ASTA

Arkansas Science & Technology Authority

ANNUAL REPORT 2013

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Letter from the Chairman and President

Dear Governor Beebe & Distinguished Legislators:

The Board of Directors and staff are pleased to submit to you the Arkansas Science & Technology Authority's 2013 Annual Report. This report is a summary of the projects by which ASTA carries out its mission to advance the talent and innovation necessary for Arkansas to prosper.

In Fiscal Year 2013, ASTA invested $1,000,000 in the Arkansas Research Alliance, an organization that seeks to boost economic growth and high-tech job creation by bringing talented researchers to our state, individuals who have proven track records of creating successful high-tech companies.

Through the ASSET Initiative project funded by the National Science Foundation, ASTA supported research in three key areas with major economic development potential. The GREEN Center is creating high-efficiency, low cost solar cells. The VICTER Center is developing the infrastructure for solar electric power to interface with the national energy grid, and the P3 Center is focusing on the development of plant-based technology that will answer the global challenges of energy, human health, food security, and climate change.

ASTA invested in high-tech start-ups as well as established firms seeking to commercialize unique products and services. Over the last year, clients introduced innovations that ranged from development of power-saving chip design for mobile devices to technology allowing parents to view and interact with their newborn in NICU from hundreds of miles away via the internet. In addition, ASTA awarded Technology Transfer Assistance Grants (TTAG) to technology firms that won millions in federal small business innovation research awards and to manufacturers seeking assistance from third party providers to implement technology improvements in their organizations.

During Fiscal Year 2013, AMS provided consulting and training services to over 200 Arkansas manufacturing companies. Through this ASTA program, manufacturers around the state became more efficient and profitable utilizing AMS services like Lean, Toyota Kata and more.

Joining the Louis Stokes Alliance for Minority Participation, ASTA launched a new pilot program on campuses around the state designed to steer undergraduate women and underrepresented minorities toward careers in science, technology, engineering and mathematics (STEM). ASTA continued its ongoing commitment to the future of our state by supporting STEM Works, which aims to transform education by arming young Arkansans with the skills to succeed in the 21st century economy. As part of that effort, ASTA provided teachers with professional development workshops focused on STEM topics and youngsters with ASSET-driven, hands-on activities that introduced them to solar power and biotechnology.

Building on the foundation of these exciting developments, ASTA will continue advancing the talent and innovation necessary for Arkansas to prosper, thus securing our state's position as a relevant contributor to our nation and the world.

Blake Perry
Interim President

Glen Jones, Jr.
Chairman

About The Authority

The Arkansas Science & Technology Authority (ASTA) was created by statute in 1983. ASTA's mission is to advance the talent and innovation necessary for Arkansas to prosper.

With a vision to see Arkansas prepared to compete and prosper in the global economy, ASTA promotes scientific research, technology development, business innovation and math, science, and engineering education.

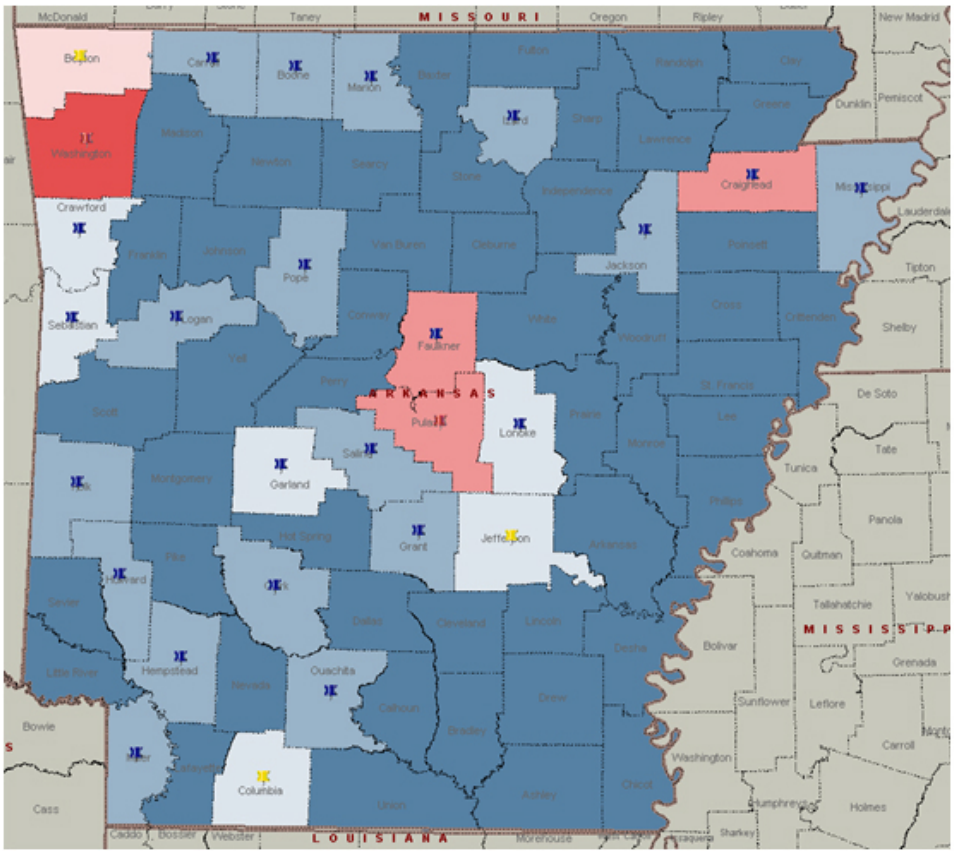
ASTA's staff is led by the president, the chief executive officer, who is responsible for the agency's programs, services and support functions. ASTA's activities are divided into four programmatic areas that include research and commercialization, industry, sponsored projects, and science, technology, engineering and mathematics (STEM) education. The Board determines the allocation of funds to all projects supported by ASTA. Three Board standing committees, comprised exclusively of members of the Board, make recommendations to the full Board. Advisory Committees, comprised of Board and non-Board members, offer additional input to ASTA.

