

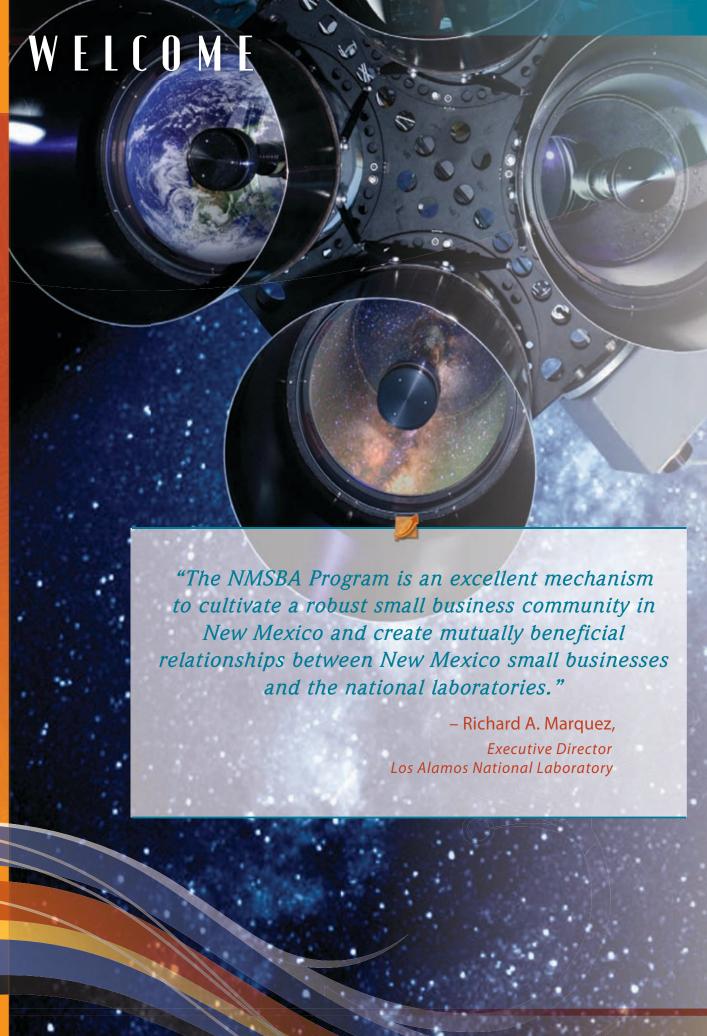


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www.NMSBAprogram.org







Dear Governor Richardson and New Mexico State Legislators,

We are pleased to share with you the 2009 Annual Report for the New Mexico Small Business Assistance (NMSBA) Program.

While tough economic times continued to dominate the headlines, the NMSBA Program was sought out by hundreds of small businesses in New Mexico who used the Program as a tool to help grow and sustain their companies. Together, the State of New Mexico along with Los Alamos National Laboratory and Sandia National Laboratories invested nearly \$4.3 million to support 320 small businesses in 25 counties throughout the state, mostly in rural areas.

The impacts of the NMSBA Program on our state's small businesses resulted in jobs created and retained, increased revenues, decreased operating costs, more investments in New Mexico goods and services, and new funding opportunities. A medical company in Albuquerque wanted to understand their device's ability to decrease healing time using silver nano-technology. With the assistance NMSBA provided, they can now embark on the rigorous path toward Food and Drug Administration approval and marketing the technology to the public. A decorative lighting company in northern New Mexico achieved a 10% increase in sales and a 30% improvement in on-time delivery of orders after NMSBA helped the company streamline their manufacturing process and reorganize their shop floor. A Santa Fe company built a device which can predict and display fire behavior using an interactive, three-dimensional model on a sand table, and now anticipates hiring more engineers based on the support they received from NMSBA. Water treatment companies in various parts of New Mexico hope to identify potential customers and offer appropriate, inexpensive point-of-use treatment systems and technologies based on groundwater quality testing done at Los Alamos and Sandia national laboratories.

As you review this report, you will find that the Laboratory Partnership with Small Business Tax Credit Act has been critical to the growth and sustainment of many New Mexico small businesses. Thank you for your continued support of this Act that created the NMSBA Program, allowing the State of New Mexico to engage our national laboratories and the small business community in promoting economic development throughout our state. Your support of NMSBA led it to being recognized with the "Outstanding Regional Partnership Award" from the Federal Laboratory Consortium, recognition that we are proud to share with you!

Sincerely,

Mariann Johnston

Los Alamos National Laboratory

Jackie Kerby Moore

Sandia National Laboratories





Purpose and Description

In 2000, the New Mexico Legislature created the Laboratory Partnership with Small Business Tax Credit Act, for the purpose of "bringing the technology and expertise of the national laboratories to small businesses in New Mexico to promote economic development in the state, with an emphasis on rural areas." This Act established the New Mexico Small Business Assistance (NMSBA) Program at Sandia National Laboratories (SNL) to help small businesses throughout the state by providing technical support; Los Alamos National Laboratory (LANL) began participating in 2007. Over the last 9 years, the NMSBA Program has assisted 1,597 small businesses with 2,797 projects.

The NMSBA Program is committed to:

- Solving small businesses' critical challenges with national laboratory expertise and resources;
- Influencing New Mexico business development by building capacity, capabilities, and competencies; and
- Acting as an advocate for small businesses through an entrepreneurial culture.

The NMSBA Program has helped small businesses in New Mexico to acquire essential knowledge and flourish. NMSBA

enables small businesses to make products for commercial use, reach development goals, and increase profitability. Small businesses receive guidance and consulting on business alternatives taken from the laboratories' technical expertise to improve business performance and product/service optimization. Each small business uses the NMSBA Program in a different way, but each uses it as a means to grow or maintain their business.

The NMSBA Program makes a statewide impact by:

- Enabling New Mexico small businesses to access cutting edge technology;
- Increasing New Mexico small businesses' technical sophistication and capabilities; and
- Sharing knowledge and resources between laboratory personnel and small businesses to address issues and develop real-world applications.

Assistance is provided in the form of lab staff hours valued at up to \$20,000 per calendar year for businesses located in rural counties and \$10,000 for businesses located in an urban county (Bernalillo County). The total amount of assistance is capped at \$2.4 million annually for each laboratory. The assistance that the NMSBA Program provides cannot be available in the private sector at a reasonable cost. Furthermore, no equipment or cash can be given to a company.

Types of Small Business Assistance

Individual Projects

Individual projects involve a single New Mexico for-profit small business. Projects address challenges specific to the business that can be solved with national laboratory expertise and resources. Technical assistance challenges are wide ranging. Requests for individual projects are accepted by the NMSBA Program year round until funding is exhausted.

Leveraged Projects

Leveraged projects allow a group of small businesses that share technical challenges to collectively request assistance. Leveraged projects address issues that are too large or complex to solve through an individual project. Proposals for leveraged projects are reviewed once a year by the NMSBA Program and its advisory council.

