

ANNUAL REPORT 2011 PERSPECTIVES



NMSBA

Los Alamos National Laboratory
Sandia National Laboratories

Solving New Mexico's Small Business Challenges

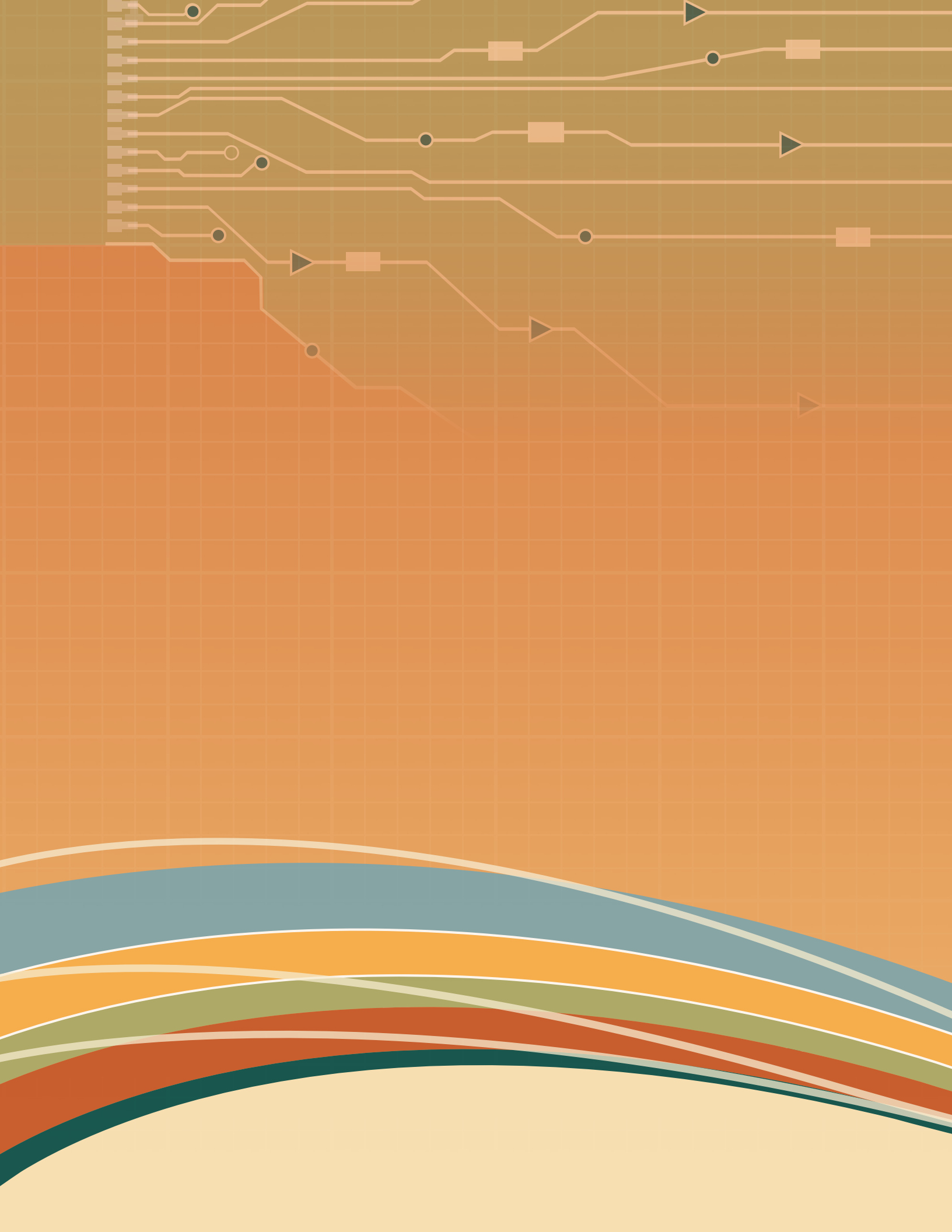
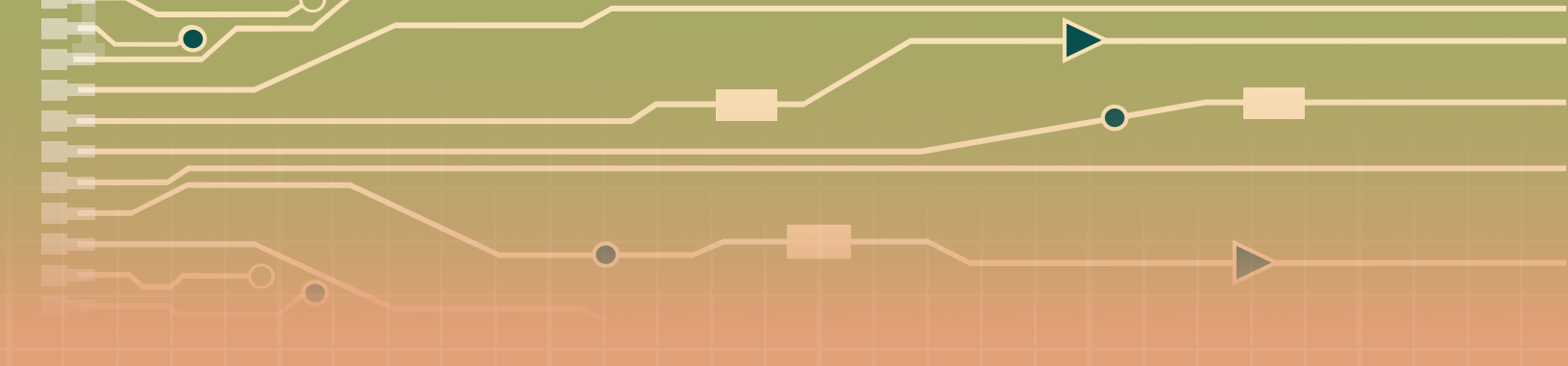


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We're proud to partner with the New Mexico Small Business Assistance (NMSBA) Program, Los Alamos National Laboratory and Sandia National Laboratories in helping small business owners, including those specializing in the research and development of new technologies, to become more efficient and productive. NMSBA is vital to the economic growth and development of New Mexico while utilizing the nation's best and brightest minds in our national laboratories.

Demesia Padilla

Cabinet Secretary

Taxation and Revenue Department

State of New Mexico



New Mexico has a wealth of talent and expertise that we must encourage to stay and grow here in the state. Thanks to NMSBA's unique program, many companies are able to access the resources and assistance they need to be successful and continue to play a role in our economy.

Jon Barela

Cabinet Secretary

Economic Development Department

State of New Mexico



Dear Governor Martinez and New Mexico State Legislators,

We are pleased to share with you the 2011 Annual Report for the New Mexico Small Business Assistance (NMSBA) Program. This report showcases success stories and highlights quantitative results from the past year.

During 2011, while small businesses continued to battle a tough economy, NMSBA was sought out by 340 small businesses in 27 counties for help in sustaining and growing their companies. Thanks to the Laboratory Partnership with Small Business Tax Credit Act, the state of New Mexico, along with Los Alamos National Laboratory (LANL) and Sandia National Laboratories (SNL), were able to invest \$4.6 million of national laboratory expertise and resources to help small businesses overcome their challenges.

