Background

In an effort to increase participation in Study Abroad opportunities for traditionally underserved student populations across New Mexico, New Mexico State University and the University of New Mexico are raising awareness of and garnering support for their Student Global Preparedness and Study Abroad for Global Engagement Research and Public Service Project (RPSP) proposals. These RPSP’s request $500,000 ($250,000 from each University) of recurring funding to support study abroad for all of New Mexico’s public 2-year, 4-year and tribal colleges. If we are successful, 100% of these funds will be utilized as scholarships to support a greater number of students from across the state participating in study, internship, community service and research abroad.

What is Study Abroad?

Simply defined, Study Abroad is a program in which students attend school in a country outside the United States and receive academic credit toward their degree. New Mexico State University and the University of New Mexico offer eight (8) types of study abroad programs: Exchange Programs, Direct Study Abroad Programs, Language Immersion Programs, Faculty-led Programs, International Student Teaching Programs as well as International Research, Community Service and Internships. For more information about Study Abroad, please visit https://studyabroad.nmsu.edu and http://studyabroad.unm.edu

The Importance of Study Abroad.

Globalization is changing the way the world works, and employers are increasingly seeking out employees who possess cross-cultural competence. To assure the competitiveness of our state and its workforce within the global market, New Mexico’s institutes of higher education must focus on sending greater numbers of their undergraduate and graduate students abroad for study, internships, research and service.

New Mexico was ranked 48th in the US in terms of the percentage of students (.54%) studying abroad, based on the total Fall 2012 enrollment in degree granting institutions. The primary reason that we are not witnessing greater numbers of New Mexicans participating in study abroad is overwhelmingly due to a lack of financial resources. With a growing interest on behalf of our students and administrators in increasing the number of New Mexicans that study abroad, these RPSP requests could not come at a better time.

Program Impact to the State of New Mexico

The Student Global Preparedness and Study Abroad for Global Engagement RPSP’s will impact our state directly by increasing the number of undergraduate and graduate students that participate in study, intern or service programs abroad; the results of which will:

- **Enhance Global Awareness.** To be an educated citizen today requires students to able to see the world through others’ eyes and to understand the international dimensions of the problems we confront as a nation.

- **Bolster Academic Learning.** A study abroad experience will introduce students to new professors who can expose them to new viewpoints beyond their campus, and a diverse student body that can introduce them to different customs and cultures.

- **Increase Leadership Skills.** An educational opportunity outside the United States can be among the most valuable tools for preparing a student to participate and lead effectively in an increasingly interconnected international community that demands cross-cultural skills and knowledge.

- **Expand Career Opportunities.** In today’s increasingly global society, obtaining international skills and knowledge will make our students more marketable in getting a job and more productive once they’re in the job.
• Experience Personal Growth. Students who study abroad discover that in the process of learning about other countries and culture they end up learning more about themselves in ways that simply cannot be replicated in the comforting and familiar confines of an American campus.

• Provide the Opportunity to Learn Another Language. Immersion in another language through study abroad is one of the best ways to gain proficiency in that language.

Further, this request would benefit the State of New Mexico in the following concrete ways because it would:

• Expose New Mexico students to international opportunities.

• Develop a workforce ready for international companies/positions.

• Open international doors for graduating students.

• Work on research that generates data useful for international economic development/tourism efforts.

• Generate awareness about New Mexico and opportunities here through foreign student recruitment and joint research projects with foreign institutions.

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<th>Study Abroad Numbers (2011–2012)</th>
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• University of Georgia GLOSSARI Study (Georgia Learning Outcomes of Students Studying Abroad Research Initiative)
  - Four-year graduation rate was 49.6% for study abroad students, compared to 42.1% for (other) students.
  - Six-year rates were 88.7% for study abroad participants and 83.4% for (other) students.
  - Four-year graduation rates for African-Americans who studied abroad were 31% higher than African-American students who did not.
  - Four-year graduation rates for other nonwhite students who studied abroad were 18% higher than their peers.
  - Mean cumulative GPA prior to overseas study was 3.24 and 3.30 afterward.