ASTA operates in accordance with six values as the foundation for serving the state of Arkansas. ASTA continues to:

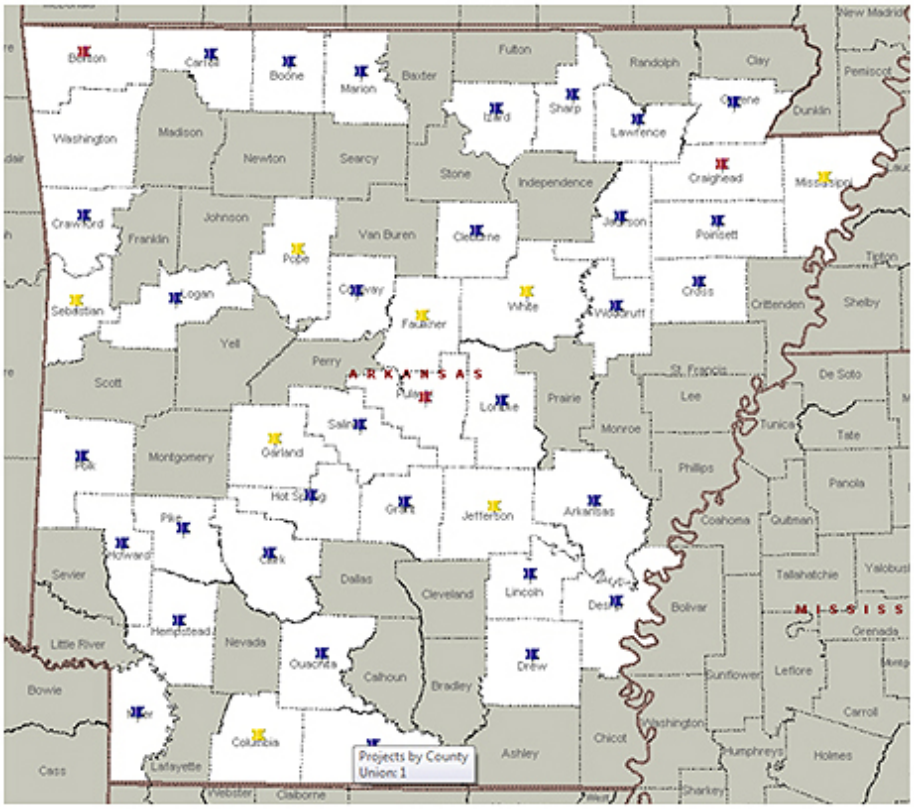
1. Be accountable to ASTA stakeholders.
2. Be honest and ethical.
3. Value and promote ASTA products and services.
4. Be creative and objective in order to improve the organization and staff.
5. Treat all with respect and dignity.
6. Value diversity among Authority staff and our customers.

Board Approved Investments- Fiscal Year 2013

In Fiscal Year 2013, ASTA's Board of Directors approved 118 projects in 28 counties totaling $8,504,231. This is illustrated in the maps below.



(Includes AMS & STEM Works)



AR Projects:	238
Other Projects:	4
Total Projects:	242

Projects by County

- No Activity
- Counties With Activity

- 11 to 50
- 5 to 10
- 1 to 4

Sponsored Projects

The ASSET Initiative is a multi-institutional, interdisciplinary, state-wide program. The current project, ASSET II, is designed to strengthen Arkansas research areas with potential for national significance and with major economic development potential.

GREEN CENTER

The "GREEN" in the Arkansas GREEN Solar Cells Research Center stands for Generating Renewable Energy with Efficient Nanoplasmonic Solar Cells. The GREEN Center is a virtual collaboration between researchers at the University of Arkansas at Fayetteville and the University of Arkansas at Little Rock with outreach partners at the University of Arkansas at Fort Smith, University of Arkansas at Pine Bluff, and Philander Smith College.

The staff of Picasolar is congratulated by Arkansas Governor Mike Beebe and state business leaders for winning the Graduate Division at the Donald W. Reynolds Governor's Cup.

Over the past year, GREEN labs have produced cutting-edge innovations that have increased efficiency of solar technology.

A new solar device using a nano-sized fishnet structure has been developed and is currently being tested by researchers in the Fischer Yu group. This mesh structure can increase light absorption and retention, characteristics that increase the ability of solar cells to capture and use rays of sunlight.

Researchers in Jingbiao Cui's lab have created a new nanowire solar cell that may produce higher energy efficiency than levels established in previous research. This is the first device based on nanowires and is a patent-pending

technology using copper indium gallium selenide (CIGS.)

Demonstrating the potential commercial impact of this center's solar technologies, University of Arkansas at Fayetteville students associated with GREEN have been competing in numerous business plan competitions. Picasolar's Matt Young and Seth Shumate accepted top honors at the 2013 Governor's Cup in the Graduate Track. Beyond the Governor's Cup success, the firm also won the MIT Clean Tech and DOE Clean Energy Competitions taking home business start-up funds just shy of $300,000. Young and Shumate are both graduate research participants in the GREEN Center.

VICTER CENTER

The VICTER Center is a virtual collaboration between researchers at the University of Arkansas at Fayetteville, Arkansas State University, University of Arkansas at Little Rock and the University of Arkansas at Pine Bluff.

In Fiscal Year 2013, the key to this center's success was powerful collaboration.

The team from EverClean Coating Solutions presents a company overview during the 2013 Cardinal Challenge.

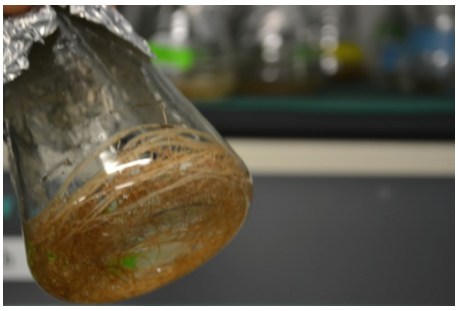
One key collaboration took place between teams led by Gregory Salamo and Alan Mantooth. Assisted by post doctoral researcher Vasyl Kunetz and graduate student Thomas White, these innovators discovered a way to measure electrical current in micro-level devices that are too small to record using traditional instruments. This new micro-hall sensor detects and measures the magnetism created when electrons move through a nano-sized device. These sensors will work in extremely high-temperature environments which is critically important when installing this type of equipment close to a power source.