Contract Projects

Legislation allows the NMSBA Program to contract with entities that have the capability to provide small business assistance services not available in the private sector at a reasonable cost. Current contracts include:

New Mexico Manufacturing Extension Partnership for training and assistance in the areas of quality and lean manufacturing principles;

University of New Mexico's Anderson Schools of Management Management of Technology Program for technology road mapping and assessments to determine the market potential of a technology and provide an evaluation on methods for market penetration of the technology;

Department of Management at New Mexico Tech for evaluating a technology or technical issue facing the small

business. The assessments are provided by a cross-functional team of NM Tech staff and students in management, engineering, and computational sciences.

Future Direction

The NMSBA Program engages in ongoing evaluation and implementation of strategies to maximize the NMSBA's economic benefit for small businesses and the state.

Focus areas for the NMSBA Program in 2010 include reaching out to New Mexico small businesses to better understand their needs and providing technical assistance to companies in underserved counties. NMSBA is also seeking to broaden the types of businesses served and the national laboratory technical capabilities that NMSBA draws upon.

By collaborating with New Mexico universities and colleges the NMSBA Program will provide additional services and training to promote the development of New Mexico small businesses. Program management at both LANL and SNL continue to develop relationships with other business support programs to create a network of resources for their clients. These initiatives will provide small businesses with a greater variety of business development services that can help them build capabilities, attract funding, expand capacity, and create high-wage jobs and increased revenues for New Mexico.





Allied Medical Technologies, Inc.



"Sandia's Darren Branch provided us with a scientific study showing exactly how Allied Medical's product works—including a breakdown on how electricity affects silver ions in the device."

- **Dr. Bob Quick**, Partner of Allied Medical Technologies, Inc.

Bill Reeves began Allied Medical thirty years ago in order to bring innovative medical technology to market. Before coming to the New Mexico Small Business Assistance (NMSBA) Program for assistance, Reeves and partner Dr. Bob Quick spent \$1.25M in clinical trials to demonstrate their device's ability to decrease healing time using silver nano-technology delivered by a DC micro-current. While the studies showed the device's remarkable healing ability, the company wanted to understand the interaction between the silver and the applied DC micro-current.

Silver is known to be a strong anti-microbial agent that can also lead to decreased scarring and inflammation. Though prolonged, high-level use of silver preparations as health supplements rarely causes problems, long-term exposure to colloidal silver may cause discoloring of the skin, and silver toxicity can lead to severe health issues. For these reasons, it is crucial to measure the silver content and species delivered from medical devices.

In order to quantify exactly how much and what type of silver Allied Medical's device emits,

the NMSBA Program enlisted Darren Branch. Branch is an electrical engineer in Sandia's Biosensors and Nano-Materials Department who researches the interface between biology and synthetic chemistry. He conducted the fundamental research to help Allied Medical understand the types of silver ions present and how the current affects the silver ions created by the application of Allied Medical's device.

The comprehensive characterization has quantified total silver content of the wound-healing device and its ability to release ionic and colloidal silver into solution. The knowledge gained from silver analysis conducted by Branch will enable the company to optimize the device's operating parameters to best stimulate healing. With the assistance NMSBA provided, Allied Medical can

now embark on the rigorous scientific path to-

wards FDA approval and marketing the technology to the public.







Firefly Lighting, Inc.



"We have become 20% to 30% more efficient. The NM MEP training through the NMSBA Program was incredibly instructive and easy enough for everyone to participate."

- Kathleen Le Scouarnec, Co-owner of Firefly Lighting, Inc.

Kathleen Le Scouarnec and John Zubchenok own Firefly Lighting, Inc., a fifteen-year-old company located north of Santa Fe that designs and crafts UL-listed lighting products. Firefly Lighting has developed a niche market among aficionados of their custom designs, and although their products are sold internationally, their strongest market is in the Santa Fe area.

In 2008, the company reached sales of almost \$1 million due to larger contracts, including one from Hilton Hotels for the Buffalo Thunder Resort. The company struggled with managing these larger projects, and felt like they were flat-lining during a time they needed to grow. To expand their market, Firefly Lighting wanted to increase production of their line of standardized fixtures while retaining high levels of craftsmanship and customer service. Le Scouarnec approached Val Alonzo of the Santa Fe Chamber of Commerce for help, and Alonzo introduced her to NMSBA.

Through the NMSBA Program, the New Mexico Manufacturing Extension Partnership (NM MEP) provided training and operational assessments to help Firefly improve their operations and position them for expansion. NM MEP Innovation Director Andrea

Holling and Center Director Ron Burke worked with the company to find ways to produce more with existing resources by eliminating waste, organizing work space, developing an ordering system for materials, and streamlining administration practices. Since Firefly Lighting has a predominately Spanishspeaking workforce, NM MEP utilized an internal bilingual resource,

Claudia Serrano, who translated for employees so that everyone could be involved in the transformation process.

Firefly Lighting turned out to be an ideal client. Holling explains, "With enthusiastic employees and motivated management, Firefly was able to transform from a small custom shop to a manufacturer very quickly."

Overall, Firefly Lighting has seen an increase in productivity on all levels and an increase in profitability of their products, including a 10% increase in sales and a 30% improvement in on-time delivery of orders. Their streamlined manufacturing process has also put them in a good position to meet the increased demand resulting from their e-commerce web site.



ICE-LOC®



"Sandia's technical assistance through the NMSBA Program allowed us access to a world-class testing environment that helped validate the assumptions we had made in our small shop with limited resources."

- Louis Herrera, President of ICE-LOC®

Ten years ago, ICE-LOC® inventor and CEO Dennis Salazar came home to find a burst pipe in the attic that resulted in damage to his walls and floors. His experience inspired him to invent an inexpensive, easy-to-use pipe protector. ICE-LOC®'s patented product uses a high-performance, FDA-approved flexible core, requires a minimum number of tools to install, and needs no electricity, allowing it to be used in remote locations or during power outages.

Initially, ICE-LOC® attracted some customers through its website, but without the ability to demonstrate the product's performance scientifi-

cally and visually, the start-up company had trouble convincing potential clients

of the product's effectiveness. This problem led the company to the NMSBA Program.

NMSBA paired ICE-LOC® with engineer Kevin Fleming from Sandia's Explosive Applications Team. Fleming and co-workers Chris Colburn

and Rosa Montoya are experts at capturing explosive component tests on video and analyzing

the results. The team placed an ICE-LOC®-fitted pipe and an unprotected pipe, both filled with water, into a temperature-controlled test chamber with a viewing window and dropped the temperature to minus 30°F. The pipe utilizing ICE-LOC® held through multiple tests, while the unprotected pipe exploded catastrophically each time. This was captured on high-speed video shot through the chamber window, providing visual confirmation of the product's performance under harsh conditions.

The report and video from the assistance provide important information to new customers, who now have more assurance that the company has investigated its claims. This helped ICE-LOC® negotiate a contract with the State of New Mexico General Services Department, and the company is now in the final stages of becoming a Federal General Services Administration contractor.