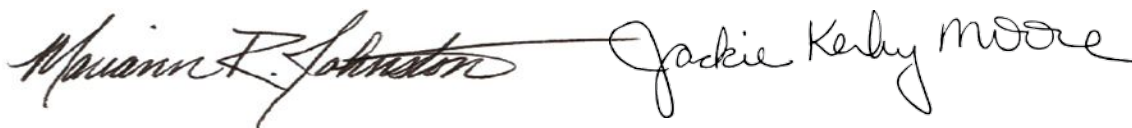
Highlights from NMSBA in 2011 demonstrate the impact within various industries in all corners of New Mexico. NMSBA Success Stories this year include an Albuquerque martial artist who developed better custom-fit mouthguards. A Santa Fe company developed a scientifically based standard for microbe levels in its herbal products. A motor vehicle services company with locations around the state adopted more efficient processes to streamline operations and cut costs. And a group of ranchers in eastern New Mexico requested help to identify suspected water quality issues impacting livestock health.

We enjoyed visits by U.S. Secretary of Energy Steven Chu and New Mexico Governor Susana Martinez where they each heard from panels of company leaders who discussed how assistance from NMSBA helped their companies become more economically competitive.

The NMSBA Program has helped to create jobs, increase revenues, decrease operating costs, and attract new funding opportunities. Since 2000, 1,876 businesses have been assisted, 2,317 jobs have been created or retained, and \$29.8 million of technical assistance has been provided by our two national laboratories. NMSBA has assisted businesses in all 33 New Mexico counties.

Thank you for your continued support of NMSBA, allowing the state of New Mexico to engage our national laboratories and the small business community in promoting economic development and creating wealth throughout our great state!

Sincerely,



Mariann Johnston
Los Alamos National Laboratory

Jackie Kerby Moore
Sandia National Laboratories

PROGRAM INFORMATION

OVERVIEW

In 2000, the New Mexico State 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.” As a result, Sandia National Laboratories established NMSBA to help small businesses throughout the state by providing technical support. Los Alamos National Laboratory began participating in 2007.

During 2011, NMSBA assisted 340 small businesses across the state.

NMSBA 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
- Acting as an advocate for small businesses through an entrepreneurial culture

NMSBA assists small businesses in New Mexico with acquiring knowledge and technology that will help them compete. NMSBA enables these businesses to reach developmental goals, create products for commercial use, and increase profitability.

Participants receive consulting on viable business and operational alternatives from the laboratories' technical experts. While each company utilizes NMSBA in a different way, all use it as a means to maintain or grow their businesses.

NMSBA makes a statewide impact by:

- Enabling New Mexico small businesses to access cutting-edge technology
- Increasing New Mexico small businesses' technical sophistication and capabilities
- 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. NMSBA may not provide assistance that is available in the private sector at a reasonable cost. Furthermore, no equipment or cash can be given to a company, but all services provided by NMSBA are at no cost.

Governor Susana Martinez's visit to Sandia National Laboratories where she met with NMSBA companies.



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 NMSBA 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 NMSBA and its advisory council.

Contract Projects

Legislation allows NMSBA 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 Management of Technology program at the Anderson School of Management for technology road mapping and assessments to determine the market potential of a technology and provide an evaluation on methods for market penetration



Solving New Mexico's Small Business Challenges

New Mexico Tech Department of Management for evaluating a technology or technical issue facing the small business. The assessments are provided by a cross-functional team of NMT staff and students in management, engineering, and computational sciences

New Mexico State University's Arrowhead Center for technical assessments including assignment of a Technology Readiness Level (TRL) and aid in commercialization of viable small business technologies

FUTURE DIRECTION

NMSBA continues to successfully support the growth and diversification of the New Mexico economy.

As NMSBA moves into the future, it will continue to pursue its goals of broadening the types of businesses receiving assistance, adding to the range of technical capabilities and expertise from the national laboratories offered, and expanding the program's coverage in underserved rural counties.

Through ongoing collaborations, NMSBA will continue to look for new opportunities and avenues to partner with New Mexico universities and business support programs. Utilizing the results from our annual economic impact and customer satisfaction surveys, NMSBA will pursue both short-term and long-term strategies to create more jobs and additional revenues for New Mexico.

INNOVATION CELEBRATION





On May 1, 2012, NMSBA hosted the annual Innovation Celebration at the Encantado Resort in Tesuque. The Success Stories throughout this publication highlight the companies that were recognized at the event. The photos capture the spirit of the celebration.





ALBUQUERQUE DELICATE DENTISTRY

As a result of working with NMSBA, Albuquerque Delicate Dentistry now makes custom-fit mouthguards that are lightweight, strong, shock absorptive, and even customizable with color and design.

Delano Romero, Martial Artist

Native New Mexican martial artist Delano Romero discovered the deficiencies of standard over-the-counter mouthguards after fracturing his front teeth in a Brazilian Jiu-Jitsu sparring match. This unfortunate accident was Romero's inspiration for starting a business to develop a superior

mouthguard, which he achieved with assistance from NMSBA. Most mouthguards are bulky, uncomfortable, and inhibit comfortable breathing. Consequently, many martial artists and other athletes do not wear them. With the support of his wife, Dr. Vesna Delic, DDS, Romero began to research how custom mouthguards could be better and more widely used. In his initial investigation, he found few industry standards for mouthguards and hypothesized that thicker would be stronger and more shock absorptive.

Romero came to NMSBA with two initial questions: What is the best material for shock absorption, and, ideally, how thick should a mouthguard be? James McElhanon, an organic chemist at Sandia National Laboratories, tested and analyzed a variety of materials for potential use. McElhanon helped Romero identify both the best material and its ideal thickness. Someday soon, Romero hopes to expand his product line into commercially available, over-the-counter mouthguards and other protective gear.





BROWN RANCH PROPERTIES

Our landowners' association did not have the capability or resources to create a viable economic development strategy on our own. With NMSBA's help, we can now find the sweet spot of sustainability in wind energy development negotiations.

Damon Brown, Owner



On his ranch in rural northeastern New Mexico, Damon Brown had long assumed that wind energy could provide financial sustainability for ranchers. The economics of this resource, however, are largely unknown. To determine how wind energy could benefit his and other ranches in Union County, Brown sought assistance from NMSBA, which linked him to the University of New Mexico Anderson School of Management.

The Anderson School team synthesized a broad body of information to assemble a wind energy business analysis. This included background data on wind energy, equipment and setup costs, regulatory issues, expected returns, and typical

points of negotiation between landowners and wind developers. The team then combined the business analysis with an investigation of local and regional wind projects and revenue ranges. The result was a tailored discussion of factors Brown Ranch should consider as it pursues wind development. The analysis also addressed the unique attributes and advantages Brown Ranch has in order to create wind developer interest and enhance its negotiating leverage.

With this analysis, Brown can now consider wind development proposals and assess their financial potential. Additionally, the information can be used to benefit the entire area.





Herbs, Etc
Solutions You Trust



HERBS, ETC.

I feel confident in the new scientifically based standard that NMSBA helped me establish. In addition to making my products better and safer, I have experienced a positive impact on waste control, production, and cost.

Daniel Gagnon, Owner

From research and development to processing and retail sales, Herbs, Etc. owner Daniel Gagnon is involved in every facet of his Santa Fe-based company. This commitment led Gagnon to develop high antimicrobial standards for his products.



Traditionally, Gagnon eliminated unwanted microbes by processing his herbs with water and alcohol. But in 2000, he developed an alcohol-free product using olive oil and soft gel encapsulation. Gagnon established microbial levels for the product by sending samples to testing laboratories. When elevated levels or spikes were reported, he cleaned all the equipment and threw away entire batches of herbs. After several spikes and product losses, Gagnon sought assistance from NMSBA to resolve this ongoing issue.

