum depth of 200 feet, or 50 feet below the deepest registered domestic water well in the area. A steel pipe is then inserted into the hole. Next, a two-inch barrier of cement is pumped between the hole and the steel casing all the way up the surface.

The next step is to drill a production hole typically 200 feet below the target formation, also known as the "completion zone." Production casing is then inserted into the hole. Once again, cement is placed between the hole and the steel casing, measuring about one inch thick, all the way up to the surface. Approximately 40 feet of cement is left inside the bottom of the casing.

Casings are checked for integrity before the well construction process continues. In the completion zone, the production casing is perforated so that oil or natural gas can flow into the production tubing. When the well is operational, the oil or natural gas flows through the production tubing to the surface.

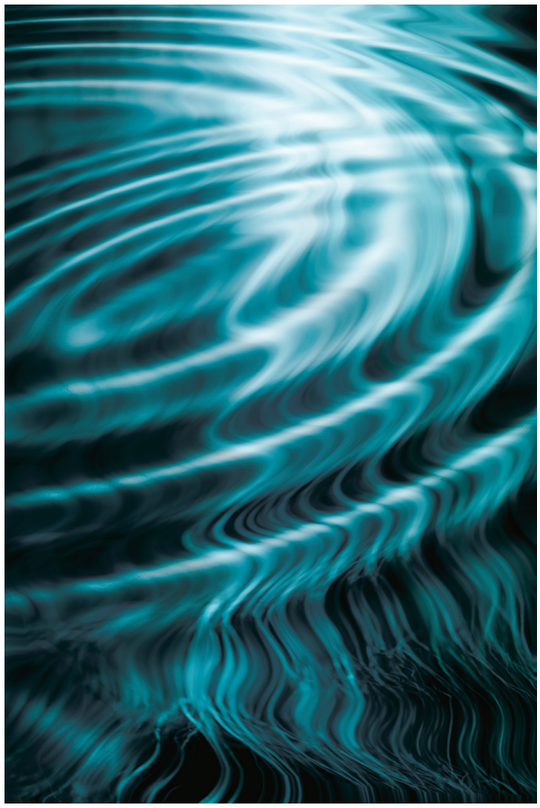
The cement barrier is an essential part of well safety because it seals off formations to prevent fluids from migrating. In other words, the oil or natural gas can only come to the surface through the production tubing, where there are multiple barriers of protection for groundwater. Additionally, the cement seal also protects the steel casing from the corrosive effects of other formation fluids.

Produced Water: Hope for the Future

Along with oil or natural gas, water is also produced from a well. For each barrel of oil extracted, an average of eight barrels of typically saline water is also produced. This water can be nearly six times saltier than seawater. Dissolved hydrocarbons in this water make it difficult to clean and desalinate.

Produced water is separated from the oil or natural gas at the well site and then transported by pipeline or truck to an injection well. Injection wells are drilled into deep formations, often below 10,000 feet, or an existing well is converted to an injection well. The Environmental Protection Agency (EPA) has regulations for injection wells, which are overseen by the New Mexico Oil Conservation Division (NMOCD). These regulations are specifically designed to prevent contamination of underground sources of drinking water.

Sometimes water is pumped into holding tanks and later trucked to a disposal facility. Although most water is disposed of by injection in New Mexico, some is allowed to evaporate in regulated pits that are permitted and checked by the NMOCD. With the injection disposal method, water from varying sources is injected underground through injection wells to help force oil out of the reservoir rock. This process is known as secondary recovery or waterflooding.



To produce one barrel of New Mexico oil requires handling 10.6 barrels of produced water.

Currently, produced water is a financial liability to the industry because of the disposal expense. However, entrepreneurs and government agencies are making progress towards developing processes that clean produced water to such a degree that it can be used for agricultural or other purposes. When this technology becomes available to all oil and gas producers, there will be a windfall of untold millions of gallons of clean water. In an arid state such as New Mexico, this technology could provide an extraordinary economic and environmental benefit. Not only would the state be awash in a new source of water, but it would also be able to cash in on the improved recovery of oil and natural gas resources. The increasing costs of disposing of produced water (as a well ages, the ratio of water to oil or natural gas often increases) is typically what makes a well more costly to operate than it is worth. Turning produced water into an asset instead of a liability will increase the lifecycle of a well.

Soil Protection

If there is a significant oil spill or leak, naturally there is immediate cause for concern.

However, cleaning up the vast majority of spills does not take a hazardous materials crew. It takes a "land farm." Keep in mind, oil is simply an advanced form of compost and is completely organic. When oil is spilled on the ground, producers clean it up by (believe it or not) cultivating it.

The contaminated soil is spread out in a thin layer over a plot of ground and mixed with the native soil, minerals, nutrients, and oil-eating microbes. The microbial activity is stimulated and bio-remediation begins. The oil is "eaten" or degraded into its organic compounds and, thus, disappears.

Larger spills are cultivated by using the soil much like a farmer uses his land — by creating rows of furrows for crops. The furrows are tilled at regular intervals to keep the soil oxygenated and proper pH levels are maintained so the microbes can do their work. When the process is complete, rich, productive soil remains. These soils can be used in parks, gardens, flowerbeds, or any other useful purpose. Nature is the original inventor of recycling.

Crude oil leakage or spills can damage soil and vegetation, so federal and state agencies monitor and test wells and oil storage. Should produced water spill onto the ground or common lube oil used with compressors drip off the machine, NMOCD rules regulate its cleanup and removal.

Nature is the inventor of recycling.

A land farm in the San Juan Basin.

Directional Drilling

Directional drilling allows producers to drill more than one well from a location and thus disturb less surface area. It protects environmentally sensitive areas and makes drilling more feasible in areas with multiple-use regulations.