• New Mexico was ranked 48th in the US in terms of the percentage of students studying abroad based on the total Fall 2012 enrollment in degree granting institutions (0.54%)

• 81% of students who studied abroad at NMSU said finances were their biggest barrier when planning their study abroad experience.

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*Studying abroad allowed me to achieve independence in situations that I would not have been able to do back home. Academically, studying abroad in the Netherlands has pushed me to work harder and to never give up on my dreams.*

Karen Rodriguez, Netherlands
**New Mexico Cooperative Extension Service**

**PROPOSED ENHANCEMENT JUSTIFICATION**

Cooperative Extension Service throughout New Mexico uses one-on-one contact, workshops, printed bulletins and newsletters, and site visits to provide researched-based information and programs. Currently, faculty and staff (all county and state specialists) are operating on the same operations and maintenance funds as in 1999. However, the cost of conducting Cooperative Extension Service programming and maintaining county offices has risen substantially. The $230,000 requested expansion dollars would be used to enhance operations for field faculty and staff across all programmatic units and would result in the following:

- Enhanced quality of programs in the areas of Health and Family Wellness, Community Economic Development, Agriculture and Natural Resources, and 4-H Youth Development
- Enhanced ability to respond to emerging issues including extreme drought, catastrophic wildfires, and food safety
- Allow for more one-on-one consultation across all programmatic areas
- Allow for all county extension offices to have the resources necessary to maintain high quality broadband access, distribution of newsletters and printed materials, and phone services
- Allow travel funds for State Specialists to fulfill county based programming across the state

With increased state appropriations for operations, the Cooperative Extension Service will enhance the ability to meet the mission of "providing the citizens of New Mexico with practical, research-based knowledge and programs that improve their quality of life".

**ANNUAL COOPERATIVE EXTENSION SYSTEM IMPACTS**

- Cooperative Extension Service offices address more than 35,000 calls and over 33,000 walk-in requests yearly. Cooperative Extension faculty reaches 500,000 New Mexicans annually with non-formal, educational programs that extend the knowledge of the land-grant university system.
- Statewide, 40,383 youth gained knowledge and skills related to agriculture including animal science and horticulture; 29,496 gained knowledge and skills related to healthy lifestyle choices, including fitness, nutrition, safety, and substance abuse prevention; 18,409 gained knowledge and skills related to science and technology, including biology, computers and electronics; and 18,682 youth are contributing members of society through their service learning, citizenship, and leadership projects; 3,239 adults volunteered time and efforts to the New Mexico 4-H Youth Development Program.
- 37 specialists with expertise in 159 areas teach environmental stewardship, sustainable energy, water conservation, and healthy nutrition practices.
- Over 28,000 stakeholders through grassroots programming for youth, ranchers, tribal members, and New Mexico industries are impacted annually by the Extension Animal Sciences and Natural Resources faculty and staff.
- 130,000 families are impacted annually by Extension Family and Consumer Sciences home economists through community classes and workshops on nutrition, parenting, and physical fitness resulting in reduced health care costs.
- 36,000 stakeholders benefit annually by Extension Plant Sciences faculty and staff through county-based programs, crop conferences, field days, and one-on-one consulting hence improving the New Mexico economy.
NEW MEXICO STATE UNIVERSITY
DEPARTMENT OF INTERCOLLEGIATE ATHLETICS

FY16 EXPANSION REQUEST: $636,240
FY15 ERB ADJUSTED APPROPRIATION: 3,397,400
PROPOSED FY16 APPROPRIATION: $4,033,640

PROGRAM DESCRIPTION
New Mexico State University (NMSU) provides an enhanced college experience by maintaining Division 1 FBS status of its athletics program. NMSU athletics provides a well-rounded and quality educational opportunity for students of diverse backgrounds and athletic ability. Institution inspires student-athletes to build strong communities and strives to be known for its integrity and commitment to its student’s academic and athletic success. The program offers faculty, staff, alumni and the community a unique opportunity to be a part of a Division 1 athletics program at a premier institution. As team members, student-athletes are provided a platform to grow as leaders, team players, and responsible and successful community members.