Grateful for NMSBA's assistance, Salazar advises other inventors and entrepreneurs, "Don't be afraid to ask for help. Be humble and transparent and people will go out of their way to help you."



Intor, Inc.



"Through the NMSBA contract with New Mexico Tech, we worked jointly to bring the best of hard and soft coating technologies together to produce a superior product not available in the industry today."

- Stanley Bryn, President and CEO of Intor, Inc.

Reflections and scattering of certain wavelengths of light create the iridescent colors in butterfly wings and peacock feathers. The wings and feathers act like optical filters, letting only some of the light pass all the way through. Manmade optical filters use the same principle in instruments such as those for blood analysis and pest identification.

Intor CEO Stanley Bryn has been manufacturing optical, soft-coated thin-film filters for 50 years using technology developed in the 1960s, while also seeking the best ways to remain competitive and grow his company.

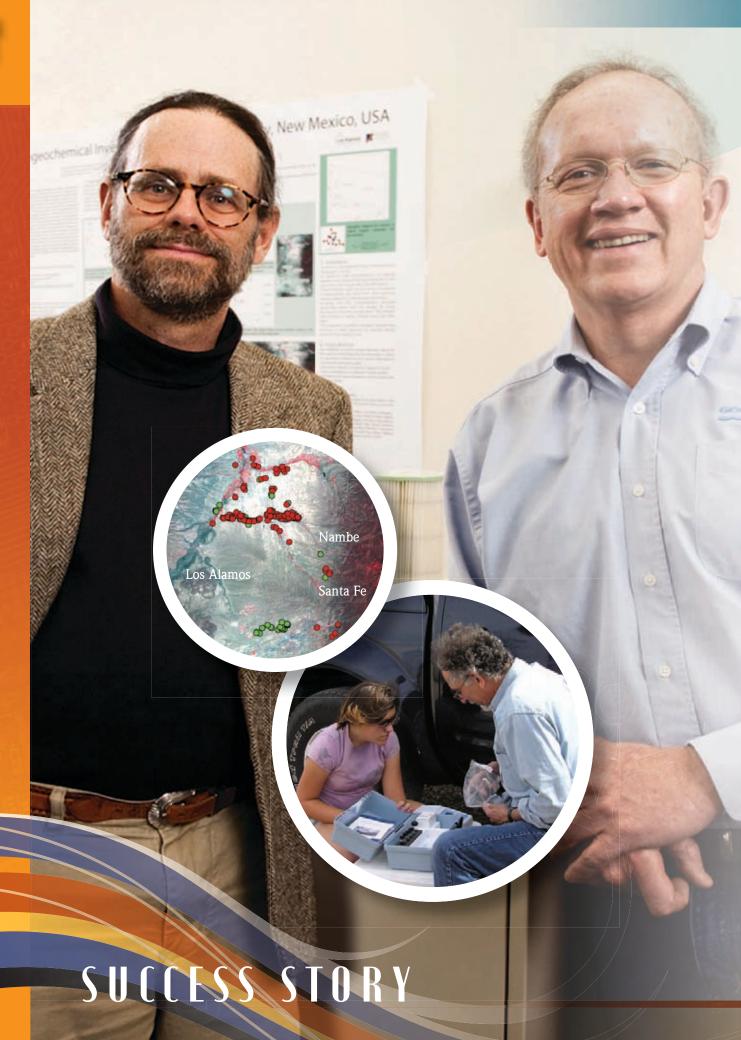
Mr. Bryn decided to collaborate with Frank Reinow, an Assistant Professor in the Department of Management at New Mexico Tech. Through NMSBA assistance, Professor Reinow and his students—Gavin Torres, Byron Whitehorse, Cody Winclechter, and Natalie Earthman—used a combination of engineering and business expertise to analyze Intor's current technology, market position, and growth potential. This included assessment of the company's soft-coated thin-film technology, the state of the current optical filter market, and future market trends.

The team identified Intor's biggest strength as high production efficiency resulting in high-quality soft-coated thin-film filters that could be offered at a competitive price. However, a technical market analysis indicated that hard-coated thin-film filters (which are more impervious to scratches and humidity than the soft-coated variety) might be becoming more popular with end users.

These results helped the company recognize the need to invest time in further research to identify potential end users and opportunities to incorporate hard-coated thin films into their manufacturing process. Currently, Intor has identified a potential partner who manufactures hard-coated thin films that Intor can customize and market to open up a new product line and remain competitive if the market shifts.

In Spring 2010, New Mexico Tech recognized Stanley Bryn for his engineering contributions to optical thin-film technology and his success as a local entrepreneur by awarding him an honorary doctorate in engineering.





Ramah-Española Basin Leveraged Project



"I could only dream about some of the equipment I accessed through the national laboratories..."

- **Dr. Stephen Wiman**, *President and Owner of Good Water Company*

Many of New Mexico's estimated 130,000 private wells contain high levels of naturally-occurring toxic elements such as uranium, radium, and arsenic. Private domestic wells are not regulated under the Federal Safe Drinking Water Act, and well owners often lack reliable and thorough information about the quality of their drinking water and available treatment options. Basic testing equipment fails to detect most groundwater contaminants, and groundwater containing multiple contaminants further complicates treatment needs.

The Ramah-Española Basin leveraged project assisted water treatment companies by educating their target market—private well owners—about the quality of their drinking water, and by providing the companies with needed data about groundwater quality and treatment options. SNL and LANL collaborated with the participating small businesses, tribal government, state agencies, and local governments to conduct water fairs in Ramah and Santa Fe areas.

In the Santa Fe area, more than 500 private well owners had their water analyzed for over 50 contaminants and water quality parameters. Patrick Longmire, an aqueous geochemist at LANL, and his team of Benjamin Linhoff and Michael Rearick,

oversaw the water fair and conducted the water chemistry analyses. The well owners were provided with confidential data about their water quality, and LANL created regional groundwater quality maps that identify areas of natural mineralization and contamination. In the Ramah area, Malcolm Siegel, an environmental scientist at SNL, teamed with local businesses to evaluate water

quality on and near the Navajo
Reservation. The information
about groundwater quality
is being used by the NMSBA
companies in both areas to
identify potential customers
and offer appropriate, inexpensive point-of-use treatment
systems, and develop and evaluate
innovative treatment technologies.

Small business participants in the project include Good Water Company, National Water Services Inc., and Watermatters, LLC, Santa Fe; Inscription Rock Trading & Coffee Company and Tayshas Traders, LLC, Ramah; HydraTech of New Mexico, Corrales; Mesa Canyon Water and Wastewater Operations, Farmington; Castillo Clear Water, LLC, Kirtland; and MIOX Corporation, Albuquerque.