In the labs of David Jeong at Arkansas State University and Roy McCann at the University of Arkansas at Fayetteville, two groups of talented researchers are producing a new molten salt flow battery for renewable energy storage. This next-level solution could provide an alternative to lithium ion batteries used in many consumer electronic devices; batteries that do not use materials that are in limited supply and highly flammable like lithium.

The VICTER Center has also fostered the potential for more immediate commercial applications. Min Zou and doctoral candidate Corey Thompson have discovered a way to make more uniform films that increase the efficiency of light passing through glass layers of solar cells by 8.7%. A provisional patent has been filed on this work. Thompson's company, EverClean Coating Solutions, a business start-up based on this technology, has won $19,500 in business competition awards including high honors at the Arkansas Governor's Cup.

P3 CENTER

In Fiscal Year 2013, researchers with the Arkansas Plant-Powered Production (P3) Center worked in tandem to create innovations that will fortify the strength and productivity of plants. Metabolic specialists began researching new ways to help plants protect themselves from harmful external threats.



Research in Dr. Medina-Bolivar's Lab is focused on boosting production of chemicals in plants.

The center brought together the top minds from Arkansas State University, University of Central Arkansas, University of Arkansas at Fayetteville, University of Arkansas at Little Rock, and University of Arkansas at Pine Bluff to access various areas of

expertise in increasing the productivity of plants.

P3 researcher, Stephen Grace and his students at University of Arkansas at Little Rock created an advanced computer program called Needle Analyzer. Using this innovative tool, the group was able to isolate findings from bioinformatics datasets which are enormous collections of genetic information. They then handed off the results to their P3 research teammates 200 miles to the northwest at the University of Arkansas at Fayetteville. There, team members under the direction of Julie Carrier conducted biomass reconstruction experiments that began validating key findings from Needle Analyzer. Arkansas State University in Jonesboro was the third group taking part in the research. In the lab of Fabricio Medina-Bolivar, researchers took the data and began employing metabolic engineering processes that will create larger quantities of "defense" compounds found in plant roots. Ultimately, the efforts of all three teams will culminate in healthier, longer lasting plants.

Researchers in Elizabeth Hood's lab enhanced the genetic structure of corn to create seeds that produce highly efficient digestive enzymes used in bio-fuel production. This will increase efficiency and cut cost of the production process. Hood has also developed a large scale testing platform to measure the effectiveness of gene changes in key enzymes that, once removed from the corn seed, maximize the production of bio-fuel. In addition, Hood is the CEO of Infinite Enzymes, a biotech company that specializes in producing low-cost, plant-based enzymes for changing biomass into biofuels.

Fabricio Medina-Bolivar's research group discovered a key step in controlling the production of important chemicals found in plants. Focused on chemicals important for dietary supplements, cosmetics, pharmaceuticals, and agrichemicals, this new innovative method frees up the tight control within plants that limit chemical production. As a result, Medina-Bolivar and his team were able to spike production in some plants as much as one hundred fold.

EDUCATION OUTREACH

During Fiscal Year 2013, the Arkansas Science & Technology Authority awarded $30,000 to fund the Biotechnology and Solar Power Teacher Professional Development Workshop at the Arkansas School for Mathematics, Sciences and the Arts in Hot Springs, Arkansas.

Arkansas teachers and researchers have produced 66 interactive, standards-based STEM education kits for K-12 classrooms. The kits come equipped with everything needed to teach project based, hands on content focused on renewable/alternative energy and DNA analysis. The *BioFuels-iN-a-Box, BioTech iN a Box, VICTER Power Box and SOLAR Box* kits were made available to teachers across the state to check out from any of our 13 regional STEM Centers and affiliates after completion of an ASSET Initiative approved teacher professional development workshop.

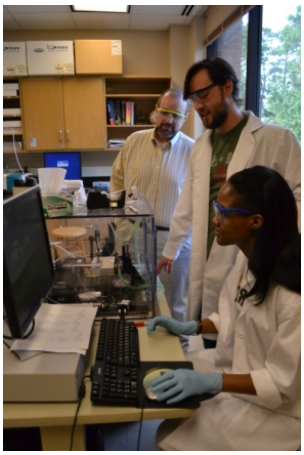
A future engineer builds her very first circuit board using a Power Box Kit.

The GREEN Mobile soaks up the sun on the campus of the University of Arkansas at Fayetteville.

ASTA also funded four teacher professional development workshops via the Arkansas STEM Center Network. This provided resources to network campuses including Harding University, Henderson State University, Southern Arkansas University and the University of Arkansas at Monticello.

Three Renewable Energy Labs were launched in Fiscal Year 2013 at Philander Smith College, the University of Arkansas at Fort Smith and the University of Arkansas at Pine Bluff. As a result of these efforts 54 students received training on Green Technology.

Arkansas is addressing targeted deficiencies pertaining to science education by linking STEM outreach efforts to each of the ASSET II research themes. Over 1,500 K-12 students have been impacted by these professional-grade, home-grown classroom kits. Of the students impacted to date approximately 35% were female and 15% were underrepresented minorities. Early exposure increases the likelihood students will pursue STEM careers, thus fortifying the state's workforce pipeline, strengthening economic development and improving scientific literacy.



UAPB Student Researcher Jason Montgomery works with UALR VICTER mentors during a 2013 summer internship.

As part of that ongoing process, ASTA authorized an upgrade to the GREEN Mobile valued at $26,701. The funds will be used to update the interior of the high-tech bus with eight new activities designed to engage upper elementary, middle and high school students with the science behind solar power.

The Arkansas Science & Technology Authority also launched a new pilot program designed to expand the participation of undergraduate women and underrepresented minorities in STEM. The goal of the program is to build bridges of collaboration between ASSET Initiative research sites and several additional Arkansas colleges and universities including Henderson State University, Pulaski Technical College, the University of Arkansas at Monticello, and the University of Arkansas for Medical Sciences.