John Dunbar, a microbiologist from Los Alamos National Laboratory, analyzed Gagnon's test standards and found they were conservative. In fact, the levels of microbes in Herbs, Etc. products were considerably less than those found naturally in a wide variety of herbs, spices, grains, and other foods, and were well below FDA food standards. Spikes of common benign soil bacteria occasionally occurred because many extracts were made using roots. Finally, Dunbar advised Gagnon on an acceptable standard for microbe measurement and monitoring.



IMPROVING LIVESTOCK HEALTH

We hope to see results with this year's calf crop. Removing water contaminants should increase the calf birth and survival rate, improve cattle life expectancy by 20%, and make us more profitable.

Kenneth McKenzie, Rancher



The health of livestock in eastern New Mexico, specifically Guadalupe and San Miguel counties, has been impacted by water quality from deep ground water wells that serve as the area's primary water supply. Health issues include shorter life expectancies and lower reproduction rates among cattle. In one calving season, an area rancher lost more than 20 animal units as the result of poor water quality from a specific well. The rancher requested that NMSBA help identify suspected water quality issues and determine if a correlation existed with impaired livestock health.

The water quality analysis conducted by Michael Schuhen and Brian Dwyer of Sandia National Laboratories uncovered an endemic bacterium that releases sulfur into the water. To solve the sulfur problem, Schuhen and Dwyer engaged leveraged project participants with expertise in water quality and improvement. Al Bierle of Western Environmental Management Group conducted a feasibility study on low pressure reverse osmosis (RO) and provided pertinent cost data from his experience with dairy cows. Jay Glasscott of Arrakis provided

expertise on membrane selection for the RO system. To power RO in remote locations, Joe Ortiz of Sustainable Resources evaluated the use of solar pumping systems using a blanket solar panel.

The team continues to test additional solutions to improve water quality and livestock health. Al Bierle expects increased sales of his RO system as the word spreads about the Guadalupe County success.





MUSICODE INNOVATIONS

Thanks to the technical assistance from NMSBA, I will be market-ready once the refinements are made.

Dan Daily, Director



As a young child, Dan Daily, Director of Musicode Innovations, watched his mother compassionately care for people with disabilities in a daycare that she owned and operated. Today, as a musician and music instructor, Daily is developing a musical instrument, the Midiwing, for those who lack the experience, physical ability, or maturity to play music with traditional instruments.

Midiwing unites music and computer technology. To create the instrument, Daily reworked and recoded Musical Instrument Digital Interface (MIDI) technology and introduced ergonomic design. He applied for NMSBA help when he discovered the microcontroller he used was being phased out. The controller supports the interface with the musician by transmitting the data from the user to the audio instrument.

NMSBA matched Daily with Sandia National Laboratories' Kent Pfeifer, an electrical engineer and musician himself. Daily sent Pfeifer his old microcontroller code and the desired criteria and function for the instrument. Together, the two rewrote the code, modernized the interface to use USB communication, refined the micro-controller for high-speed and low-power



battery operation, and essentially created a new state-of-the-art design. The new Midiwing is slated to go into production at the end of 2013. Daily is currently focused on a series of pilot programs to help test and refine the product.

PROGRAM METRICS

VALUE OF PROGRAM ASSISTANCE IN 2011

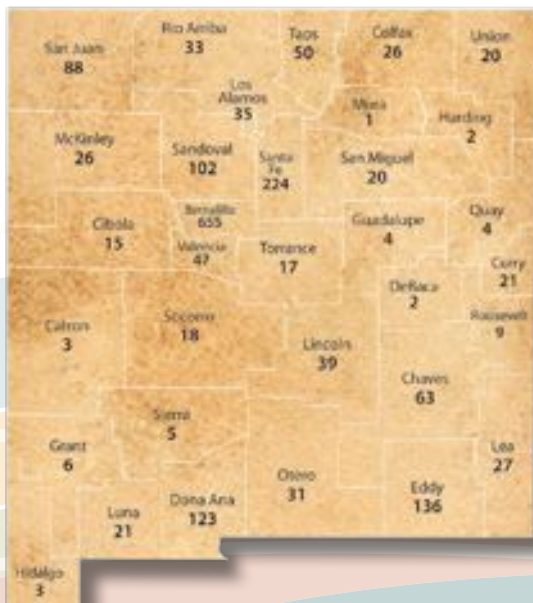
In 2011 the state of New Mexico, along with Los Alamos National Laboratory and Sandia National Laboratories, invested \$4.6M to help 340 small businesses in 27 counties solve technical challenges. The majority of businesses assisted were in rural New Mexico. The following table contains the number of small businesses that received assistance from NMSBA with dollar value of the assistance for calendar year 2011, and cumulative value from 2000 - 2011.

	LANL	SNL	Total
Number of Small Businesses Served			
2011	150	190	340[†]
Rural	126	112	238 [†]
Urban	24	78	102 [†]
2000-2011*	364	1,631	1,876[†]
Rural	276	1,029	1,221 [†]
Urban	88	602	655 [†]
Value of Assistance Provided			
2011	\$2,269,881	\$2,350,130	\$4,620,011
Rural	\$2,052,341	\$1,741,240	\$3,793,581
Urban	\$217,540	\$608,890	\$826,430
2000-2011*	\$7,588,738	\$22,232,641	\$29,821,379
Rural	\$6,815,405	\$17,642,673	\$24,458,078
Urban	\$773,333	\$4,589,968	\$5,363,301

*LANL began participating in NMSBA in 2007

[†]Some companies are served by both laboratories

BUSINESSES ASSISTED BY COUNTY 2000 - 2011



NMSBA has provided assistance in all 33 New Mexico counties during the life of the program

ACCOUNTABILITY & ECONOMIC IMPACT

NMSBA, 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 & Polling, Inc., and economic analysis provided by economist Brian McDonald, PhD.

Economic Impact for Businesses from NMSBA Projects

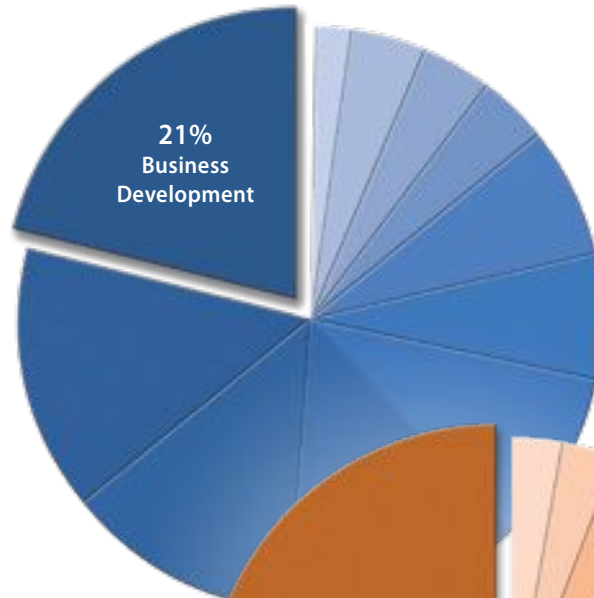
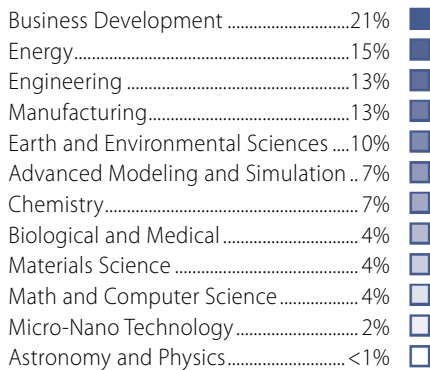
	2000 - 2010*
Return on Investment (ROI)**	\$1.24
Small Business Jobs Created and Retained	\$2,317
Mean Salary	\$38,215
Increase in Revenue	\$107,591,992
Decrease in Operating Costs	\$63,636,671
Investment in NM Goods / Services	\$34,880,933
New Funding / Financing Received	\$40,940,750