It has its limits, however, and it does not always prove to be less intrusive overall. A drill can deviate from vertical only so far, and it often requires more time for construction and drilling and longer-term maintenance. Additional equipment may be required to complete the task. The cost of drilling a directional well is often considerably more expensive and presents additional risks. Therefore, use of this technology is only suitable and economically viable in a limited number of cases.

Land Use

For every inch of surface property that is disturbed in the process of oil or natural gas development, more money must be invested for construction and later reclamation. Companies try to disturb as little area as possible to reduce the impact on the land, to maintain good neighborly relationships, and to save on long-term costs.

The well pad is the surface area upon which the drilling rig sits. One to three acres is the optimal size, providing enough room for the heavy equipment needed for drilling, maintenance, construction, and safety. The pad also provides a buffer between the wellhead and surrounding wildlife, vegetation, and neighbors. When drilling is complete, the pad may be reduced to between one-half and one-and-a half acres.

During the productive life of a well, operators are responsible for various types of maintenance stipulated in the lease or other legal documents and/or state requirements. These regulations cover weed control, safety, and fencing associated with the well site, pipelines, and roads. Wells are also required to be pressure-tested so that potential leaks can be avoided. State and federal law requires environmental safeguards during and sometimes after production.

Revenue from leasing: In 2008, New Mexico received $65.6 million at four federal lease sales and $46.5 million at 12 State Land Office lease sales (based on individual lease sale result pages from the Bureau of Land Management at the State Land Office.)

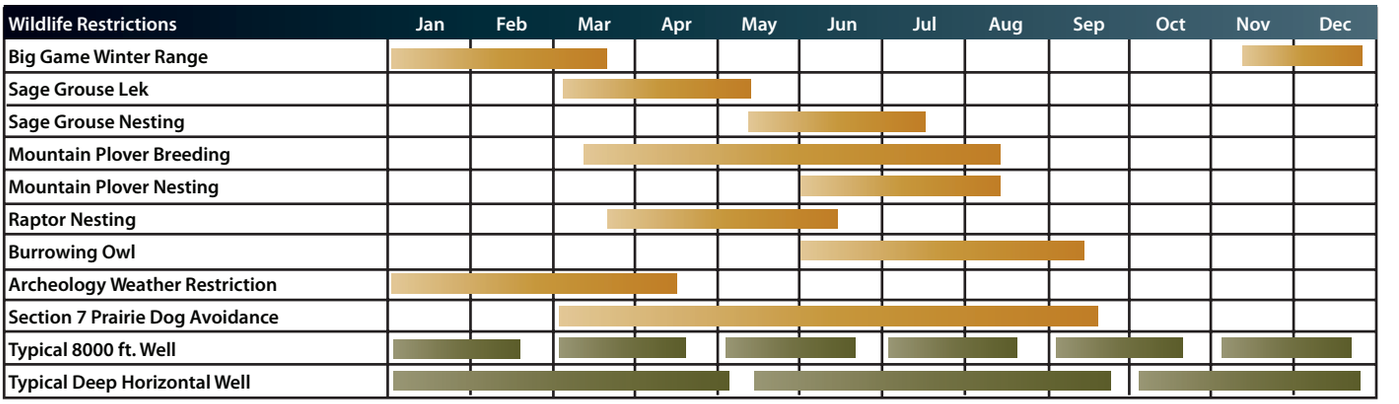
Access Restrictions

One of the most commonly misunderstood elements of the oil and natural gas industry relates to the leasing process. For those who are unfamiliar with the industry, it may not be clear why the federal and state governments continue to lease land for oil and natural gas exploration when such large quantities of land are already under lease. What many fail to realize is that some leases turn out to be less promising than they were at the time of the purchase. Industry executives must distinguish between leases they believe will be “good risks,” those they fear will become “money pits,” and the overly risky leases that will never be drilled.

Another reason that oil companies need an abundance of leases is that they must navigate an overwhelming amount of state and federal requirements, which is a lengthy process. State permits are required for all wells in New Mexico, and many wells may also require federal and/or tribal permits. To further complicate the permitting process, environmental, archaeological, and surface issues must also be addressed before drilling can commence.

Operators must adhere to hundreds of regulations and meet a wide range of standards and requirements before the drilling begins. Rules require companies to plan for the entire life of the well, unexpected events, safety, environmental protection, weed control, and final reclamation when the production cycle is completed. Only when all requirements are met and permits are granted can drilling begin.

A Mosaic of Seasonal Restrictions



Source: Independent Petroleum Association of Mountain States

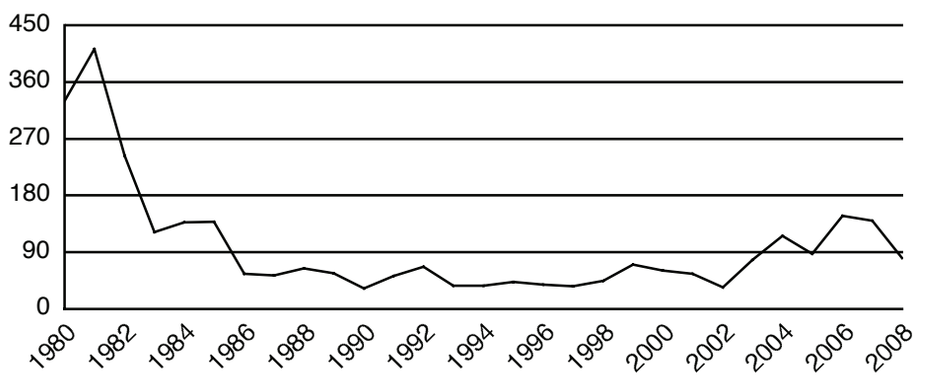
Restrictions pertaining to wildlife can make the drilling process especially difficult. In many cases companies are restricted from drilling during the mating or migratory seasons of endangered or otherwise vulnerable wildlife. It's not uncommon to have several species restrictions on a single lease. Multiple overlapping limitations leave the oil companies with a narrow window in which the drilling of a well is possible. In fact, a 2003 study by the Department of Interior showed that nearly 40 percent of the natural gas reserves on federal land in the Intermountain West have some barrier that prevents development of new drilling.