NMSU sponsors 17 sports including 6 men’s football, basketball, baseball, golf, tennis and cross country along with 11 women’s basketball, volleyball, softball, soccer, tennis, golf, cross country, indoor track, outdoor track, swimming and diving and equestrian.

EXPANSION AND/OR NEW FUNDING JUSTIFICATION
At the local, state and national level, the contributions made by intercollegiate athletics include educating, mentoring and training future leaders and providing on-the-job training to allow workforce ready skills acquired by the student-athlete, student employee and graduate assistant. Graduate assistants are provided hands-on experience on the playing field, working directly with the student-athlete well-being and by gaining knowledge of federal & state regulations along with university policies and procedures. By providing hands-on and on the field experience, these students are workforce ready, when they leave NMSU, providing capable employees within the state and throughout the nation.

NMSU athletics provides outreach within the state and nationally through Aggie Sports Radio and Aggie Vision.

Funding will be used to provide a quality student-athlete experience by meeting increased cost needs for: recruiting, supplies and equipment, student-athlete medical supplies, equipment, services, insurance and to provide an opportunity to be competitive through summer school class participation which will also enhance student-athlete graduation levels.
Graduation and academic progress will continue to be measured against peers and work towards meeting the increasing expectations of the NCAA and conferences. Competitive ability will continue to be measured against national and conference rankings.

The NMSU brand will be strengthened as it enhances the level of its graduates. Better prepared student-athletes in the workforce reflects the successes in the classroom and on the field, thus providing an economic engine at the local and state level. Students become more marketable as successful contributors to communities as a result of the enhanced learning environment created.

The department, through its academic center, coaches, staff and administrators focus on the importance of education as demonstrated through student-athlete academic accomplishments:

- Student-athletes graduate at a 73% sixth year rate compared to 44% for non-student athletes. 25 student-athletes graduated fall 2013 and 50 graduated spring 2014.
- Spring 2014 academic semester resulted in all 17 sport teams with a cumulative GPA of 3.1825.
- For the 18th consecutive semester, scholar-athlete representation (those with a semester and cumulative GPA of 3.0 or higher) exceeded 50% of the student-athlete population
- 60% or 240 student-athletes achieved a 3.0+ term GPA
- 63% or 241 student-athletes maintained a 3.0+ cumulative GPA
- 27 student-athletes posted a perfect 4.0 semester GPA
- Student-athletes earned 5,388 credits for the spring semester for an average of 14 credit hours per student-athlete.
Since the first 23 acres of land was purchased for the AES in 1906, the AES system has grown in response to the agricultural needs of New Mexico. The AES system now accounts for 94,884 acres of land specifically designated to studying farming, ranching, and forestry. Each Agricultural Science Center addresses the unique needs and voices of the diverse regions of New Mexico they are rooted in.

IMPACTS OF OUR AGRICULTURAL EXPERIMENT STATION SYSTEM

- Economic impacts of research are substantial over the long term. Research started today may not be adopted for years; however, future economic returns could be substantial as is evident in some of the following examples.

- The Birth of the Commercial Chile Industry. In 1913, Fabian Garcia released the chile pod type known as New Mexico #9. All long green chile grown today derives from that original cultivar.

- Expansion of the New Mexico Onion Industry. NM AES’s breeding program continues to develop onion cultivars adapted to growing conditions in New Mexico. Our program allows NM growers to be competitive with other onion markets in the US. In fact, NM provides up to 80% of the nation’s fresh market onions in the months of June and July.

- Impact on the Cotton Industry. More than 40% of U.S. cotton cultivars developed from 1950 to 1990 contained New Mexico cotton germplasm, mainly from the Acala 1517 varieties.

- Development of Turf Grass Varieties. In 1987 NM AES bred and released NuMex Sahara, one of the first improved, seed-propagated Bermuda grass varieties, opening the door for the development of more than two dozen seeded Bermuda varieties including NMSU’s Princess 77 that has been featured on the fields of several Super Bowls.