*Surveys are performed six months to one year after project completion

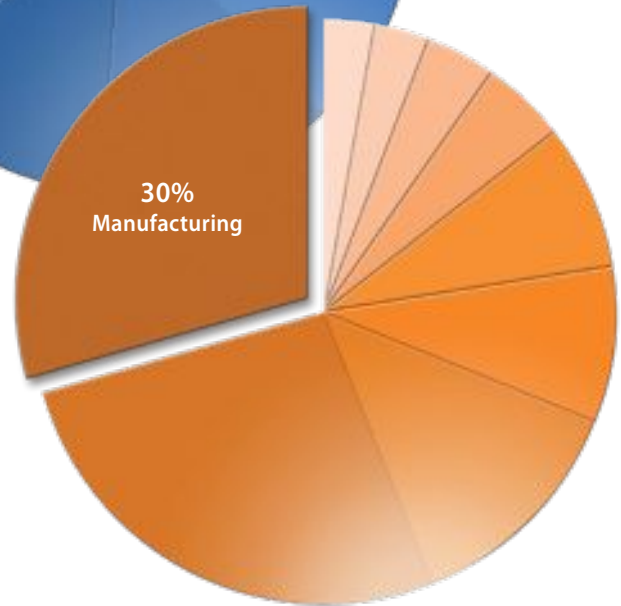
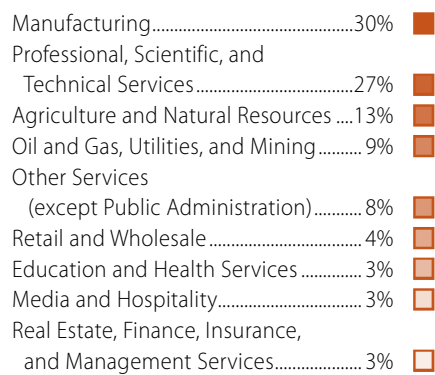
**ROI is based on tax dollars generated from salaries of jobs created and retained divided by tax credit claimed by the national laboratories

NMSBA identifies the areas of technical expertise of the national laboratories and their contractors, as well as the industry sectors of NMSBA participants. This information is used to gain a better understanding of the technical challenges that were solved by the expertise and resources available.

LABORATORY CAPABILITIES UTILIZED IN 2011

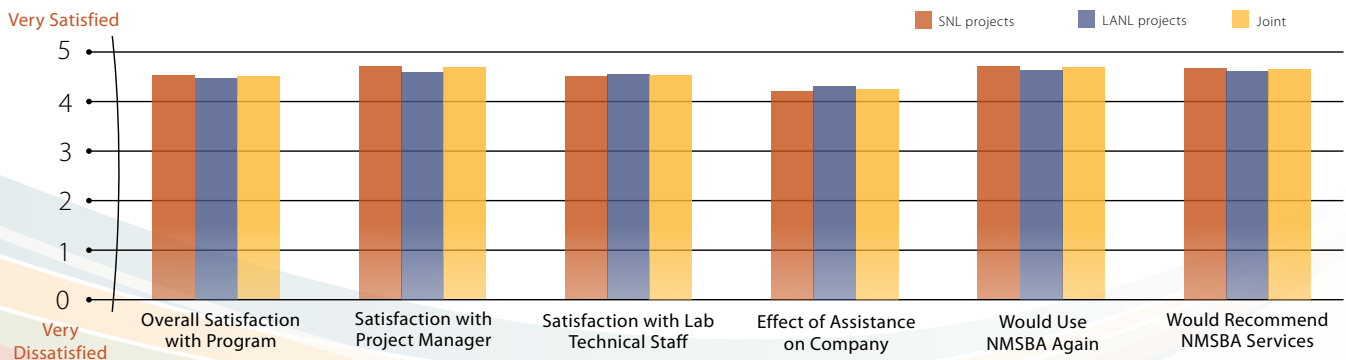


INDUSTRIES OF SMALL BUSINESS SERVED IN 2011



CUSTOMER SATISFACTION IN 2011

Each year, NMSBA surveys the participating businesses to learn about their satisfaction with the program. In 2011, 95% of the businesses responded to the survey.





MVD EXPRESS

As a fairly evolved company, I was unsure how NMSBA could help MVD Express, but the results have been transformational.

Melissa Stock, Chief Operating Officer



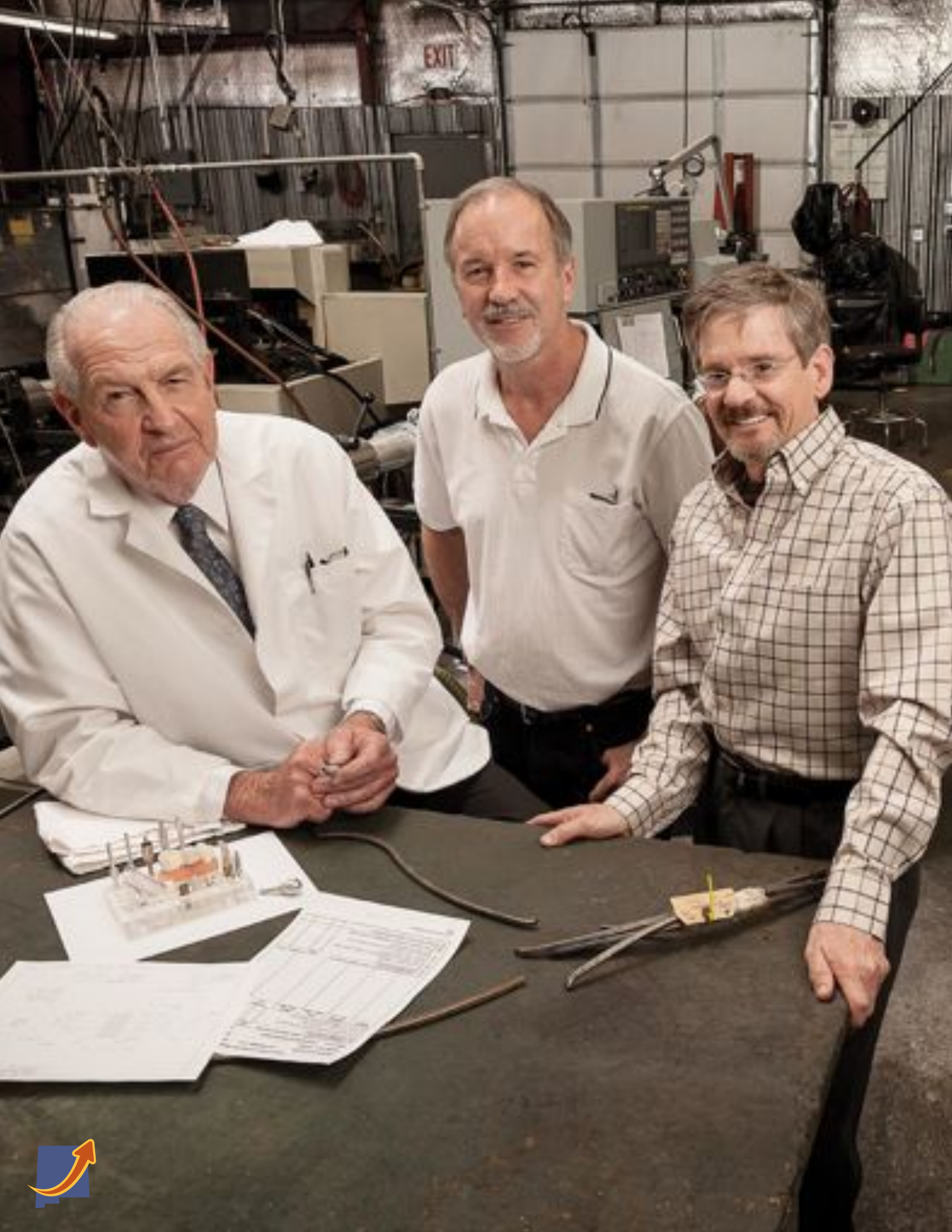
Promising fast and efficient service, MVD Express provides half of New Mexico's motor vehicle services through its 11 locations and 85 employees statewide. But over the years, owner Janice Lucero noticed that document and photocopying requirements in the highly-regulated industry were taking up more and more employee time, increasing office supply expenses, and causing wait times to rise.