PROGRAM METRICS

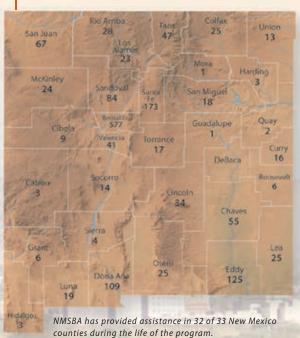
Value of Program Assistances for 2009

In 2009 the State of New Mexico along with Los Alamos National Laboratory and Sandia National Laboratories invested nearly **\$4.3M** helping **320** small businesses in **25** counties to solve technical challenges. The following table contains the number of small businesses that received assistance from NMSBA and the dollar value of the assistance, for calendar year 2009 and cumulative from 2000-2009.

	LANL	SNL	Total
Number of Small Businesses Served			
2009	148	172	320
Rural	108	118	226
Urban	40	54	94
2000-2009*	187	1469	1597 [†]
Rural	136	926	1020 [†]
Urban	51	543	557 [†]
Value of Assistance Provided			
2009	\$1,892,098	\$2,355,448	\$4,247,546
Rural	\$1,651,313	\$1,939,717	\$3,591,030
Urban	\$240,785	\$415,731	\$656,516
2000-2009*	\$3,165,031	\$17,480,559	\$20,645,590
Rural	\$2,829,833	\$14,160,954	\$16,990,787
Urban	\$335,198	\$3,319,605	\$3,654,803

 $^{^*}$ LANL began participating in the NMSBA Program in 2007

Businesses Assisted by County 2000 - 2009



Accountability & Economic Impact

The NMSBA Program, enabled by the Laboratory Partnership with Small Business Tax Credit Act, is accountable to the State of New Mexico for its expenditures. It measures its economic impact through client surveys conducted by Research and Polling and economic analysis provided by Brian McDonald, PhD Economist.

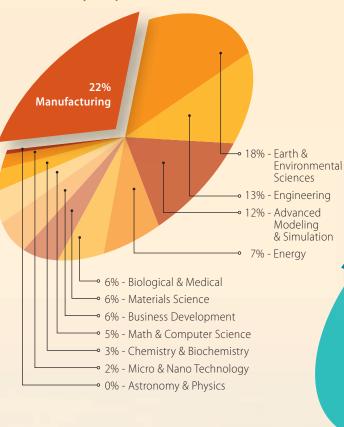
Economic Impact for Small Businesses from NMSBA Projects

	2000 - 2008*
Return on Investment (ROI)**	1.34
Small Business Jobs Created and Retained	1,020
Mean Salary (\$)	39,063
Increase in Revenue (\$)	39,698,900
Decrease in Operating Costs (\$)	28,319,800
Investment in NM Goods / Services (\$)	11,144,870
New Funding / Financing Received (\$)	10,733,000

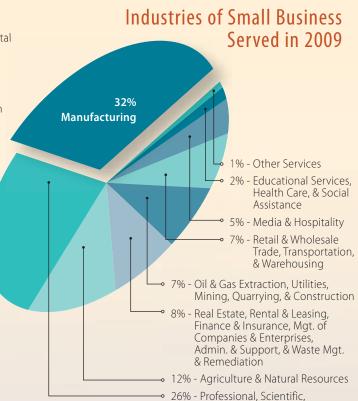
*Surveys are performed six months to one year after project completion
**ROI is based on salaries of jobs created and retained

[†]Some companies are served by both laboratories

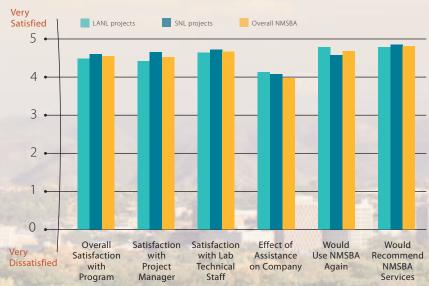
Laboratory Capabilities Utilized in 2009



NMSBA measures the industry types of NM small businesses it serves and the types of technical assistance provided by the national laboratories. Information about the types of small businesses that are using the program allows NMSBA to identify underserved industries and plan outreach strategies to promote NMSBA. Similarly, information about the laboratory technical areas being drawn upon allows NMSBA to identify underutilized capabilities that have potential benefits for NM small businesses.

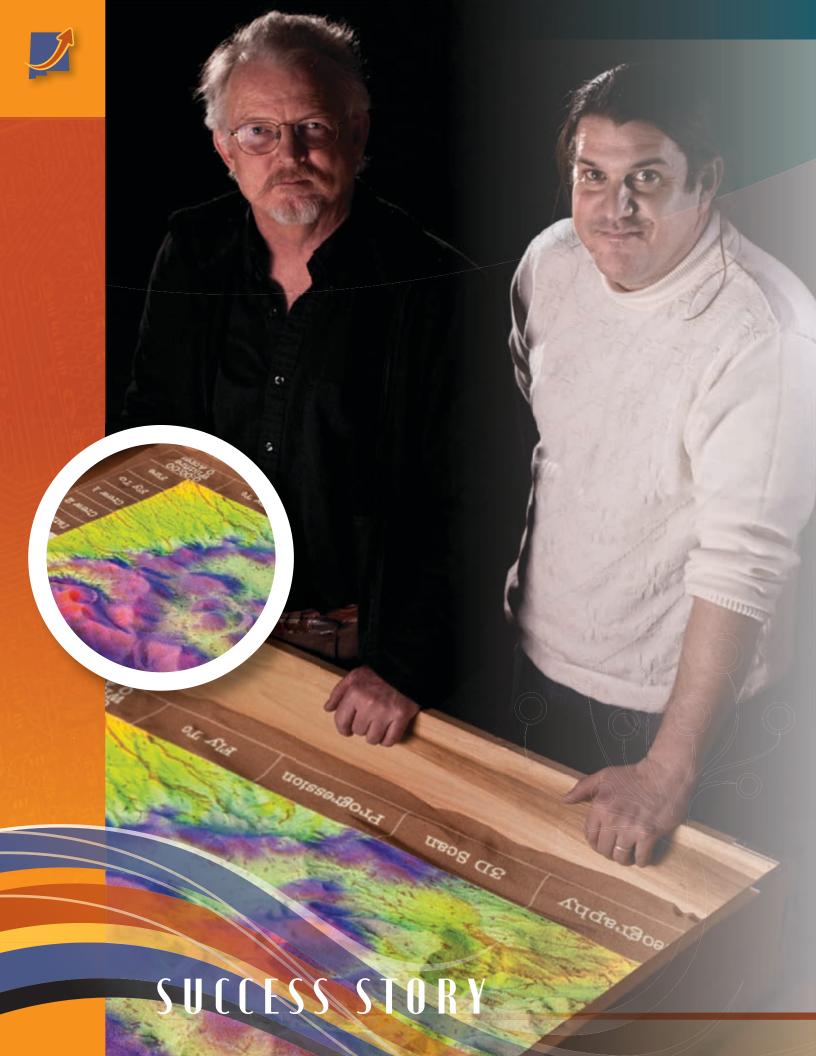


Customer Satisfaction in 2009



Each year the NMSBA Program has a third party survey the participating businesses to learn about their satisfaction with the program. In 2009, 81% of our businesses responded to the survey.