- Developing the SW Pecan Industry. The NM AES planted the first pecans in the southwestern United States. Some of these original century-old trees are still growing at the Fabian Garcia Research Center. New Mexico now produces approximately 20% of the U.S. pecan crop each year, with more than 35,000 acres in production supported by the largest AES research pecan acreage in the arid southwest.

- Development of the Navajo Agricultural Products Industry. The NM AES was instrumental in establishing and supporting the Navajo Agricultural Products Industry (NAPI). NAPI now injects about $30 million into the Four Corners regional economic base, growing alfalfa, corn, pinto beans, potatoes, and various grains.

- Support for the livestock and dairy industries, including nutrition, range management, and genetics to aid in the development of animals that can be economically successful in the desert southwest.
FUTURE PROGRAMS IN THE AGRICULTURAL EXPERIMENT STATION

- Researchers in the AES system continue to pursue their original mission of improving agricultural practice and production. They have also widened their scope. As community needs in New Mexico have changed, the stations have anticipated that change, as well as responding to new voices and concerns. Sustainability, community engagement, and scientific research will continue to be the basis of the AES system.

- Water is the most important limiting resource for New Mexico. Critical research will continue on water management to provide the necessary options to meet water demands as urbanization and industrialization increase. Good water quality and availability are critical for all agricultural and nonagricultural uses. A new agronomist was hired at the Tucumcari ASC to help develop limited irrigation options for NM growers.

- Foster technological innovation and technology transfer to enhance competitiveness and security of New Mexico agriculture while maintaining the natural resource base. Security is more than the prevention of pests; it aids producers whose livelihoods are threatened by disaster, and helping producers cope with changing markets and environmental conditions.

- Large scale E. coli, listeria, and salmonella outbreaks continue to make headlines. Agricultural Experiment Station scientists are working to develop and transfer new technologies and techniques to producers and consumers to ensure that our food is safe.

- Research the complex issues facing New Mexico families including the impacts of progressive urbanization, the increasing percentage of multiple-income families, and an increasingly multicultural society, ultimately working to improve the quality of life for New Mexicans.

- Research on conserving, protecting, and improving New Mexico’s natural resources including managing forest and rangeland for wildlife, tracking the range and habitat of wildlife such as elk and monitoring the human and environmental impacts when urban areas and wildlands meet.

- NM aquaculture research has led to a public/private partnership to further the commercialization of shrimp production. A production facility is currently under construction.
FY15 Appropriation: $1,319,400*
FY16 Expansion Request: $2,000,000
FY16 Proposed Appropriation: $2,319,400

*1 million of FY15 appropriation is non-recurring

FY16 expansion request is the #1 NMSU RPSP Funding Priority and builds on FY15 initiatives:
- $565,000 Statewide water assessment addresses water scarcity and improves planning
- $350,000 Brackish water research on sources, quality, and desalination
- $192,000 Faculty and student water research grants support projects statewide that confront pressing water issues
- $150,000 Policy analyst conducting water policy studies leading to science-based policy directives
- $150,000 Research applications scientist using advanced science to understand complex NM water systems
- $300,000 Produced water analysis for new water sources focusing on southeastern New Mexico
- $75,000 Water reuse research and other water quality studies
- $68,000 Data acquisition funds to acquire, process, synthesize, and deliver data to assist in policy decisions
- $150,000 Water New MExico Prize awards commercial opportunity through water innovation
- $2,000,000 TOTAL expansion request

Justification of recurring funding:
- FY16 expansion funding of $2M will support ongoing NM WRRI programs and build on new efforts
  - Continued development of an integrated statewide water assessment
  - Brackish water research on desalination and use of marginal water
  - Core mission of faculty and student water research that helps solve water problems statewide
  - Policy analyst working with researchers and agency staff to inform policy decision making
- Continuous updating is needed to realize the potential of the statewide water assessment
- Sustained state funding of this vital planning tool initiative is an investment in New Mexico’s water future