Through NMSBA, Karen Converse of the New Mexico Manufacturing Extension Partnership (NM MEP) introduced lean manufacturing processes to MVD Express. Converse examined all of the company's processes and made a series of recommendations, three of which were implemented

immediately. As a result of NM MEP's assistance, MVD Express standardized desk arrangement and supplies for each employee, developed a company-wide standard of which documents should be photocopied, and consolidated 27 logs into five simplified checklists.

The company has already cut two minutes off each transaction, saved 30% in office supply expenses, reduced photocopies by 20%, and saved hours each week in staff time. By adopting lean manufacturing as the company's culture, management and staff at MVD Express have changed the way they think, ask questions, spend money, and work together as a team.





NANOTITANIUM DENTAL IMPLANTS

We received two key benefits from NMSBA. Data on our product and competitive products helped us to validate our market advantage and the LANL analyses showed us ways to enhance the benefits of Biotanium™ implants.

Terry Lowe, Metallurgist



The leveraged project Nanotitanium Dental Implants is a venture between three New Mexico companies. Metallurgist Terry Lowe from Metallicum (a subsidiary of Manhattan Scientifics), designer and manufacturer Dan Blacklock from Danlin Products, and dentist and educator Walt Schuman from BASIC Dental are collaborating to develop, manufacture, and market dental implants. The formative material for the venture is Biotanium, an enhanced variant of titanium used to anchor dental implants into the jawbone.



Through NMSBA, the companies accessed specialized technical capability to investigate and validate the performance of Biotanium. Joseph Mang, Robert Dickerson, and Marilyn Hawley of Los Alamos National Laboratory (LANL) used scanning electron microscopy and atomic force microscopy to characterize the material. Initially, the companies asked that the metal's interior be explored, but the powerful imaging technology revealed that the important properties were on the surface. Biotanium's nanoscale and micron scale features create a surface ideal for bone cell attachment and proliferation. This leads to a dramatically faster and stronger recovery for the patient.

The companies plan to expand their products and employ up to 28 new people at a manufacturing facility in Albuquerque. With test markets already underway, they look forward to competing worldwide.



PUEBLO OF ZIA

The expertise and assistance provided to the Pueblo of Zia by NMSBA is a key component of our success thus far. We look forward to our continued partnership with LANL as the study evaluates our integrated approach to producing cost-effective renewable energy.

Peter Pino, Tribal Administrator



The Pueblo of Zia has a long and proud history of self-sufficiency and a strong community life. Economic development efforts must be aligned not only with economic goals, but also with the Pueblo's traditional culture and values. Within these parameters, renewable energy provides a unique opportunity to promote sustainable energy independence and respect for Pueblo land and natural resources.

Tribal Administrator Peter Pino and Project Manager Jai Lakshman led an expert team including NMSBA, New Mexico Community Capital, NM Renewable Energy Transmission Authority, and Witcher & Associates to develop a strategy for renewable energy development and deployment. NMSBA provided assistance through Los Alamos National Laboratory's (LANL) Loren Toole, who provided a broad range of information on site assessments, energy transmission and distribution system access, and economic analysis of energy alternatives.

As a result of the team's efforts, the Pueblo of Zia was awarded a grant from the U.S. Department of Energy to conduct a feasibility study for integrated solar, geothermal, and wind energy. The study will analyze the potential to develop and export renewable energy from the Pueblo, including how to distribute to the grid, secure continuous energy production, and be cost-competitive in the energy market.





SAVSU TECHNOLOGIES

Our goal is to have a pre-assembled ice maker that can be shipped with the NanoQ™ container. With help from NMSBA, this package of equipment will utilize only solar energy and will bring lifesaving vaccines to the far reaches of the world.

Bruce McCormick, SAVSU Technologies



The company SAVSU, which stands for “State of the Art Vaccine Storage Unit,” is clear about its mission. Inexpensive vaccines can save millions of lives, yet 14-35% of vaccines worldwide are exposed to freezing conditions that compromise or destroy them. A passively cooled vaccine storage container would be an enormous boost to health care and immunization programs in developing countries.

Bruce McCormick of SAVSU designed the NanoQ container to store vaccines at proper temperatures while utilizing ice as thermal energy. Typically ice can freeze and destroy vaccines. But the NanoQ makes use of advances in materials science including NASA technology to overcome the freezing potential

of ice while harnessing its energy storage capacity. SAVSU also began development of a solar thermal icemaker for the NanoQ. It attempted to overcome the limited success of previous attempts at solar thermal ice making by redesigning the technology for small volumes of ice.

Through NMSBA, McCormick teamed with Eric Coker and Brian Iverson of Sandia National Laboratories to undertake a massive review of technology relating to solar thermal ice makers, calculate optimal thermal performance criteria, and create a design basis to apply solar thermal ice making capability to the SAVSU cooler.





ST. CLAIR
100% MERLOT
100% MERLOT
100% MERLOT
100% MERLOT



SOUTHWEST WINES

As a direct result of NMSBA's consultations, we are now confidently seeking a software application to squarely address our needs.

Thomas Elder, IT Manager



Southwest Wines is the largest winery production facility in New Mexico, and continues to experience healthy business growth. Yet, increased demand was quickly outpacing the company's internal computer information systems. The winery recognized the need for Information Technology (IT) improvements, including an assessment of the IT systems that underpin its business activities.

NMSBA connected Thomas Elder, Southwest Wines' IT Manager and James Husby, the company's General Manager, with Frank Reinow from the Department of Management at New Mexico Tech. Reinow and his team performed two onsite assessments. The first evaluated Southwest Wines' IT systems and technologies, including networks, communications, hardware and software, integration, and maintenance functions. Specific recommendations covered everything from routine improvements in email, contact lists, and scheduling to larger scale improvements in network management and software upgrades.

The second assessment addressed the company's accounting software, a relatively well-known software product within the winemaking industry. The team's IT and management

evaluation found that the software was insufficient for the functionality, efficiency, and vendor support required by Southwest Wines. The team then developed a performance framework for evaluating new software applications. Southwest Wines plans to share its findings with other wineries in the region in hopes that the information might address common problems.