To further complicate matters, independent producers do not own their own drilling rigs and must hire drilling companies to do the work. There are a limited numbers of rigs, and if no rigs are available during the small window of time that a well can be drilled on a given lease, then the drilling of that well will be delayed by as much as a year.

Considering all of these issues — overly risky leases, permit requirements, delays, and restrictions — it's easy to see why oil and natural gas companies need multiple lease options from which to choose.

People who are not familiar with how the industry works might confuse a drilling lease with an actual lease site. In fact, anti-industry activist groups count on people not understanding the difference so they can try to convince people that there is too much drilling activity in new areas. However, a glance at the history of drilling rates reveals that the number of new field wildcat wells (exploratory wells) in New Mexico (81) is only about 20 percent of what it was from the all-time high (412) in 1981. Nationwide new field wildcat wells have decreased from 17,573 wells in 1981 to 5,509 wells in 2007.

New Mexico New Field Wildcat Well Permits



Source: IHS.com

New Field Wildcat Wells	
1980	330
1981	412
1982	243
1983	122
1984	137
1985	138
1986	56
1987	53
1988	64
1989	57
1990	33
1991	52
1992	67
1993	37
1994	37
1995	43
1996	39
1997	36
1998	45
1999	70
2000	61
2001	56
2002	34
2003	78
2004	116
2005	88
2006	148
2007	140
2008	81

Source: IHS.com

Wildlife in the Oilfield

When the Alaska pipeline was being built, environmentalists feared for the fate of the caribou, hypothesizing that the animals would suffer immensely. However, the exact opposite happened. For example, in the Prudhoe Bay area, about 50 miles west of the Arctic National Wildlife Refuge, the number of caribous has quintupled since oil production began in early 1978.[26] Nearly all year long the caribou use the oil field equipment and the adjoining Alaskan pipeline as a windbreak for warmth to combat the frigid temperatures, averaging 40 degrees below zero.

Likewise, the wildlife in New Mexico finds uses for the oil and gas drilling equipment. Birds use the elevated surfaces as foundations for nests. Deer and antelope, like the Alaskan caribou, use the equipment as windbreaks in their efforts to stay warm. There is so much wildlife in the oilfield that in 2004, IPANM created a contest for oil field workers and others to win cash prizes for the best photo or video demonstrating wildlife benefiting from the manmade changes in their environment.

For more information on IPANM's "Wildlife in the Oilfield" contest go to our Website at www.ipanm.org.

Hard Hat Generosity

Owners, operators, and employees in the oil and natural gas industry are active supporters of the communities in which they live. Every year employees of the industry dedicate hundreds of hours as volunteers towards government committees and task forces; community boards, business, recreational and agricultural organizations; school activities; scouting; and sports teams. Oil companies generously donate hundreds of thousands of dollars to charities and community projects annually. In addition, many companies donate "in-kind" materials and supplies to community programs.

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Northwest

Since 2003, usually during "Energy Week" in April, hundreds of oil and service company employees donate their time and equipment to pick up illegally discarded trash on the public lands that surround the city of Farmington. This impressive clean-up effort is lead by the San Juan County Clean Up and Prevention of Illegal Dumping, or CUPID. During this week the oilfield workers haul off tons of garbage ranging from household trash, to appliances, to old cars. Since the beginning of this project, 200 oil and natural gas businesses have sent more than 2,000 employees to join public volunteers to clean up trash from San Juan County's public lands. The volunteers have picked up 1,000 cubic yards of garbage, 3,000 old tires, 600 appliances, and 150 vehicles. Gracia Simms-Montoya, who founded the CUPID effort, says San Juan County's oil and gas companies have donated about $1 million in time and equipment to the cleanup program. "They've donated trucks, trash bags, breakfast, you name it," Simms-Montoya said. "The people are just great. They do it because it needs to be done, and this is the only industry that can do it."

In 1998 Farmington oil companies began raising funds (more than $600,000) for an exhibit at the Farmington Museum and Visitor's Center called "Dinosaurs to Drill Bits." Museum staff and industry executives spent two years designing the display to be completed in multiple phases. The Phase I addition of the project was initiated in late 2003 and the grand opening of the $240,000 exhibit took place in May 2004. The 1,500-square-foot exhibit features displays the history, geology, drilling, completion techniques, refining, and end products made from oil and natural gas, as well as the economic impact from the industry. Phase II of Dinosaurs to Drill Bits is even more ambitious. Museum and industry leaders have raised another half million dollars and are hoping to raise an additional $1 million in their quest to expand the exhibit to 4,000 square feet. This outstanding exhibit is worthy of any major metropolitan museum.

Southeast

Perhaps the most impressive example of community support and giving can be seen in Artesia's MainStreet project. The project began in 1997 when community members decided to revitalize their downtown area. Artesia MainStreet became a 501(c)(3) non-profit organization in 1998 and quickly began to make a big difference on Artesia's Main Street area. While people across the community and region have made contributions to Artesia MainStreet, a significant majority of the funding for the project came from the oil and natural gas industry.