The statewide water assessment is a data resource and a planning tool:
- Easily accessible integrated compilation of data for precipitation, evapotranspiration, groundwater, recharge, surface flows, produced water, return flows, brackish groundwater, and reused water
- Dynamic systems model with scenario testing for managing existing water and developing new water sources

The statewide water assessment is important to everyone in New Mexico:
- Helps plan a sustainable water future for healthy and economically robust communities
- Delivers easy to access data for informed water management decisions
- Provides a tool on par with water assessments in other western states
- Complements the work of existing state agencies such as the Office of the State Engineer
- Builds on NM WRRI proven successes in supporting research for better water management

FY15 $1 million one-time funding to NM WRRI is yielding valuable results:
- Areas of recharge in mountain areas most conducive to recharge of groundwater
- Evapotranspiration characterization to manage consumptive losses from vegetation
- Produced water from oil and gas operations to identify suitable areas for aquifer augmentation
- Assessment of brackish groundwater for treatment as a new water source
- Aquifer volume and quality assessment applicable to water supply sustainability
- Identification of potential new untapped groundwater aquifers
NM WRRI SOLVING NEW MEXICO WATER PROBLEMS STATEWIDE IN COLLABORATION WITH UNIVERSITIES, AGENCIES, AND STAKEHOLDERS

- Precipitation – NM Tech, NM WRRI
- Groundwater Level and Storage Changes – NMSU, NM Tech/NMBG&MR
- Evapotranspiration – NM Tech, NM WRRI
- System Dynamics Modeling – Tetra Tech, Sandia
- Groundwater Recharge – NM Tech/NMBG&MR, NMSU
- Policy Options for Best Management Practices – UNM
- Aquifer Sustainability - NMED
- Aquifer Sustainability on Tribal Lands - NMIAD
- Produced Water Database – NM Tech/PRRC
- Modeling Drought, Salinity, & Invasive Plants – NMSU
- Forest Thinning Effects on Water Yield – NMSU, RTF
- Riparian Studies – NMSU, UNM
- Regional Evapotranspiration Studies – NMSU, NM Tech
- Lower Rio Grande Groundwater Quality – NMSU
- Accuia Studies – NMSU, UNM, NM Tech, Sandia, NMAA, NM WRRI
- Policy Reform to Reduce Dairy Pollution – UNM
- Surface Water Assessment of Inflow/Outflow – USGS
- Streamflow Calibrated Water Balance – UNM

UNM
Engineering
Arts and Sciences
Utton Center

NMSU
Engineering
Arts & Sciences
Agriculture Consumer &
Environmental Sciences
Ag Experiment Station
Cooperative Extension

NM Tech
Earth & Environmental Sci
Petroleum Recovery Res Ctr
NM Bureau of Geology &
Mineral Resources

Federal Agencies
US Geological Survey
Reclamation
Sandia National
Laboratories
Los Alamos National
Laboratory

State Agencies
Office of the State Engineer
Interstate Stream Commission
NM Environment Department
Attorney General's Office
Indian Affairs
Economic Development
Energy Minerals and Natural
Resources

Stakeholders
Mutual Domestics
Farmers Ranchers and Acequias
Environment and Ecosystem Groups
Irrigation Districts and Water Managers
Industry Technology and Consultants
Foresters and Watershed Managers
Tribes and Pueblos
Mining Oil and Gas

Arrowhead
Water New
Mexic0 Prize

Private Sector
Tetra Tech
The aim of this request is to establish STEMED - a Science, Technology, Engineering and Mathematics training, Entrepreneurship and Diversity Program at NMSU. STEMED is designed to serve a broad state-wide K-20 audience and to meet state STEM workforce and entrepreneurial needs.

The mission of the NMSU STEMED program is to enhance the reach and quality of STEM education in New Mexico, with a predominant focus on the more fundamental technological and computational thinking skills. In particular, the program will emphasize the training of a diverse cadre of students competent in STEM disciplines, engaging traditionally underrepresented groups (i.e., women, students of Hispanic heritage).