LEVERAGED PROJECTS

Lab	Project	Description	Business Participants	Counties	Funding
LANL	Advanced Characterization of Next Generation Nanostructured Titanium Dental Implants	LANL analyzed nanostructured and conventional titanium dental implant samples using scanning electron microscopy (SEM) and atomic force microscopy (AFM). The analysis was conducted to provide documentation of the micro- and nano-scale surface structure. The SEM and AFM instruments provide information on surface roughness, specific surface area, surface elasticity, and other fundamental characteristics of polycrystalline surfaces.	BASIC Dental, Inc.; Danlin Products, Inc.; Metallicum, Inc.	Bernalillo Santa Fe	\$40,000
SNL	Algorithm and Radar Enhancement for Concealed Threat Detection	SNL provided consulting on Safe Zone's concealed threat detection device by utilizing Sandia volunteers to run a full complement of tests using new threat formats, analyzing results and providing a final report.	Safe Zone Systems; Electro Science Technologies, LLC; Roberson Construction Company, Inc.; ROB-O-CO, Inc.	Bernalillo	\$40,000
SNL	Biomass Utilization	SNL developed a bench scale system for converting woody biomass to pyrolysis oils and an economic analysis to help guide investment decisions. SNL helped the businesses to understand and apply the technology, and maintain good contacts with commercial and academic developers of related technologies to provide good support.	Biofuels & Energy, LLC; Canon Forestry, LLC; Pica Services, LLC; Restoration Solutions, LLC	Lincoln Taos	\$80,000
SNL	Computer Vision for Interactive Immersive Experiences and Business Analytics	SNL provided technical consulting services for hardware and software algorithms to improve the effects of occlusion and lighting in interactive infotainment systems. This included investigating and assisting with new ways of using/adapting hardware and open-source software to improve interactive techniques and to enable better extraction of advertising analytics.	Immersives, The; Lumenscapes; SignPlex, LLC; Zygote Pro-Creations, Inc.	Bernalillo Sandoval Santa Fe	\$60,000
LANL / SNL	Desalination Technology of Coal Bed Methane Produced Water at a Four Corners Salt Water Disposal (SWD) Facility	LANL and SNL evaluated potential alternative configurations of the previous experimental pilot test equipment to upgrade to a less costly, more efficient commercial version. The project knowledge was transferred to the participating companies.	Advanced Wireless Communications, LLC; BC Water Solutions, LLC; Biosphere Environmental Sciences & Technologies, LLC (B.E.S.T.); Chenault Consulting, Inc.; Richard N. Arnold Consulting; Synergy Operating, LLC	McKinley San Juan	\$38,000 (LANL) \$69,000 (SNL)
LANL	Detection of Bovine Tuberculosis in Cattle using a Waveguide-based Biosensor	LANL worked towards adapting waveguide-based optical biosensor technology, initially developed for detection of human tuberculosis (TB), to the detection of bovine TB. This assistance included optimization of assay for the detection of Ag85 complex, development of ligands and assays for ESAT6/CFP10 detection, development of a multiplex platform for waveguides for simultaneous detection of bovine TB biomarkers, and evaluation of assays for the detection of M. bovis biomarkers in animal urine and serum samples obtained from USDA.	Beard Livestock aka Rita Beard; Bluejay, Inc.; JX Cattle Company, LLC; Kevin Hertel, DVM; Progressive Dairy Health Services; Steve Warshawer; Walker Brangus	Colfax Curry Quay Roosevelt San Miguel Santa Fe Union	\$140,000



Lab	Project	Description	Business Participants	Counties	Funding
LANL / SNL	Development and Application of Geo-Cellular Models for Complex Carbonate Geologies	LANL evaluated and optimized seismic trace filters needed to implement direct hydrocarbon indicators and incorporated them into ParaView. LANL also looked for alternatives to all components of the workflow, from reading SEG-Y on any computer, to developing geophysical capabilities that are well out of the range of standard visualization toolkits, and ways to build specialized direct hydrocarbon indicator filters that could be used by the small business participants. SNL provided assistance by: (1) Evaluating and optimizing the current implementation of wave number-domain random medium earth model construction algorithm RAMOD; (2) Improving the seismic wave propagation algorithm ELASTI for memory reduction, run speed, and user-friendly interface; and (3) Delivering the optimized algorithm code for ELASTI to the Requestor(s).	CH4NET, Inc.; El Dorado Land Corporation; HEYCO Energy Group, Inc.; Providence Technologies, Inc.; Richard Martin Geophysical Consulting; Rio Magdalena Investment Corporation; Sun Valley Energy, Inc.; Thrust Energy Corporation; Yates Energy Corporation	Chaves	\$75,000 (LANL) \$78,000 (SNL)
LANL	Development of Viable Feedstock for Cost Effective Innovative Deoxygenation Processing of Biofuels	Los Alamos National Laboratory – Carlsbad Operations (LANL-CO) assisted in construction of a deoxygenation/hydrogenation test bed capable of producing 10 barrels of renewable diesel fuel per day. This test bed was taken to a corn oil producer in Kansas where it was used to generate 100 gallons of corn oil derived renewable diesel. LANL-CO completed a comparison of this corn-derived oil with results obtained from renewable diesel generated from brown grease through the Cetane facility. Results were found to be comparable to the diesel generated from the plant and within ASTM D975 specification.	BES, Inc.; Cetane Energy, LLC; Constructors, Inc.; Hall Machine & Welding Company, Inc.; Walterscheid Heifers, Inc.	Eddy	\$98,000
SNL	Dynamic Model Selection	SNL consulted with the companies regarding the use of dynamic model selection using measures of local competency to refine the algorithms by which the companies' various test devices operate.	InLight Solutions, Inc.; TruTouch Technologies, Inc.; VeraLight, Inc.	Bernalillo	\$30,000
LANL	Evaluation of Pecos River Salinity Sources and Potential Remediation Strategies	LANL conducted a detailed survey of salinity in the Pecos River from U.S. 70 north of Bitter Lake to Dexter to identify salt inputs. Water samples were analyzed for major ion concentrations so that conductance could be directly correlated to salinity and ionic content of the river. The participating small businesses collected samples of Pecos River water entering and exiting Brantley reservoir, as well as water from the canals/ditches of the Carlsbad Irrigation District (CID) at different times of the year. These samples were analyzed by LANL to allow the salt inputs in the Roswell basin to be correlated with salinity measurements entering the reservoir and within the CID. Information on the subsurface hydrogeology near the inputs was obtained by examining well logs and other records (e.g., heads, water quality data) in the archives of the Pecos Valley Artesian Conservancy District in Roswell.	Daniel Baeza Farms; Johnny Reid Farms; Max Vasquez Farms; Ogden Farms; Pardue Limited Company	Eddy	\$100,000
SNL	Hybrid Flywheel Tests	SNL performed computational analysis to evaluate the structural integrity of the proposed flywheel designs including stress analysis and vibration analysis.	GreenVolt Systems, LLC; Simons Systems; Simons Systems, LLC; Sun King Solar, LLC; Venture Energy Solutions	Cibola Socorro Valencia	\$88,000

LEVERAGED PROJECTS (CONT)