ASTA also approved funding for the continuation of the Education Outreach Coordinator, STEM Internship Positions with the Winthrop Rockefeller Foundation, the EPSCoR Communications Internship, funding for an EPSCoR External Evaluator and support of the expanded e-Journal, which is part of the EPSCoR Science Information Group (ESIG).

STEM Works

STEM Works is an initiative of the Governor's Workforce Cabinet. As announced in August 2011, it aims to transform education by recognizing that future educational and workforce demands will be driven by the needs of the 21st century economy: employees that are highly skilled in science, technology, engineering, and mathematics. STEM Works has just two goals: (1) to have half of Arkansas's high schools implement a STEM Works model within 10 years and (2) to prepare 1,000 new, certified, secondary STEM teachers in 10 years.

To facilitate a statewide transformation, STEM Works subsidizes implementation for four nationally recognized science, technology, engineering and math education programs. New Tech Network, EAST® Core and Project Lead The Way, offer students in middle and high school hands-on, project- and problem-based learning that integrates Common Core curriculum and Next Generation Science Standards. The fourth model, UTeach, prepares college STEM majors to teach rigorous hands-on science, technology, engineering and math courses.

Funding for STEM Works comes from a variety of sources including: the Governor's General Improvement Fund, the Arkansas Science and Technology Authority, Department of Career Education – Project-based Learning Programs, Department of Education – Technology Grants and Smart Start, Department of Workforce Services-Training Trust Fund, EAST Initiative- EAST Core, U.S. Department of Education–Federal Charter Schools Program Grant, AT&T, Molex, the Winthrop Rockefeller Foundation, the Winthrop Rockefeller Institute, and the Michael and Susan Dell Foundation.

Since 2011, 43 high schools (14 percent of Arkansas public high schools) have implemented a STEM Works model and three UTeach STEM teacher preparation programs have enrolled more than 175 students.

STEM Works Models

New Tech Network (NTN) is a non-profit school development organization that collaborates nationwide with schools, districts and communities to develop innovative public high schools by fundamentally rethinking teaching and learning. NTN has 15 years of experience and more than 120 schools in 18 states nationwide.

Schools that partner with NTN experience a whole school or school-within-a-school transformation that includes robust professional development and coaching. Implementation funds provided by STEM Works are generally used to improve STEM instruction through professional development and coaching, facilities renovation, and leadership training.

All students enrolled in New Tech high schools engage in project based learning, use technology to foster collaboration and deeper learning across the curriculum, and work in teams to address real-world problems.

The growth of the New Tech Network in Arkansas is limited only by the availability of funding and lack of high speed internet connections for many schools. Thirteen schools have expressed interest in either joining the New Tech Network or expanding the New Tech model to lower grades for the 2014-15 academic year. Currently, there are 14 New Tech Network high schools in Arkansas.

EAST® Core was developed by the nationally known EAST Initiative and, like all STEM Works programs, helps produce college and career ready students with 21st-century skills. Schools that participate in EAST® Core transform their science and mathematics courses by integrating complimentary math and science topics.

All students in EAST® Core schools receive problem-based instruction that integrates the Common Core State Standards, Next Generation Science Standards, and established frameworks and learning outcomes. EAST® Core also provides tiered professional development for teachers with sequenced sessions, workshops, and training.

Over the next three years, EAST® Core will deploy three hands-on courses in three core academic disciplines: Biology & Geometry (2012-2013), Chemistry & Algebra II (2013-2014) Physics & Calculus (tentative 2014-2015).

The pace of scaling EAST® Core will be driven primarily by the availability of funding. For 2014-2015, the potential to scale up exponentially is anticipated. There are currently seven EAST® Core schools in Arkansas.

Project Lead The Way (PLTW) is a leading non-profit provider of rigorous and innovative Science, Technology, Engineering, and Mathematics (STEM) curricula for U.S. middle and high schools.

Project Lead The Way offers stand-alone, elective courses that emphasize the problem-solving and critical-thinking skills taught in traditional career and technical education (CTE) courses while integrating national learning standards and STEM principles. PLTW courses are particularly effective at engaging students of diverse backgrounds, helping them become college- and career-ready.

The three STEM courses offered by Project Lead The Way are *Gateway to Technology, Pathway to Engineering* and *Biomedical Sciences*.

The pace of scaling Project Lead The Way (PLTW) is limited only by the availability of funding. There are currently 20 high Schools offering PLTW courses in Arkansas.

Three Arkansas universities – the University of Arkansas, Fayetteville; the University of Arkansas at Little Rock; and the University of Central Arkansas – are replicating the acclaimed **UTeach** model developed by the University of Texas in Austin.

UTeach addresses the critical shortage of STEM teachers by recruiting undergraduate students from rigorous STEM disciplines and helping them master the skills needed to become effective secondary STEM teachers. UTeach graduates are well-prepared to facilitate inquiry-based learning and collaborative problem-solving in STEM classrooms. Ninety percent of UTeach graduates enter the teaching profession after graduation and about 80 percent are still teaching five years later.

STEM Works support covers, but is not limited to, student tuition, internships, student recruitment costs; mentor teacher stipends; course-related materials; and costs associated with master (math and science) teachers employed to teach undergraduate students.

The **Governor's Workforce Cabinet** is comprised of the Governor's Office, Arkansas Science & Technology Authority, Arkansas Department of Education, Department of Career Education, Department of Higher Education, Department of Workforce Services, Arkansas Economic Development Commission, and Arkansas Association of Two-Year Colleges.

Research & Commercialization

In Fiscal Year 2013, the Arkansas Science & Technology Authority continued to foster the growth of client companies through research and commercialization efforts.

ASTA invested one million dollars to support the Arkansas Research Alliance (ARA). With a goal to increase the number of competitive high-tech, high-paying, knowledge-based jobs for Arkansans, ARA recruits university scholars with a track record of incubating and commercializing businesses.