The STEMED program will also serve as an engine to meet the state’s STEM workforce and entrepreneurial needs for improved economic development of the New Mexico. The STEMED program will work with students, teachers, parents, faculty members, policymakers, corporate partners and the general public to create and support high quality curricula, STEM motivation and engagement, professional development and other activities, and share the resources and initiatives across the state.
JUSTIFICATION

- The need for a STEM-competent workforce is evident; the Dept. of Labor Statistics estimates over 53,000 new STEM jobs created in New Mexico alone within the next 4 years (the bulk in computing and engineering). At the same time, national statistics show a very skewed participation in STEM in terms of gender and ethnicity – where less than 12% of degrees in the more technical (and job-rich) areas of STEM are awarded to women, and where less than 8% of undergraduate STEM degrees are awarded to Hispanic students. The STEMED Program meets an urgent need to establish a creative recruitment and training infrastructure, focused on STEM preparation and engagement, along a seamless pipeline from K-12 through universities and technical schools.
- NMSU is uniquely positioned to address this crisis. NMSU has demonstrated rapid growth and success in STEM training initiatives through partnerships among higher education, researchers, public schools, businesses, and through the Arrowhead Research Park. Although many successful STEM efforts exist at NMSU, many are one-dimensional – tackling the STEM challenge through the lens of a single organization or discipline. The STEMED Program will help integrate these successful initiatives, challenging educators and researchers, along with stakeholders from the public and private sectors, to collaborate at a new level that addresses the globality of the STEM challenge and the overarching workforce needs of New Mexico.

SAMPLE PROGRAMS AND ACHIEVEMENTS:

- Young Women in Computing (10,000+ students; 60% STEM matriculation)
- Science, Engineering, Mathematics, and Aerospace Academy (over 30,000 students exposed to STEM)
- Mathematically Connected Communities (over 30 K-12 teachers trained)
- Discovering Science through Computational Thinking (800+ students exposed to computational thinking methods)
- Innovation (250+ annual student participants)
- Minority Access to Research Careers
- MBRS Rise to Excellence
- Pre-Freshmen Engineering Program
- Boosting Engineering, Science and Technology
- Scientifically Connected Communities
- Project Lead the Way
- Howard Hughes Medical Institutes
- 21st Century Schools
Arrowhead Center for Business Development

FY 16 Expansion Request
FY15 funding $238,200
FY16 expansion request $100,000
FY16 total funding request $338,200

Mission
Arrowhead Center (Arrowhead) was created by NMSU to be an engine for sustainable economic development, to contribute to income, job and wealth creation in the state. Arrowhead addresses multiple economic needs in the state: 1) need for tech-based economic development, an area in which New Mexico continues to lag, despite a high level of federal R&D expenditures; 2) need for business & job creation; and 3) need to create an entrepreneurial environment.

Scope
Arrowhead is accomplishing its mission by collaboratively facilitating the creation of an innovation-driven economy, where New Mexico’s ability to convert ideas into marketable technologies, faster and better than the competition, will affect the pace of economic growth. Arrowhead fosters an entrepreneurial innovation ecosystem through programs offering intellectual property commercialization, enterprise research and planning, entrepreneurial training and networks, business incubation, a research park, and workforce and economic analyses. Businesses and aspiring entrepreneurs across the entire state are served by Arrowhead as part of NMSU’s land-grant mission.

Arrowhead goals for FY 2015 are: 1) transition discoveries, innovations, and know-how of NMSU faculty, staff, and students into the marketplace; 2) accelerate technology commercialization and business growth statewide; 3) to provide experiential educational opportunities for students; and 4) to promote NMSU as a hub for collaborative opportunities with private and public partners.

Uniqueness
Broad-based economic development, serving New Mexico businesses and entrepreneurs (over 400 projects/clients) with market research, business planning, and mentoring; providing exceptional directed learned experiences for NMSU students (over 350) in the process of creating economic opportunity for citizens of New Mexico; commercializing NMSU intellectual property; and performing policy and economic analyses for the state.