Lab	Project	Description	Business Participants	Counties	Funding
SNL	Improving Livestock Health	SNL provided consulting on water quality and treatment including: (1) evaluating innovative treatment membranes for sulfate removal; (2) evaluating the use of a solar powered pumping system to replace conventional pumps; (3) conducting a comprehensive engineering study evaluating blending well waters to optimize sulfate levels and yet still meet the ranch water demands; and (4) assisting with the design and implementation of a Low Pressure Reverse Osmosis water treatment system to remove sulfate from well water.	Arrakis Corporation; McKenzie Land & Livestock Company; Singleton Ranches; Sustainable Resources, Inc.; Western Environmental Management Group	Eddy Guadalupe Santa Fe Torrance	\$99,000
LANL	Isotope Forensics: Distinguishing Dairy-Derived Nitrate from Fertilizer-Derived Nitrate	LANL collected soil cores from around feed lots, dairy lagoons and land-application areas. Nitrate was leached from soil cores and the isotopic composition determined. This data set provided refined estimates of the signature of dairy-related nitrate actually entering groundwater. In addition, the isotopic composition of nitrate from several monitoring wells at a new dairy were determined. A mixing model was employed that estimated, where possible, the amount of dairy-related nitrate in each monitoring well studied.	Ashcraft Consulting, Inc.; Glorieta Geoscience, Inc.; Hall Environmental Analysis Laboratory; Perry Farms	Bernalillo Chaves Santa Fe	\$60,000
SNL	Ramah - Española Water Treatment	SNL assisted small New Mexico companies that use or provide treatment for private, shared or public wells with high levels of drinking water contaminants. SNL characterized the water quality in rural areas near Ramah, near Albuquerque, and in Rio Rancho, and evaluated the companies' alternative water treatment strategies for those wells.	EnviroLogic, Inc.; HydraTech of New Mexico; Inscription Rock Trading & Coffee Company; Noaz Sourcing Ltd, Company; Pueblo Ancient Way, The; Santa Fe by Design Water Treatment; TK Services, Inc.	Bernalillo Cibola Sandoval Santa Fe	\$110,000
SNL	Remediation of a Liquid Hydrocarbon Spill in Situ by a Thermal Desorption Process	SNL provided design consultation and modeling regarding improvement of the existing prototype thermal desorption/soil remediation system.	CIP, Inc.; DB Technologies, Inc.; Decano, Inc.; Soil Remediation Systems, LLC	San Juan	\$80,000
SNL	Solar Capping of Mine Waste	SNL evaluated the potential for closure of mine waste using solar capping including a financial feasibility study. The technology evaluated included the use of a high density polyethylene membrane placed over the top of waste as a final cap. Flexible solar panels are attached to the membrane whereby electricity is fed back to the grid thus generating revenue to provide funding to periodically replace the membrane.	310 Solar, Inc.; Affordable Solar Group, LLC; Armored Construction; Sacred Power Corporation; Sunspot Solar Energy Systems, LLC; TerranearPMC	Bernalillo Dona Ana Los Alamos	\$70,000
SNL	Solar-Thermal Smart-Grid Integration	SNL identified and recommended strategies that will align solar-thermal technologies with the future Smart Grid. Consulting was provided on Smart Grid system-level architectures and interfaces between subsystems that will facilitate the inclusion of solar-thermal technology as a major subsystem of Smart Grid. The benefits of integrating solar-thermal technologies with Smart Grid were identified and documented.	Sundancer Creations, LLC; ThermaSun, Inc.; Valverde Energy, Inc.; Wallace Williams, LLC	Santa Fe Taos	\$78,000



Lab	Project	Description	Business Participants	Counties	Funding
LANL	Technical Support for New Mexico's Renewable Energy Projects "CRELA Ranches"	LANL installed three fully instrumented wind tower packages at selected CRELA sites. Data collection, reduction and analysis were provided by a partnership of LANL staff and CRELA landowners. Unique wind interpolation software, developed at LANL, was applied to this mapping problem. CRELA was provided with higher-confidence regional wind maps detailing hourly wind speed and directions at twelve associations for an entire year. LANL also performed additional renewable energy site assessments for CRELA ranches and prepared technical summaries and presentations to ensure that CRELA's projects are represented in a proactive, technically sound manner.	Antelope Ridge Wind Farm, LLC; Brockman Ranches, Inc.; El Bigote Cattle Company, LLC; Farming Services Company of New Mexico dba FarmKo; Horney Land and Cattle LLC; Hutcherson Family, LP; Russell Heimann Ranch; Thompson Cattle Company	Curry DeBaca Guadalupe Union	\$148,000
LANL	Technical Support of New Mexico's Renewable Energy Projects "EBID Hydro"	LANL evaluated five low-head hydro resource areas located on EBID land for economic and technical viability to generate sufficient quantities of electricity to drive lift stations. Sale of excess electricity to EPE through a back-flow metering contract at distribution level was also assessed. This study addressed grid interconnection issues common to all sites. Maximum capacity (MW) and energy (MWh) potential were estimated, based on EBID water flow data, topographic data, and proposed distribution line access. LANL developed a build-out plan that identified excess electricity generated by season, pumped water volume, and revenue stream attributable to sale of excess electricity.	Adams Produce, Inc.; Chili River, Inc.; Lack Farms; Porter Farms, LLC; TJZ Farms, LLC	Dona Ana	\$94,000
LANL	Verification of High Energy By-Products from a Fusion Power Reactor	LANL's Van de Graaff accelerator was used to expose image plates to protons and alpha particles. The exposed plates were analyzed using sophisticated, research grade, image plate readers to identify a unique track pattern corresponding to the ions. LANL's unique x-ray and spectroscopy detectors were used to perform spatially and temporally resolved measurements on both generations of EMC2's Polywell™ reactors. LANL provided data from exposed image plates, documentation of setup and exposure conditions for image plates, a preliminary presentation detailing the minimum detectable exposure for image storage plates and the ability to differentiate charged particle exposure from X-ray exposure, and measurements of Polywell x-ray emissions and impurities.	Decysive Systems; Energy Matter Conversion Corporation (EMC2); GED, LLC; McFarland Instrumentation Services	Los Alamos Rio Arriba Santa Fe	\$77,000
LANL	Water Treatment, Española Basin	Using analytical results from several hundred private wells, LANL assisted small New Mexico water treatment companies in improvement and commercialization of innovative water treatment technologies for residents living within the Española Basin. Rock samples were collected from the uranium-bearing sedimentary strata-outcrops to identify uranium minerals that control the leachability and mobility of naturally occurring uranium, providing additional business opportunities for the participating companies. Additional experimental studies and computer modeling simulations were carried out and a potential solution to remove naturally occurring silica was identified to enable participating companies to market water-conserving products.	Emerald Earth; Good Water Company; National Water Services, Inc.; Water Lady, Inc.; Watermatters, LLC	Bernalillo Santa Fe	\$71,000

INDIVIDUAL PROJECTS

RURAL INDIVIDUAL PROJECTS

Chaves County

AgVentures, LLC
Fatman's Beef Jerky
GeoScience Technologies
Kana Clothes, LLC
Lincoln County Industries
Moffett Productions
Select Milk Producers

Cibola County

American Stone, LLC
CCS Computer Services, Inc.
Rael's General Construction &
Cabinet Shop, Inc.
Stewart Brothers Drilling Company

Colfax County

Angel Fire Resort Operations, LLC / Angel Fire
Resort Daycare
Cimarroncita Historic Ranch Retreat

Curry County

Southwest Cheese Company, LLC

Dona Ana County

Akamai Physics, Inc.
Calculex, Inc.
Dooglamoo Studios, LLC
Eaton Farms
Ffhoenix Cuivre, LLC
FXI - Foamex Innovations
fka Foamex Products, Inc.
Imaginative Technologies
Monarch Litho, Inc.
Navitus Group, LLC
Shouman Associates Engineering
SmilesIncluded, Inc.

Eddy County

Air Pollution Product Systems (APPS) USA, Inc.
Carlsbad Current - Argus
Carriaga Machine
Custom Farming
Durham & Associates
Dynamic Heating & Cooling, LLC
HydroResolutions, LLC
J. S. Ward & Son, Inc.
Jurva Farms
New Mexico Texas Coaches
Oasis Biofuels

Guadalupe County

Milagro Ranch Resources

Lea County

ItsDiscreet, Inc.
STD Test Card, Inc.