ASTA awarded Technology Transfer Assistance Grants to multiple companies (full list on pg .18). Clients like InvoTek used the funds to write grant proposals that translated into millions in federal funding for development and, ultimately, commercialization of cutting-edge products and services.

ARA Research Scholars Dr. Peter A. Crooks, Dr. Ranil Wickramasinghe, and Dr. Daohong Zhou continued their research as the basis for the creation of new companies that will boost the economy of Arkansas by creating high-tech, high-paying jobs.

A couple monitors their baby's progress utilizing the Angeleye Camera System that allows video and audio interaction.

Six companies received Research & Development Tax Credits in Fiscal Year 2013. Included in the list are Fayetteville-based firms Superior Industries, International, Nanowatt Design and Arkansas Power Electronics International, Incorporated. Bentonville's Merchant View, First Orion Corporation in Conway, and Little Rock-based Mesolight were also awarded R&D Tax Credits.

ASTA made two investments from the Technology Development Program into Synanomet and InvoTek.

ASTA also helped to grow companies by providing funds from the Seed Capital Investment Program. Black Oak Partners will use the investment to commercialize economical solutions for data collection and analysis. Seed Capital Investments also went to Certus Group and Unityware, two companies focused on marketing software solutions

to the health care industry. Fayetteville-based Ascendant Diagnostics and NanoWatt Design also received money from the Seed Capital Investment Program. Ascendant Diagnostics will use the investment to commercialize MelodyDx, a tear-based test for breast cancer, while NanoWatt Design will use the funds to market a computer chip design called Sleep Convention Logic. Clients AngelEye and Merchant View, two firms leveraging the power of remote monitoring technology, were also awarded Seed Capital investments.

NanoWatt Design CEO Ron Foster has created Sleep Convention Logic, a chip design that will extend battery life in laptops, smart phones and tablets.

Over the last year, funding for the Research Match Program enabled ASTA to support the Arkansas Space Grant Consortium, an organization that promotes involvement in NASA activities on campuses around the state. In addition, Research Match Program funding went to the Louis Stokes Alliance for Minority Participation. The program is designed to steer underrepresented minorities toward careers in science, technology, engineering, and mathematics (STEM) fields.

INDUSTRY

During Fiscal Year 2013, Arkansas Manufacturing Solutions (AMS) provided consulting and training services to over 200 Arkansas manufacturing companies and organized peer-to-peer events around the state on topics such as Innovation, Lean, Toyota Kata, Training Within Industry, ISO 9000 Quality Management System and Energy Efficiency. AMS awarded Technology Transfer Assistance Grants (TTAG) to manufacturing clients seeking assistance from third party providers to implement technology improvements in their organizations.

Brandon Brown demonstrates coaching techniques during the AMS Toyota Kata Summit.

In Fiscal Year 2013, AMS activities included 150 projects in 36 counties and served 209 manufacturing companies, earning $411,832 in revenue.

AMS hosted the first Toyota Kata Summit in Little Rock, bringing in manufacturers and state Manufacturing Extension Partnership (MEP) center leaders to train and learn about new cutting-edge coaching techniques. Author of *Toyota Kata: Managing People for Improvement, Adaptiveness and Superior Results*, Mike Rother, was on hand to lead the instruction and coach the philosophy of Kata. In Fiscal Year 2013 AMS went on to administer 13 Toyota Kata projects with 23 manufacturers bringing $112,360 in revenue.

Arkansas vendors make new OEM business contacts during the 2013 Arkansas Aerospace Summit.

AMS supported its partner organizations through various outreach efforts and events. AMS was an event sponsor and provided funding for the Arkansas Aerospace Summit, which was presented by the Arkansas Aerospace Alliance. This event fostered connections between Arkansas businesses and aerospace original equipment manufacturers (OEM). AMS helped promote the event to Arkansas manufacturers through e-blasts and personal contacts. AMS also measured the event's success by surveying the participants and interpreting the results to Arkansas Economic Development Commission (AEDC).

AMS has been involved in marketing through e-blast and personal contacts for the new Make it in America Campaign. MEP has partnered with the departments of Transportation, Energy, and Defense as well as the National Institute of Standards and Technology (NIST) to focus on finding business opportunities for small manufacturers by matching their capabilities with the supply chain needs of America's original equipment manufacturers.

AMS launched its first Manufacturing Day event by sponsoring the Museum of Discovery's How Things Are Made exhibit. For the opening of the exhibit, AMS hosted a reception for Arkansas manufacturing companies where Governor Mike Beebe spoke to attendees on the state of manufacturing and expressed his support for Manufacturing Day and the efforts to bring awareness to Arkansas manufacturers and the jobs they create.

Governor Mike Beebe and AMS Director Dan Curtis watch as a future engineer, with a little help from mom, gets hands-on manufacturing experience during the How Things Are Made exhibit at the Museum of Discovery.

Committee/Board Affiliations

Gubernatorial Appointments	Who Serves
Governor's Workforce Cabinet	Interim President
Southern Technology Council	Interim President
Arkansas Health Information Exchange Council	Interim President

Statutory Affiliations	Who Serves
Arkansas Capital Corporation	Interim President
Arkansas Tobacco Settlement Commission	Interim President
Arkansas Biosciences Institute	Interim President
Commission for the Coordination of Educational Efforts	Interim President
Arkansas Broadband Council	Interim President
Cyberinfrastructure Task Force	Interim President
Information Network of Arkansas	Vice President Informatics
Distance Learning Coordinating Council	Vice President Sponsored Projects
Arkansas School for Mathematics, Sciences and the Arts	Education Outreach Coordinator

Other Professional Affiliations	Who Serves
Connect Arkansas	Interim President
EAST Board	Interim President
Venture Capital Investment Trust	Interim President
EAST Advisory Committee	Vice President Sponsored Projects
Executive Committee, STEM Coalition	Vice President Sponsored Projects
College of Science and Mathematics Advisory Board, UALR	Vice President Sponsored Projects
Preparing For Tomorrow Curriculum Advisory Team	Vice President Sponsored Projects
Arkansas Space Grant Consortium	Interim President

BOARD OF DIRECTORS

Glen Jones, Jr., J.D. - Chair
President - Henderson State University
Term Expires: 2014