Over the past few years, Artesia MainStreet has renovated historic buildings, commissioned the painting of a mural, contracted with an artist to create welcome signs at the city entrances, created the Heritage Walkway and Plaza, and planted 300 trees in the downtown area. The tree planting and walkway were part of a seven-block renovation that cost $2.6 million.

Impressive bronze sculptures have been created by renowned artists as a part of Artesia's MainStreet efforts. One sculpture is that of Sallie Chisum, an active, strong, and influential woman from the early days of Artesia. The 200-percent-life-size sculpture, called "First Lady of Artesia," celebrates the importance of women in the city's early history.

Additional sculptures include the crown jewel of the Artesia MainStreet project entitled "The Derrick Floor," and the "Pioneers of the Oil Industry." The $1.64 million "Derrick Floor" is a life-size bronze sculpture of a four-man crew. The roughnecks who are "making a connection" of drilling pipe are represented at 125 percent to emphasize the people who were responsible for building the oil patch in southeast New Mexico. The drilling rig is 34 feet in height with a floor approximately 35 feet in length by 25 feet in width. It is truly one of the most impressive sculptures in the state. Ninety percent of the funding for "The Derrick Floor" came from oil and natural gas companies. Those companies also contributed an additional $65,000 of in-kind services.

Artesia MainStreet also worked with three families on the "pioneer sculptures." The first is of oilfield pioneers Mary and Martin Yates, called "Woman's Intuition" (the west side of Main and 6th). The name comes from the story of when Martin relied on Mary to help him stake the third location of a well after the first two failed. That well, the Illinois #3, struck oil in 1924 and became the first commercial oil well on New Mexico state lands and the first commercial production in the southeast region. Illinois #3 generated the first royalty check to the state in the amount of $135.

The second sculpture is of Mack Chase and John R. Gray. It is called "Partners" because Mack and John formed a highly successful company, Marbob (named after their wives, Marilyn and Bobbi), before going on to create two separate and highly successful companies. A third pioneer sculpture of Van Welch was dedicated in July 2005. All of these families have played major roles in the formation and success of the city and the industry and continue to be significant supporters of the community today.

Contributions to Education

The oil and natural gas companies care about the education of New Mexico's children. In 2007 the Land Grant Permanent Fund (94 percent of which is generated by the oil and natural gas industry) gave public schools $415,107,022. If that money were divided equally between the 89 school districts in the state, it would amount to $4,664,123 for each district. The LGPF also distributed $50,419,297 to the following educational institutions: University of New Mexico, New Mexico State University, New Mexico Institute of Mining & Technology, Eastern New Mexico University, Western New Mexico University, New Mexico Highland University, Northern New Mexico Community College, New Mexico Military Institute, New Mexico School for the Blind and Visually Impaired, New Mexico School for the Deaf, and New Mexico Boy's School.[27]

The oil and natural gas industry also has programs that recognize teachers for innovation and excellence in teaching energy and/or energy conservation in the classroom. One such program, A+ for Energy, created by BP, provides up to $4 million in grants and scholarships for pre-K through 12th-grade teachers to use in their classrooms.

Additional help for teachers has been created with the support of the Independent Petroleum Association of New Mexico and the U.S. Bureau of Land Management. These two groups work with the National Energy Education Development Project (NEED) to provide workshops and curriculum materials for teachers throughout the state. They also promote an energy-conscious and educated society by networking educators, businesses, governments and students.

A further example of the generosity of the oil and natural gas industry can be found in the Chase Foundation, founded by the Mack Energy Corporation. The foundation believes in supporting the community and improving the quality of life through education. In 2008 graduating Artesia High School students received 114 scholarships totaling more than $1.5 million.

Renewable Energy: Promise and Problems

Fossil Fuels Still Rule

The United Sates will continue to remain heavily dependent on fossil fuels for our energy needs. Power from coal, oil, and natural gas currently provides 85 percent of all the energy consumed in the United States.[28] According to the Department of Energy, more than 70 percent of our electricity and more than 98 percent of our transportation energy sources come from fossil fuels. We remain reliant on fossil fuels because they are available, affordable, and reliable. In other words, we know where to get them, we can get them at a reasonable cost, and we can use them with consistency.

In order for a renewable energy source to gain the elevated status achieved by fossil fuels, it must first be readily available. Fossil fuels are self-contained energy units that, once taken out of the ground, can easily be turned into energy. They are easily and safely transported to be used whenever and wherever we want. Renewable energy sources, however, have to be captured. Wind cannot be pumped out of the ground and refined into an energy source. A windmill must be built to harness its power, and if the wind does not blow, there is no energy. Sunshine cannot be poured into a gas tank to fuel your car; it has to be captured by a photovoltaic cell, which produces no power at night.

Secondly, the alternative fuel source must be affordable. The difficulty, expense, and inherent inefficiency of having to build equipment to capture the energy (wind turbines, solar panels, dams, etc.) are factors that make renewables less efficient than fossil fuels. They are also less practical because once the energy is captured it must be instantly used. Even today, nearly all renewable energy projects have been constructed using public funding and tax rebates.[29] Until an energy fuel source has market prices that can compete with fossil fuels, it will not be considered affordable.

According to the Department of Energy, more than 70 percent of our electricity and more than 98 percent of our transportation energy sources come from fossil fuels.

The third element to be considered is reliability. Nearly all renewable sources have challenges in this area, especially wind and solar power. Wind, by its very nature, is inconsistent. The electrical grid requires consistency and in order to maintain a reliable electrical output, expensive compensating and backup systems must be installed. With solar power, the obvious problems are that the sun does not shine at night, produces less energy on cloudy days and is only viable in specific geographical regions.