& Technical Services



SimTable



"NMSBA helped build research developed at the Santa Fe Complex into a marketable product."

- **Stephen Guerin**, CTO of SimTable

Failures of leadership have been cited as a factor contributing to wildland fire accidents. There is no substitute for experience with fighting actual wildfires, but experience can be hard to come by and tragically unforgiving. Fortunately, there are tactical decision games, such as sand table exercises, that allow firefighters to practice situational assessment, to consider and select courses of action, and to practice communicating those decisions on three-dimensional (3D) terrain models.

SimTable, a company located in Santa Fe, can predict and display fire behavior using an interactive, 3D, agent-based model. The SimTable™

combines the tactile nature of

a sand table with applied high-level mathematics.

Partners Chas Curtis and Stephen Guerin developed a program capable of forecasting fire behavior utilizing slope, terrain, wind speed, wind direction,

vegetation, and other factors. They

have also programmed algorithms to model human response to fire.

The SimTable™ calibrates the topography of the sand and indicates where to adjust the piles so the 3D sand table agrees with the projected Geographic Information System data from the target region. The topography of the area can then be seen in color-coded representations of a slope or switched to a Google Earth image.

When Guerin and Curtis sought to make the simulation more interactive, they approached the NMSBA Program for assistance. This resulted in the involvement of Dr. Rohan Loveland of LANL's Space and Remote Sensing Sciences Department, who provided assistance by developing algorithms for object-tracking machine vision. Now the SimTable™ "sees" movement and objects through a camera and can project the "screen" anywhere.

SimTable is a 2010 recipient of a Los Alamos National Security, LLC Venture Acceleration Fund (VAF) award. According to Curtis, the company anticipates hiring two engineers to work on the design and manufacturing of the SimTable™ by the end of the year.





Sustainable Resources, Inc.



"Because of the assistance funded through NMSBA, SRI is now perfectly positioned to become a national leader in algae research."

- Joe Ortiz, President of Sustainable Resources, Inc.

Sustainable Resources, Inc. (SRI) President Joe Ortiz has been working to employ a solar-powered kinetic pump to convert brackish water into fresh water, a process known as desalination. In 2008, Ortiz obtained a long-term lease on the former Roswell National Desalination Facility to test SRI's pump. When Ortiz discovered the facility also functioned as the U.S. Department of Energy's Aquatic Species Research Center, he wanted to learn more about the potential applications of algae growth for water purification and biofuel generation. His idea was to develop the facility, newly named Sun Harvest Proving Ground, into a business incubator for research, development, and commercialization of those technologies.

A chance meeting between Ortiz and Steve Walsh, co-director of the Anderson Schools of Management Management of Technology Program (UNM MOT) at the University of New Mexico, resulted in a NMSBA project with UNM MOT. Walsh assembled a team of MBA students, including Michael Dunagan, Austin Yost, and Justin Dewey, to perform a technology assessment and forecast as well as an expeditionary marketing study for SRI.

As part of the technological assessment and forecast, the team analyzed the technological competencies for water purification and provided a technology readiness level for the kinetic pump that led them to define a value proposition focused on the combined potential of the pump and the facility. The value proposition was used

to forecast the trajectory
of the business and
its ability to enter
the marketplace.
Coupled with the
information from
the expeditionary
marketing study,
the team provided
pathways for the company to build upon its value

proposition and differentiate from its competitors.

Ortiz attributes his business success to UNM MOT's innovative approach to marketing and business development. Sun Harvest Proving Ground will now be used as an algae business incubator ready to grow, harvest, extract, and market algae.



ThermaSun, Inc.



"Testing solar thermal component durability would have been impossible without LANL's polymer expertise."

- Larry Mapes, President of ThermaSun, Inc.

Larry Mapes, president of ThermaSun and long-time Taos resident, has been hooked on sun power since childhood. While the rest of the country relied on fossil fuels during the 80s and 90s, Mapes began developing and designing solar thermal systems to supply his neighbors with hot water and heat. Theoretically, solar thermal can convert up to 85% of the sun's rays into usable energy. Yet converting sunlight into a home's heating system isn't as easy as it seems.

Typical solar thermal collectors can achieve temperatures of 400°F, a temperature that causes plastic components in solar thermal systems to degrade, become brittle, melt, or swell in heat transfer fluids. While solar photovoltaic (PV) systems often come with a 25-year warranty, solar thermal systems rarely offer such assurances.

Seeking ways to test for reliability and durability, Mapes approached NMSBA for help. Dr. Bruce Orler, a Materials Science & Technology scientist at LANL who studies aging in materials, evaluated a selection of commercially available parts and materials for Mapes. Dr. Orler applied his knowledge of polymer chemistry, materials compatibility, and accelerated aging methodologies to test plastic components' chemical response to a typical solar system's heat demands. Dr. Orler's work helped Mapes select appropriate materials for a durable heat conversion device prototype called the ThermaSaver, which can be connected to existing home heating and cooling systems.

In 2009, ThermaSun received a Los Alamos National Security, LLC Venture Acceleration Fund (VAF) award for product validation, manufacturing process, product certification, business development, and market analysis for the ThermaSaver. Mapes plans to manufacture and sell the long lasting units, creating jobs and economic growth in northern New Mexico. "The ultimate goal is to put solar thermal on equal footing with solar PV," explains Mapes. "Just like the PV inverter of the 1980s, our work will simplify installations, meet utility durability standards, and interface with a home's existing heating and cooling systems."





Trinity Medical Corporation



"Without NMSBA's assistance, I would be spinning my wheels. Sandia's Bob Winters was the right person at the right time."

- **Daniel Barela**, Founder of Trinity Medical Corporation

Daniel Barela, the founder of Trinity Medical Corporation, currently serves as an Emergency Medical Services (EMS) Flight Paramedic. Barela noticed that often there are not enough hands available to apply pressure on the esophagus to prevent passive regurgitation and pulmonary aspiration while performing CPR. Barela scoured medical literature and clinical studies to determine the most effective amount of pressure and application method. Barela's research resulted in an invention that can be applied to the throat as an alternative to hand pressure.

Once Barela designed a prototype for the medical device, he sought a way to construct the device to apply specific and accurate pressures: too little and the device would not prevent aspiration, too much and the device could block airflow. To help Barela with material choices and mechanical design, the NMSBA Program looked to Sandia's Organic Materials Department in Advanced Manufacturing for assistance.

Barela showed the device to Bob Winters, a specialist in innovative prototype fabrication, materials technology, and engineering design. Winters helped

Barela develop a "water faucet" feature that incorporates spring action precision to maintain appropriate pressure with components to "lock-out" further adjustment. Without NMSBA's assistance, Barela says, "I would be spinning my wheels. Bob Winters was the right person at the right time."