Cesar Compadre, Ph.D. - Vice Chair
Professor
College of Pharmacy
University of Arkansas for Medical Sciences
Term Expires: 2015

J. Michael Nauman - Secretary
President
Molex Global Integrated Products Division
Term Expires: 2016

Collis Geren Ph.D.
Retired
Term Expires: 2013

Paul Mastro
Authority Industry Committee Chairman
Vice President - Manufacturing and Engineering
George Fischer Sloane
Term Expires: 2014

Gary Campbell
Authority Research & Commercialization Chairman
Retired - IBM Corporation
Former City Director/Vice Mayor, Fort Smith
Term Expires: 2013

Joel Harrison
Manager, Technical Services
URS Energy & Construction, Inc.
Term Expires: 2016

Shane Broadway
Director
Arkansas Department of Higher Education - Little Rock
Term: Permanent

Robert W. Sproles, Ph.D.
Conestoga-Rovers & Associates (CRA)
Term Expires: 2015

Heartsill Ragon, III
Attorney
Gill Elrod Ragon Owen & Sherman, PA
Term Expires: 2015

George Williams
Director of Business Development
Intellimation Technologies
Term Expires: 2015

Carl Frederickson, Ph.D.
Authority Sponsored Projects Committee Chairman
Associate Professor
Associate Dean
College of Natural Science & Mathematics
University of Central Arkansas
Term Expires: 2014

Bradford Caldwell
CEO
Caldwell Media
Term Expires: 2016

Beverly Dawkins Lyn-Cook, Ph.D.
Senior Research Scientist
Division of Personalized Nutrition and Medicine
Branch: Pharmacogenomics and Molecular Epidemiology
National Center for Toxicological Research (NCTR)
Term Expires: 2013

ASTA's Board listens as Interim President Blake Perry gives a review of Authority activities.

STAFF

Blake Perry, Ph.D.
Interim President

Vacant
Executive Vice President

Steve Stanley, Ph.D.
Vice President Commercialization

James Downs
Vice President Informatics

Gail McClure, Ph.D.
Vice President Sponsored Projects

Dan Curtis
Vice President Industry

Tovia Chan
Operations Manager AMS

Charles Appleby
Manager of Client Services AMS
*Vacated position during fiscal year.

Chris Snider
Communications Manager

Chase Conyer
Information System Planner

Cathy Ma
EPSCoR Assistant Director

Cathleen Bailey
Fiscal Officer

Gregory Williams
Database Analyst

Stephanie Y. Johnson
Finance Program Manager

Melissa Adams
Executive Assistant to the President

Cathy Ma
EPSCoR Assistant Director

Marta Collier
Education Outreach Coordinator

Julianne Gonzalez
Project Analyst AMS

Shirley Vanderslice
Executive Secretary

Elza Albert
ASSET Accountant

Andy Hendricks
Research Program Manager

Andy Capel
Marketing Manager AMS

Vacant
Fiscal Support Specialist

Audrey M. Carroll
Accounting Supervisor

Rachel Lee
*Vacated position during fiscal year.

http://www.asta.arkansas.gov

AMS PROJECT MANAGERS

Loren Berry
Project Manager
University of Arkansas - Fayetteville
Engineering Research Center
*Vacated position during fiscal year.

Cecil Marion
Project Manager
Winrock International
*Vacated position during fiscal year.

Scotty McKnight, CIH, CSP, CHMM
Project Manager
University of Arkansas - Fayetteville
Engineering Research Center
*Vacated position during fiscal year

Sherry Smith
Project Manager
University of Arkansas at Little Rock
Reynolds Business Center
*Vacated position during fiscal year

Jim Lilly
Project Manager
University of Arkansas at Little Rock
Reynolds Business Center
*Vacated position during fiscal year.

Bill Kraus
Project Manager
Delta Center for Economic Development

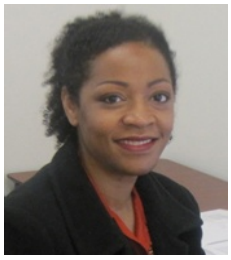
Brandon Brown
Business Development Specialist
University of Arkansas - Fayetteville
Engineering Research Center

Dan Mickelson
Project Manager
University of Arkansas at Little Rock

NEW FACES

Shirley Vanderslice

Andy Capel



Adrienne Gardner

Audrey M. Carroll

Dan Mickelson

In Fiscal Year 2013, the Authority completed 118 projects in 28 counties totaling $8,504,231 which includes the following:

Sponsored Projects

ASSET Initiative II

ASSET Initiative II is federally funded by the National Science Foundation's EPSCoR Program and managed at the state level by the Arkansas Science & Technology Authority. Leveraging funds from the Winthrop Rockefeller Foundation, the Authority coordinates the various programs available for Arkansas researchers, supports the activities of the Science Advisory Committee, and directly manages the state's National Science Foundation (NSF) EPSCoR Project.

Resolution Number	Resolution Date	Company/Organization	Project/Program	Total Approved Amount
13-13	11-12-12	ASMSA	Teacher Professional Development	$30,000
13-14	11-12-12	UCA	STEM Internship	$11,991
13-21	1-25-13	UCA	Communications Internship	$15,600
13-22	1-25-13	Minnick & Associates	EPSCoR/Ed Outreach Eval	$62,000
13-23	1-25-13	UAF/UCA/ASU/UALR/UAPB/ UAM/HSU	Summer Research Experience/Internship Prgm	$96,000
13-27	3-15-13	UAF/UCA/ASU/UALR/UAPB	P3/VICTER/GREEN Centers	$356,143
13-28	3-15-13	Mid-America Science Museum/UALR	GREEN Mobile	$26,701
13-36	5-17-12	UAF	E-Journal	$70,000

Research & Commercialization

Technology Transfer Assistance Program

The Technology Transfer Assistance Grant Program (TTAG) assists Arkansas enterprises in developing or improving products or processes through the transfer of technical solutions to technology-based, industry-driven problems, thus enhancing that enterprise's market competitiveness.