Our intent is not to discount the important efforts being made in the renewable energy industry. However, it is necessary to note that at this point in time, energy generation outside of fossil fuels and nuclear power is extremely limited, is not affordable, and is not yet reliable. The world continues to consume oil, natural gas, and other fossil fuels in massive quantities every day. Technological progress has enabled the industry to continue to find more petroleum, to extract more per well, and to use oil and natural gas in innumerable ways. Fossil fuels will remain the fuel source of choice for many years to come.

Independents Strongly Support Renewable Energy

The oil and natural gas industry supports the rapid advancement of renewable energy because we view ourselves as not only producers of oil and natural gas, but as producers of energy. The world is going to continue to demand more and more power and it will eventually become impossible for nuclear and fossil fuels to meet all of the world's energy demands. The oil and natural gas sector is one of the solar industry's biggest consumers, using solar power in remote mineral production areas where no electricity is available and diesel generators are impractical. Oil and natural gas operators also use solar power for comunications. While electrical power is very important, our most needed energy breakthrough is in the area of transportation fuels. Currently, there is no viable substitute on the horizon for oil and the many fuels it produces.

Hydrogen

Hydrogen is often referred to as the ultimate transportation solution and, perhaps, one day it will be. Although hydrogen is the most abundant element in the universe, it only occurs on earth in chemical compounds. Before it can be used as an energy source, it must be separated from other atoms in the compounds.

There are several additional problems in using hydrogen as an energy source that need to be resolved before it can become a viable source of alternative energy, including the following:

- Hydrogen generation requires an energy investment that comes from a primary fuel source, i.e., coal, oil, nuclear or natural gas. In most cases, natural gas is used as the primary fuel source. Hydrogen can then only be generated using a high energy consuming process, called water electrolysis.[30]

- The current cost for a hydrogen fuel cell is about $5,000 per kilowatt. The Department of Energy estimates that the costs would need to come down to $50 per kilowatt to be considered for automobile application. Fuel cell durability must also improve by a factor of five.[31]

- Hydrogen safety is a significant concern. Until now, only highly trained professionals have handled this dangerous energy carrier. By opening it up to the general public, it presents potential unknown safety challenges and concerns.

- Using hydrogen as a fuel results in a phenomena known as hydrogen embrittlement. Under high pressure and temperature, hydrogen atoms flow into the intermolecular spaces in steel, which causes the metal to become brittle. This problem will have to be fixed before hydrogen-powered engines can be made safe and reliable.[32]

- Another taxing problem exists in our country's infrastructure. A storage and delivery system (hydrogen stations) would have to be constructed across the entire nation.[33] The Union of Concerned Scientists estimates that a transition to a hydrogen economy is a "trillion dollar class effort."

The ablest minds in the field estimate that in a best-case scenario it would take two to four decades before hydrogen even has a chance to play a role in our energy portfolio. Human ingenuity has a long history of achieving feats that at one time were completely unimaginable, so it is possible that we could have a hydrogen economy one day. However, after reviewing the facts, it is clear that there is still much research and development that needs to take place before hydrogen can be considered a viable source of alternative energy.

Ethanol

Ethanol is a fuel source derived primarily from sugarcane or corn. In recent years it has become more widely used as a way to oxygenate gasoline. Another oxygenate, Methyl Tertiary Butyl Ether (MTBE), had been the oxygenation standard; however, MTBE is being phased out because of concerns that it may leak out of underground gasoline tanks and then pollute groundwater.

Ethanol is also being marketed as a substitute for gasoline. In the 2005 Energy Bill Congress mandated that 7.5 billion gallons of ethanol be produced annually by 2115, nearly doubling the amount produced at the time the bill passed. Because of that legislation ethanol has enjoyed an enormous amount of attention and capital investment. In spite of the excitement about ethanol, there are significant concerns that must be overcome before it can be accepted as one of the many solutions we need to diversify our energy portfolio.

First, studies show that ethanol requires more liquid fuels to produce than it can provide on combustion.[34] Dr. Michael Economides of the University of Houston argues that in a worst-case scenario it could take as much as 3.6 gallons of fossil energy to produce one gallon of ethanol.[35] Other studies indicate that ethanol has a slightly more positive energy balance, requiring one gallon of oil to produce one and a quarter gallons of ethanol.[36] However, even with the most optimistic estimates, using a barrel of oil to produce a barrel of ethanol does not make much economic sense.

Second, the landmass required to replace even a small portion of our gasoline requirements with ethanol would be huge. For example, if we tried to replace just 10 percent of the gasoline the U.S. would use in the year 2020 with ethanol, we would need to plant cornfields across every inch of Indiana, Ohio and Illinois just for the feedstock.[37] This would mean finding a replacement for one-sixth of the country's farmland that is currently used for food production.[38]

Third, supporters of ethanol advertise it as a cleaner-burning fuel than gasoline. However, it actually produces worse types of pollution. Ethanol emits higher levels of NOx (nitrogen oxide) emissions contributing to smog, and it makes the gasoline evaporate faster, reducing its value while increasing pollution. It must also be shipped separately for mixing at distribution terminals, which simultaneously drives up costs, fuel usage, and emissions.[39]

Even with all of ethanol's problems that must be overcome, it may still be prudent to continue research and development. With a few technological breakthroughs, cellulosic ethanol made from such things as switch grass and bio-waste may become economically and environmentally viable.

The current tariff on imported ethanol is 54 cents per gallon. The federal subsidy for U.S. Producers Volumetric Ethanol Excise Tax Credit is 51 cents per gallon.