Having met this technical milestone in the development of his invention, Barela currently seeks a second patent for his revised prototype. Winters optimization of the new prototype into an injection-moldable design will allow the medical device to be mass-produced. As a result, Trinity Medical is seeking clinical trials at UNM and is in position to pursue additional investment capital through Technology Ventures Corporation (TVC). Once Trinity Medical wins FDA approval for the medical device, the company can move into production with plans to manufacture two million units a year in Albuquerque.



Leveraged Projects

Lab	Project	Description	Business Participants	Counties	Funding
SNL	Algae to Biofuel	Assessed and tested an algal biofuel production system using dairy effluent water.	Ag2Energy, LP; Dairy Producers of New Mexico; Nature's Dairy, Inc.; Three Amigos Dairy	Chaves	\$70,000
LANL / SNL	Altela SM Water Desalination Technology Optimization	Optimized the design and performance of Altela, Inc.'s patented AltelaRain SM technology for water desalination and decontamination through application of the labs' unique expertise in transport modeling, material science, and advanced chemistry.	Altela, Inc.; Animas Environmental Services, LLC; Harwood Consult- ing, PC; M & R Trucking; M M Fab- rication, LLC; Merilatt Industries, Inc.; WPL, LLC	Bernalillo, San Juan, Sandoval, Santa Fe	\$30,000 / \$70,000
SNL	Alternative Landfill Covers	Developed a design methodology to be followed for alternative earthen soil covers referred to as evapotranspiration (ET) covers. This methodology created a technical plan to address landfill owner/operator needs for the design of these covers that includes the optimization of methane oxidation within cover profiles. Developed a construction quality assurance plan (CQAP) to be followed to ensure that the installation of the ET Covers is properly performed and meets the design intent.	Allen G. Baca Technical Services; Armored Construction; Associ- ated Surveys	Bernalillo, Santa Fe	\$40,000
LANL / SNL	Angel Fire Wildfire Study	Provided computational results for fire behavior in thinned versus un-thinned forests east of Hwy 434. Simulations showed the affect of thinning and the consequent fire impact to structures such as houses.	Bella Tierra of Angel Fire, Inc.; Coldwell Banker Sutton Trujillo Group, Inc.; Four Seasons Real Estate; Hacienda Club Real Estate; Mountain Sports, LLC; Northern New Mexico Securities; Prudential Angel Fire Real Estate	Colfax	\$70,000 / \$60,000
SNL	Arsenic Point-of-Use	Provided assistance in evaluating the performance of three point-of-use water treatment systems to remove arsenic from the drinking water source.	Toma Alliance Group of NM, LLC; WaterMart of NM	Bernalillo	\$20,000
SNL	Arsenic Removal from Small New Mexico Drinking Water Supplies	Completed conceptual and final design and corresponding specifications for arsenic treatment system at Loma Escondida water system.	AMMRE, Inc.; Burak Consulting; Desert Plastics, LLC; Pocagua Consulting; Rodgers Water Well Co., Inc.	Bernalillo	\$50,000
SNL	Biomass Utilization for Energy of Forest Slash in Northern New Mexico	Made design modifications for biomass pyrolysis oil formation test facility to accept continuously fed biomass of various types and to use recirculated gases as the inner carrier gas. Optimization of the system began to help determine relevant operating conditions for economic model construction.	Biofuels & Energy, LLC; Canon Forestry, LLC; Pica Services, LLC	Taos	\$60,000

Lab	Project	Description	Business Participants	Counties	Funding
LANL	Bovine Tuberculosis Detection	Evaluated the feasibility of a pathogen-biomarker-based assay for the early detection of bovine tuberculosis on a waveguide-based optical biosensor platform. Future work on the project will focus on the development of a rapid, accurate, and inexpensive pen-side test for bovine tuberculosis.	Gonzalez Dairy; Yesterday's Valley Ranch, Inc.	Dona Ana, Union	\$40,000
SNL	Bovine Tuberculosis Mitigation Strategies	Developed a model to evaluate the transport of livestock within the beef industry to help formulate robust and scientifically defensible containment policies for bovine tuberculosis (TB) in New Mexico.	Gonzalez Family Dairy, LLC; T4 Cattle Co., LLC	Dona Ana, Quay	\$40,000
LANL / SNL	Cimarron Watershed Study to Support Outdoor Tourism Business	Conducted studies on two reaches of the watershed in which fisheries are in need of maintenance or development. The study focused on determining habitat availability based on river flow rates and in determining runoff and sediment load relationships to assist in remediating high turbidity.	Cimarroncita Historic Ranch Retreat; Dos Amigos Anglers, LLC; High Country Anglers	Colfax	\$20,000 / \$40,000
SNL	Concrete Masonry Unit (CMU) Tests	Concrete Masonry Unit (CMU) wall panels were built following the construction methods proposed by Arquin Corporation, and a control set of wall panels were built following traditional construction techniques. High explosives were detonated near the walls, and the structural integrity of the wall sections was determined. The effectiveness of the proposed technology was compared against traditional construction methods, and the results were documented in a report.	Anderson Refrigeration, Inc.; Arquin Corp.; Casa Del Sol Enterprises, LLC; Maximinos	Otero	\$70,000
LANL / SNL	Desalination Tech- nology for Coal Bed Methane Produced Water at a Four Corners Salt Water Disposal (SWD) Facility	Designed and operated pilot system at a coal bed methane site to evaluate water treatment technologies for produced water including oil removal systems (membrane and other), cartridge filtration, membrane filtration, and desalination (nanofiltration and reverse osmosis). Evaluated the constituents in the produced water that lead to organic fouling of the reverse osmosis membranes.	Air Tech Drilling, Inc.; Biosphere Environmental Sciences & Tech- nologies, LLC; Four Corners L & B; Moberg Welding, Inc.; Richard N. Arnold Consulting	San Juan	\$30,000 / \$60,000
LANL / SNL	Development and Application of Geo- Cellular Models for Complex Carbonate Geologies	Developed geo-cellular earth model construction software, capable of realistically representing strongly heterogeneous geologic properties common within the carbonate petroleum reservoir formations of the Central Basin Platform of the Permian Basin. The software will generate three-dimensional earth models for input into existing suites of seismic wave propagation algorithms, and calculation of synthetic seismic reflection data.	CH4NET, Inc.; El Dorado Land Corp.; HEYCO Energy Group, Inc.; Providence Technologies, Inc.; Rio Magdalena Investment Corp.; Sage Services Group, LLC; Sun Valley Energy, Inc.; Thrust Energy Corp.	Chaves	\$70,000/ \$70,000
LANL / SNL	Development of Sediment Manage- ment Strategies for the Santa Cruz Reservoir	Identified and quantified sources of sediment to the Santa Cruz Reservoir and developed strategies to manage sediment loads in the river and reservoir. This project identified watershed areas that are major sediment contributors to the reservoir.	Charlie Esquibel Traditional Woodwork; Galeria Ortega, Inc.; Joseph Merhege; Kenny Salazar Orchard; Mr. Q's Rentals; Ortega's Weaving Shop, Inc.; Rancho de Chimayo; Santa Cruz Farm	Rio Arriba, Santa Fe	\$60,000 / \$70,000
LANL	Development of Viable Feedstocks for Cost Effective Innovative Deoxy- genation Processing of Biofuels	Evaluated the use of pyrolysis for processing biomass directly before introduction to the deoxygenation process for biofuel production. Pyrolysis was further evaluated based on information obtained and discussions with biofuels experts from the American Chemical Society. Samples of pyrolysis oil were evaluated through the deoxygenation process.	Cetane Energy, LLC; Forrest Tire Co., Inc.; Hall Machine & Welding Co., Inc.; Palomino, LLC	Eddy	\$60,000