Resolution	Resolution Date	Company/Organization	Total Approved Amount
13-35	5-17-13	Annual Appropriation	$356,975

Research & Development Tax Credit Program

The R&D Tax Credit Program provides incentives for university-based and in-house research, as well as research and development in start-up, technology-based enterprises.

Resolution	Resolution Date	Company/Organization	Total Approved Amount
13-17	1-25-13	Arkansas Power Electronics, International, Inc.	$253,041
13-26	3-15-13	Merchant View	$288,777
		NanoWatt Design	$30,737
		First Orion Corporation	$231,843
		Superior Industries International, Inc.	$959,808
13-33	5-17-13	Mesolight	$97,377

Technology Development Program

The Technology Development Program (TDP) provides assistance in the development and commercialization of new technology-based products and processes through innovative technology development projects.

Resolution	Resolution Date	Company/Organization	Total Approved Amount
13-02	9-21-12	Arkansas BioSciences International, Inc.	$28,665
13-15	1-25-13	Synanomet	$25,000
13-30	5-17-13	InvoTek	$15,810

Seed Capital Investment Program

The Seed Capital Investment Program (SCIP) fosters the development of innovative technology-based businesses and projects that will stimulate economic growth and industrial competitiveness in Arkansas.

Resolution	Resolution Date	Company/Organization	Total Approved Amount
13-06	9-12-12	Black Oak Partners	$100,000
13-10	11-12-12	Certus Group	$50,000
13-11	11-12-12	Unityware	$42,347
13-24	3-15-13	Ascendant Diagnostics	$300,000
13-25	3-15-13	Nanowatt Design	$200,000
13-31	5-17-13	Angel Eye Camera Systems	$50,000
13-32	5-17-13	Merchant View	$82,959

The Research Match Program

The Research Match Program supports basic and strategic research by providing the state match for federal agency awards to Arkansas colleges and universities.

Resolution	Resolution Date	Company/Organization	Project/Program	Total Approved Amount
13-16	1-25-13	UALR	Arkansas Space Grant Consortium	$222,653
13-34	5-17-13	UAPB	Louis Stokes Alliance for Minority Participation	$70,000

The Arkansas Research Alliance

Arkansas research universities participate in identifying respected and esteemed candidates for the Arkansas Research Alliance Scholars program. Scholars are experts in their respective fields and are recognized as leaders with outstanding research credentials and entrepreneurial records. Scholars oversee research programs that will bring economic vitality to Arkansas through commercialization and business development.

Resolution	Resolution Date	Company/Organization	Total Approved Amount
13-12	11-12-12	Arkansas Research Alliance	$1,000,000

Industry

Resolution	Resolution Date	Company/Organization	Total Approved Amount
13-29	5-17-13	ASU, UAF, SAU Tech, AIPE, AEDC	$167,547

GENERAL REVENUE	BUDGET	ADJUST.	ACTUAL 1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
GENERAL OPERATIONS							
Regular Salaries	652,506	(46,000)	142,186	167,662	140,945	154,663	605,457
Extra Help	2,000	(1,500)	271	141			411
Maintenance and Operations	160,486	47,500	43,487	21,848	26,482	81,023	172,839
Fringe Benefits	203,826	(11,000)	46,347	51,915	44,170	49,062	191,493
Conference Fees and Training	16,788	11,000	9,499	1,765	0	16,524	27,788
Professional Fees	16,800		4,343	3,835	1,818	2,575	12,572
Technology Development	156,975		47,415	41,250	27,500	40,810	156,975
Research Matching	292,653		0	0	222,653	70,000	292,653
Seed Capital Investments	292,653		35,000	192,347	65,306	0	292,653
TOTAL	1,794,687		328,548	480,762	528,874	414,657	**1,752,841**
AMS SUPPORT	257,182		0	3,750	145,078	108,354	257,182
TOTAL	257,182		0	3,750	145,078	108,354	**257,182**

CASH	BUDGET	ACTUAL				
SEED CAPITAL FUND	1,900,000	0	0	0	0	0
TOTAL	**1,900,000**	0	0	0	0	**0**
AMS CASH FUND						
Regular Salaries	152,414	35,634	40,185	34,813	40,022	150,655
Maintenance and Operations	94,457	18,154	27,922	17,963	6,713	70,753
Fringe Benefits	47,404	11,310	12,307	11,199	12,271	47,087
Grants	381,552	54,037	68,338	19,945	83,355	225,675
Conference Fees and Training	31,860	316	0	2,759	4,511	7,587
Professional Fees	75,000	17,000	0	0	0	17,000
Field Services	391,708	1,269	0	0	132,258	133,527
TOTAL	1,174,395	137,722	148,752	86,678	279,131	**652,284**

FEDERAL GRANTS	BUDGET	ACTUAL				
AMS – NIST - MEP						
Maintenance and Operations	100,000	5,455	11,829	23,693	41,376	82,352
Field Services	841,110	342,772	305,758	118,502	74,079	841,110
TOTAL	941,110	348,226	317,587	142,194	115,455	**923,462**
ASSET II – NSF EPSCOR						
Regular Salaries	197,718	46,089	53,071	45,489	59,110	203,759
Maintenance and Operations	497,664	44,223	49,360	18,475	14,816	126,873
Fringe Benefits	57,320	13,597	15,126	13,555	16,449	58,727
Conference Fees and Training	81,000	24,741	7,551	6,717	5,643	44,651
Professional Fees	224,400	46,653	28,251	18,603	0	93,507
Grants	10,408,584	751,525	1,050,941	524,619	832,278	3,159,363
Grants Match	618,601	285,631	161,267	65,566	339,848	852,312
TOTAL	12,085,287	1,212,458	1,365,567	693,023	1,268,144	**4,539,192**

GENERAL IMPROVEMENT FUNDS	BUDGET	ACTUAL				
AR Research Alliance *	2,165,999	499,334	1,000,000	666,665	0	2,165,999
UAMS	214,637	0	0	0	0	216,327
Seed Capital Investment	642,653	0	0	9,694	432,959	442,653
TOTAL	3,023,289	499,334	1,000,000	676,359	649,286	**2,175,693**

MISC GRANTS	BUDGET					
STEM Works	96,584	0	1,585	19,011	22,178	42,774
W Rockefeller Foundation STEM Grant	14,097	0	11,991	0	0	11,991
AEDC Energy Efficiency -- AMS	185,000	23,157	42,953	13,567	45,273	124,949
TOTAL	295,681	23,157	56,529	32,578	67,451	**179,714**

* $1,165,999 approved for release in prior fiscal years.