Prospects of all Future Funding
Arrowhead was just awarded the second year option of a five-year grant to serve as an EDA University Center grant ($200,000 per year). In addition, Arrowhead’s program to support youth entrepreneurship received gifts of more than $31,000, supporting a $100,000 gift from the Daniels Foundation. Additionally, other Arrowhead programs received $15,916 in gifts from various sources.

Expand Capacity
Expansion funding is required to respond to 1) a significant increase in businesses created out of university innovation; and 2) statewide demand for assistance in creating and growing technology businesses. The requested funding directly supports the economic development efforts of the state as expressed in the Economic Development Department’s Five Year Strategic plan, the recommendations of the New Mexico Jobs Council, and the forthcoming Comprehensive Economic Development Strategy of the Councils of Government. These three groups and others including the Higher Education Department, the Public Education Department, and the Department of Workforce Solutions recognize the increasing importance of technology and innovation to New Mexico’s economic future. Technology and innovation are important in all industries and in both urban and rural areas throughout the state.
FY 2014 Highlights

Arrowhead's measurable impact and outcomes include business and job creation, business growth (as measured by increase in numbers of paid employees and funding from outside the state), commercialization of university inventions, students receiving directed learning experiences in commercialization and entrepreneurship, and public-private partnerships bringing private investment to New Mexico. During FY 2014, Arrowhead provided technical and business assistance to approximately 200 businesses, aspiring entrepreneurs and inventors, creating both new companies and jobs.

Highlights include:

• Twenty-two new companies: in Studio G, Arrowhead's incubator for student enterprises
• Six non-exclusive external licenses for NMSU technology
• Two exclusive external licenses for NMSU technology
• Two exclusive licenses to faculty led spin-out (newly formed enterprise based on technology)
• Two exclusive licenses for NMSU technology to Studio G companies
• One external license to Studio G company (based on completed tech evaluation and identification of entrepreneur)
• One executed option agreement (for LANL technology to Studio G company)
• Two provisional patent applications filed (Launch round 1/2 funded project)
• Three utility applications filed (Launch round 1 & 2 funded technology)
• Two issued patents (1 Launch –Proof of Concept Center--funded technology)
• Fifteen agreements that enable external use of NMSU technologies
• Eleven newly registered businesses in the State of New Mexico
• Thirty different Graduate Assistants employed as Technology Commercialization Associates (TCAs)
• Forty-nine completed NMSU technology evaluations
• More than 200 contacts made w/industry regarding technology evaluation/commercialization projects
• Nine evaluations completed of technologies external to NMSU, with commercialization strategies identified; four others in progress
• Six NMSU technology evaluations in progress
• Eleven enterprise research projects completed; three in progress
• Twenty-two Studio G research/feasibility projects in progress

Leveraging State Funds

FY 14 Total: $1.6M
Technology to Decontaminate Drinking Water

**FY16 NEW Funding Request $250,000**

To date, there are thousands of New Mexican families whose only source of drinking water is unregulated and contaminated. Affected homes are economically limited, remote and isolated. Drinking water is obtained from unregulated and often contaminated sources such as livestock wells, springs, private wells, or watering points. The health and environmental problems due to contaminated water in New Mexico are devastating.

NMSU scientists have a solution and are positioned as global experts in this type of abatement technology. They have designed a filtration system that has abated uranium from 200 ppb to ~ 1 ppb, well below the EPA proposed 30 ppb.

**FUNCTION AND VALUE TO THE STATE OF NEW MEXICO**

- This technology offers a low-cost and permanent drinking water solution for rural New Mexico

- This project is a springboard to solve a variety of drinking water contamination problems including the removal of lead, arsenic, bacteria and other contaminants. Solutions developed could have huge impacts in colonias in Southern New Mexico and across the state

- Laboratory research has demonstrated that uranium abatement occurred to concentration levels below 30 ppb, the EPA MCL-- making potable water a reality in communities that currently have no access to clean drinking water

- This technology is designed to be manufactured locally, employing New Mexicans and using regional materials

- The solutions offered by this technology can be applied globally, positively impacting health outcomes around the world and boosting economic development opportunities for New Mexicans

- This team of clay scientists has discovered an effective solution that aligns with our state’s economic, environmental, and socio-cultural landscape-- offering a win-win situation for all.