Lab	Project	Description	Business Participants	Counties	Funding
LANL	Electric Reliability and Cost Analysis for Santa Teresa Industrial Park	Evaluated the condition of El Paso Electric's power transmission and distribution system supporting the Santa Teresa Industrial Park. A number of strengths and weaknesses were documented, including an in-depth analysis of momentary interruptions that affect Santa Teresa tenants with product spoilage, expensive waste, lost production, and an economic burden that reduces their ability to compete in the marketplace.	Adams Plastics, Inc.; Glaz-Tech Industries; Monarch Litho, Inc.; Northwire, Inc.; Rogers Foam Corp.	Dona Ana	\$90,000
SNL	ERad	Provided electrochemical engineering, material science, and chemistry tools, skills, and ideas to develop simple radiation sensors.	Caldera Pharmaceuticals, Inc.; Leo S. Gomez Consulting; Noel Savignac Consultants	Bernalillo, Los Alamos	\$40,000
SNL	Evaluation of the Zeta Core Water Treatment System; Water Treatment without Chemicals or Waste	Performed experiments to attempt to understand the mechanism by which the Zeta Core treatment product works for reducing hardness in water.	Plant Nutrient Solutions, LLC; Water Lady, Inc.; Zeta Core USA, LLC	Bernalillo, Sandoval	\$20,000
SNL	Hydrogeological Assessment of Geologic Controls on Groundwater Distribution, Recharge, and Salinity in the Estancia Basin	Conducted and analyzed the results of a hydraulic test in order to assess both the horizontal flow properties of the groundwater systems and the vertical connectivity of the groundwater systems.	Entranosa Water & Wastewater Assoc.; Greene Ranch, LLC; Osita Ranch, LLC; Schwebach's, LLC	Bernalillo, Santa Fe, Torrance	\$70,000
LANL	Las Vegas Wildfire Fuels Management Study	Investigated and illustrated the differences in wildland fire behavior under unthinned and thinned conditions using historic wind data from times of high fire risk. The computational fluid dynamics (CFD) coupled wildfire/atmosphere model HIGRAD/FIRETEC, was implemented on large supercomputers. This model was used to simulate wind and fire behavior, both of which are affected by fuels management activities, over a 1 km by 0.5 km domain at 2 m horizontal resolution.	Barela Timber Management Co.; Healthy Buildings Wood Chip Block, LLC	San Miguel, Santa Fe	\$40,000
SNL	Lincoln County Water Plan	Developed a systems-dynamics-based decision support model to assist local area water resource planning to improve water supply reliability and to better understand water usage and growth.	Grindstone Graphics & Marketing Services, Inc.; Jennie Dorgan Real Estate; Powell Automotive	Lincoln	\$60,000
LANL	Optimization and Monitoring of Growth Conditions for Cost-Effective Production of Biofu- els from Microalgae	Identified algae indigenous to the high ionic strength brines in Carlsbad area surface ponds to evaluate the possibility of using these algae for the production of biofuels.	B & R Trucking; Brininstool Equipment Sales, Inc.; Resource Management, Inc.; Walterscheid Trucking & Farms, Inc.	Eddy	\$80,000

Lab	Project	Description	Business Participants	Counties	Funding
LANL / SNL	Super Cooled Liquid Water (SLW) Inventory Project	Completed characterization of the cloud super cooled liquid water present during the winter-spring 2007 storms over both the northern and southern halves of New Mexico. An inventory of the storm location and accompanying atmospheric water vapor concentrations across New Mexico was also completed. The time dimension of data analysis was expanded to compare drought and normal years. The results will be used to identify areas for potential cloud seeding or risk of airplane icing.	Chapman Realty, Inc.; Communico, Inc.; Paynes Nurseries & Greenhouse, Inc.; Sierra Aviation, LLC; Sunland Nursery Co.; Trusty & Associates P. A.; Walton Chapman Building Co.	Dona Ana, Santa Fe	\$80,000 / \$60,000
LANL / SNL	Systems Approach to Watershed Management: Sedimentation within the Pecos River Riparian Zone	Developed a systems-level understanding of sedimentation risks associated with past, present, and potential future management practices of salt-cedar control in the Pecos River riparian zone, with the goal of developing strategies that prevent increases in sediment loading to the river system and accumulation in Brantley Reservoir.	Bar W Farms; Dick Forrest Farms; Faulk & Walker Farm; Jerry Calvani Farms; MJW Farms, Inc.; Oscar Vasquez Farms; Skeen Farms; W. J. Burkham Farm	Eddy	\$70,000 / \$70,000
LANL / SNL	Systems Dynamics Model for Managing Agricultural Water Resources within the Pojoaque Valley Irrigation District	Refined the Nambe Reservoir model in preparation for implementation of the water management component of the PVID irrigation system. Field mapped all of the PVID Acequias located between US 285 to the west and Nambe Pueblo to the east and incorporated the data into Geographic Information System (GIS) software.	David Ortiz; Jose Andy Garcia Farms; Las Acequias Farm; Rancho Nambe	Santa Fe	\$20,000 / \$60,000
LANL / SNL	System Dynamics Modeling to Provide a Plan for Conver- sion to Renewable Energy in Santa Fe, NM	Identified data requirements, a project plan, and a roadmap for the development of a computer simulation model that will help determine how the transformation of Santa Fe to varying levels of renewable energy could take place.	Cedar Mountain Solar, LLC; Southwest Solar Products, Inc.; Palo Santo Designs, LLC; Positive Energy, Inc.	Santa Fe	\$30,000 / \$40,000
SNL	Text Mining for Organizations Supporting the Developmentally Disabled	Formulated a text mining framework using computing infrastructure available to participating small businesses and recommended best practices for use of text mining to best utilize the large volume of data available to organizations serving the developmentally disabled so that these companies can provide the best possible clinical and rehabilitative services to clients.	EASi Therapy & Diagnostic Services, Inc.; iTeam Consulting, LLC; Meyners & Co., LLC; ZEE Business Ventures, Inc.	Bernalillo, McKinley	\$40,000
LANL / SNL	Uranium Attenuation and Remediation	Provided a framework for evaluating the potential role of natural attenuation in protecting drinking water sources in regions near uranium mining sites. The capabilities and limitations of state-of-the art geochemical, hydrologic, and statistical modeling tools were evaluated for use in evaluating the effectiveness of natural attenuation and enhanced attenuation in restoration and evaluating uncertainties and gaps in pre-mining site characterization data (e.g., background).	Daniel B. Stephens & Associates, Inc.; Geochemical; Glorieta Geoscience, Inc.; Stewart Brothers Drilling Co.; Uranium Resources, Inc.	Bernalillo, Cibola, McKinley, Santa Fe, Socorro	\$40,000 / \$40,000
LANL / SNL	Water Treatment in the Ramah Navajo Reservation and Española Basin	Tested over 500 private wells in the Ramah and Española Basin areas to identify major contaminants of concern. Evaluated innovative approaches for point-of-use drinking water treatment systems for use with water sources on the Navajo Reservation and Española Basin. Evaluated arsenic, radium, and uranium removal through modeling and experimentation, and testing of disinfection technologies for use in remote rural communities.	Castillo Clear Water, LLC; Good Water Co.; HydraTech of New Mexico; Inscription Rock Trading & Coffee Co.; Mesa Canyon Water / Wastewater Operations; MIOX Corp.; National Water Services, Inc.; Tayshas Traders, LLC; Water- matters, LLC	Bernalillo, Cibola, San Juan, Sandoval, Santa Fe	\$90,000 / \$70,000