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Technology Transfer Assistance Grants

ID Number	Company	State Match Amount	Total Project Amount
13-TTAG-004	Mundo-Tech, Inc.	$3750	$5,000
13-TTAG-005	AirReady MRO Services, Inc.	$3750	$5,000
13-TTAG-006	SFC Fluidics	$3750	$5,000
13-TTAG-007	Ready Flow, Inc.	$3750	$5,000
13-TTAG-008	Sage V Foods, LLC	$3750	$5,000
13-TTAG-009	Agri Wind Turbines, LLC	$3750	$5,000
13-TTAG-010	Poly Adaptive, LLC	$3750	$5,000
13-TTAG-011	HITCO - Carbon Composites	$3750	$5,000
13-TTAG-012	BioDetection Instruments, LLC	$3750	$5,000
13-TTAG-013	Synanomet, LLC	$3750	$5,000
13-TTAG-014	Minotaur Technologies, LLC	$3750	$5,000
13-TTAG-016	Agri Wind Turbines, LLC a.k.a. AWT	$3750	$5,000
13-TTAG-017	Arkansas Steel Associates	$3750	$5,000
13-TTAG-018	Beckmann Volmer Wind Technology	$3750	$5,000
13-TTAG-020	AGL Corp	$3750	$5,000
13-TTAG-021	Beaver Pallet Company	$3750	$5,000
13-TTAG-022	Sunrise Arkansas Inc.	$3750	$5,000
13-TTAG-023	Galley Support Innovations	$3750	$5,000
13-TTAG-024	TiFiber, LLC	$3750	$5,000
13-TTAG-025	ITW Shippers Products	$3750	$5,000
13-TTAG-027	Silicon Solar Solutions	$3750	$5,000
13-TTAG-029	Arcelor Mittal	$3750	$5,000
13-TTAG-030	Fauxsee Innovations	$3750	$5,000
13-TTAG-031	Arkansas Power Electronics international, Inc.	$3750	$5,000
13-TTAG-033	BiologicsMD, Inc.	$3750	$5,000
13-TTAG-034	Bright Technology, LLC	$3750	$5,000
13-TTAG-035	Cooper Tire & Rubber	$3750	$5,000
13-TTAG-036	Everett Plating Inc.	$3750	$5,000
13-TTAG-038	Amfuel	$3750	$5,000
13-TTAG-039	Klipsch LLC	$3750	$5,000
13-TTAG-040	Nidec Motor Corp	$3750	$5,000
13-TTAG-042	BioDetection Instruments, LLC	$3750	$5,000
13-TTAG-043	Ascendant, LLC	$3750	$5,000
13-TTAG-044	Nutraceutical Innovations, LLC	$3750	$5,000
13-TTAG-045	TiFiber, LLC	$3750	$5,000
13-TTAG-047	Jevac Machine, Inc.	$3750	$5,000
13-TTAG-048	SFC Fluidics	$3750	$5,000
13-TTAG-049	Minotaur Technologies, LLC	$3750	$5,000
13-TTAG-050	NanoWatt Design, Inc.	$3750	$5,000
13-TTAG-051	Arkansas Power Electronics International, Inc.	$3750	$5,000
13-TTAG-052	Superior Industries	$3750	$5,000
13-TTAG-053	Ready Flow Inc.	$3750	$5,000
13-TTAG-054	Cooling and Applied Technology Inc. (C.A.T.)	$3750	$5,000
13-TTAG-055	Wabash Wood Products, Inc.	$3750	$5,000
13-TTAG-056	Sage V Foods, LLC	$3750	$5,000
13-TTAG-057	Cloyes Gear & Products, Inc.	$3750	$5,000
13-TTAG-058	InvoTek, Inc.	$3750	$5,000
13-TTAG-059	BiologicsMD, Inc.	$3750	$5,000
13-TTAG-060	Aquaculture-Fisheries Center, UAPB	$2,500	$2,500
13-TTAG-061	Aquaculture-Fisheries Center, UAPB	$2,500	$2,500
13-TTAG-063	Transit Protection Systems	$3750	$5,000
13-TTAG-064	Actronix, Inc.	$3750	$5,000
13-TTAG-065	Engineered Products Industries LLC (EPIC)	$3750	$5,000
13-TTAG-066	Superior Industries	$3750	$5,000
13-TTAG-067	Rockline Industries	$3750	$5,000

Technology Transfer Assistance Grants – Continued

ID Number	Company	State Match Amount	Total Project Amount
13-TTAG-068	InvoTek, Inc.	$3750	$5,000
13-TTAG-069	Central States Manufacturing, Inc.	$3750	$5,000
13-TTAG-070	Silicon Solar Solutions	$3750	$5,000
13-TTAG-072	Rockline Industries	$3750	$5,000
13-TTAG-074	Klipsch LLC	$3750	$5,000
13-TTAG-075	Everett Plating Incorporated	$3750	$5,000
13-TTAG-076	BlueInGreen	$3750	$5,000
13-TTAG-078	SFC Fluidics	$3750	$5,000
13-TTAG-079	Free Earth Resources	$3750	$5,000
13-TTAG-080	BioDetection Instruments, Inc.	$3750	$5,000
13-TTAG-081	Jevac Machine, Inc.	$3750	$5,000
13-TTAG-085	SPF America	$3750	$5,000
13-TTAG-088	NanoMech, Inc.	$3750	$5,000
13-TTAG-089	Minotaur Technologies	$3750	$5,000
13-TTAG-091	Space Photonics, Inc.	$3750	$5,000
TOTAL		**$260,000**	**$350,000**