- This project is a springboard to solve a variety of drinking water contamination problems including the removal of lead, arsenic, bacteria and many other pollutants. Low-cost, permanent, and sustainable solutions developed in New Mexico have the potential to help distraught communities such as the ‘colonias’ in New Mexico and similar communities worldwide.
FY16 NEW Funding Request: $250,000
Driving basic research toward demonstration and deployment, and advanced workforce training

Vision
New Mexico State University will strategically leverage expertise within the Southwest Technology Development Institute, the College of Engineering and the university community to lead a collaborative, statewide, effort to become the leader in Renewable Energy Technology and the Integration of Renewables.

Strategies
- Collaborative research: science, engineering and public policy.
- Transformative research: demonstration and commercialization (in collaboration with NMSU’s Arrowhead Center)
- Outreach: adoption and economic development (through the Engineering New Mexico Resource Network)
- Educational opportunity: recruitment and retention through on-campus employment and Bachelor of Science Electrical Engineering through Ph.D. education in renewables and energy systems

Anticipated Impact
- Help at-risk students succeed via on-campus employment
- Develop workforce for renewable energy jobs
- Increase collaborative research statewide by providing a test bed for demonstration
- Assist with testing of new technology for commercialization and economic development
- Industry collaboration to identify, validate and implement technology in utility systems

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There continues to be a critical need to modernize New Mexico’s electric grid toward better cost-effectiveness, reliability and resiliency through effective integration of renewables (solar photovoltaics and thermal systems), microgrids and smart-grid concepts. The proposed RPSP will leverage the international reputation of NMSU’s Southwest Technology Development Institute (SWTDI) to position New Mexico as a leader in microgrids and renewable energy by driving basic research toward demonstration and deployment, and advanced workforce training. SWTDI has an international reputation as an independent testing and demonstration laboratory for renewable energy technologies as well as development of national codes and standards for solar power generation and safety.

Economical and reliable electricity supply has never been as critical to quality of life and economic development as it is today. New Mexico, with abundant renewable resources, can and should be a leader in developing and manufacturing distributed renewable energy and related technologies and integrating them into electric supply. At this time, however, there is limited R&D and manufacturing in New Mexico. Additionally, the electric energy system is facing serious issues with integration of renewables because of potential decrease in energy sales without concomitant reduction in peak capacity requirements. There is a critical need to enable effective integration of renewable sources by bridging research, development and public policy.

NMSU will strategically leverage expertise within SWTDI and the College of Engineering to lead a statewide effort in this critical area through strategic partnerships with existing teaching and research units within the state’s universities, the Engineering New Mexico Research Network and NMSU’s Arrowhead center. This project will emphasize fundamental research, foster technology development and commercialization, facilitate adoption and implementation by utilities, engage in policy analysis, and provide relevant BS through Ph.D. education and outreach to complement state investment in community college programs.

This effort will closely coordinate with national laboratories, public utilities and related industry, and collaborate with community colleges and regulatory agencies to bridge the transition between technology innovation, economic development and workforce development. The project will emphasize at-risk student involvement in projects to provide financial and mentor support, factors known to improve retention. These efforts align with academics and graduation, economic development and community engagement, and research and creative activity goals of NMSU’s strategic plan.

First-year goals are to align and leverage synergies across NMSU and other institutions and develop a collaborative strategic plan to advance effective technology development and integration of renewable energy. Areas of interest include solar, wind and hydroelectric generation, technology for interconnecting these into the grid, the role of microgrids in the integration process, management of renewable-rich grids through the energy delivery approach, public policy issues, and advancing deployment through testing and demonstration. Long-term goals of the proposed RPSP are to a) integrate SWTDI activities with NMSU’s workforce development (teaching and research), outreach (Engineering New Mexico) and economic development (Arrowhead); b) support basic research efforts and move toward development and demonstration; and c) develop partnerships with utilities, national laboratories, government entities and other stakeholders for demonstration and implementation, thus contributing to economic development based in renewable energy.

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