Rural Individual Projects

Chaves County

Rich Glo Products, Inc. Select Milk Producers

Colfax County

Angel Fire Resort Operations, LLC

Curry County

Ogallala - Clovis Bottlers, Inc. Powerline, Inc.

Dona Ana County

Antenna Development Corp.
Coverings
CP Aviation Services Co.
Ffhoenix Cuivre, LLC
FXI - Foamex Innovations
Multiplastics of New Mexico
The Machine Shop, Inc.

Eddy County

Dean Calvani Farms
GreenJo Farm
HydroResolutions, LLC
Jurva Farms
Rauch Welding & Pump Supply

Lea County

RMS Foods, Inc.

Lincoln County

Bar W Ranch, Inc. Brushes Church Mountain Ranch Nogal ORB, LLC Waverly Duggar Farm

Los Alamos County

Aerotomics, LLC
Amalgam Industries, Inc.
Efficient Engines
eQsolaris, Inc.
Fairfield Enterprises
Neptune & Co., Inc.
New Mexico Virtualization, LLC
Research Applications Corp.
Sun Enerjy, LLC

Luna County

Compass Components VITA Energy New Mexico, LLC

McKinley County

M & L Programs Navajo Nation Oil & Gas Co.

Otero County

Affordable Monitoring Services Stone Crafters, LLC

Rio Arriba County

Archeobotanical Services Rancho de Santa Fe Sky Mountain Resort RV Park, LLC

Roosevelt County

Sunland, Inc.

San Juan County

Aztec Machine & Repair, Inc.
Clean Can Technology, Inc.
Creative MedSolutions
Fabtec Solutions, LLC
FS Enterprises
Guylyn Durham Design
Henry Production, Inc.
International Metrics Co., LLC
PESCO, Inc.
R & T Holdings, LLC
Real Green Building Systems
(RGBS)
Worthy, Inc.

Sandoval County ARS USA, LLC

Berglund Engineering Corp.
Cochiti Community Development
Corp.
Focus, LLC
Insight Lighting
Machine Dynamics, Inc.
MagnetoOrganics, LLC
Native Power Systems, LLC
Rio Rancho Printing, Inc.
Symphony Acoustics, Inc.
Travois Industries, LLC
Trinity Medical Corp.
VSTV Holdings, LLC
VSTV Media, LLC

Santa Fe County

AMI Corp. Aqua Del Cielo Arrakis Corp. Atmocean, Inc. Better Music Boxes Bluenergy Solarwind, Inc. Center for Orthopaedic & Sports Performance Research, Inc. Chuck Higgins, LLC Eldorado Biofuels, LLC Energy Matter Conversion Corp. (EMC2) Firefly Lighting, Inc. Global Air Filter, Inc. Gordon Construction Co., Inc. Heilbron Associates, Inc. Hollowpoint, Inc. Mar Oil & Gas Corp. Mesa Tech International, Inc. Milk & Honey Soap Mountain Hound, LLC Native Son Builders, LLC New Mexico Biotech, Inc. Povi Ovei Farms Road Safety Technologies SimTable STAR Cryoelectronics, LLC

Socorro County

Tent Rock, Inc.

Y Bar Ranch, LLC

Zero Wastes, LLC

Animal Haven Veterinary Clinic of Socorro, P.C. Intor, Inc.

Sustainable Resources, Inc.

Wartell Enterprises, LLC

Taos County

Doug Scott Art Green Gadgets Orsen, LLC Plenish Skincare Private Label Select Ltd Co. Sube, Inc. ThermaSun, Inc.

Torrance County

McKennzie Land & Livestock Co. Take a Swing, LLC

Valencia County

Calkins LHP, Inc.
Costanza Orchards
Digital 1 Presentations
ICE-LOC®
Wall Colmonoy

Urban Individual Projects

Bernalillo County

Academy Corp. Adherent Technologies, Inc. AEgis Technologies Group, Inc. AIR - Sandia Development Corp. All About Blinds & Shutters, Inc. Allied Medical Technologies, Inc. Applied Sciences Laboratory, Inc. AS-Photonics, LLC ATA Aerospace, LLC ATAMIR, Inc. ATA-WSMR A-Tech Corp. Austine Fine Arts Barnett Aldon Iron Works, Inc. Big J Enterprises, LLC Black Mesa Coffee Co., Inc. Catalyst RP, Inc. Century Sign Builders

Commercial Door & Hardware, Inc. Continental Machining Co. Created Stone Creative Consultants, LLC Culture to Culture, Inc. CVI Laser Corp. Darkwave International, LLC Delta Group Electronics, Inc. Desert Paper & Envelope Co., Inc. Direct Power & Water Corp. Dr. Carr's Office Energy Saving Environmental Systems, LLC (EsEs) Erin Adams Design, Inc. Esthetic Dental Arts, Inc. Euphoria, LLC Fine Custom Furniture Formulab Gratings, Inc.

Integral Corp. Kendal Precision Machining, Inc. KIARA Technologies Ktech Corp. Life BioSciences, Inc. (LBSI) Marla Bell, LLC Masha Manufacturing, Inc. Mechtronic Solutions, Inc. (MSI) NanoCool OGB Architectural Millwork, Inc. Optomec, Inc. Perma Works Ramblin Wood, Inc. RediRipe, LLC Richardson & Richardson Sacred Power Corp. Safe Zone Systems Satwest Consulting, LLC

HT MicroAnalytical, Inc.

ShieldANet SoilCo, LLC Sonrise Technology Solutions, Inc. Takach Press Corp. TEAM Technologies, Inc. Technology Integration Group TH Chem, Inc. The Improve Group Transcore TruTouch Technologies, Inc. Unirac, Inc. US Hydrants, LLC Valliant Printing VBS Mfg, Inc. VeraLight, Inc. Weddings505.com Z-Coil Footwear Ztech Instruments, Inc.





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