Source: U.S. Department of Energy

Biodiesel

Biodiesel is a clean-burning fuel made from field crop oils, usually soybeans. Although it has the word "diesel" in the name, there is no petroleum in the product. It is called biodiesel because it's typically blended with diesel fuel.

Like ethanol, biodiesel is gaining in popularity. According to the EIA, the U.S. consumed 64 trillion British thermal units of biodiesel in 2007, which is twice the amount consumed in 2006. However, unless the costs of soybean oil are drastically reduced, the EIA suggests biodiesel cannot be produced in large quantities at a price that is competitive with existing fuel sources.

Oil Shale

One of the most promising alternatives to oil is what's called "oil shale." The potential resource is enormous, with the United States estimated to have 62 percent of the world's potentially recoverable oil shale resources. According to the EIA, the largest deposits are found in the Eocene Green River formation in northwestern Colorado, northeastern Utah, and southwestern Wyoming.

The name "oil shale" is actually a misnomer because it does not contain oil and it is not often found in shale. The organic material in oil shale is kerogen, which is contained in a hard rock called marl. When processed, kerogen can be converted into a substance similar to petroleum. The quality of this product is typically better than the lowest grade of oil produced from conventional reserves.

Unfortunately, oil shale poses several challenging problems. Processing of oil shale requires significant amounts of energy and water. It also produces massive amounts of waste product. In the 1970s, major oil companies in the U.S. spent billions of dollars in various unsuccessful attempts to commercially extract shale oil. However, as the price of conventional oil rises, the economics of shale oil will improve.

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New Mexico Energy, Minerals, and Natural Resources Department, www.emnrd.state.nm.us
GO-TECH, www.octane.nmt.edu
New Mexico Taxation and Revenue Department, www.state.nm.us/tax
New Mexico Investment Council, www.state.nm.us/nmsic
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Energy Tribune, www.energytribune.com
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Glossary

Barrel of oil: Equal to 42 U.S. Gallons

Coal bed methane: Methane gas found in coal seams. It is sold and used the same as traditional natural gas. Currently, natural gas from coal beds accounts for approximately seven percent of total natural gas production in the United States.

Directional drilling: A technique in which drilling is intentionally directed away from vertical in order to reach a particular part of a reservoir. This method allows many wells to be drilled from one point, lessening surface disturbance.

Ethanol: An alcohol-based fuel produced by fermenting and distilling starch crops that have been converted into simple sugars. Feedstock for this fuel include sugarcane, corn, barley, and wheat. Scientists are also attempting to create ethanol from "cellulosic biomass" such as trees and grasses, which is called bio-ethanol.

Fossil fuels: Fuels formed in the ground from the remains of dead plants and animals. It's believed that it takes millions of years to form fossil fuels. Oil, natural gas, and coal are fossil fuels.

Hydrogen power: A source of energy that converts hydrogen to electricity to provide heat, light, and power. Though hydrogen is readily available, the production of hydrogen power is expensive and not yet commercially viable.

Independent producers: Small, generally privately-held oil and gas drilling companies. Independent producers develop 90 percent of domestic oil and gas wells and produce 68 percent of domestic oil and 82 percent of domestic natural gas.

Land farming: A way of cleaning up oil spills on land. Contaminated soil is spread out, mixed with native soil and oil-eating microbes. The soil is cultivated, and in a matter of weeks the mixture becomes soil that could be used on a farm or garden.

Land Grant Permanent Fund: One of New Mexico's two permanent funds. It was valued at $9.5 billion in 2008. Interest from the fund is used to support public schools and other entities. The fund gets most of its money from oil and gas leases on state lands. Since it was formed in the early 1900s, the fund has distributed more than $6.8 billion to public education in New Mexico.

Megawatt: A measure of a unit of electricity that equals one million watts, which is enough electricity to power 600 to 1,000 homes at any given time.

Natural gas: A naturally occurring mixture of hydrocarbon and non-hydrocarbon gasses found in porous geological formations beneath the earth's surface. The principal component is methane, often associated with petroleum.

Oil: Petroleum is basically a mix of naturally occurring organic compounds from within the earth that contain primarily hydrocarbon, carbon, and oxygen. Most geologists agree that crude oil forms over millions of years from the remains of tiny aquatic plants and animals that are exposed to the combined effects of time and temperature. In other words, oil forms from organic matter that is either "cooked" deep within the earth for long periods of time at low temperatures, or "cooked" for short periods of time at high temperatures.

Oil and gas lease: A contract between a mineral owner, otherwise known as the lessor, and a company or working interest owner, otherwise known as the lessee, in which the lessor grants the lessee the right to explore, drill, and produce oil, gas, and other minerals for a specified primary term and as long thereafter as oil, gas or other minerals are being produced in paying quantities. The oil and gas lease is granted in exchange for royalty payments to the lessor. Oil and gas produced on public lands produce revenue for state or federal governments depending upon which entity owns the land.

Oil shale: Underground formation of a fine-grained sedimentary rock containing varying amounts of kerogen, a solid waxy mixture of hydrocarbon compounds. Heating the rock to high temperatures converts the kerogen to a vapor which can be condensed to form slow-flowing, heavy oil called shale oil.

Permian Basin: An oil and natural gas producing area in southeastern New Mexico and northwestern Texas. The basin is an ancient seabed 300 miles long and 250 miles wide. There are more than 53,000 oil and gas wells in the basin.

Produced water: Underground water that comes to the surface as a result of oil and natural gas drilling. The water can be six times as salty as seawater. Typically, eight barrels of saline water are produced for each barrel of oil. Entrepreneurs are working on ways to clean up produced water so it can be used for agriculture or other purposes.