Lincoln County

L-Bar Resources, LLC
MAK Innovations, Inc.
Ruidoso News
Y Bar Ranch, LLC

Los Alamos County

Amicable Inventions, LLC
HyPwr, LLC
Manhattan Isotope Technology
Samitaur Medical Technologies, LLC
Sci Tac, LLC

Luna County

Southwest Wines
Southwest Wines and Tasting Room

McKinley County

Cabinets Southwest, Inc.
Green-Horizon
Navajo Spirit Southwestern Wear
Navajo Tractor & Sales, Inc.
Newberry & Associates, Ltd

Otero County

Sustainable Technology Systems, Inc.

Rio Arriba County

Otra Vuelta Tire Recycling

Roosevelt County

DairiConcepts
Pro Serve Feeds, Inc.
Sunland, Inc.

San Juan County

ACG Services
Alpha Bioscience Company, LP
Automation-X
Aztec Machine & Repair, Inc.
Clean Can Technology, Inc.
Compressco Partners, L.P.
Cranes Materials & Handling
Haulrite of Four Corners, Inc.

Henry Production, Inc.

Herbert's Welding
Hodi'shoooh Specialty Cleaning Services, LLC
Jack's Plastic and Welding
King Sun Solar
Mocoez, Inc. dba Carpet One Floor and Home
Not Limited, LLC
PESCO, Inc.
R & T Holdings, LLC
Wines of the San Juan

San Miguel County

Environmental Building Sciences, Inc.

Sandoval County

AeroParts Manufacturing & Repair, Inc.
Bladewerx, LLC
Cuba Mesa Recyclers
EECS dba Gator Hydro-Incineration
Focus, LLC
Hydroscience Associates, Inc.
Ideum, Inc.
Illuminated Electric, LLC
KEWA Resources, Ltd
Looking New NM
Mirasol Solar Energy Systems
Paverde, LLC
Pueblo of Zia
Security Designs, Inc. of New Mexico
Stainless Motors, Inc.
ZBOX, LLC

Santa Fe County

Acoustic Biosystems
Aromaland
Barson Corporation
Center for Orthopaedic and
Sports Performance Research, Inc.
Cold Thumb Agriculture
Corazon Family Health PC
El Milagro Herbs
Eldorado Biofuels, LLC
Energy K. Systems
Fault Tolerant Technology
Greffen Systems, Inc.
Growstone
Herbs, Etc., Inc.
Intermodal International & Associates, LLC
International Cargo Airport Solutions, LLC
Into the OM, LLC
ISI Technology
Lau-Nahmias, LLC



Mesa Tech International, Inc.
 Mountain Hound, LLC
 Needbase, Inc.
 Planet Forward, LLC
 Pointy Triangle, LLC
 PureColor, Inc.
 Radiation Detection Solutions, LLC
 Reciprocal Technologies, LLC
 Rio Grande Neurosciences
 S. Silber & Associates
 San Cristobal Development
 Santa Fe Medical Group, LLC
 SAVSU Technologies
 Seirad, Inc.
 Sigma Labs dba B6 Sigma, Inc.
 fka Beyond6 Sigma
 Sulptures, Inc. dba Art Retreat Workshops

STAR Cryoelectronics, LLC
 Viola Productions
 Vista Therapeutics, Inc.
 Vitre International, LLC
 VM Technology, Inc.

Taos County

Lucky Corridor, LLC
 Musicode Innovations
 Private Label Select Ltd Company
 River Brink, LLC, The

Torrance County

Greene Ranch, LLC
 Nickel Brand Software, Inc.

Union County

Brown Ranch Properties, LLC
 Y L Bar Ranch, LLC

Valencia County

Aerolight, LLC
 ICE-LOC
 Jumping Bean Party Rentals dba Concrete Impressions USA
 Lava Living, LLC
 Sisneros Brothers Manufacturing
 Soil Secrets, LLC
 Valencia Flour Mill LTD
 Wall Colmonoy

URBAN INDIVIDUAL PROJECTS

Bernalillo County

Access Technology, Inc.
 Advanced Composite Structures, LLC (ACS)
 AEgis Technologies Group, Inc.
 Alameda Tool Engineering Corporation (ALTEC)
 Albuquerque Delicate Dentistry
 Alliance Building, Inc.
 Analytical Solutions, Inc.
 Angstrom Thin Film Technologies, LLC
 Aqua Membranes, LLC
 Armed Response Team, Inc.
 Array Technologies, Inc.
 Asgard Enterprises, LLC
 Aspen Avionics
 AWT, LLC
 Basilisk, LLC
 Bell Group, The / Rio Grande
 Bio-Detector, LLC
 Black Mesa Coffee Company, Inc.
 BML Services, LLC
 BMT USA, LLC
 Bogue Machine Company
 Century Sign Builders

Cinnafilm, Inc.
 Commercial Door & Hardware, Inc.
 Continental Machining Company
 Creative Consultants, LLC
 CVI Melles Griot
 Dapwood Furniture
 fka Ramblin Wood, Inc.
 Desert Paper & Envelope Company, Inc.
 DiGregory Brothers, Inc.
 Direct Power & Water Corporation
 Dr. Carr's Office
 Ecofec.com, LLC
 Edometrics
 Empirical Path, LLC
 EMvolution
 Excel Manufacturing
 ExerPlay, Inc.
 Globosocks, LLC
 Hydro Resources, Inc.
 aka HRI Energy
 Inspyrd Products Corporation
 Integrated Machining Company
 Jaguar Precision Machine Corporation
 KD Consulting

Lifeline Building Sciences, LLC
 Linac Systems, LLC
 Lighthouse International, Inc.
 Lotus Leaf Coatings, Inc.
 Machining Solutions, LLC
 Marla Bell, LLC
 Matt Channon Consulting
 Mich Casa Co.
 Mineral Exploration Location Services
 MPS, Inc. dba Formulab
 MVD Express
 OGB Architectural Millwork, Inc.
 Optomec, Inc. fka Optomec Design Company
 Osuna Development
 Perma Works
 Pocagua Consulting
 Precision Grinding, Inc.
 Rocky Mountain Enterprises, Inc.
 Sacred Power Motorsports
 SBA Materials, Inc.
 Senior Scientific, LLC
 Skorpios Technologies, Inc.
 SoilCo, LLC
 Soilutions, Inc.

Speed of Light
 Standard Machine Company
 Taycar Enterprises, Inc.
 TEAM Technologies, Inc.
 fka TEAM Specialty Products
 TH Chem, Inc.
 Tim Aydelott Productions
 Transcore AMTECH Technology Center
 Transmission & Distribution Services, LLC (T & D Services)
 TransMix Safe Lock
 U. S. Wood
 Union Development Corporation
 Unirac, Inc.
 Vitality Works
 Xurex, Inc.
 Z-Coil Footwear
 aka Z-Tech Footwear

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1,876

BUSINESSES ASSISTED

2,317

JOBS CREATED/RETAINED

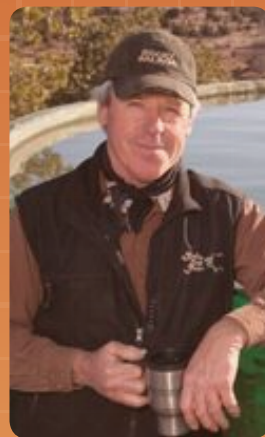
\$29.8M

TECHNICAL ASSISTANCE
PROVIDED BY LABS

ASSISTED BUSINESSES IN ALL

33 NEW MEXICO COUNTIES





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Solving New Mexico's Small Business Challenges