Renewable energy: Energy obtained from sources that are essentially inexhaustible. Renewable sources of energy include wood, waste, geothermal, wind, photovoltaic and solar thermal energy.

Roughneck: A low-ranking member of the drilling crew. The roughneck usually performs semi-skilled and unskilled manual labor that requires continual hard work in difficult conditions for many hours. After a roughneck understands how a rig operates and demonstrates his work ethic, he may be promoted to other positions in the crew.

San Juan Basin: A prolific natural gas producing area in northwest New Mexico. It covers parts of San Juan, Rio Arriba, Los Alamos, and McKinley counties. Natural gas was discovered in the basin in 1921. Currently there are 20,000 producing wells in the basin. Some wells produce oil, but most production is natural gas.

Severance Tax Permanent Fund: One of two of New Mexico's permanent funds. In 2008 it was valued at $3.97 billion. Interest from the fund is used to retire bonds that pay for government projects. Ninety-nine percent of the fund's money comes from oil and natural gas exploration and production.

Solar power: Energy from the sun's radiation converted into heat or electricity, generally through the use of photovoltaic panels, or solar cells. The solar cells are placed under direct sunlight. The rays of the sun hit the cells, initiating a chemical reaction that creates an electric current.

Wildcat well: An oil or natural gas well drilled in an area that has not previously produced mineral. Due to the uncertainty of being successful, investors who choose to enter into a wildcat oil and gas limited partnerships are exposed to high risks.

Wind power: Electricity that is generated through the use of a turbine, usually mounted on a tower. Wind turns the turbine blades, which are connected to a shaft and a generator. Windmills do not consistently generate electricity, as the wind is not always blowing.

Fast Facts

New Mexico

Production

- Rankings (2008)
  - 4th in natural gas production (4,408 million cubic feet per day)
  - 3rd in natural gas proven reserves (17.2 trillion cubic feet)
  - 6th in oil production (163,800 barrels per day)
  - 5th in oil proven reserves (735 million bbls)
- The 50 largest operators in New Mexico produced 46.1 million barrels of oil in the year 2007 or about 127,208 barrels per day.
- The 50 largest operators in New Mexico produced 1.425 trillion cubic feet of natural gas in the year 2007 or about 3.9 billion cubic feet per day.
- Producing Counties
  - **North**: San Juan, McKinley, Rio Arriba, Sandoval, Colfax
  - **South**: Eddy, Lea, Chaves, Roosevelt

* Reserves are believed to be in Otero and Sierra counties as well

- Active producing wells: more than 50,000

Economics

- 2007 gross taxable: $1,925 million
- Land Grant Permanent Fund:
  - – $9.538 billion balance as of Sept. 30, 2008
  - – 2007 payout to 21 public entities of $439 million
  - – Oil and natural gas make up 95% of revenue going into the fund
- Severance Tax Permanent Fund: $3.977 billion balance as of Sept. 30, 2008
- New Mexico receives 48 percent of the 12.5% federal royalty from oil & gas production on the federal mineral lands.
- New Mexico has a 36.4 cents per gallon gasoline tax and a 43.4 cent per gallon diesel fuel tax.

Miscellaneous

- The first substantial discovery of gas was made in 1921 in San Juan County just south of Aztec
- The first commercial well in southeast New Mexico was the Illinois #3 drilled in 1924 by Martin Yates, Van Welch, William Dooley and Tom Flynn. The first royalty check to the state in 1924 was $135.
- The Oil and Conservation Rule Book is more than 200 pages thick and contains 184 sections of nearly 2,000 rules, regulations, and procedures.
- 3.4 million acres (31% of New Mexico land) are managed by the Bureau of Land Management (BLM).
- The N.M. Land Office manages state trust lands, including 8.8 million acres of surface and 13.4 million acres of sub-surface.
- 10.6 barrels of produced water must be managed to produce 1 barrel of N.M. crude oil
- Capacity of New Mexico's three refineries: 121,600 barrels of crude oil a day.
- 1,271,365 licensed New Mexico drivers (2004)
- 1,580,820 total New Mexico registered vehicles (2007)
- 1,478 motor gasoline outlets (2006)
- 12,329 miles on average driven per vehicle per year

Jobs

- The industry provides more than 15,000 direct jobs with an average salary of $66,716 compared to the state average of $37,232 (2007).
- There are approximately 13,000-17,000 service-sector jobs connected to the production, distribution, and sale of oil and natural gas.
- 1st Q- 2008 average industry salary: $88,400 (NAICS code 211)
- 1st Q-2008 average federal government salary: $60,424-13,770 workers
- 1st Q-2008 average state government salary: $45,916-18,557 workers
- 1st Q-2008 average local government salary: $32,968-29,597 workers

Electricity Supply

- 77% coal-fired, 18% natural gas-fired (95% fossil fuel)
- 3.8% hydro/wind/solar/bio-fuel/geothermal

Home Heating Supply

- 68% natural gas, 15% propane/LPG (83% direct fossil fuel)
- 12% electric
- 5% other/none

Listing of State & Federal Regulatory Bodies

- New Mexico Environmental Department (NMED)
- New Mexico Oil Conservation Division (NMOCD)
- New Mexico Department of Game & Fish (NMDGF)
- New Mexico State Land Office (NMSLO)
- State Historic Preservation Office (SHPO)
- Environmental Protection Agency (EPA)
- United States Army Corps of Engineers (USACE)
- Bureau of Land Management (BLM)
- United States Fish & Wildlife Service (USFWS)
- United States Department of Agriculture (USDA)
- United States Forest Service (USFS)
- Federal Aviation Administration (FAA)

United States

U.S. Consumption

- We consume 20.7 million barrels of oil a day (2007).
- Average Actual Vehicle Fuel Mileage: 22.4 mpg (2004).
- Annual consumption of oil is approximately 7.5 billion barrels.
- 58% of all oil consumed in U.S. is imported, up from 35% in the 1970s.
- Top Exporters to the United States (2008): Canada (2,170 tbpd), Saudi Arabia (1,545 tbpd), Venezuela (1,166 tbpd), Nigeria (1,006 tbpd), Mexico (901 tbpd), Iraq (661 tbpd).
- Oil consumption is up 25% since 1970.
- 16.5% of all natural gas consumed in the U.S. is imported (2007).
- We import 10.174 million barrels of oil daily with 5.96 million barrels coming from OPEC members (2008).
- The American Petroleum Institute reports that the U.S. burns 142 billion gallons of gasoline annually (390 million gallons a day).
- A one-cent increase in the retail price of gasoline takes $1.4 billion out of consumers' pockets.
- 96% of transportation fuel comes from oil.
- Coal, oil and natural gas provide 86.2% of all energy consumed in the U.S.
- 70% of all electricity is generated by fossil fuels.
- The Department of Energy estimates that in the year 2020, 80% of our energy will come from fossil fuels.
- The U.S. imports more than 8% of its refined product needs (mostly gasoline).
- Demand for oil is expected to rise by 2% annually.

U.S. Production

- The first productive U.S. oil well was drilled by Edwin Drake in 1859 in Titusville, Pa.
- 31 states produce oil and natural gas along with the offshore coastline.
- There are more than 5,000 independent oil and gas companies in the U.S.
- U.S. production in 1970: 10 million barrels a day.
- U.S. production in 2007: 5.064 million barrels a day.
- Projected U.S. production in 2025: 4.7 million barrels a day.
- "Big Oil" (fully integrated companies involved in production, transportation and retail sales) drills only 10% of U.S. wells and produces only 18% of natural gas, and 32% of crude oil.
- Houston-based Baker Hughes Inc., which has kept an accounting of rigs since 1944, reports that the number of rigs exploring for oil and natural gas peaked in 1981 at 9,151.
- Baker Hughes reports that in 1959, 2,074 rotary rigs were exploring for oil and natural gas; in 2008 the number of rigs was 1,971 after a low of 975 in 1971.
- Prudhoe Bay on Alaska's North Slope (about 60 miles from the controversial Arctic National Wildlife Refuge, or ANWR) is America's largest oil field.
- Oil was discovered in Prudhoe Bay in 1968 and since first production in 1977 has produced 10 billion barrels of oil, with 3 billion barrels remaining.
- Independents (primarily small companies only involved in production) drill 90% of wells and produce 82% of natural gas, and 68% of American crude oil.
- 85% of all wells in America (about 422,255) are "stripper wells" (those that produce fewer than 15 barrels of oil per day), but together they produce 919,000 barrels a day, or 18% of domestic output.
- The U.S. has 146 operational refineries, down from a high of 319 in 1980.
- A new refinery hasn't been built in the U.S. for more than 32 years.
- The current tariff on imported ethanol is 54 cents per gallon.
- The current U.S. tax credit for U.S. production of ethanol is 51 cents per gallon.
- According to the American Petroleum Institute, $226.4 billion was invested by industry in 2007 to drill oil and gas wells, compared $109.8 billion in 2006 and only $19.3 billion in 2000.

U.S. General Oil and Natural Gas Stats

- The national trade deficit in 2007 was $815 billion; $293 billion of that was for oil and petroleum goods.
- Oil is a "commodity," which means the producers DO NOT set the price.
- The price of oil is set on the world market, which means producers are "price takers" receiving regional market pricing for their crude oil.
- According to the U.S. Geological Survey, Department of Energy and Energy Information Administration, approximately 21.2 billion barrels of oil resources and 186 Tcf of natural gas reserves underlie federal lands in the lower 48 states.
- The oil and natural gas industry employs more than 1.7 million workers nationwide.
- The Cato Institute estimates that if the price of gasoline relative to wages were comparable today to what they were in 1920, we would be paying almost $10 a gallon.
- According to former Exxon Mobil CEO Lee Raymond, if we tried to replace just 10% of the gasoline the U.S. will use in 2020 with corn-based ethanol, we would have to dedicate corn fields across every inch of Illinois, Indiana and Ohio solely to grow the grain needed for feed stock, approximately one-sixth of the entire land we currently use for all crops.
- Only one percent of the 262 million acres of public lands managed by the Bureau of Land Management is impacted by oil and natural gas operators.
- 92% of federal onshore lands are NOT leased.
- It typically takes 7 to 10 years to go from discovery of oil/gas to production.
- The U.S. has only eight Liquefied Natural Gas (LNG) terminals. Most experts estimate that 11 new LNG facilities will be needed by 2015 to meet projected demand.
- The U.S. currently has 18 different regional gasoline standards, making it difficult if not impossible to keep gasoline supplies stable and available in the event of temporary supply disruptions.
- 244.1 million vehicles are registered in the United States (2007).
- 634,532 are alternative energy vehicles, of which 297,100 are E85 Flex-fuel (2006).

For EVERY MINUTE your child is in school,

New Mexico's Oil & Gas Industry

contributes  to Education

Do the math...

If all the state revenue from the oil and gas industry were given to public schools, how much money would the industry give to kids every minute that students are in class?

$2,938,273,265	Oil and Gas Funds	
÷	1,080	Hours
=	$2,720,623.39	
÷	60	Minutes
=	$45,343.72	every minute

INDEPENDENT PETROLEUM ASSOCIATION OF NEW MEXICO

A Publication of the Independent Petroleum Association of New Mexico